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ANNEX 1

**IRAM 39801:2010. Sustainable Forest Management.
Principles, criteria and indicators for the management units.**

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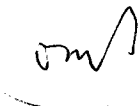
Principles, criteria and indicators for the management unit



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Foreword

The Argentine Institute of Standardization and Certification (IRAM) is a private non-profit organization, the specific objectives of which are, in its character of Argentine Organization for Standardization, to establish technical standards, without limitations in scope, apart from being prone to knowledge and application of standardization as the base of quality, promoting activities of certification of products and systems of quality in companies to provide the consumer with safety.

IRAM is the representative of Argentina in the International Organization for Standardization (ISO), in the Pan American Standards Commission (Comisión Panamericana de Normas Técnicas – COPANT) and in the MERCOSUR Association of Standardization (Asociación MERCOSUR de Normalización – AMN).

This IRAM standard is the result of the technical consensus among the different sectors involved, which have intervened in the corresponding Standard Setting Forums through their representatives.

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Sustainable forest management

Principles, criteria and indicators for the management unit

1 SCOPE

This standard establishes the principles, criteria and indicators for sustainable forest management regarding native forests and cultivated forests and it is applicable to the management unit, whether this is managed by a forest producer or by a group of these.

2 NORMATIVE DOCUMENTS FOR CONSULTATION

Every normative document mentioned below is essential for the application of this document.

When normative documents containing the year of publication are mentioned in the list, this means that that edition shall be applied, otherwise, the edition in force shall be applied, including all its changes.

ILO – C87 - Convention concerning Freedom of Association and Protection of the Right to Organise, 1948.

ILO – C98 - Convention concerning the Application of the Principles of the Right to Organise and to Bargain Collectively, 1949.

3 DEFINITIONS

For the objectives of the present standard the following definitions are applied:

3.1 environmental aspect. An element of the activities, products or services of an organization which can interact with the environment.

NOTE: A significant environmental aspect; it is an environmental aspect which has or can have a significant environmental impact.

3.2 forest. A community of plants, mainly trees and woody vegetation which grow together, their soil, flora and fauna, their mutual relationships, the resources and values attributed to it.

NOTE: Forests vary markedly around the world depending on the weather, soils, history and culture of the country involved. Many countries have a definition of forest included in their legislation.

3.3 native forest. Natural forest ecosystems mainly composed by native tree species, with various associated flora and fauna species, together with the surrounding environment: soil, subsoil, atmosphere, weather, water resources, making an interdependent weave with its own characteristics and multiple functions, which in their natural state provides the system with a condition of dynamic balance and which gives various environmental services to the society, apart from the various natural resources with a possibility of economic use.

NOTE 1. The definition includes native forests of primary origin, where men did not intervene, as well as those of secondary origin formed after a clearing, like those resulting from a voluntary recomposition or restoration.

NOTE 2. Extracted from article 2 of the National Act N° 26331.

3.4 cultivated forest. A forest obtained through the sowing or planting of native or exotic timber-yielding species ecologically adapted to the place, mainly with industrial or commercial ends, in lands which can be afforested or reforested because of their natural conditions, location and aptitudes.

NOTE: Extracted from article 4 of the National Act N° 25080.

3.5 local community. A neighbouring human community or adjacent to the forest management unit.

3.6 criterion. A category of conditions and processes by means of which forest sustainable management can be

evaluated.

NOTE 1. Extracted from Section 2 Definitions of the Montreal Process.

NOTE 2. A criterion is a state or an aspect of the dynamic process of the forest ecosystem, or a state of the interacting social system, which should be in place as a result of adherence to a principle. The way criteria are formulated should give rise to a verdict on the degree of compliance in an actual situation.

3.7 biological diversity. Variability of living organisms of any source, including, among others, terrestrial and marine ecosystems, other aquatic ecosystems and ecological complexes they are part of. It includes the diversity within every species, among species and the ecosystems'.

NOTE. Extracted from article 2 of the Convention of Biological Diversity.

3.8 document. Information and its means of support.

NOTE. The means of support can be paper; a magnetic, optic or electronic disc; a photograph or pattern sample or a combination of these.

3.9 ecosystem. A dynamic complex of plants, animals, microorganisms, fungi and their abiotic environment, interacting as a functional unit.

NOTE. Extracted from article 2 of the Convention of Biological Diversity.

3.10 sustainable forest management. Stewardship and use of forests and forest lands in a way and at a rate that maintains their biodiversity, productivity, regeneration capacity, vitality and their potential to fulfill, now and in the future, ecological, economic and social functions relevant at a local, national and global level, and without causing any damages to other ecosystems

NOTE. Extracted from item D of Resolution H1 – General guidelines for the sustainable management of forests, Second Ministerial Conference on the Protection of Forests in Europe, Helsinki 1993.

3.11 singular habitat. An area or sector which belongs to the unit of management, normally of little extension, which is special for having singular natural characteristics which deserve to be preserved.

