**ABNT NBR 15789:2021 - Sustainable forest management — Principles, criteria, and indicators for native forests**

**Introduction**

Sustainable forest management is the holistic administration of forests to obtain economic, social, and environmental benefits while respecting the mechanisms that permit resilience and support of the ecosystem that is being managed. This process considers, additionally or as alternatives, the use of multiple wood-producing species, multiple non-timber products and sub-products, and utilization and preservation of other tangible and intangible benefits that exist there.

Sustainable forest management techniques are used in order to reduce impacts and ensure that the forest project is sustainable through meticulous planning of operations, monitoring of forest dynamics, and interactions with local and traditional communities as well as indigenous peoples.

Additionally, considering that no activity that disrespects applicable legislation can be sustainable, sustainable forest management also respects and follows all relevant laws and regulations.

# Sustainable forest management — Principles, criteria, and indicators for native forests

## Scope

This Standard specifies the principles, criteria, and indicators for sustainable management of

native forests.

## Terms and definitions

The following terms and definitions are utilized in this document.

#### 2.1

**firebreak**

a gap (trail) opened in vegetation in or around a forest management unit to slow the progress of a bushfire, for demarcation, or for the circulation of cargo or people.

#### 2.2

**top management**

trained person or group of people responsible for management of the organization (or part of it) who have the power to make decisions, delegate authority, and manage resources within the organization.

#### 2.3

**domesticated animals**

species whose biological, behavioral, and observable traits have been altered by traditional processes of selective breeding and improvement to make them closely dependent on humans; they may exhibit various observable traits that different from those of the species they originate from.

#### 2.4

**areas of relevant ecological and social interest**

places that:

1. contain protected, rare, sensitive, or representative ecosystems.
2. contain endemic species and habitats for threatened species cited in recognized lists.
3. contain *in situ* genetic resources that are endangered or protected.
4. contribute to natural landscapes on a global, national, or regionally significant level.
5. have recognized historical, archaeological, cultural, or spiritual significance, as well as areas that are essential to meet the needs of indigenous peoples and local communities (such as health or subsistence).
6. have important social roles in protecting society, for example in controlling erosion, preventing floods, purifying water, regulating the climate, sequestering carbon, and other services that regulate or support the ecosystem.

#### 2.5

**degraded area**

area of land or vegetation that has partially or entirely lost its ecological function due to natural or man-made phenomena

[ABNT NBR 14789:2021, 2.4]

#### 2.6

**environmental, social, and economic aspects**

elements of an organization's activities, products, or services that may interact with the environment, society, or the economy.

#### 2.7

**local communities**

groups of humans who live in areas within or neighboring the forest management unit, in rural or urban properties (such as districts, villages, or neighborhoods in the municipality where the forest management unit is located).

#### 2.8

**traditional communities**

groups that recognize themselves as culturally distinct with their own forms of social organization who occupy and use territories and natural resources as an essential part of their cultural, social, religious, ancestral, and economic practices, utilizing traditional knowledge, innovations, and practices.

#### 2.9

**free, prior, and informed consent**

a legal concept that determines that a person or community gave consent for an activity before it began based on a clear understanding of the facts, implications, and future consequences of this activity, and had all the relevant information at the time that consent was given.

NOTE Free, prior, and informed consent includes the right to grant, change, suspend, and revoke

permission or agreement.

#### 2.10

**conversion**

changing soil use by substituting natural ecosystems.

#### 2.11

**criterion**

A principle-based parameters or requirements that relates to the state or dynamics of a system.

#### 2.12

**customary**  **rights**

a set of customs, practices, and beliefs accepted as obligatory rules of conduct by indigenous peoples and traditional communities

NOTE It is an inherent part of their social and economic systems and ways of life. may refer to use of natural resources, rights and obligations related to land, successions and ownership, spiritual life, preserving cultural heritage, and many other issues as well as respective access.

#### 2.13

**use rights**

the right to use forest resources that may be defined by local customs and mutual agreements or dictated by other entities with access rights.

#### 2.14

**legal rights**

the right to use and possess acquired land, supported by applicable federal, state, or municipal legislation

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#### 2.15

**ecosystem**

a complex dynamic of plants, animals, microorganisms, and their abiotic environment that interact as a functional unit.

#### 2.16

**endangered species**

species that face a high probability of extinction for a variety of reasons if direct pressure on these species and their habitat continue.

NOTE These species are known and defined on official federal, state, and/or municipal lists.

#### 2.17

**endemic species**

a native species with restricted distribution that only occurs in a single geographic area and specific habitat.

#### 2.18

**rare species**

species with low population density

#### 2.19

**forest**

an ecosystem primarily comprised of tree species in any stage of development, associated communities of animals and microbiota, as well as the physical substrate.

#### 2.20

**severely degraded forests**

forests that have been subjected to natural or man-made disturbances so severe, extensive, or frequent that their original functionalities have been irreversibly affected, along with their associated goods and services.

#### 2.21

**environmental impact**

any change to the physical, chemical, or biological properties of the environment caused by any form of energy or matter resulting from human activities that indirectly or directly have a positive or negative impact on the quality of environmental resources.

#### 2.22

**social impact**

any change resulting from a forest management operation's activities, products, or services that indirectly or directly affect the health, safety, or well-being of the population or its social, economic, cultural, or spiritual activities

#### 2.23

**indicator**

quantitative or qualitative parameter that makes it possible to objectively and unambiguously assess the characteristics of a forest ecosystem or related social system, or which describes elements of forest management and the productive processes conducted within this ecosystem.

#### 2.24

**pre-use inventory**

an estimate based on specific technical statistics with margins of error in line with the intended use, used to determine the potential wood that can be obtained from the forest management unit.

