



# Ecosystem Restoration Field Verification Standard

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## Acronyms

AFi: Accountability Framework initiative  
ANR: Assisted Natural Regeneration  
BBOP: Business and Biodiversity Offsets Programme  
CATIE: Tropical Agricultural Research and Higher Education Center  
FAO: Food and Agriculture Organization  
FPIC: Free, Prior and Informed Consent  
FRA: Forest Resources Assessment  
FLR: Forest Landscape Restoration  
FSC: Forest Stewardship Council  
GPFLR: Global Partnership on Forest and Landscape Restoration  
HCSA: High Carbon Stocks Approach  
HCV(s): High Conservation Value(s)  
ITTO: International Tropical Timber Organization  
NTFPs: Non-timber Forest Products  
PEFC: Programme for the Endorsement of Forest Certification  
PPE: Personal Protective Equipment  
RM: Restoration Manager  
ROAM: Restoration Opportunities Assessment Methodology  
RRI: Rights and Resources Initiative  
RSPO: Roundtable for Sustainable Palm Oil  
SAS: Sustainable Agriculture Standard  
SER: Society for Ecological Restoration  
SH&C: Smallholder and Community (projects)  
SMEs: Small and Medium Enterprises  
UNDRIP: United Nations Declaration on the Rights of Indigenous Peoples  
WHO: World Health Organization  
WRI: World Resources Initiative

## Glossary

**Affected stakeholders\*<sup>1</sup>:** Any person, group of persons or entity that is or is likely to be subject to the effects of the activities of a Management Unit. Examples include, but are not restricted to (for example in the case of downstream landowners), persons, groups of persons or entities located in the neighbourhood of the Management Unit. The following are examples of affected stakeholders:

- Local communities
- Indigenous peoples
- Workers
- Forest dwellers
- Neighbours
- Downstream landowners
- Local processors
- Local businesses
- Tenure and use rights holders, including landowners
- Organisations authorised or known to act on behalf of affected stakeholders, for example social and environmental NGOs, labour unions, etc.

**Agroforestry:** a dynamic, ecologically based, natural resource management system that, through the integration of trees on farms and in the agricultural landscape, diversifies and sustains production for increased social, economic and environmental benefits for land users at all levels (Source: FAO, <http://www.fao.org/forestry/agroforestry/80338/en/>)

**Alien species (exotic):** A species, sub-species or lower taxon, introduced outside its natural past or present distribution; includes any part, gametes, seeds, eggs, or propagules of such species that might survive and subsequently reproduce. (Source: Convention on Biological Diversity (CBD), Invasive Alien Species Programme. Glossary of Terms as provided on CBD website.)

**Assisted Natural Regeneration (ANR):** ANR is a simple, low-cost restoration method that can effectively enhance the productivity and ecosystem functions of deforested or degraded lands. The method aims to accelerate, rather than replace, natural successional processes by removing or reducing barriers to natural regeneration such as soil degradation, competition with weedy species, and recurring disturbances (for example fire, grazing and wood harvesting). (Source: FAO, <http://www.fao.org/forestry/anr/en/>)

**Culturally appropriate engagement\*:** Means/approaches for outreach to target groups that are in harmony with the customs, values, sensitivities, and ways of life of the target audience.

**Customary rights\*:** Rights which result from a long series of habitual or customary actions, constantly repeated, which have, by such repetition and by uninterrupted acquiescence, acquired the force of a law within a geographical or sociological unit.

**Ecological restoration:** The process of assisting the recovery of an ecosystem that has been degraded, damaged or destroyed. (Ecosystem restoration is sometimes used interchangeably 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.) (Source: International Principles and Standards for the Practice of Ecological Restoration. Second Edition: September 2019. Society for Ecological Restoration.)

**Fertiliser\*:** Mineral or organic substances, most commonly Nitrogen (N), Phosphate (P<sub>2</sub>O<sub>5</sub>) and Potassium (K<sub>2</sub>O), which are applied to soil for the purpose of enhancing plant growth.

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<sup>1</sup> All terms covered by the asterisk (\*) are sourced or adapted from the FSC Glossary of Terms (FSC-STD-01-002, updated 19 October 2017)

**Ecosystem restoration:** Ecosystem restoration means assisting in the recovery of ecosystems that have been degraded or destroyed, as well as conserving the ecosystems that are still intact. Healthier ecosystems, with richer biodiversity, yield greater benefits such as more fertile soils, bigger yields of timber and fish, and larger stores of greenhouse gases. Restoration can happen in many ways – for example through actively planting or by removing pressures so that nature can recover on its own. It is not always possible – or desirable – to return an ecosystem to its original state. We still need farmland and infrastructure on land that was once forest, for instance, and ecosystems, like societies, need to adapt to a changing climate<sup>2</sup>. (Source: UN Decade on Restoration, <https://www.decadeonrestoration.org/frequently-asked-questions>)

**Free, Prior and Informed Consent (FPIC):** A legal condition whereby a person or community can be said to have given consent to an action prior to its commencement, based upon a clear appreciation and understanding of the facts, implications and future consequences of that action, and the possession of all relevant facts at the time when consent is given. Free, prior and informed consent includes the right to grant, modify, withhold or withdraw approval. (Source: Based on the Preliminary working paper on the principle of Free, Prior and Informed Consent of Indigenous Peoples (...) (E/CN.4/Sub.2/AC.4/2004/4 8 July 2004) of the 22nd Session of the United Nations Commission on Human Rights, Sub-commission on the Promotion and Protection of Human Rights, Working Group on Indigenous Populations, 19–23 July 2004.)

**Invasive species:** Species that are rapidly expanding outside of their native range. Invasive species can alter ecological relationships among native species and can affect ecosystem function and human health. (Source: Based on World Conservation Union (IUCN). Glossary definitions as provided on IUCN website.)

**Indigenous Peoples:** People and groups of people that can be identified or characterised as follows:

- The key characteristic or criterion is self-identification as Indigenous Peoples at the individual level and acceptance by the community as their member
- Historical continuity with pre-colonial and/or pre-settler societies
- Strong link to territories and surrounding natural resources
- Distinct social, economic or political systems
- Distinct language, culture and beliefs
- Form non-dominant groups of society
- Resolve to maintain and reproduce their ancestral environments and systems as distinctive peoples and communities. (Source: Adapted from United Nations Permanent Forum on Indigenous Issues, Factsheet 'Who are Indigenous Peoples?' October 2007; United Nations Development Group, 'Guidelines on Indigenous Peoples' Issues' United Nations 2009, United Nations Declaration on the Rights of Indigenous Peoples, 13 September 2007.)