NOTE. A singular habitat constitutes a kind of environment which can be found replicated in space, like stream banks, mature forests, forests in a pristine state or with limited human intervention, rocky places, among others.

3.12 environmental impact. Any change in the environment, whether adverse or beneficial, wholly or partially resulting of the environmental aspects of an organization.

3.13 indicator. A quantitative or qualitative variable which can be measured or described and when it is observed periodically, it shows tendency.

NOTE 1. Extracted from Section 2 of the Montreal Process.

NOTE 2. An indicator is a qualitative or quantitative parameter which is assessed in relation with a criterion. The indicator describes, in a non-ambiguous and objectively verifiable way, the state of an aspect of the criterion which it refers to.

3.14 genetically modified organism (GMO). Any organism which has a new combination of genetic material obtained by applying modern biotechnology.

NOTE 1. By *modern biotechnology*, the following is understood:

a) In Vitro techniques of nucleic acid, including recombinant deoxyribonucleic acid (DNA) and the direct injection of nucleic acid in cells or organelles, or

b) The fusion of cells beyond the taxonomic family, which exceed the natural physiological barriers of reproduction or of recombination and which are not techniques used in reproduction and traditional selection.

NOTE 2. Extracted from the Appendix of Resolution 39/2003 of the National Secretariat of Agriculture, Livestock, Fisheries and Food.

3.15 interested party. An individual or group interested in or affected by activities of the forest management unit.

3.16 plan. A continuous and documented process, which establishes objectives and goals and implements programs to achieve them.

3.17 management plan. An instrument which regulates the rational exploitation and use of renewable natural resources of the management unit, with the aim of obtaining their maximum benefit, assuring at the same time the preservation, conservation, improvement and increase of such resources and their ecosystem.

NOTE. The management plan includes, at least, the following:

- legal aspects, in particular the matter concerning the possession or control of land;
- description and characterization of the place and the forest resource;
- appropriate cartography;
- definition of management objectives;
- economic-financial planning and accounting statements;
- annual plan of forest operations;
- a silvicultural system consistent with management objectives;
- activities to be executed contained in the silvicultural treatment;
- specifications, technical prescriptions and protection measures of the environment and hydrographic basins necessary to protect the soil, courses and water masses, flora and fauna.
- limitations and environmental risks;
- identification and evaluation of the relevant impacts and aspects of the activities in the management unit;
- protection measures to prevent damages caused by fires, plagues, weeds and illnesses, harmful agents and other disturbances.

3.18 principle. A fundamental law or rule serving as a basis for an action, and which expresses a type of objective or concerning the function of the forest ecosystem and the relevant aspects of the related social system.

3.19 procedure. A specified way to carry out an activity or process.

NOTE. The procedures can be documented or not.

3.20 process. A set of mutually related activities or activities which interact, which transform entry elements into results.

3.21 chemical product. The variety of fertilizers, herbicides, pesticides, fungicides, hormones, fuel and lubricants which are used in the management unit.

3.22 forest producer. A physical or legal person responsible for the operations of the resource management and the forest company, as well as for the management structure and system, the planning and of the field works.

3.23 program. An organized series of actions which tends to achieve particular objectives. It shall specify functions, responsibilities, processes, resources, deadlines and priorities.

3.24 forest resources. They include the resources which are found in forests and in other wooded land, and the trees outside the forest.

NOTE. Extracted from the Update of the evaluation of world forest resources until 2005. Terms and definitions (definite version). FAO 2004.

3.25 road network. A set of streets and roads used for movement, personal transportation, machines, equipment and product supply in the forest management unit.

3.26 record. A document which shows obtained results or provides evidence of performed activities.

3.27 monitoring. A continuous evaluation which allows to determine the occurrence, size, direction and importance of the changes which take place in key indicators of forest management.

NOTE. In the jargon of the forest sector, the term *monitoring* is used when referring to follow up.

3.28 silvicultural system. A planned program of treatments throughout the stand to achieve stand structural objectives, be they for wood production or other values, based on integrated resource management goals.

NOTE. A silvicultural system includes the harvest, regeneration and intermediate treatments of the stand and covers all the activities for the complete extension of a rotation or cutting cycle.

3.29 a priority place for conservation. An area which has ecological, biological or sociocultural values, considered of big or critical importance at a local, regional or global scale.

NOTE. When identifying the areas, the presence of some of the following attributes is considered:

- areas with concentrations of values of biological diversity (endemisms, critical endangered species, endangered species, vulnerable species, fauna refuges, resting places for migratory birds, nesting places, unique species assemblies, among others);
- wooded areas which constitute rare ecosystems, rare ecosystems or both threatened or endangered;
- areas where special processes appear: volcanism, natural floods;
- wooded areas which provide environmental services in critical situations (protection of basins, protection of recharge zones, protection of hillsides, among others),
- areas with critical cultural, religious and economic value for local communities.

3.30 forest worker. A worker who acts at the forest management unit, as a self-employed worker or with a direct work tie with the organization or with service provider companies.

3.31 management unit. An area which is subject to sustainable forest management.