#### 2.25

**sustainable forest management**

administration of forests to obtain economic, social, and environmental benefits while respecting the mechanisms that support the ecosystem that is being managed. This process considers, additionally or as alternatives, the use of multiple wood-producing species, multiple non-timber products and sub-products, and utilization and preservation of other tangible and intangible benefits that exist there.

#### 2.26

**opportunities**

potentially beneficial effects.

#### 2.27

**organization**

company, corporation, firm, business, or institution, or any part of combination of these, public or private, anonymous or limited partnership, or with any other type of bylaws, with its own administrative structure and functions.

#### 2.28

**landscape**

socioecological system consisting of a mosaic of natural or anthropically modified natural ecosystems with characteristic configurations of topography, vegetation, soil use, and settlement that are influenced by ecological, historical, economic, and cultural processes and activities.

#### 2.29

**stakeholder**

any person, group of people, or entity that is or may be affected by the activities of a forest management unit.

NOTE Examples include but are not limited to (for example, in the case of owners of land downstream) people, groups of people, or entities located in the areas surrounding a management area. The following are examples of stakeholders:

* local communities.
* indigenous peoples and/or traditional communities.
* workers.
* forest dwellers.
* neighbors.
* owners of land downstream.
  + local processors.
  + local businesses.
  + those holding land use and land tenure rights, including landowners.
  + organizations that are authorized to or known to act on behalf of the stakeholders, etc.

#### 2.30

**interested party**

any person, group of people, or entity that demonstrates interest, or is known to have an interest, in the activities of a forest management unit.

The following are examples of interested parties:

* + conservation organizations (example: environmental NGOs).
  + labor (rights) organizations (example: unions).
  + human rights organizations (example: social NGOs).
  + local development projects.
  + local governments.
  + national government departments that function in the region.
  + regulatory agencies.
  + watershed committees.
  + offices of accrediting organizations.
  + specialists on specific topics (example: high conservation value).

#### 2.31

**pesticide**

any chemical substance or mixture of chemical ingredients intended to repel, exterminate, or control any pest.

NOTE This definition includes insecticides, acaricides, larvicides, fungicides, herbicides, and substances that meant to exterminate/repel/control rodents, nematodes, and mollusks.

#### 2.32

**sustainable forest management plan**

basic technical document that presents the guidelines and procedures for forest administration according to the principles of sustainable forest management.

#### 2.33

**planted forests**

forests or other wooded land of introduced species, and in some cases native species, established through planting or seeding, mainly for producing wood or non-wood goods and services.

#### 2.34

**ownership**

the exercise of powers inherent to owning a forest management unit, including but not limited to occupation, access, or use of a specific area or its associated resources.

#### 2.35

**Indigenous peoples**

people and groups of people who may be identified or characterized as follows:

1. the main characteristic or criterion is self-identification as indigenous people at an individual level, and acceptance by the community as a member.
2. historical continuity with pre-colonial or pre-conquest societies.
3. strong connection to the surrounding territories and natural resources.
4. different social, economic, or political systems.
5. distinct language, culture, and beliefs.
6. formation of non-dominant groups in society.
7. decide to maintain and replicate their ancestral environments and systems as distinct peoples.

and communities.

#### 2.36

**principle**

legislation or fundamental rule that serves a basis for activity and is expressed as an objective or attitude in relation to the function of a forest ecosystem and to relevant aspects of a social system related to this ecosystem.

#### 2.37

**non-wood forest products**

products of biological origins other than wood that are obtained from forests or trees outside of forests.

#### 2.38

**Recovery**

management of an ecosystem in order to reestablish one or more of its functions and services.

#### 2.39

**risks**

effects of uncertainty on objectives

NOTE 1 An effect is a deviation from what was expected: positive or negative.

NOTE 2 Uncertainty is the lack (even partial) of information, understanding, or knowledge related to an event, its consequences, or its likelihood.

NOTE 3 Risk is often characterized by reference to potential “events” (as defined in ABNT ISO Guide 73:2009, 3.5.1.3) and “consequences” (as defined in ABNT ISO Guide 73:2009, 3.6.1.3), or a combination of these two possibilities.

#### 2.40

**workers**

people employed directly in administrative or operational sectors, or who are self-employed or subcontracted by an organization or by wood purchasers who work in the forest management unit.

#### 2.41

**forestry/silvicultural activities**

forestry operations including but not limited to clearing vines, operations to reduce the basal area of competing plants (such as clearing tree canopies and rehabilitative measures, maintaining trails for permanent plots, and controlling dry organic matter to prevent forest fires).

#### 2.42

**forest management unit**

an area subject to evaluation of compliance with the requirements of this Standard, defined for the purpose of good management practices in social, environmental, and economic terms.

#### 2.43

**customary use**

a long series of continuously repeated habitual or customary activities, which because of their repetition and uninterrupted approval have acquired force of law within a certain geographical or social unit.

NOTE Customary use is acquired at the same time by self-recognition, external recognition, adding to a set of characteristics that differentiate the community from its surrounding.

#### 2.44

**environmental value**

values comprised of biological, physical, environmental, and human elements such as ecosystem services (including sequestering and storing carbon) biological diversity, water resources, soils, the atmosphere, and landscape values.

NOTE The value attributed to these elements is derived from the needs of animal, vegetation, and/or human populations.

#### 2.45

**social value**

self-attributed elements and practices that are crucial to the cultural, social, or spiritual identity of a

community.