**Landscape:** A geographical mosaic composed of interacting ecosystems resulting from the influence of geological, topographical, soil, climatic, biotic and human interactions in a given area. (Source: Based on World Conservation Union (IUCN). Glossary definitions as provided on IUCN website.)

**Living wage:** The remuneration received for a standard workweek by a worker in a particular place sufficient to afford a decent standard of living for the worker and her or his family. Elements of a decent standard of living include food, water, housing, education, health care, transportation, clothing, and other essential needs including provision for unexpected events. (Source: Based on The Global Living Wage Coalition as provided on The GLWC website.)

<sup>2</sup> NB: as stated in the United Nations Decade on Ecosystem Restoration Strategy, the complexity of ecosystem restoration has prevented global organisations and governments reaching consensus on a definition of ecosystem restoration, what terminology to consistently use, and what scientific principles to adopt for restoring ecosystems effectively. This has prevented the global community mapping out a clear ecosystem restoration vision for the future, with detailed goals and targets for individual ecosystems. It has also prevented leaders working on different global challenges that would benefit substantially from large-scale ecosystem restoration initiatives (such as climate change, biodiversity, food security, water security, poverty and human health) speaking about the global ecosystem restoration opportunity in an integrated manner.

**Local communities\*:** Communities of any size that are in or adjacent to the Management Unit, and also those that are close enough to have a significant impact on the economy or the environmental values of the Management Unit or to have their economies, rights or environments significantly affected by the management activities or the biophysical aspects of the Management Unit.

**Native species:** Species, sub-species, or lower taxon, occurring within its natural range (past or present) and dispersal potential (that is, within the range it occupies naturally or could occupy without direct or indirect introduction or care by humans). (Source: Convention on Biological Diversity (CBD), Invasive Alien Species Programme. Glossary of Terms as provided on CBD website.)

**Natural forest\*:** A forest area with many of the principal characteristics and key elements of native ecosystems, such as complexity, structure and biological diversity, including soil characteristics, flora and fauna, in which all or almost all the trees are native species, not classified as plantations. 'Natural forest' includes the following categories:

- Forest affected by harvesting or other disturbances, in which trees are being or have been regenerated by a combination of natural and artificial regeneration with species typical of natural forests in that site, and where many of the above-ground and below-ground characteristics of the natural forest are still present. In boreal and north temperate forests which are naturally composed of only one or few tree species, a combination of natural and artificial regeneration to regenerate forest of the same native species, with most of the principal characteristics and key elements of native ecosystems of that site, is not by itself considered as conversion to plantations.
- Natural forests which are maintained by traditional silvicultural practices including natural or assisted natural regeneration.
- Well-developed secondary or colonising forest of native species which has regenerated in non-forest areas.
- The definition of 'natural forest' may include areas described as wooded ecosystems, woodland and savanna.

Natural forest does not include land that is not dominated by trees, was previously not forest, and that does not yet contain many of the characteristics and elements of native ecosystems. Young regeneration may be considered as natural forest.

**Non-timber forest products\* (NTFPs):** All forest products except timber, including other materials obtained from trees such as resins and leaves, as well as any other plant and animal products. Examples include, but are not limited to seeds, fruits, nuts, honey, palm trees, ornamental plants and other forest products originating from a forest matrix.

**Pesticide\*:** Any substance or preparation used to protect plants or wood or other plant products from pests; in controlling pests; or in rendering such pests harmless. This definition includes insecticides, rodenticides, acaricides, molluscicides, larvicides, fungicides and herbicides.

**Plantation\*:** A forest area established by planting or sowing using either alien or native species, often with one or few species, regular spacing and even ages, and which lacks most of the principal characteristics and key elements of natural forests.

**Rare species:** Species that are uncommon or scarce, but not classified as threatened. These species are located in geographically restricted areas or specific habitats or are scantily scattered on a large scale. They are approximately equivalent to the IUCN (2001) category of Near Threatened (NT), including species that are close to qualifying for, or are likely to qualify for, a threatened category in the near future. They are also approximately equivalent to imperilled species. (Source: Based on IUCN (2001). IUCN Red List Categories and Criteria: Version 3.1. IUCN Species Survival Commission. IUCN. Gland, Switzerland and Cambridge, UK.)

**Reference ecosystem:** a representation of a native ecosystem that is the target of ecological restoration (as distinct from a reference site). A reference ecosystem usually represents a non-degraded version of the ecosystem complete with its flora, fauna, and other biota, abiotic

elements, functions, processes, and successional states that might have existed on the restoration site had degradation not occurred and adjusted to accommodate changed or predicted environmental conditions. (Source: Based on the International Principles and Standards for the Practice of Ecological Restoration. Second Edition: September 2019. Society for Ecological Restoration.)

**Reforestation:** Re-establishment of forest through planting and/or deliberate seeding on land classified as forest. (Source: FAO, FRA 2020 Terms and definitions, <http://www.fao.org/forest-resources-assessment/en/>)

**Restoration Manager\*:** Person or organisation that has been given the responsibilities by land or forest owners for the management or utilisation of their land or forest resources, including operational planning and restoration projects.

**Rewilding:** comprehensive, often large-scale, conservation effort focused on restoring sustainable biodiversity and ecosystem health by protecting core wild/wilderness areas, providing connectivity between such areas, and protecting or reintroducing apex predators and highly interactive species (keystone species). (Source: [rewilding.org](http://rewilding.org).)

**Rights holders:** Any person, group of persons or entity (typically Indigenous Peoples or other local communities) who holds customary or legal use rights, in accordance with UNDRIP and national laws or traditions.

**Smallholder and Community Projects:** This term covers both the Small Size Projects (under 100 ha) and the Projects managed at communal level by Indigenous or Traditional peoples.

**Successional forests:** Forests in the process of regenerating towards a more mature state, including early, mid or late successional states.

**Threatened species:** Species that meet the IUCN (2001) criteria for Vulnerable (VU), Endangered (EN) or Critically Endangered (CR), and are facing a high, very high or extremely high risk of extinction in the wild. (Source: Based on IUCN. (2001). IUCN Red List Categories and Criteria: Version 3.1. IUCN Species Survival Commission. IUCN. Gland, Switzerland and Cambridge, UK.)

**Traditional peoples:** Traditional peoples are social groups or peoples who do not self-identify as Indigenous and who affirm rights to their lands, forests and other resources based on long-established custom or traditional occupation and use. (Source: Forest Peoples Programme, Marcus Colchester, 7 October 2009.)