NOTE. The management unit is the area of land mainly covered in forests and clearly demarcated, managed by a series of explicit objectives and in accordance with a management plan.

4 PRINCIPLES, CRITERIA AND INDICATORS

The principles established in this standard constitute the reference for sustainable forest management and are developed on the basis of the criteria and indicators of the Montreal Process.

NOTE 1. The Montreal Process is the Group of work about criteria and indicators for the conservation and sustainable management of temperate and boreal forests, created by initiative of the non-European countries which have temperate and boreal forests, to elaborate and motivate the application of criteria and indicators agreed at an international level for the forest sustainable management.

NOTE 2. The Criteria and Indicators of the Montreal Process foresee their application nationwide in all the forests of a country and in every kind of land ownership, and consider sustainable forest management globally, taking into account all the products, values and forest services. The participating countries, when adopting these criteria and indicators, engage in trying to achieve sustainable management of all their forests.

NOTE 3. Argentina has adhered to the Montreal Process since 1995, and it has participated actively at the meetings of the Group of Work of Montreal and the Technical Consultant Committee (TCC).

The principles are itemized in criteria which are the expression of situations or aspects of the dynamic process of the forest ecosystem or a situation of the associated social system.

The verification of the compliance of every criterion is established through the careful evaluation of a set of specific indicators, subordinate to it, which can be quantitative or qualitative. Depending on the location and the objective of the management unit, not every indicator is applicable, is present or is as important. It is always necessary to guarantee all those corresponding to a local situation.

In this way, a hierarchical structure of principles, criteria and indicators which have to allow the monitoring and demonstration of forest management sustainability is defined.

The implementation of a criterion is considered complied with when it is demonstrated that the respective indicators are properly complied with. At the same time, a principle is considered implemented when it is confirmed that the respective criteria are complied with. Finally, forest management is considered to be implemented in accordance with this standard when there is evidence that the following principles are complied with:

4.1 Principle 1 – Compliance with the law

The forest producer shall respect the Argentine laws and regulations of national, provincial and municipal order which are in force, legally binding international treaties and conventions of which the country is signatory, as well as the signed commitments for the management unit. In the same way, they shall demonstrate a long term commitment to the principles, criteria and indicators of this standard.

4.1.1 Criterion 1.1. The forest producer performs the activities corresponding to the management unit in accordance with the laws and regulations applicable and in force.

Indicators:

- a) proceedings of identification and update of laws and regulations applicable to the management unit, including among others, forest, environmental, work, on transportation and on use and rights of land ownership.
- b) compliance with applicable laws and regulations related to the activities of the management unit;
- c) the implemented management plan approved by the competent authority;

NOTE. The cases in which the application authority requests so.

- d) the forest producer complies with the policies, procedures, reference manual and codes of practice which are signed or defined for the management unit.
- e) the service providers comply with the laws and regulations applicable to their activity.

4.1.2 Criterion 1.2. The possession and the long-term rights of use on the land and the forest resources of the management unit are clearly defined, documented and legally established.

Indicators:

- a) the forest producer has a suitable and updated document which proves their right of use of the land or the forest resources of the management unit.

NOTE. The accreditation is done by means of some of the titles recognized by the Argentine legislation (a title deed, a lease or concession contract, a real surface right, recognition of traditional rights, etc., and the right of use is for a period which is coherent with the planning horizon of the management plan).

- b) cartography which indicates the status of ownership of each management unit area;
- c) the limits of the management unit are legally determined;
- d) the forest producer acts in an effective way for the resolution of possible legal conflicts and conflicts of any kind related to the possession of land and damages caused to third parties;
- e) in lease or concession contracts, soil purchase or forestry projection, the amounts arranged with the owner are paid.

4.1.3 Criterion 1.3. The forest producer knows and respects the legally binding international treaties and conventions of which the country is signatory, applicable to the management unit.

Indicators:

- a) updated record and knowledge of the international treaties and conventions which apply to the management unit;

b) appropriate measures are implemented to assure the compliance of the convention articles and corrective actions are taken in case of breach;

c) records of the fact that forest workers have been trained on conventions and treaties applicable to the management unit.

4.1.4 Criterion 1.4. The forest producer pays all the fees, taxes, royalties and other charges legally established and applicable.

Indicator:

records which show the compliance of the work, tax, commercial, professional and contractual obligations.

4.1.5 Criterion 1.5. The forest producer assumes a long-term commitment to support the principles and criteria of this standard.

Indicators:

a) the forest producer makes public and documents their commitment to provide long-term support to the principles and criteria of this standard.

b) long-term planning of sustainable forest management in the management unit;

c) service provider companies know and respect the principles and criteria of this standard.

4.2 Principle 2 – Search for forest resources sustainability

The forest producer shall plan and implement forest resource management in a sustainable way, so as to maintain or increase the production of goods and forest, environmental and social services through time, in accordance with a long-term forest management plan, appropriate to the operations scale and applicable to the management unit.