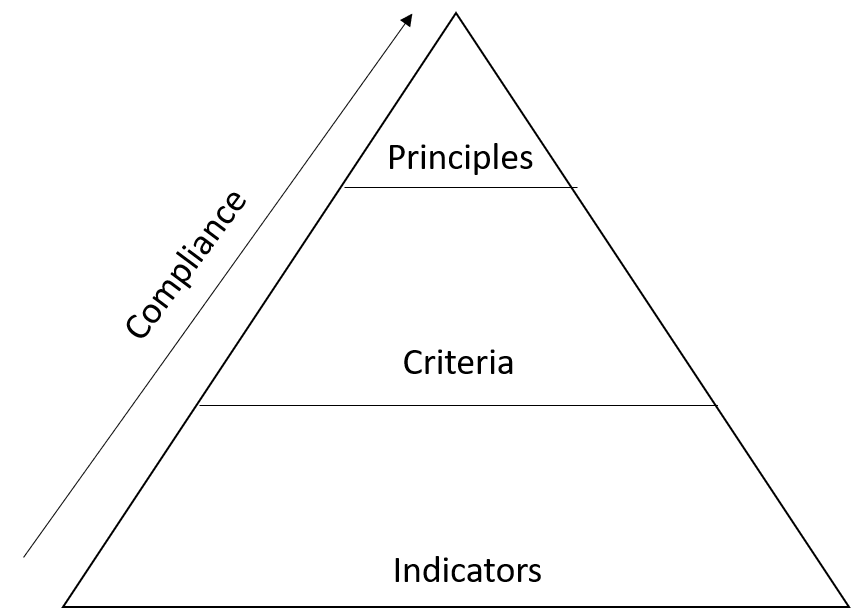
## Principles, criteria, and indicators

The principles established in this Standard provide a reference for sustainable forest management.

The principles are broken down into criteria, which express the conditions describe the states or dynamics of a forest ecosystem and the social system associated with it.

Compliance with each criterion is determined by assessing compliance with a group of specific indicators, which can be quantitative or qualitative.

In this way, a hierarchy of the principles, criteria, and indicators is defined (see Figure 1) that establishes monitoring and demonstrates good forest management and serves as a reference for assessing the quality of forest management.



#### Figure 1 – Hierarchy

A criterion is considered to be implemented when compliance with its respective indicators is demonstrated. A principle is considered to be implemented when all of its respective criteria are confirmed to have been met. Finally, sustainable forest management according to this Standard is considered to be implemented when all the principles are confirmed to have been implemented.

Depending on the location and the final use of the forest management unit, indicators may have a different relative importance, since certain indicators may not be applicable. However, all indicators relevant to that location shall be assessed.

### Principle 1 – Compliance with laws

The organization shall be guided by attitudes and actions that ensure compliance with federal, state, and municipal laws and international agreements, treaties, and conventions ratified by the country that are applicable to forest management, as well as applicable requirements for assessing compliance.

The organization's rights of ownership and of the use of land and forest resources and/or land tenure rights, along with legal, customary, and traditional rights shall be clearly defined, documented, and established for the forest management unit. Laws related to labor, social security, taxes, and workplace health and safety shall be complied with, along with collective and/or individual agreements, collective conventions, and fundamental ILO conventions.

The organization shall assist competent authorities, when necessary, in protecting the forest to prevent illegal or unauthorized activities.

The criteria and indicators to be met are described in Items 3.1.1 to 3.1.5.

#### Criterion 1.1

The organization shall carry out the activities related to forest management in accordance with federal, state, and municipal laws and agreements, as well as international agreements and conventions ratified by the country.

Indicators:

1. existence of procedures that identify legislation and other regulations applicable to forest management and determine how these obligations apply to the organization.
2. existence of records that prove fulfillment of legislation and of other regulations applicable to the activities carried out in the forest management unit.
3. evidence that the organization respects human rights as defined in the Universal Declaration of Human Rights.
4. existence of anti-corruption mechanisms in line with existing legislation, and proof that adequate preventative or corrective measures are implemented, when necessary.
5. evidence that workers are informed of and have their questions answered about the legislation relevant to the activities they carry out.

#### Criterion 1.2

The organization's rights of ownership and of the use of land and forest resources and/or land tenure rights shall be clearly defined, documented, and established for the forest management unit. Similarly, legal, customary, and traditional rights related to the forest management unit shall be identified, recognized, and respected according to current legislation and applicable treaties and international agreements ratified by the country.

Indicators:

1. evidence that the organization's rights of ownership, land use, and use of forest resources and/or land tenure rights are documented and established for the forest management unit according to current legislation.
2. evidence that legal, customary, and traditional rights related to the forest management units are identified, recognized, and respected according to current legislation and applicable treaties and international conventions ratified by the country.
3. evidence that forestry practices and operations are carried out in compliance with the established structure of legal, customary, and traditional rights, as described in ILO Convention 169 and UN Declaration on the Rights of Indigenous Peoples.
4. evidence that the organization does not infringe upon customary and traditional rights within the forest management unit without free, prior, and informed consent from rights holders, inducing compensation, when applicable.
5. evidence that the borders between the forest management unit and neighboring areas are identified, demarcated, and respected.

NOTE When communities exist within the property, the area used by these communities

should be demarcated.

1. existence of suitable mechanisms to communicate and refer complaints, conflicts, and litigation related to the organization's rights of ownership, use of land and forest resources, and/or land tenure rights.
2. Evidence that areas customarily used for recreation within the forest management unit are recognized, and when present, that public access is permitted, respecting rights of ownership, safety limits, rights of third parties, and the effects on forest resources and ecosystems, as well as compatibility with the forest's other functions.

#### Criterion 1.3

Laws related to labor, social security, taxes, and workplace health and safety shall be complied with, along with collective and/or individual agreements, collective conventions, and fundamental ILO conventions.

Indicators:

1. evidence that social security/pension for all workers is in compliance with current legislation. when there are pending issues related to social security/pension, the organization shall have a plan to resolve them.
2. evidence that all aspects related to labor legislation are in compliance with current legislation including collective or individual agreements, collective conventions, and regulatory labor standards.
3. evidence of compliance with fundamental ILO conventions, as well as other ILO conventions ratified by the country.