**Traditional Knowledge:** Information, know-how, skills and practices that are developed, sustained and passed on from generation to generation within a community, often forming part of its cultural or spiritual identity (Source: Based on the definition by the World Intellectual Property Organization (WIPO). Glossary definition as provided under Policy / Traditional Knowledge on the WIPO website.)

**Validation:** In the case of a restoration project for which management activities have only recently started and conformance compliance with this Standard cannot yet be fully demonstrated, confirmation by a validation/verification body through evaluation that the project complies with all other applicable requirements of this Standard and has a credible plan that is likely to lead to verification in the next evaluation (Source: Adapted from Glossary: CDM Terms, Version 09.1. Clean Development Mechanism; [https://cdm.unfccc.int/Reference/Guidclarif/glos\\_CDM.pdf](https://cdm.unfccc.int/Reference/Guidclarif/glos_CDM.pdf))

**Verification:** The evaluation and ex-post determination by a validation/verification body that the project is in compliance with this Standard (Source: Adapted from Glossary: CDM Terms, Version 09.1. Clean Development Mechanism; [https://cdm.unfccc.int/Reference/Guidclarif/glos\\_CDM.pdf](https://cdm.unfccc.int/Reference/Guidclarif/glos_CDM.pdf))

**Workers:** All employed persons including public employees as well as 'self-employed' persons. This includes part-time and seasonal employees, of all ranks and categories, including labourers, administrators, supervisors, executives, contractor employees as well as self-employed contractors and sub-contractors. (Source: ILO Convention C155 Occupational Safety and Health Convention, 1981.)



## A) Introduction

The focus of this Standard is performance assessment of ecosystem restoration at the field level. Numerous frameworks or foundational documents lay out the key aspects, principles or elements of restoration (see Annex I), whether driven by ecological, economic or social concerns. This document provides a Standard for field verification of performance in implementing ecosystem restoration – where the restoration is technically, environmentally, socially and economically appropriate and applicable in tropical, temperate and boreal biomes.

Ecosystem restoration may include use of techniques such as management of natural forest succession, agroforestry, tree planting through reforestation, rewilding... Priority is placed on use of native species, but also allowing the use of alien species where such species provide “nursing” or similar qualities, leading towards the re-establishment of natural forest cover or ecosystem function.

## B) Intent in terms of scale and application of the Standard

This Standard was designed to audit performance at any scale (small to large) and any time point in an ongoing restoration process or project (i.e. implementation of restoration interventions has started). Small projects are considered those restoring fewer than 100 ha (either a single property or multiple properties in a group), large are defined as being greater than 10,000 ha, and medium are the projects in between<sup>3</sup>. Projects managed by Communities<sup>4</sup> are also grouped with small projects and together referred to as Smallholder and Community projects (SH&C). The Standard can be used for first-party, second-party or third-party evaluations or audits of performance.

- **First-party evaluations** are carried out by restoration project implementers or managers themselves (for example staff who are directly implementing actual restoration activities).
- **Second-party evaluations** are done by advisors, auditors, consultants, contractors, buyers, forestry associations, etc. who are a step away from actual implementation and are focused on providing a performance review. Normally, second-party evaluators also provide recommendations for implementation improvement.
- **Third-party evaluations** are performed by auditors who are independent, meaning they are not directly involved in implementing restoration; and nor do they provide recommendations or technical guidance for restoration implementation. Third-party auditors typically must ensure that they are free from conflict of interest – i.e. they have no direct financial or other economic interest in the restoration effort they are auditing. Although third-party auditors are expected to be open to the concerns or observations of other stakeholders, they are expected to make independent decisions based on the evidence observed or provided (documents, field observations, stakeholder comments in writing or in person, etc.). Third-party auditing is a common characteristic of stewardship certification programs such as the Forest Stewardship Council (FSC®), the Programme for the Endorsement of Forest Certification (PEFC), the Roundtable for Sustainable Palm Oil (RSPO), the Rainforest Alliance Sustainable Agriculture Standard (SAS), etc.<sup>5</sup>

<sup>3</sup> The hectare thresholds for large and smaller operations may be adjusted based on geography or corresponding size limits/requirements in certification systems or other accountability tools which may be used in parallel with this verification tool.

<sup>4</sup> There is scientific evidence connecting more effective forest stewardship with Indigenous/Traditional Peoples and local communities, usually attributed to their active participation in forest governance, their direct benefits from forest products, and their desire to maintain the resource for future generations.

<sup>5</sup> This Standard was originally drafted with no formal connection to a certification program. Version 0.3 was reviewed internally by Preferred by Nature staff and advisors, plus approximately 45 confidential technical reviewers and restoration practitioners

## C) Use of ‘Core’ and ‘Continuous Improvement’ Indicators

The proposed approach creates a series of “core” and “continuous improvement” indicators.

- **Core** means those which shall be assessed/verified in every situation, with positive performance at the field level considered crucial/required in all cases.
- **Continuous improvement** means partial success in implementation is acceptable, if credible field level progress is evident.

This approach builds on the implementation of several other approaches to verification, including third-party certification. For example, the Sustainable Agriculture Standard (SAS) of the Rainforest Alliance program for certifying sustainable agriculture has used, for many years, core criteria (and related indicators under each criterion) as an approach. The FSC “New Approaches” effort, based on FSC experience over the past 25+ years, is currently exploring doing the same – through a Working Group of which Preferred by Nature is a member. Such approaches are driven by a desire for more efficient/effective auditing “outcomes or results” (i.e. to avoid the phenomenon of “audit fatigue” wherein farm and forestry operations are subject to multiple auditing systems); or to focus the resources and thus be more inclusive as to who can benefit from certification.

Although sometimes seeking such efficiency might be considered as a desire for more ‘streamlined’ approaches, the challenge is to ensure that ‘streamlining’ is not accomplished at the cost of rigour. In the approach proposed here we have not included principles or criteria; but instead have moved straight to identifying auditable indicators under various subject areas. We have based that and the present designation of “core” and “continuous improvement” indicators on our over 25 years of international auditing experience as well as on the comments provided by other experts and practitioners around the globe. The key factors for this include scale, intensity, and risk. We suggest here it is possible to reduce reliance on issues which have proven to be non-critical – and enhance the attention (time and effort by auditors, field managers and stakeholders) spent on issues that we believe are critical. Within the Standard, unless an indicator is specifically defined as ‘continuous improvement’, it is considered ‘core’.