4.2.1 Criterion 2.1. There is a management plan which is documented, updated and implemented, consistent with its objectives and with the scale of the considered entrepreneurship which assures the compliance of the principles defined by this standard.

Indicators:

a) a documented and updated management plan where the management objectives, the means and activities to achieve them and a description of the social and environmental characteristics of the management unit and adjacent areas are clearly specified, which assures the compliance of the principles defined by this standard.

b) the management is economically feasible in the long term;

c) planned management activities reflect correspondence with those which are executed;

d) traditional activities carried out in the management unit by indigenous and other members of the local community are agreed to and are contemplated in the management plan;

e) an implemented procedure of the management plan update which contributes with the continuous improvement of forest management;

f) a summary of the management plan available to the interested parties.

4.2.2 Criterion 2.2. In the management plan the uses and possession regime of the different areas of the management unit are defined.

Indicators:

a) updated cartography where the areas with their present and potential uses and the possession regime are delimited;

NOTE. The periodic update of the cartography allows to reflect the changes in the areas use and the situation of the forest

resources.

b) the prescriptions contained in the management plan reflect correspondence with those which are executed in the land.

4.2.3 Criterion 2.3. The applied silvicultural treatments are clearly specified and justified in the management plan and they assure that the forest resources are sustainable in the long term.

Indicators:

a) the silvicultural processes applied are based on the ecology, on the dynamics or on both, of each place and on information obtained through forest inventories of the management unit and they make sure that forest resources are sustainable in the long term.

b) an implemented procedure for the performance of forest inventories;

c) in case there is not enough technical information on the ecology and dynamics of the place, the silvicultural treatments are defined on the base of the precautionary principle and these make sure that the forest resources are sustainable in the long term.

4.2.4 Criterion 2.4. The harvest rate of forest, timber and non-timber products used is technically justified in the management plan and assures the maintenance or the increase of the production of goods and services.

Indicators:

a) the defined and used harvest rate is based on valid technical information and records of periodic inventories;

b) the defined and used harvest rate maintains or increases the production of goods and services;

NOTE. The extraction or harvest rate does not exceed the forest possibility, so as to maintain or improve its quality and productivity.

c) in all the harvested forest surface in the management unit, an adequate regeneration or an adequate reforestation or an adequate regeneration and reforestation is assured;

NOTE. It is considered adequate when it is verified that the regeneration of the native forests and the establishment of plantations are effective and appropriate.

d) the composition of species and the density of the native forests regeneration and the degree of establishment of the plantations are evaluated and corrective measures are adopted, when it is necessary, to assure an effective regeneration, or an effective establishment or effective regeneration and establishment.

4.2.5 Criterion 2.5. In the management plan, actions to optimize the generation and exploitation of goods and services and to stimulate their diversification in the long term are foreseen.

Indicators:

a) the management plan considers and foresees mechanisms for the diversification and use of other forest, timber and non-timber, commercial and non-commercial products;

b) planning and implementation of actions which tend to maintain or increase the future value of the forest resources of the management unit;

c) adoption of techniques to minimize the waste of forest products associated to the *in situ* transformation and exploitation operations;

d) implementation of techniques, actions or both to minimize forest operations damages to the remaining forest;

4.2.6 Criterion 2.6. The introduction of genetic material and its use is controlled and evaluated

Indicators:

a) records of experience in the locality or region about the fact that the genetic material to be introduced has had no negative environmental, social or economic impacts;

b) an updated and implemented procedure to monitor and evaluate the productive potential and the possible environmental, social and economic impacts of the genetic material introduced;

c) compliance of the regulations in force with regard to the release of genetically modified vegetable organisms into the environment;

4.2.7 Criterion 2.7. The planning and implementation of forest management maintains the forest contribution to the carbon cycle.

Indicators:

a) the forest producer recognizes the ability of the forests to act as *carbon drain*;

b) the forest producer implements actions to reduce emissions of greenhouse gases.

4.3 Principle 3 – Maintenance of forest resources vitality, health and productivity

The forest producer shall plan and implement the forest resources management in a sustainable way, so as to maintain its productivity, health and vitality.

4.3.1 Criterion 3.1. The forest producer implements forest practices appropriate to local peculiarities and justified throughout the project which assure the vitality, health and productivity maintenance of forest resources.

Indicators:

a) the definition of the used silvicultural system is based on results from studies and research carried out for conditions similar to the ones of the management unit and assures the vitality, health and productivity maintenance of forest resources;

b) documented, updated and implemented procedures for forest production processes which assure the vitality, health and productivity maintenance of forest resources;

c) the equipment, machines and consumables used are appropriate to the local conditions of topography, soil, weather and characteristics of the forest resources produced and they assure the vitality, health and productivity maintenance of forest resources;

d) implemented training programs and courses for forest workers on the tasks they perform and on how these contribute to the vitality, health and productivity maintenance of forest resources.

4.3.2 Criterion 3.2. The forest producer adopts effective measures to maintain and if necessary to recover the productive capacity of the management unit soils.