NOTE When conflicts exist between legislation and fundamental conventions (causing compliance with a convention to lead to illegality in forest management), legislation shall prevail.

1. evidence that the organization promotes equal opportunities without discrimination, including a workplace free of harassment and promotion of gender equality.
2. existence of effective mechanisms to report and eradicate cases of harassment and discrimination that include confidentiality in order to avoid problems and potential penalties to affected parties.
3. evidence that worker wages meet or exceed the legal minimum or existing base salary in the region, and collective bargaining agreements.
4. evidence that the organization is in compliance in terms of payment of royalties and appliable taxes and tributes. when payments are pending, a plan to pay off the debts shall be made with the creditor or institution.
5. existence of appropriate mechanisms to resolve complaints, conflicts, and litigation related to working conditions, labor and social security/pension issues, and labor-related taxes.
6. evidence that measures are taken with service providers to comply with labor, tax, and social security and pension legislation, collective or individual agreements, collective conventions, and regulatory labor standards, as applicable.
7. existence of a workplace health and safety program in line with legal requirements, implemented in such a way that risks to health and accidents can be identified and measures can be implemented to protect workers from work-related risks.

#### Criterion 1.4

The organization shall, within the scope of its responsibilities, implement measures and assist competent authorities, when applicable, to protect the forest management unit

against illegal or unauthorized activities such as extraction of wood or other products, land use, hunting, fishing, fires, etc.

Indicators:

* + - 1. existence of mechanisms to protect the forest management unit and control illegal or unauthorized activities there according to the size of the organization and intensity of management activities.
      2. existence of records of illegal or unauthorized activities within the forest management unit and measures taken to avoid or minimize such.
      3. evidence that competent authorities are informed of illegal activities within the forest management unit.
      4. evidence that workers and local communities have been informed about control of illegal or unauthorized activities within the forest management unit.

#### Criterion 1.5

The organization shall possess a public commitment to perform sustainable forest management according to the applicable requirements for assessing compliance.

Indicators:

1. existence of a formal commitment by the organization to perform sustainable forest management and improve it continuously in line with the applicable requirements for assessing compliance.
2. evidence that the commitment cited in the previous indicator is available to the public.

### Principle 2 – Rational use of forest resources in the short, medium, and long terms, in search of its sustainability

Forest management planning shall focus on the health and vitality of forest ecosystems in order to maintain and expand the economic, ecological, cultural, and social value of the forest. Forests shall be managed so that this activity helps preserve renewable natural resources. The criteria and indicators to be met are described in items 3.2.1 to 3.2.5.

#### Criterion 2.1

Forest operations shall be based on a sustainable forest management plan approved by the relevant authority and other documentation associated with forest management, considering different uses, scales, and functions of the managed forest area.

Indicators:

1. evidence that the risks and opportunities related to compliance with the requirements of this Standard are continuously identified and considered in forest management according to the size of the organization, the intensity of management activities, considering changes in the current scenario.
2. Existence of a sustainable forest management plan approved by the relevant authority that stimulates diversified production of goods and services in the long term and contains:
   * the objectives of the sustainable forest management plan, including those related to maintaining and protecting the social, environmental, and economic functions of the forests.
   * management conditions as a function of specific regional and local characteristics.
   * management techniques to be applied.
   * justification of the economic viability of the management.
   * technical justification for defining the intensity of the forest management activities.
   * roadway/transport system.
   * harvest cycle.
   * definition of permitted annual harvest volume and minimum diameter for each species/group of species, according to legal requirements and forest characteristics.
   * surveys of the topography and vegetation typologies, as well as the forms and distribution of available water resources, according to the size of the organization and the intensity of forest management activities.
   * letters, maps, and/or sketches, according to the intensity of management activities, that show: the borders of the forest management unit and its subdivisions, the resources managed by the organization, the infrastructure, areas of relevant ecological and social interest, locations of local and traditional communities and indigenous peoples.
   * the multiannual plan for pre-harvesting, harvesting, and post-harvesting operations in order to minimize the negative effects caused by harvest of the remaining forest.
   * plans to prevent, combat, and mitigate damage from fires and other incidents which are appropriate to the risk that these events might occur.
   * environmental safeguards that specify how to minimize risks of degradation and damage to forest ecosystems.
   * specific measures to protect and preserve wild flora and fauna, particularly rare, threatened, endemic, and protected species.
   * pre-harvest inventory that is suitable for the planning, the harvest evaluation, and the forest monitoring.
3. evidence that the sustainable forest management plan was drafted and is monitored by a qualitied professional.
4. evidence that plant species are botanically identified during the pre-harvest inventory by qualified professionals, and that existing official species lists are considered.
5. evidence that the parties responsible for the sustainable forest management plan are clearly defined and identified.
6. evidence that the sustainable forest management plan is revised to incorporate the results of monitoring, when applicable.
7. evidence that a summary of the sustainable forest management plan that is appropriate for the organization's size and intensity of its forest management activities is available to the public and contains information about the overall objectives and principles of forest management. Confidential information, or sensitive information related to the protection of cultural sites or natural resources may be omitted.
8. existence of annual operation plans approved by the relevant authority that specify the forest management operations that will be carried out during the period. The goals of the operational plans shal include the maintenance, conservation, or improvement of biodiversity at the landscape, ecosystem, species, and genetic levels.
9. existence of documented procedures for the following activities in order to ensure that they are carried out as described in the sustainable forest management plan:
   * forest inventory and production planning.
   * planning of infrastructure, including roadway network, skid trails, and log yards.
   * construction and worksite maintenance.
   * forestry activities.
   * harvesting and transport of forest production.
   * preparation for and response to emergencies and respective contingency plans.
10. evidence that the documented procedures are kept up to date.

#### Criterion 2.2

The organization shall adopt strategies oriented toward sustainable use and management of forest resources.