During future processes of interacting with various stakeholders and through field testing, we will be re-examining the ‘indicators only’ approach, as well as the content of the indicators, and the proposed core versus continuous improvement status for each indicator.

## D) Cautionary Notes

- 1) This verification Standard is not a planning nor design guide for the implementation of forest or landscape or ecosystem restoration efforts. Multiple other documents either already do or plan to provide that, with these produced by organisations such as the World Resources Institute (WRI), the International Tropical Timber Organization (ITTO), the Food and Agriculture Organization of the United Nations (FAO), and the Society for Ecological Restoration (SER).

This Standard is not a restoration design document. It is an attempt to provide a consistent, rigorous and efficient approach for assessing and monitoring the environmental, social, economic and technical performance of ongoing ecosystem restoration field efforts at all scales, and thus be able to demonstrate performance and adaptive management.

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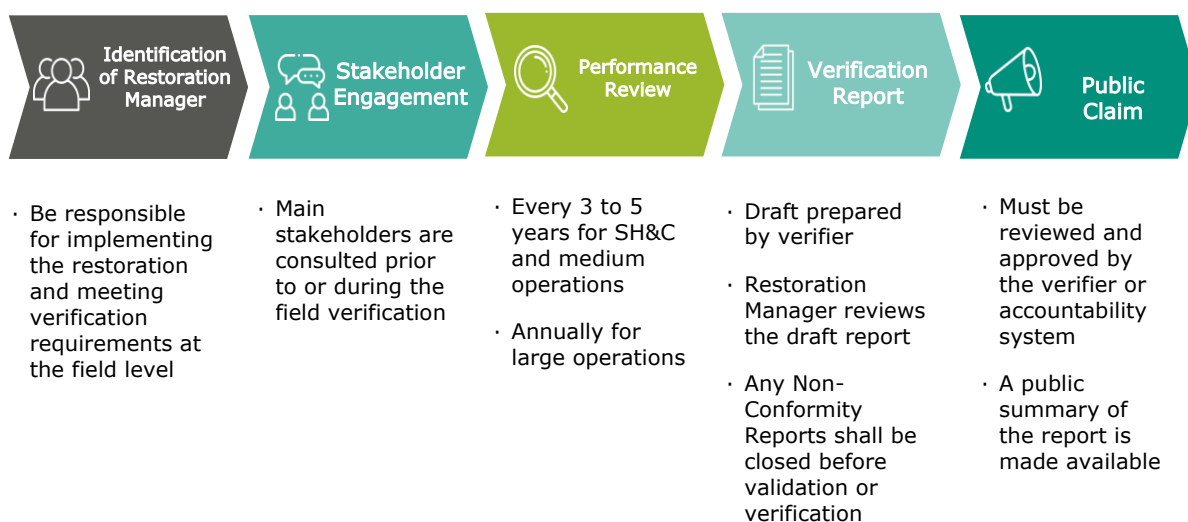
globally, and comments from those reviews used to enhance the Standard to Version 1 (V1.0). This version was then sent to public consultation, subjected to seven field tests plus a targeted experts workshop, leading to the current version.

- 2) We consider that protecting and responsibly managing existing ecosystems should always be the first option – before undertaking further restoration. Also, this verification approach does not attempt to assess the sufficiency of mitigation, remediation or compensation efforts as remedy for past unacceptable actions or practices; for example, large-scale forest conversion to non-forest land use, or abuse of social or Indigenous rights. These subjects are being addressed and negotiated in numerous forums and certification systems, including the Accountability Framework initiative (AFi), FSC, Rainforest Alliance SAS, and RSPO. There are also existing examples through wetland, ecosystem, or social remediation as implemented by international multilateral organisations (for example World Bank or International Finance Corporation); national or sub-national governments in the USA, Australia and other countries; or mining or infrastructure development companies. In 2018–2019 the NGO-led AFi – for which Rainforest Alliance and the Meridian Institute provide the Secretariat – has begun to address the challenges of remediation and compensation, as previously has the Business and Biodiversity Offsets Programme (BBOP) of Forest Trends. The Standard can nevertheless be used in those frameworks to verify the quality of the restoration after a procedure has been agreed in other multistakeholder frameworks.

## E) Proposed Verification Approach

The following verification approach recognises the evolving nature of restoration and related due diligence efforts around the globe, and the fast-paced development of information technology or remote sensing that can be used to assess such efforts.

### Proposed Verification Approach



In every case, a specific Restoration Manager (RM) shall be identified. Although there may be other organisations or individuals who have a partial responsibility in terms of implementing restoration, auditing experience indicates that it is crucial to be clear on the individual (typically in a specified organisation) who has lead responsibility. As such, there shall always be an individual named as the RM, more often than not associated with a particular organisation.

Engaging with stakeholders provides a unique opportunity to get specific input, but also ensure that any initiative keeps expanding its impacts as the community that learns and benefit from it matures and expand.

In terms of the timing of performance evaluations (or audits), experience indicates that performance review should occur at least every three to five years for SH&C and medium projects, and annually for large projects. Standard operating procedures for all scales would likely have internal first-party, or second-party, audits or progress reviews on an annual basis, preferably with some public reporting on achievements (likely required in multiple accountability systems or by some investors).

This verification approach places emphasis on field performance versus documentation.

- For larger-scale efforts, more documentation is expected and would be used to address some verification requirements.
- For smaller-scale efforts, less documentation may be required.

For smaller-scale efforts it is expected that the verification report (i.e. verifiers) will document, in writing, key information that is required and that will become part of the due diligence record for determining conformance to the Standard. As designed, the verifier would always be expected to provide an opportunity for the RM to review a draft verification report, correct factual errors and provide feedback on verification results before finalisation. This approach is intended to “lighten the documentation load” – in particular for smaller-scale restoration projects.

This verification approach does not presuppose that one technical restoration intervention is the best for obtaining results. As has happened through certified forest practices in the FSC and other systems, multiple interventions are not constrained if they result in responsible management derived from a range of technical, social, economic and environmental practices. So, in practice, the intention is that the same would hold true in this case for restoration approaches. Alternatives may range from tree plantations to agroforestry to natural forest management to enrichment planting. In some cases, a combination of techniques may be appropriate.

It should also be noted that “just letting ecosystems regenerate” through conservation or eliminating the drivers for degradation is “management” and an explicit, very workable (perhaps even the cheapest) alternative, depending on location and other factors (availability of wildlife seed distributors or pollinators, closeness to remnant natural forests as seed sources, degree of soil and water availability disturbance, etc.), and the combination of timber and non-timber values that may be present. As research at CATIE, the FLORES, the PARTNERS<sup>6</sup>, and other organisations or research groups have demonstrated, the economic and environmental values of successional natural forest have all too often been undervalued (see references). Thus, this Standard is meant to respond to any viable restoration technique, from tree planting to natural regeneration.