Indicators:

a) adoption of techniques which assure the maintenance of the soil productive capacity;

b) soils which present nutritional deficiencies, or structural deficiencies, or nutritional and structural deficiencies as a consequence of forest activity are recovered using appropriate methods;

c) the *in situ* transformation and the harvest waste are arranged in the forest so as to favor the *natural nutrient cycling*, avoid erosion and maintain the place productivity.

4.3.3 Criterion 3.3. The forest producer plans and controls harmful pathogenic agents following the guidelines of integrated management so as to assure the vitality, health and productivity maintenance of forest resources.

Indicators:

a) identification of the potential harmful and pathogenic agents which require control;

NOTE. When identifying potential harmful and pathogenic agents, plagues, weeds, illnesses and livestock (overgrazing and browse) are considered, when this affects the health and vitality of forest resources.

b) a procedure implemented for the prevention and control of harmful and pathogenic agents which considers the

best practices available and assures the vitality, health and productivity maintenance of forest resources;

c) forest workers responsible for the prevention and control of harmful and pathogenic agents are trained for the work they perform.

4.3.4 Criterion 3.4. The forest producer adopts a responsible program of use of chemical products in general which assures the vitality, health and productivity maintenance of forest resources.

Indicators:

a) use of chemical products which are not prohibited by international agreements or laws in force in the country;

b) the use of chemical products is limited to situations where there is no other economic or technically feasible and effective alternative;

c) updated record of chemical products purchased, stored and used in the management unit which includes the safety sheet of the product;

d) a documented and implemented procedure for the appropriate transportation, handling, use and storage of chemical products and maintenance and cleaning of equipment used in accordance with the laws and regulations in force and with the manufacturer instructions, which assure the vitality, health and productivity maintenance of forest resources;

e) a documented and implemented procedure to prevent and mitigate negative impacts caused by the use of chemical products;

f) implemented procedures of chemical products use consider weather, soil and topographic conditions;

g) forest workers who work with chemical products are trained and use appropriate personal protective equipment.

4.3.5 Criterion 3.5. The forest producer adopts effective measures to prevent, detect and control forest fires.

Indicators:

a) an implemented program, to prevent and control the occurrence of forest fires;

b) training for forest workers on how to prevent and control forest fires.

4.4 Principle 4 – Biological diversity maintenance

The forest producer shall plan and implement the forest resource management in a sustainable way, so as to maintain or improve biological diversity and ecosystem functions present in the management unit.

4.4.1 Criterion 4.1. Forest management is planned and executed so as to maintain biological diversity values and ecosystem functions present in the management unit and so as not to reduce the native forest surface of value for conservation or of another kind of vegetation of value for conservation.

Indicators:

a) the planning and implementation of plantations and the works of infrastructure and services identify the areas suitable for each use or areas subject to transformation envisaged by the legislation, or both kinds of areas;

b) the planning and management for areas not affected for plantations (native forest) identify the key elements for the functioning of the ecosystem and assure their maintenance;

NOTE. Those forest species or those forest structures, or both, whose disappearance causes a cascade effect in the ecosystem, determining the disappearance of other components so that the changes in the bio-mass of the ecosystem widely exceed those produced by their only removal are considered key elements for the functioning of the ecosystem. The *key species* help to structure the ecosystem they are part of.

c) the planning and management of the plantations and works of infrastructure and services assure the connectivity of the natural systems of the management unit or the areas adjacent to it;

NOTE. The connectivity of natural systems or design of an interconnected landscape is achieved through corridors of an appropriate size (functional) which connect remaining patches of the original native system and protected areas, between each other.

- d) the planning and management promote the species and ecosystems diversity;
- e) the planning considers actions to prevent the reduction of genetic diversity;
- f) planned activities reflect correspondence with those which are executed and assure the maintenance of biological diversity values and the functions of present ecosystems.

4.4.2 Criterion 4.2. In the planning of forest management, singular habitats and priority places for conservation present in the management unit are identified.

Indicators:

- a) procedures for the identification of singular habitats and priority places for conservation present in the management unit.

NOTE: When the identification of singular habitats and priority places for conservation takes place, protected areas already established, of any land or jurisdiction, adjacent or which include the management unit in part or in its entirety are considered in the same way.

- b) identification in the cartography of the management plan and the land of singular habitats and the defined priority places for conservation.

4.4.3 Criterion 4.3. The singular habitats and priority places for conservation have specific prescriptions, included in the management plan and based on the precautionary approach, which assure the maintenance or increase of their values.

Indicators:

- a) every singular habitat and priority place for conservation has specific management objectives which assure the maintenance or increase of their values;
- b) buffer zones adjacent to singular habitats and priority places for conservation in the management unit.
- c) in conservation zones the presence of invading wooded species and bushes is minimized;
- d) a monitoring program to evaluate the maintenance of the values of every singular habitat and priority place for conservation.

4.4.4 Criterion 4.4. Rare, vulnerable, endangered and critically endangered for conservation species, as well as their habitats have specific prescriptions of protection, included in the management plan, which assure their conservation.