Indicators:

1. evidence that practices which indicate efficient and environmentally appropriate utilization of the forest resources produced are adopted.
2. evidence that the feasibility of reducing and/or utilizing waste from harvested trees has been assessed, and that those that prove to be technically and economically viable and environmentally friendly are implemented.
3. existence of a harvesting plan, where non-wood forest products will be traded, that follows best practices in sustainable forest management and is approved by the relevant authorities, where applicable. This harvesting plan shall be compatible with the activities described in the forest management plan and with the use of these non-wood forest products by local and traditional communities and indigenous peoples.
4. evidence that the harvesting intensity of wood and non-wood forest products that are commercially utilized by the organization do not exceed the long-term replacement rates and allow natural regeneration to guarantee the quality and quantity of the forest resources over the long term, according to the plan.

#### Criterion 2.3

The organization shall determine and provide the resources needed to develop, implement, maintain, and continuously improve oversight of its sustainable forest management system.

Indicators:

1. evidence that the organization conducted an economic feasibility study for its sustainable forest management plan, considering data from the forest sampling inventory, the species and products utilized, the timeline for carrying out the sustainable forest management plan, among other aspects.
2. evidence that the budget in each new annual operating plan (AOP) is compatible with the underlying data that led to its approval, and that beyond the operating costs of forest management, it also includes necessary investments and compliance with environmental and social commitments.
3. evidence that the organization has the human resources necessary to carry out the activities in each new annual operating plan (AOP), as well as to comply with its social and environmental commitments.
4. evidence that the economic feasibility of the forest management is periodically reevaluated, considering the possibilities of new species and new markets, as well as revenues from other economic activities related to all the relevant forest goods and services, when applicable.

#### Criterion 2.4

A system shall be implemented that permits tracking of the chain of custody for forest products, from their origin to transport and trading.

Indicators:

1. existence of updated forest register data that permit the tracking of individuals harvested from the management unit throughout the chain of custody.
2. existence of procedures implemented to identify, store, separate, and track forest products from their origin to transport and commercialization.
3. existence of records of movement, inventory, and sales control for forest products.
4. existence of sales and/or delivery documentation for commercialized goods from the assessed forest management unit that includes the following data:
   * client identification;
   * supplier identification;
   * identification of each product, including common name and scientific (species) name;
   * quantity delivered for each product covered by the documentation;
     + date document was issued;
     + claim for each product from the assessed forest management unit included in the aforementioned documentation;
     + code pertaining to the supplier's forest management unit certification.
5. evidence that only products from the assessed forest management unit were commercialized with the respective claim .

#### Criterion 2.5

The organization shall ensure that workers, and forest owners (when applicable) are trained and updated with regard to sustainable forest management as a prerequisite for planning and for the forest management practices described in this Standard.

Indicators:

1. existence of an ongoing training program for management, workers, and forest owners (when applicable) with relation to forest management, including:
   * objectives and goals of the sustainable forest management plan.
   * procedures and guidance related to the various requirements of this Standard, including environmental and social issues related to forest management.
   * safe working practices and guidelines related to the risks involved in work and preventative measures.
   * cautions related to areas of relevant ecological and social interest.
2. existence of records of trainings held according to the established program in order to ensure that the management plan and its procedures and guidelines are correctly understood and carried out.

### Principle 3 – Concern for environmental, cultural, and social aspects

The organization shall manage the forest in order to minimize negative effects from management activities on environmental value. Native ecosystems, areas of ecological and social interest, and biodiversity shall be maintained or improved. The criteria and indicators to be met are described in items 3.3.1 to 3.3.5.

#### Criterion 3.1

The organization shall identify and assess environmental value and impacts, including defining and implementing measures to avoid, minimize, mitigate, and (when necessary) compensate for these impacts

Indicators:

1. evidence that environmental values present in the forest management unit and surround areas that may be potentially affected by management activities are identified and assessed. This assessment shall be realized at a detail level and frequency compatible with the scale, intensity, and risk of management activities.
2. evidence that the potential impacts from management activities on the identified environmental values have been identified and assessed.
3. evidence that measures have been defined and implemented to maintain or enhance positive impacts on the environmental values.
4. evidence that measures have been defined and implemented to avoid, minimize, and (when necessary) compensate for these impacts on the environmental values.
5. evidence that the documented operational procedures considered recommendations to avoid, minimize, and mitigate negative impacts on environmental values.

#### Criterion 3.2

The integrity of native ecosystems and biodiversity shall be maintained or improved. Degraded areas within a forest management unit shall be recovered or restored, according to current legislation.

Indicators:

1. evidence that the species diversity, typical vegetation, and ecosystem where the forest management unit is located are recognized.
2. existence of measures to maintain or improve biodiversity.
3. evidence that the selection of trees for harvesting and the harvest intensity for each species considers the population structure of these species, their resilience, and legal requirements.
4. evidence that protective measures are taken to minimize the impact of domesticated animals on biodiversity (when applicable).
5. existence of maps, sketches, or images identifying degraded areas in the forest management unit, when present.
6. evidence of activities to recover degraded areas identified in the forest management unit, based on techniques adapted to the local conditions.
7. evidence that if exotic species are used in the forest management unit to recover areas, this is only done if the performance of these exotic species exceeds that of native species, and only with the approval of relevant authorities. In these cases, control measures shall be established in order to avoid imbalances in the native species and other negative environmental impacts.

NOTE The guiding principles of the Convention on Biological Diversity (CBD) to prevent, introduce, and diminish the impacts of exotic species that threaten ecosystems, habitats, or species are recognized guidelines for preventing invasive species.

#### Criterion 3.3

Measures to identify and protect endemic, rare, threatened, or endangered species

and their habitats are implemented in the forest management unit.