This approach does recognise that it is critical to consider economic and social factors beyond the original or reference ecosystems. Successful “ecological” restoration cannot ignore economic and social factors or community needs. This may lead to blended approaches that initially – or even later in the restoration cycle – include actions to produce products or ecosystem services of value to communities or companies. Typically, such economic and social outputs ensure the longevity of the restoration intervention. However, as articulated in the checklist, pure plantations of alien species (or “off-site” species that may be native to a country but not the geographical location where they are being planted) are not considered acceptable as a final target ecosystem in this verification approach.

In the case of a proposed restoration for which management activities have only recently started and can be only partially demonstrated, confirmation that the organisation complies with all applicable requirements of this procedure and has a credible plan that is likely to lead to successful verification is an option, referred to here as validation. Validation of the restoration design (per what has happened in some accountability systems) may be an appropriate step, particularly for large projects to get up to speed or for any project to secure or attract finance. To be validated, the project shall provide a plan that complies with all applicable requirements in sections 1

<sup>6</sup> <https://partners-rcn.org/publications/>



(Planning) and 2 (Tenure, Rights, and Security), with credible performance indicators, and evidence provided depending on the size. as described in indicator 1.6.7.

Any Non-Conformity Reports (including Corrective Actions) shall be closed before validation or verification (and public claims) are achieved. "Observations" might also be noted and can be maintained as areas of focus for the organisation and the subsequent audits or progress reviews.

All public claims would normally have to be reviewed and approved by the verifier or accountability system.

A public summary of the projects that have been verified will be posted in Preferred by Nature website so that the broader stakeholder community can keep engaging and providing feedback as the projects evolve.

## F) Verification Checklist

### 1 Planning

- 1.1 **Restoration Manager** – Restoration Manager (RM) (or, where applicable, organisation) is identified.
- 1.2 **The management system** for the restoration initiative is based on best practices for benefit sharing, is transparent, non-discriminatory, accountable, responsive to participants, and effective.
- 1.3 **Geographical location** - Identification of the geographical location of the restoration effort, including jurisdiction (country, sub-national jurisdiction, local jurisdiction, legal address) and the specific restoration sites with specific boundaries clearly identified in both hard copy map form and digital shapefiles. (**Digital shapefiles are Continuous Improvement for SH&C and medium projects**)
- 1.4 **Landscape context** - RM shall undertake an analysis of the landscape in which restoration is occurring, using local information and relevant applicable approaches such as ROAM, HCV and HCSA, to identify:
  - 1.4.1 Prior and current conditions and land use of the larger ecosystem of which the restoration area may be a part, including:
    - a. Environmental conditions, for example relating to water and soil (properties and condition), diversity of natural ecosystems (for example grasslands or wetlands), species (presence of rare or threatened species or their habitats, and other important biological communities), remnants of native vegetation, prior impacts, etc.
    - b. Social conditions, for example tenure characteristics (see Section 2: Tenure, Rights, and Security), community watershed areas, cultural heritage sites, policy and governance practices, engagement etc.
    - c. Socio-economic conditions, for example prior land use, prior conservation or restoration efforts in the area, income level and other socio-economic parameters or needs.
    - d. The relative state of the ecosystem and ecosystem recovery to be used to identify least cost, most effective restoration approach.
  - 1.4.2 **Threats and degradation drivers** that destroyed the ecosystem or created a degraded ecosystem to begin with, and may be a factor in the future (for example: invasive species, fire, encroachment, land-use change...).
  - 1.4.3 Significant physical or ecological **functional relationships** to either adjacent or nearby<sup>7</sup> protected areas (for example biological corridors, watersheds, fire considerations).
  - 1.4.4 For adjacent and/or nearby<sup>8</sup> Indigenous and Traditional Peoples : **rights or critical resources** (for example water supply areas, cultural heritage sites, Traditional Knowledge, etc.).
  - 1.4.5 Other critical environmental, social or community **resources** that require protection in or adjacent to the restoration area.

<sup>7</sup> Relative to the scale, intensity, and risk of the project

<sup>8</sup> Relative to the scale, intensity, and risk of the project

- 1.4.6 Suitable native **reference sites** to provide target values for establishing recovery metrics in restoration sites (for example, successional forests of known age for gauging time required to reach particular levels of vegetation structure and diversity within the study area).
- 1.4.7 Affected **stakeholders or rights holders** to be consulted during planning and implementation.
- 1.4.8 **Traditional Knowledge**, systems, and/or practises in restoration for potential inclusion during planning and implementation.
- 1.5 **Stakeholder engagement:**
  - 1.5.1 RM shall use culturally appropriate engagement taking into consideration the social and economic dynamics (including gender, age, and other power dynamics) to ensure that affected stakeholders are transparently consulted and engaged in the restoration planning and monitoring and aware of the expected actions and benefits.
  - 1.5.2 The relevant parts of the consultation process should be documented<sup>9</sup>, including all agreed commitments of resources, labour, and responsibilities for actions by all involved individuals and parties/organisations (**Continuous Improvement for SH&C**)
- 1.6 **Restoration Plan** shall:
  - 1.6.1 Align to effectively reverse the degradation condition and recognise, manage or restore characteristics and values identified through 1.4 above.
  - 1.6.2 Identify target using both the reference ecosystem and environmental, social and economic goals and objectives<sup>10</sup>, including desired restoration outcomes over an initial 5-year period and a longer term, 20-year period (description of intermediate and longer-term outcomes is welcomed, for example 50 years) (**Continuous Improvement for SH&C**)
  - 1.6.3 When applicable, describe the **plant selection** process so that:
    - a. Species, genotypes, and densities are well-matched to climate, soils and water availability, with clear consideration given to climate change resiliency, pests and other risks (e.g. local availability), and technically well-aligned with desired restoration target(s), goals and objectives.
    - b. The “by default” option to be considered first would be natural regeneration, and then planting with local species; but when alien species are used, their use is justified, typically as a nurse crop and/or directly contributing as a tool for achieving restoration of the targeted ecosystem identified in 1.6.2 (for example, protecting early natural regeneration or creating habitat for seed dispersers or pollinators) and/or initially establishing tenure security for an area as a natural ecosystem end use (particularly where land-use conversion pressures are high).
    - c. Invasive aliens are not used.
    - d. Populations of alien species are not acceptable as a final restoration target.
  - 1.6.4 Include the **lessons learnt** from the analysis of restoration projects in similar settings and conditions (**Continuous Improvement for SH&C**)

<sup>9</sup> Relative to the scale, intensity, and risk of the project

<sup>10</sup> It is legitimate to have restoration goals that do not seek to return to target reference ecosystems since e.g. the social and economic context are also to be considered to maximize ecological, social, and economic benefits while ensuring protection of existing resources.