Indicators:

- a) implemented procedures for the identification and record of rare, vulnerable, endangered and critically endangered for conservation species, and their habitat, present in the management unit;

NOTE. In the identification of rare, vulnerable, endangered and critically endangered for conservation species, it is considered what is important in the red books or what is stated by the competent authority, among others.

- b) identification in the cartography of the management plan of rare, vulnerable, endangered and critically endangered for conservation species and their habitats;
- c) adoption of practices for the protection of rare, vulnerable, endangered and critically endangered for conservation species and their habitats during forest operations;
- d) the extraction, cutting, hunting of any rare, vulnerable, endangered and critically endangered for conservation species is controlled;
- e) implemented procedure of record and report to the competent authority, of the presence of non-authorized hunters, fishers or harvesters within the management unit.

4.4.5 Criterion 4.5. Forest operations are performed so that the negative impacts in the biological diversity and in the landscape of neighbouring areas are minimized.

Indicators:

- a) implemented procedures to minimize the negative effect of forest operations on biological diversity;
- b) evidence that no trees are extracted from areas of native vegetation excluded from the management plan;
- c) evidence that the adjoining areas to the ones considered in the management plan are not negatively affected by forest operations.

4.4.6 Criterion 4.6. Forest workers are aware of the importance of the protection of biological diversity and have been trained so that the activities they perform do not damage the protection areas and they know their location within the management unit.

Indicators:

- a) implemented training program for forest workers on the different protection aspects of biological diversity;
- b) the cartography of protected areas is at the forest workers' disposal.

4.5 Principle 5 – Water, soil and air care

The forest producer shall plan and implement the forest resource management in a sustainable way, so as to favor the soil recovery and conservation and to minimize the negative impacts on water resources.

4.5.1 Criterion 5.1. Sustainable forest management planning is based on environmental information of the area and it favors the maintenance of the soil quality and the quality and availability of water resources.

Indicators:

- a) the description and record of base environmental information, considered in forest management planning;
- b) the cartography which represents soil characteristics indicating their degree of erosion and fragility;
- c) the cartography which identifies the characteristics of the hydrologic basin, water bodies and courses, where the management unit is inserted;
- d) the documented, updated and implemented management plan clearly specifies the environmental objectives and the means and activities to achieve them, related to the maintenance of the soil quality and the quality and availability of water resources;
- e) planned management activities are based on the environmental characterization of the area and reflect correspondence with those which are executed.

4.5.2 Criterion 5.2. The forest producer adopts effective measures to maintain the quality of the management unit soils.

Indicators:

- a) adoption of techniques which consider the maintenance of the soil quality;
- b) the use of fire is avoided for the authorization of lands assuring the maintenance of the soil quality of the management unit;
- c) forest operations are planned and the equipment and technologies appropriate to the characteristics of the slope, soil fragility and pluviometry are selected, so as to minimize the erosion and soil compression and maintain its quality;
- d) technical specifications which consider the soil conservation of the management unit, in the planning, building and maintenance of the road network, irrigation network, drainage network, engineering structures and possible works which imply significant movements of land;

- e) damages in the land caused by forest operations which can cause erosion are mitigated or repaired before the task end;
- f) procedures of emergency response for soil contamination, product of forest operations, which foresee mitigation mechanisms of negative impacts;
- g) forest workers are trained and are aware of the necessity to preserve the soil and know the methods and technologies related to their work to avoid damages.

4.5.3 Criterion 5.3. The forest producer plans and implements forest operations so as to maintain the quality and availability of water resources.

Indicators:

- a) the producer knows and considers the uses of water of local communities of the area of influence of the management unit when planning forest operations;
- b) planning, building and maintenance of the road network, irrigation network, drainage network, works of art and possible works which imply significant movements of land and water, include actions to minimize the erosion and the dragging of sediments towards water bodies and courses;
- c) protection strips on the banks of water bodies and courses which contribute to the maintenance of the quality of water resources;
- d) procedures of emergency response for the contamination of water resources, product of forest operations, which foresee mitigation mechanisms of negative impacts;
- e) procedures to prevent or mitigate the fall of harvest waste into water bodies and courses which contribute to the maintenance of the quality of water resources;
- f) forest workers are trained and are aware of the necessity to preserve water resources and know the methods and technologies related to their work to avoid damages.

4.5.4 Criterion 5.4. The forest producer uses chemical products to prevent the contamination of the soil and water resources.

Indicators:

- a) when applying chemical products, measures are taken to avoid soil contamination;
- b) when applying chemical products, measures are taken to avoid the contamination of water resources;

4.5.5 Criterion 5.5. The forest producer adopts and implements a program for the reduction, the reuse or the appropriate treatment or the reuse and appropriate treatments of solid, liquid and gas waste.

Indicators:

- a) documented and implemented procedure of waste management of any kind which includes the identification, classification, transportation and final disposal;
- b) dangerous waste is treated in accordance with the legislation in force;
- c) dangerous waste and liquid effluents are treated and are disposed of in accordance with the legislation in force;
- d) maintenance procedures of vehicles and machinery which minimize environmental contamination risks;
- e) the forest producer avoids the use of fire for waste treatment;
- f) forest workers are trained on the waste management policy.