Indicators:

1. evidence of measures to identify and list endemic, rare, threatened, or endangered species that occur in the forest management unit which are appropriate to the scale of the organization.
2. evidence that endemic, rare, threatened, or endangered species are not exploited for commercial purposes, except when permitted by law.
3. evidence that measures are taken to protect endemic, rare, threatened, or

endangered species and their habitats within the forest management unit.

#### Criterion 3.4

Areas of relevant ecological and social interest which are recognized for their exceptional natural, social, cultural, or environmental attributes shall be identified, protected, maintained, or improved.

Indicators:

1. Evidence of assessment to identify areas of relevant ecological and social interest (see 2.4) in the forest management unit, including characterization and mapping
2. Evidence that stakeholder and/or specialists were consulted in the process of assessing areas of relevant ecological and social interest in the forest management unit
3. Existence of measures to protect, maintain, or improve relevant areas of ecological and social interest in the forest management unit
4. Identification of conservation units present in the area influenced by the operations, including assessment of the existence of operational and/or legal restrictions and how they apply to the forest management unit, when applicable.

#### Criterion 3.5

Conversion of land use by replacing natural ecosystems shall not occur except when justified. If severely degraded forests are converted into planted forests, this shall meet prior conditions established to add economic, ecological, social, and/or cultural value.

Indicators:

1. evidence of no conversion except for in justified circumstances.

NOTE This indicator does not consider conversion to cover activities to install the infrastructure necessary to implement and carry out the sustainable forest management plan such as main and secondary roadways, log yards, housing, and other infrastructure elements.

1. evidence that conversion only occurred in justified circumstances which:
   * is in compliance with national, regional, and local policy and legislation related to land use and forest management, including stakeholder consultations, offering them chances to participate in making the decision on conversion.
   * represents a small portion (no greater than 5%) of the managed area.
   * there are no significant negative impacts on threatened species, threatened ecosystems (including vulnerable, rare, or endangered ecosystems) culturally and socially important areas, and important habitats for threatened species or other protected areas.
   * Makes a contribution to long-term conservation, economic, and social benefits.
2. evidence that, if conversion of severely degraded forests into planted forests is under consideration, this process will add economic, ecological, social, and/or cultural value. Prerequisites to add this value are circumstances in which the conversion:
   * is in compliance with national, regional, and local policy and legislation applicable for land use and forest management, including stakeholder consultations, offering them chances to contribute to the decision-making on conversion;
   * does not have significant negative impacts on threatened species, threatened ecosystems (including vulnerable, rare, or endangered ecosystems) culturally and socially significant areas, and important habitats of threatened species or other protected areas;
   * safeguards protective functions of forests for society and other regulating or supporting ecosystem services;
   * safeguards socio-economic functions of forests, including the recreational function and aesthetic values of forests and other cultural services;
   * provides evidence that the degradation did not result from improper forest management processes by the same organization;
   * is based on credible evidence demonstrating that the area is neither recovered nor in the process of recovery.

NOTE When the planted forests involve a single species (monoculture), compliance with the ABNT NBR 14789 standard for implementing technical forest management guidelines is recommended, as well as the requirements associated with wood and non-wood products from this area.

### Principle 4 – Respect for natural resources in implementing management operations

Implementation of forest management operations shall consider the conservation and maintenance of native ecosystems, water, soils, and the air, and incorporate research findings. The criteria and indicators to be met are described in items 3.4.1 to 3.4.5.

#### Criterion 4.1

The organization shall implement forest management utilizing technologies and information that area appropriate to local characteristics.

Indicators:

1. evidence that the forest management employed is based on the findings of research and scientific studies conducted in conditions similar to those in the forest management unit when available, lower-impact management techniques or similar approaches shall be utilized
2. evidence that operating procedures incorporate technically-based results of successful experiments, tests, or studies carried out in conditions similar to those in the forest management unit.
3. evidence that the forest management contributes to research activities and data collection required for sustainable forest management, or supports relevant research activities conducted by other organizations, when applicable.

#### Criterion 4.2

Forest management techniques to protect the forests and control exotic species, pests, and diseases when necessary, shall be adopted.

Indicators:

1. existence of a plan to prevent and combat fires in the forest management unit, including records of fires and evidence that they were reported to the relevant authorities when required.
2. existence of measures to control exotic plant and animal species that could upset the balance between native species within the forest management unit, when applicable.

NOTE The guiding principles of the Convention on Biological Diversity (CBD) to prevent, introduce, and diminish the impacts of exotic species that threaten ecosystems, habitats, or species are recognized guidelines for preventing invasive species.

1. evidence that pesticides are not utilized in low-impact management activities in tropical native forests in the Amazon biome, particularly in order to control exotic pest species or diseases. Use in other activities associated with the sustainable forest management plan (for example on infrastructure earthwork slopes, log storage areas, to control invasive plants or animals due to edge effect, in fire control) shall only occur on an exceptional basis, and shall be preceded by a documented justification showing that alternate forestry, biological, or physical measures cannot be adopted.

NOTE 2 Native tropical forests, particularly in the Amazon biome, are characterized by their rich biodiversity and ecological balance in which the ecosystem itself regulates the development of fungi, bacteria, insects, and other living things. This balance is natural, and intended to perpetuate the biome. The introduce of any chemical or even biological agent specifically intended to eliminate classes or groups of species of living things is extremely harmful to its ecological balance.

#### Criterion 4.3

Construction of infrastructure and forest operations shall be planned and carried out in a way that preserves and maintains native ecosystems and water and soil resources.