- 1.6.5 Describe the environmental and social impacts of the project, including harm/unintended consequences, and how these connect;; for example, how local communities will benefit in terms of:
  - NTFPs use
  - water resource conservation and use
  - pollination of crops
  - soil stabilisation
  - climate stabilisation
  - social justice,
  - poverty alleviation
  - community empowerment (including how local people gain capacity to manage the project after the project leaves, if locals are hired in various positions of leadership, if resources stay in the community in the form of salaries, education, critical infrastructure such as generators, water systems, medical care, community centres...)
  - education about the project activities and benefits is provided to ensure continuity
- 1.6.6 Demonstrate that the RM has the **financial resources** to ensure implementation of the Restoration Plan over a 5-year period and plan for a longer term (20 years).
- 1.6.7 Be **documented** in writing (except for SH&C projects, for which alternatives are acceptable – for example an abbreviated plan, or information provided verbally by the RM and evaluated by the verification body, or confirmed through observations and stakeholder consultation).
- 1.6.8 Include the **continuation strategy** for cases where the RM has a limited time horizon to manage the project;; with the strategy to include resource and financial investments, training, infrastructure, etc. (**Continuous Improvement for SH&C and medium projects**)
- 1.7 **Restoration techniques** – A description is available of the restoration techniques or practices to be used, and sufficient to understand how desired targets, goals and/or objectives will be achieved and to assess the adequacy of performance from technical and field perspectives.
- 1.8 **Monitoring Plan** – A documented monitoring plan exists, appropriate for the scale and impact of the project (see Section 4: Monitoring and Reporting for detailed requirements). (**For SH&C projects see 1.6.7 for documentation requirements**)

## 2 Tenure, Rights, and Security

- 2.1 **Clear and legal tenure** – Management rights of the property or properties where restoration occurs are legally documented and/or recognised by government authorities. (**Continuous Improvement for SH&C projects**)
- 2.2 **Boundaries** are respected by adjacent landowners and other parties. Where necessary, due to encroachment or other risks, boundaries are marked in the field and resource protection interventions are in place and consistently implemented. Management rights are secured for 5 years and preferably 20-year restoration time horizons. (**Continuous Improvement for SH&C projects**)
- 2.3 **Customary rights and tenure**



- 2.3.1 Customary use rights or other similar tenure rights by local people (Indigenous<sup>11</sup> or otherwise) are identified (**Continuous Improvement for SH&C projects**)
- 2.3.2 The customary rights and Traditional Knowledge have been formally recognised, or disputes are being resolved in a manner deemed acceptable by affected stakeholders following principles of good practice for Free, Prior and Informed Consent (FPIC)<sup>12</sup>. (**Continuous Improvement for SH&C projects**)
- 2.4 **Dispute resolution mechanism** – For large and medium projects, a dispute resolution mechanism is documented. For SH&C projects, the dispute resolution mechanism can be explained by the RM and documented through the verification process.
- 2.5 **Dispute resolution process** – Dispute resolution has occurred prior to implementation of restoration activities on the ground and/or the parties affected have agreed upon the dispute resolution process and agree with ongoing dispute resolution and restoration processes and results. (**Continuous Improvement for SH&C projects**)
- 2.6 **Participation** – The RM shall support inclusive participation of the affected parties and transparency when making decisions on actions that would have impact or clear implications on the landscapes beyond the project boundaries. (**Continuous Improvement for SH&C and medium projects**)

### 3 Field Implementation

- 3.1 **Restoration practices** – Restoration practices and/or results are visible on the ground (including with regard to soil, water, and biodiversity management and conservation) and in accordance with Restoration Plan.
- 3.2 **Species selection and use** – Species and densities used are well-aligned with the Restoration Plan (i.e. technically and ecologically). Species provenance is known and demonstrated.
- 3.3 **Alien species** – Where alien species are used, their use is justified in line with the Restoration Plan.
- 3.4 **Seedling/planting/regeneration survival** – Where seedling/planting establishment or natural regeneration is unsuccessful, gaps are being addressed in less than one (1) year or, as justified, within a more appropriate timeframe (e.g. for low production boreal contexts), through follow-up planting and/or improved natural succession techniques.
- 3.5 **Restoration threats controlled** – Protection against threats, as identified in planning or monitoring, is in place (fire, land-use change, grazing, pressures on the resource, etc.) and effective in protecting the ongoing restoration.
- 3.6 **Natural ecosystems and species protection** – Natural ecosystems and rare or threatened species in the restoration area as presented in the Restoration Plan are not damaged or degraded by restoration activities (for example overcollection of seed or wildings, harvesting of wood to build nursery, or construction of access roads or temporary buildings).
- 3.7 **Pollinator/propagator protection** – Wildlife species that play an important role in pollination/propagation within the regenerating ecosystem are identified and protected (for

<sup>11</sup> As per the UN Declaration on the Rights of Indigenous Peoples, [https://www.un.org/esa/socdev/unpfii/documents/DRIPS\\_en.pdf](https://www.un.org/esa/socdev/unpfii/documents/DRIPS_en.pdf) and the Indigenous and Tribal Peoples Convention: [https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100\\_ILO\\_CODE:C169](https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:C169)

<sup>12</sup> See FPIC guidelines, tools and guidance developed by the Accountability Framework initiative (AFi), the Rights and Resources Initiative (RRI), the FSC or other certification and accountability systems.

example bats, butterflies, birds, rodents, etc.). **(Continuous Improvement for SH&C and medium projects)**

**3.8 Chemical use** – Chemical use is to be avoided.

3.8.1 Where chemical use (including fertilisers and pesticides) is justified, chemicals used must be legal, not prohibited under World Health Organization (WHO) guidelines<sup>13</sup>, stored in secure locations (including child-proof), and used at minimal levels (by volume or toxicity) necessary to achieve desired outcomes. Where economically viable, safe and functionally effective, use of naturally occurring chemicals or compounds is favoured over synthetic materials.