4.6 Principle 6 - Economic and social growth of the local community in which the forest activity exists

The forest producer shall secure the improvement of the life quality of forest workers and the local community.

4.6.1 Criterion 6.1. The forest producer knows and respects the uses, customs and rights of the local community where the management unit is placed.

Indicators:

- a) the forest producer is aware of the social situation of local communities and respects their uses, customs and rights;
- b) the forest producer establishes and maintains effective channels of communication and of information exchange with local communities;
- c) the forest producer identifies, respects and protects the places which have a special meaning for local communities;
- d) the forest producer identifies and evaluates the social impacts and aspects associated to the activities in the management unit;
- e) procedures agreed with the local community to prevent and mitigate the negative impacts identified, associated to the activities in the management unit;
- f) a compensation procedure for direct damages to the people or local communities caused by the activities of the management unit;
- g) a dissemination procedure towards the local community on the performance and risks associated to forest operations;
- h) implemented procedures of conflict resolution in a participative way, where every interest involved is considered.

4.6.2 Criterion 6.2. The forest producer knows and respects the possession rights and land management and resources of indigenous who live in the area of influence of the management unit.

Indicators:

- a) the forest producer knows and respects the rights of indigenous who live in the area of influence of the management unit.
- b) the forest producer recognizes the lands and territories reached by the rights of indigenous and these are clearly demarcated in the cartography of the management plan and in the field;
- c) identification and protection measures, agreed between the parties, of the places with a special cultural, religious and economic meaning of indigenous and that these are clearly delimited in the field;
- d) the forest producer identifies and respects the exclusive traditional knowledge of indigenous;
- e) indigenous have been informed of the use of the knowledge identified in 4.6.2.d) and of its potential benefits;
- f) the forest producer adequately compensates indigenous for any use of this knowledge in accordance with what was established in previous agreements;
- g) the forest producer allows indigenous and other members of the local community to access the lands of the management unit, when they had traditionally had access to them, for their traditional and survival activities;
- h) procedures to avoid and resolve conflicts with indigenous where the particular characteristics of negotiation of the parties involved are respected.

4.6.3 Criterion 6.3. The forest producer promotes actions which lead to the development of local communities.

Indicators:

- a) complementary actions, specified in the management plan, which promote or support developing entrepreneurship, health and education programs on environmental and forest topics together with local communities;
- b) the members of the local community, in equal suitability conditions, are prioritized when it comes to hiring, employment and work promotion possibilities and training;
- c) the forest producer supports the maintenance and improvement of local infrastructure;
- d) under equal market conditions, the sale of forest products coming from the management unit to local processing factories is prioritized, when this does not affect the commercial objectives of the management unit.

4.6.4 Criterion 6.4. The forest producer knows and guarantees the forest workers the rights inherent to their condition and compensates their work adequately and equitably.

Indicators:

- a) the forest producer trains forest workers with regard to rights and obligations of their condition, established by the legislation and the fundamental conventions of the International Labor Organization (ILO) and this information is available and accessible to every forest worker;
- b) the forest producer guarantees the rights of forest workers and recognizes the benefits of getting organized and negotiate collectively, in accordance with Conventions 87 and 98 of the ILO;
- c) forest workers have opportunities of being hired and promoted and they receive an adequate and equal compensation for their work without discrimination related to gender, race, creed or social condition;
- d) the forest producer, when necessary, provides forest workers with adequate conditions of transportation, accommodation, rest and food;
- e) the forest producer and service providers do not involve child labor;
- f) the forest producer fulfills the obligations of social rights of health, provision and social security of forest workers;
- g) the working day does not exceed what is established in the law.

4.6.5 Criterion 6.5. The forest producer safeguards the health and safety of forest workers and trains them in the correct performance of the labor they do.

Indicators:

- a) the forest producer provides first aid and transfer in case of health emergencies and labor accidents;
- b) health file for each forest worker where there is a record of the pre-employment and periodical medical examinations, in accordance with the specific activity they perform;
- c) records of work illnesses, accidents and evidence of the implementation of corrective measures when necessary;
- d) documented and implemented procedures to safeguard the occupational health and safety of forest workers;
- e) the forest producer provides safety equipment appropriate for the task and in good condition and takes measures to assure their use;
- f) forest workers are trained for the work they perform and on occupational safety and health topics.

4.7 Principle 7 – Monitoring and control

The forest producer shall establish and implement a monitoring and control program of the management plan which contributes to the continuous improvement of forest management, to evaluate the condition of the management unit and the degree of advance in the compliance of the principles of this standard. The monitoring is systematic, replicable in time and allows the comparison of results and evaluation of changes.

4.7.1 Criterion 7.1. The forest producer establishes, documents and implements procedures to evaluate periodically the condition of forest resources and the most significant environmental, social and economic impacts of forest operations.