Indicators:

1. evidence that construction of infrastructure and forest operations are carried out as planned in the planning stages and in the operational procedures and guidelines.
2. evidence that the infrastructure is planned and constructed and the forest operations are carried out in a way that minimizes damage to ecosystems, particularly rare, sensitive, or representative ecosystems and genetic reserves, and also considers the existence of endemic, rare, threatened, or endangered species or other key species, particularly their identified or known migration patterns.
3. evidence that forest operations are carried out in a way that prevents, minimizes, and mitigates (when necessary) soil degradation. Areas susceptible to erosion shall be considered, and the techniques and machinery utilized in the operations shall be adapted to the soil, topography, local climate conditions, as well as the characteristics of the managed forest resources.
4. evidence that forest operations are carried out in a way that prevents, minimizes, and mitigates (when necessary) adverse effects on water resources. the water balance and water quality downstream cannot be significantly affected by forest operations.
5. evidence that adequate infrastructure such as roadways, bridges, log yards, skid trails, and firebreaks is planned, constructed, and maintained in a way that minimizes exposed soil, avoids erosion, and preserves the level and natural function of permanent bodies of water.
6. evidence that when fertilizers are applied, procedures exist based on technical justifications that consider environmental concerns, along with evidence of control of their use. The use of fertilizers cannot be an alternative to adequate management of soil nutrients.
7. evidence that vehicles, machinery, and equipment that use oil-based fuels are maintained in a good state of repair to control emission of atmospheric pollutants.

#### Criterion 4.4

The organization shall establish adequate measures for storage, transport, and use of pesticides, oils, and fuels.

Indicators:

1. Existence of procedures for adequate, minimal pesticide use in line with current legislation and internationally accepted scientific protocols, when these procedures are required on an exceptional basis for activities associated with the sustainable forest management plan (for example: on infrastructure earthwork slopes, log storage areas, to control invasive plants or animals due to edge effects, in fire control).
2. evidence that except for under government order, the organization does not use highly toxic pesticides that:
   * are prohibited by current legislation.
   * are prohibited by international agreements such as the Stockholm Convention, Rotterdam Convention, and Montreal Protocol.
   * contain chlorinated hydrocarbons, the derivatives of which remain biologically active and accumulate in the food chain well beyond the intended use.
   * are included in the WHO pesticide classifications 1a or 1b.
3. evidence that when pesticides are utilized, the technical recommendations for handling, preparation, and application of such products are followed.
4. existence of records of pesticide use, including but not limited to:
   * trade name and active ingredient.
   * quantity of product applied.
   * dates of application.
   * location and area of application.
     + reason for/target of application.
     + method of application.
     + workers involved in application.
5. evidence that the equipment utilized to apply pesticides is maintained in suitable conditions.
6. evidence that pesticides, oils, and fuels are stored in accordance with manufacturer recommendations and current legislation.
7. evidence that pesticides, oils, and fuels are transported between the storage location and the field in accordance with manufacturer recommendations and current legislation.
8. evidence that the workers who handle or apply pesticides are trained and carry out these tasks while utilizing appropriate personal protective equipment.

#### Criterion 4.5

The organization shall adopt and implement an environmentally appropriate management plan for solid waste and effluents/wastewater in accordance with applicable legislation.

Indicators:

1. existence that an environmentally appropriate management plan for solid waste and effluents/wastewater is implemented in accordance with applicable legislation.
2. existence of records of environmentally appropriate redirection and/or final disposal of hazardous waste, in accordance with current legislation.
3. evidence that other liquid and solid waste is treated, redirected, or disposed of in an environmentally appropriate manner, in accordance with current legislation.
4. existence of emergency procedures to address spills or leaks of hazardous products in order to minimize environmental damage.

### Principle 5 – Environmental, social, and economic development in regions where forest activity occurs

The organization shall adopt practices to adequately maintain or impact environmental, social and economic values in the regions where the forest activity occurs.

The organization shall effectively communicate with and engage with workers, local and traditional communities, indigenous peoples, and other stakeholders related to the forest management.

The criteria and indicators to be met are described in items 3.5.1 to 3.5.3.

#### Criterion 5.1

The organization shall identify and assess the environmental, social, and economic values for stakeholders. The impacts on these values shall be identified and assessed, and

measures to avoid, minimize, mitigate, and (when necessary) compensate for these impacts shall be defined and implemented.

Indicators:

1. evidence that stakeholders affected by forest management and associated activities are identified and mapped.
2. evidence that the environmental, social, and economic values are identified and assessed, considering stakeholder needs and expectations. This assessment shall include values that could be affected by the forest management and associated activities, and shall be conducted at a detail level and frequency compatible with the scale of the organization and the intensity and risk of management activities.
3. evidence that potential impacts of forest management and associated activities on environmental, social, and economic impacts for stakeholders have been identified and assessed via a participatory process.
4. evidence that measures have been defined and implemented to avoid, minimize, and (when necessary) compensate for negative impacts on the environmental, social, and economic values for stakeholders as a result of forest management and associated activities.
5. evidence that operational planning includes recommendations to avoid, minimize, and mitigate negative impacts on the environmental, social, and economic values for stakeholders.
6. evidence of measures to maintain or improve positive impacts on the environmental, social, and economic values for stakeholders.

#### Criterion 5.2

The organization's relationships with local and traditional communities and indigenous peoples shall value traditional knowledge and raise awareness about sustainable use of natural resources.

The organization shall consider the role of its activities in local economies and promote activities that contribute to the health, well-being, and environmental education of its workers, and when viable, of local and traditional communities and indigenous peoples.

Indicators:

1. evidence that when natural resources from the management unit are utilized by local and traditional communities and indigenous peoples, the organization promotes or collaborates in activities to raise awareness about the sustainable use of these resources in order to minimize environmental impacts.
2. evidence that the intellectual property of these traditional communities and indigenous peoples, when utilized by the organization for commercial purposes, is compensated as agreed between the parties and in accordance with legal requirements.

NOTE The expression "intellectual property of traditional communities and indigenous peoples" is considered in this Standard in a broad sense and not interpreted strictly (with official registration of intellectual property).