3.8.2 Where chemicals are used, a list of the products used and the accompanying purchase documentation is provided **(Continuous Improvement for SH&C projects)**

3.8.3 If highly hazardous chemicals are used (as per WHO, above), risks to people and environment shall be assessed and mitigated.

3.8.4 Chemical drift, run-off or spills shall be effectively avoided and controlled.

3.8.5 Chemicals with known risks to pollinators shall be used only if:

- a) Less toxic pesticides are not available;
- b) Exposure to natural ecosystems is minimised; and
- c) Contact of pollinators with these substances can be minimised.

**3.9 Local labour** – Implementation prioritises use of local labour or contractors, with alternative labour options possible if they are subject to controls to ensure that they do not undermine employment opportunities for local communities.

**3.10 Discrimination** – No discrimination of workers is occurring, based on gender, race, age, religion, national/territorial/social origin, caste, birth, disability, sexual orientation, family responsibilities, marital status, union membership, political opinions, or any other condition, and this is disclosed in a publicly available document.

**3.11 Workers' rights**, as implemented, include:

3.11.1 No child labour

3.11.2 No forced or compulsory labour

3.11.3 Freedom of association and collective bargaining

3.11.4 No abusive practises or undue disciplinary procedures

3.11.5 Legal and decent working hours

**3.12 Working conditions** – Working conditions exist for all staff, contractors, service providers, and volunteers, with these meeting legal requirements and at or above the norm for a comparably scaled business in the region, including access to clean/affordable housing, safe transport, functional sanitary facilities and access to potable water supply.

**3.13 Occupational work, health and safety** – Work occurs in accordance with local legal and permit requirements, including safe use of equipment and consistent use of personal protective equipment (PPE) appropriate for work being performed in nurseries or the field (for example steel-toe boots, eye and hearing protection, hard hats, ventilator masks, aprons, etc.).

<sup>13</sup> The WHO Recommended Classification of Pesticides by Hazard and guidelines to classification, <https://www.who.int/publications/i/item/9789240005662>

- 3.14 **Workers' remuneration** – Staff and contractors are paid legal wages at or above the norm for the jurisdiction (national and sub-national) and written records kept as evidence.
- 3.15 **Living wage** – Remuneration is achieving or working towards a living wage. **(Continuous Improvement at all sizes)**
- 3.16 **Other social impacts**
  - 3.16.1 Social benefits and impacts to the local communities are identified, aligned with the Restoration Plan, and documented.
  - 3.16.2 Harm or unintended consequences to local communities are prevented or dealt with to minimise such consequences.
- 3.17 **Waste** – Waste storage, treatment and disposal practices shall not pose health or safety risks to farmers, workers, other people, or natural ecosystems.

## 4 Monitoring and Reporting

- 4.1 **Monitoring of the implementation** – At a minimum monitoring will be annual although, during early phases, monitoring will likely be more often (for example daily, weekly, monthly or quarterly) as necessary to address risks and foster success.
- 4.2 **Monitoring of the outcomes** – Field monitoring occurs in line with Restoration Plan expectations (particularly targets, goals and objectives, including social and environmental). **(Continuous Improvement for SH&C projects)**
  - 4.2.1 **Metrics for monitoring** are developed in relation to the Restoration Plan, including with regard to social (for example governance, income, equity, health and safety, rights, gender) or environmental aspects (for example soil, water, biodiversity and conservation). **(Continuous Improvement for SH&C projects)**
  - 4.2.2 **Resources for monitoring** exist to ensure implementation of the Monitoring Plan over a 5-year period.
  - 4.2.3 Plantings/seedlings or natural regeneration are **monitored annually**, including survival rates, health (for example pests and diseases, and growth) in a technically sound fashion (including practical, consistent, transparent, replicable, repeatable); and actions are taken for continuous improvement based on monitoring outcomes evident at the field level.
- 4.3 **Monitoring results** – Results are documented in writing, accurate and easily available to managers and verifiers. **(Continuous Improvement for SH&C projects)**
- 4.4 **Adaptative management:**
  - 4.4.1 Monitoring results are compiled annually and used to enhance achievement of the restoration targets, goals and objectives. **(Continuous Improvement for SH&C and medium projects)**
  - 4.4.2 Monitoring results are used to inform revisions to the Restoration Plan, providing identification of and direction towards enabling conditions that will ensure the restored ecosystem remains after establishment. **(Continuous Improvement for SH&C and medium projects)**

## Annex I: Illustrative Elements or Principles from Existing Frameworks for Restoration Design, Monitoring or Implementation

Substantial review of restoration-related references has occurred during preparation of this Standard. As mentioned above – in an effort to facilitate integration into other accountability schemes (certification systems) and also focus on indicators – the Standard does not repeat the practice of identifying principles or criteria, the critical required element for field audits.

The following are examples of key elements or principles (presented in a tabular format for easy reading but with no categorisation by row or other feature) derived from reference initiatives or documents that provide useful illustrative examples of key restoration-related aspects (listed in order as they appear in each reference).

Chazdon <i>et al.</i> , 2020 <sup>14</sup>	AFR100 Voluntary Guidelines <sup>15</sup>	Bonn Challenge Principles <sup>16</sup>	SER Principles, 2019 <sup>17</sup>	UN Decade on Ecosystem Restoration <sup>18</sup>
Focus on landscapes	Restoring multiple ecosystem functions	Restore functionality	Ecological restoration engages stakeholders	Promotes inclusive and participatory governance, social fairness, and equity from the start and throughout the process and outcomes
Engage stakeholders and support participatory governance	Integrated management of landscapes	Focus on landscapes	Ecological restoration draws on many types of knowledge	Includes a continuum of restorative activities
Restore multiple functions for multiple benefits	Restoration strategies supporting multiple functions	Allow for multiple benefits	Ecological restoration practice is informed by native reference ecosystems, while considering environmental change	Aims to achieve the highest level of recovery possible, for ecosystem health and human well-being
Maintain and enhance natural ecosystems within landscapes	Participatory decision making	Leverage suite of strategies	Ecological restoration supports ecosystem recovery processes	Addresses drivers of ecosystem degradation
Tailor to local context using a variety of approaches	Protection of natural ecosystems to enhance resilience	Involve stakeholders	Ecosystem recovery is assessed against clear goals and objectives, using measurable indicators	Incorporates all types of knowledge and promotes their exchange throughout the process
Manage adaptively for long-term resilience	Monitoring, learning and adapting	Tailor strategies to local conditions	Ecological restoration seeks the highest level of recovery attainable	Is tailored to the local ecological and socio-economic context, while considering the larger landscape or seascape

<sup>14</sup> Chazdon, R. L., V. Gutierrez, P. H. Brancalion, L. Laestadius, and M. R. Guariguata (2020). Co-Creating Conceptual and Working Frameworks for Implementing Forest and Landscape Restoration Based on Core Principles. *Forests* 11: 706.