1. Evidence that forest-related experience, traditional knowledge, innovation, and practices are shared with stakeholders by the organization via engagement efforts,

utilized in the most appropriate manner, and that their sharing is encouraged, when applicable

1. evidence that traditional management practices that create valuable ecosystems in appropriate locations are supported, when relevant.
2. evidence that local communities, including indigenous peoples, are considered when employment and training opportunities are available in various forest management activities.
3. evidence that local providers of products and services are prioritized in order to stimulate the regional economy.
4. existence of activities that encourage worker health, literacy, safety, and hygiene, which can also be accessed by their direct dependents, according to the size of the organization. When feasible, these activities shall be extended to local and traditional communities and indigenous peoples.
5. existence of environmental education programs implemented with the workers, in accordance with the size of the organization. When feasible, these programs shall be extended to local and traditional communities and indigenous peoples.

#### Criterion 5.3

The organization shall maintain effective communication and consultation with local and traditional communities, indigenous peoples, and other stakeholders related to forest management which also make it possible to resolve complaints, conflicts, and litigation.

Indicators:

1. existence of communication channels and procedures that allow effective dialog and consultation with local and traditional communities, indigenous peoples, and other stakeholders related to forest management.
2. existence of appropriate mechanisms to resolve complaints, conflicts, and litigation related to forest management operations and associated activities. evidence that mediation or conciliation was sought to resolve such issues, when applicable.
3. existence of records that protests by stakeholders were received and analyzed, decisions made, and responses provided.

### Principle 6 – Assessing performance and continuous improvement

The organization shall have a system to monitor, assess, and critically analyze the performance of the sustainable forest management system that includes environmental, social, and economic aspects for continuous improvement.

The criteria and indicators to be met are described in items 3.6.1 to 3.6.4.

#### Criterion 6.1

The organization shall conduct monitoring to assess its environmental, social, and economic performance, in accordance with the scale of the organization and its management objectives.

Indicators:

1. evidence that environmental, social, and economic aspects to be monitored by the organization have been defined.
2. existence of indicators and goals related to the monitored environmental, social, and economic aspects, with frequency and intensity that are in line with the scale of the organization and the management objectives.
3. existence of monitoring for pending administrative and legal issues related to the organization's compliance with legislation, including planned and executed activities as well as time frames for execution.
4. existence of monitoring (of documents and in the field) related to compliance with labor law, including collective or individual agreements and collective conventions, which apply to the workers that carry out activities in the forest management unit.
5. existence of monitoring (of documents and in the field) related to compliance with legislation and regulatory standards related to workplace health and safety which apply to the workers that carry out activities in the forest management unit.
6. Existence of monitoring of the effectiveness of the mechanisms to protect against and control illegal and unauthorized activities, inducing recording incidents of such activities in the forest management unit.
7. existence of monitoring forest growth and productivity, as well as control of the production of wood products managed by the organization.
8. existence of monitoring of productivity and control of non-wood products managed by the organization
9. existence of monitoring of the efficacy of measures to avoid, minimize, mitigate, or compensate for significant negative environmental impacts caused by the forest management activity and associated activities.
10. existence of monitoring of measures to protect, maintain, or improve areas of relevant ecological and social interest.
11. existence of monitoring for the presence of exotic plant and animal species that could upset the balance between native species within the forest management unit, when applicable.

NOTE The guiding principles of the Convention on Biological Diversity (CBD) to prevent, introduce, and diminish the impacts of exotic species that threaten ecosystems, habitats, or species are recognized guidelines for preventing invasive species.

1. existence of monitoring of the efficacy of measures to avoid, minimize, mitigate, or compensate for significant negative social and economic impacts caused by the forest management activity and associated activities.

#### Criterion 6.2

The organization shall plan, implement, and maintain an internal auditing program in order to verify compliance with the requirements of this Standard

Indicators:

* + - 1. existence of an internal auditing program in order to verify compliance with this Standard that is in line with the scale of the organization and the intensity of management activities, including:
         * frequency.
         * methods.
         * responsibilities.
         * criteria and scope.
      2. evidence that the internal auditing program is planned, implemented, and maintained.
      3. evidence that the results of previous audits are considered.
      4. evidence that the audit process is conducted in an objective and impartial manner.
      5. evidence that the results of the internal audits are documented and reported to the relevant management.

#### Criterion 6.3

The organization shall implement activities to address any non-conformities identified in order to minimize their consequences and avoid recurrence.

Indicators:

1. evidence that appropriate measures are taken to control, correct, and mitigate (when applicable) damage caused by any identified non-conformities.
2. evidence that the identified non-conformities are analyzed in order to:
   * determine causes.
   * determine whether similar non-conformities exist or could occur.
   * determine appropriate corrective measures to eliminate the identified causes in order to avoid recurrence of the non-conformity.
3. evidence that corrective measures defined to eliminate the identified causes were implemented and their effectiveness analyzed.
4. documented evidence of the non-conformities identified, the corrective measures implemented, and their results.

#### Criterion 6.4

The organization shall conduct annual management review and incorporate the results for continuous improvement of the sustainable forest management.

Indicators:

1. evidence that the organization's top management promotes annual management review .
2. evidence that the management review consider:
   * the status of activities in prior management review .
   * changes in external and internal issues that are relevant for the sustainable forest management system.
   * information about the organization's environmental, social, and economic performance, including trends in:
     + non-conformities and corrective measures.
     + monitoring results.
     + audit findings.
   * opportunities for continuous improvement.
3. evidence that the results of management review include decisions related to continuous improvement and the need for changes in the management system and execution of forest management and associated activities.
4. evidence that the results of the management review are documented and maintained.
5. evidence that compliance, improvement, and efficacy of the sustainable forest management system are continuously improved.

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