<sup>15</sup> AFR100 (2017). Voluntary Guidelines for Forest Landscape Restoration Under AFR100. AFR100, 28 August 2017.

<sup>16</sup> IUCN (2017). Bonn Challenge Barometer of Progress: Spotlight Report 2017, IUCN.

<sup>17</sup> SER (2019). International Principles and Standards for the Practice of Ecological Restoration. Society for Ecological Restoration, Second Edition, September 2019.

<sup>18</sup> This reference was under global consultation (as Proposed principles for Ecosystem Restoration) when this document was being finalized, see [https://drive.google.com/file/d/1AbS\\_wFDiYuMRn89fyfoRw6Jbu2w8BGiZ/view](https://drive.google.com/file/d/1AbS_wFDiYuMRn89fyfoRw6Jbu2w8BGiZ/view)



	Policy coherence around national commitments and land use	Avoid further reduction of natural forest cover or other natural ecosystems	Ecological restoration gains cumulative value when applied at large scales	Is based on well-defined short- and long-term ecological and socio-economic objectives and goals
	Nationally owned and driven	Adaptively manage	Ecological restoration is part of a continuum of restorative activities	Plans and undertakes monitoring, evaluation, and adaptive management throughout the lifetime of the project or programme
				Integrates policies and measures to ensure longevity, maintain funding and, where appropriate, enhance and scale up interventions

The above table does not cover an additional example of the comprehensive “principles” (total of 49 principles and 160 recommended actions) included in the 2013 ITTO guidelines for the restoration, management and rehabilitation of degraded and secondary tropical forests, which were updated in 2020. When combined with the other examples, such guidelines provide an excellent reference on the implications/challenges of restoration, the need for careful assessment and planning of each restoration situation, and the use of various techniques to achieve restoration, for example forest refinement, liberation thinning, enrichment planting, use of native and alien species. The 2020 ITTO guidelines have been formulated to assist stakeholders in the development and monitoring of national policies aimed at creating enabling conditions for successful FLR implementation and outcomes, and they are based in the six internationally recognised principles of FLR, further developed by Guiding Elements (GE):

- P1 Focus on landscapes:
  - GE1 Undertake inclusive, gender-responsive landscape-level assessment and land-use planning
  - GE2 Gain recognition that FLR must transcend sector policies
  - GE3 Conduct FLR at an appropriate scale
  - GE4 Address tenure and access rights
- P2 Engage stakeholders and support participatory governance:
  - GE5 Build adequate governance capacity for decentralized FLR
  - GE6 Obtain strong stakeholder engagement
  - GE7 Conduct joint stakeholder analysis of the drivers of degradation
  - GE8 Strive for social equity and benefit sharing
  - GE9 Conduct participatory FLR planning, decision-making and monitoring
  - GE10 Build stakeholder capacity for sharing responsibility for FLR
  - GE11 Address long-term financing for FLR initiatives
  - GE12 Establish a favourable investment environment for FLR
- P3 Restore multiple functions for multiple benefits:
  - GE13 Generate multiple functions and benefits
  - GE14 Conserve biodiversity and restore ecological functions
  - GE15 Improve livelihoods
  - GE16 Make full use of locally based knowledge
  - P4 Maintain and enhance natural forest ecosystems within landscapes
  - GE17 Avoid the conversion of natural forests
  - GE18 Restore degraded forests and rehabilitate degraded forest land
  - GE19 Avoid forest fragmentation
  - GE20 Conserve natural grasslands, savannas and wetlands
- P5 Tailor to the local context using a variety of approaches:
  - GE21 Assess local context and restrictions

- GE22 Allow for future changes in conditions
- GE23 Tailor FLR interventions to the local context and generate local benefits
- GE24 Achieve the financial and economic viability of FLR investments
- GE25 Identify opportunities to increase local incomes
- GE26 Develop sustainable supply chains
- P6 Manage adaptively for long-term resilience:
  - GE27 Take an adaptive management approach
  - GE28 Continually measure the biophysical dimensions of the landscape
  - GE29 Periodically assess vulnerability to climate change
  - GE30 Develop participatory monitoring of FLR
  - GE31 Encourage open access to, and the sharing of, information and knowledge
  - GE32 Report on FLR outcomes

This verification Standard does NOT require the use of any specific design methodology for restoration. However, there are several tools and methods that are supported by NGOs and technical experts. Following are three examples.

- **ROAM** – Restoration Opportunities Assessment Methodology was developed by IUCN and WRI (2014) to provide a flexible framework for identifying social, economic, and ecological opportunities for forest landscape restoration and designing diversified landscape-scale restoration approaches. For more information see <https://www.iucn.org/theme/forests/our-work/forest-landscape-restoration/restoration-opportunities-assessment-methodology-roam>.
- **HCV** – The High Conservation Value Resource Network (or HCVRN) manages the global approach and practice of HCV assessment around the world, after the HCV approach was originally developed by the FSC. Of critical importance is that HCVs refers to a series of key values for protection, conservation and restoration, including social and environmental, plus licensing of HCV assessors, and required processes for community engagement and Free, Prior and Informed Consent (FPIC). For more information, see High Conservation Value Resource Network at <https://hcvnetwork.org>.
- **HCSA** – The High Carbon Stock Approach has been formed to implement assessments of forest areas (degraded, primary, secondary, etc.) and determine what areas still contain enough forest structure, composition and process that they should just be improved through silviculture (refinement, liberation thinning, reforestation or enrichment planting) or whether such areas are so degraded that movement to another land use (for example intensive agriculture, etc.) is acceptable. However, as per the HCV approach, and as consistently recommended under ROAM and the 2002 ITTO guidelines cited below, the approach requires engagement with local and affected communities, FPIC and protection of HCVs. For further information see High Carbon Stock Approach at <http://highcarbonstock.org>.

Rather than require use of these approaches, the verification Standard attempts to cover most, if not all, of the values they provide. It should be noted that for such approaches, various organisations are also focused on improving the applicability of these tools for smallholders, Indigenous Peoples and Small and Medium Enterprises (SMEs).

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## About us

Preferred by Nature (formerly known as NEPCon) is an international non-profit organisation working to support better land management and business practices that benefit people, nature and the climate. We do this through a unique combination of sustainability certification services, projects supporting awareness raising, and capacity building.

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