Indicators:

- a) documented and implemented procedure which includes the query to the relevant interested parties, to identify, monitor, evaluate and register the most significant environmental, social and economic aspects of forest operations;
- b) documented and implemented procedure to measure and record periodically the productivity of the place, the growth and forest health state;
- c) documented and implemented procedure to monitor, evaluate and record the performance of every harvested or produced forest products;
- d) documented and implemented procedure to monitor, evaluate and record the performance of service provider companies;
- e) documented and implemented procedure to monitor, evaluate and record periodically financial and economic results;
- f) documented and implemented procedure to monitor, evaluate and record the compliance of the management plan and forest operations with the legislation and policies, procedures, instruction manuals and good practices codes signed for the management unit.

4.7.2 Criterion 7.2. The forest producer incorporates the results of the periodical evaluations so as to improve forest operations in a continuous way. Effectivity and efficiency of forest management is regularly evaluated and improved.

Indicators:

- a) the results of the periodical evaluations are recorded, compared and analyzed so as to determine changes in the performance of the forest management of the management unit;
- b) the management plan and all their procedures are revised periodically so as to incorporate the monitoring and evaluation conclusions;
- c) a documented and implemented procedure to evaluate and record emergency situations occurred during forest operations and the conclusions are properly incorporated in the management plan.

4.7.3 Criterion 7.3. The forest producer establishes documented procedures to describe and quantify forest products from their origin, coming from their own forests or from third parties'.

Indicators:

- a) a methodology to identify and record in a unique and precise way the identity, the source and the origin of forest products;
- b) monitoring of forest products from their point of origin to their sales place or destiny;
- c) the forest producer has control of the origin of their own forest products and of third parties' until their sales place or destiny.

Appendix A (Informative)

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In this standard setting the following background has been taken into account:

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Appendix B (Informative)

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LA PLATA, 10 FEB 2012

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IRAM
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Sustainable forest management

Principles, criteria and indicators for the management unit



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Foreword

The Argentine Institute of Standardization and Certification (IRAM) is a private non-profit organization, the specific objectives of which are, in its character of Argentine Organization for Standardization, to establish technical standards, without limitations in scope, apart from being prone to knowledge and application of standardization as the base of quality, promoting activities of certification of products and systems of quality in companies to provide the consumer with safety.

IRAM is the representative of Argentina in the International Organization for Standardization (ISO), in the Pan American Standards Commission (Comisión Panamericana de Normas Técnicas – COPANT) and in the MERCOSUR Association of Standardization (Asociación MERCOSUR de Normalización – AMN).

This IRAM standard is the result of the technical consensus among the different sectors involved, which have intervened in the corresponding Standard Setting Forums through their representatives.

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Sustainable forest management

Principles, criteria and indicators for the management unit

1 SCOPE

This standard establishes the principles, criteria and indicators for sustainable forest management regarding native forests and cultivated forests and it is applicable to the management unit, whether this is managed by a forest producer or by a group of these.

2 NORMATIVE DOCUMENTS FOR CONSULTATION

Every normative document mentioned below is essential for the application of this document.

When normative documents containing the year of publication are mentioned in the list, this means that that edition shall be applied, otherwise, the edition in force shall be applied, including all its changes.

ILO – C87 - Convention concerning Freedom of Association and Protection of the Right to Organise, 1948.

ILO – C98 - Convention concerning the Application of the Principles of the Right to Organise and to Bargain Collectively, 1949.

3 DEFINITIONS

For the objectives of the present standard the following definitions are applied:

3.1 environmental aspect. An element of the activities, products or services of an organization which can interact with the environment.

NOTE: A significant environmental aspect; it is an environmental aspect which has or can have a significant environmental impact.

3.2 forest. A community of plants, mainly trees and woody vegetation which grow together, their soil, flora and fauna, their mutual relationships, the resources and values attributed to it.

NOTE: Forests vary markedly around the world depending on the weather, soils, history and culture of the country involved. Many countries have a definition of forest included in their legislation.

3.3 native forest. Natural forest ecosystems mainly composed by native tree species, with various associated flora and fauna species, together with the surrounding environment: soil, subsoil, atmosphere, weather, water resources, making an interdependent weave with its own characteristics and multiple functions, which in their natural state provides the system with a condition of dynamic balance and which gives various environmental services to the society, apart from the various natural resources with a possibility of economic use.

NOTE 1. The definition includes native forests of primary origin, where men did not intervene, as well as those of secondary origin formed after a clearing, like those resulting from a voluntary recomposition or restoration.

NOTE 2. Extracted from article 2 of the National Act N° 26331.

3.4 cultivated forest. A forest obtained through the sowing or planting of native or exotic timber-yielding species ecologically adapted to the place, mainly with industrial or commercial ends, in lands which can be afforested or reafforested because of their natural conditions, location and aptitudes.

NOTE: Extracted from article 4 of the National Act N° 25080.

3.5 local community. A neighbouring human community or adjacent to the forest management unit.

3.6 criterion. A category of conditions and processes by means of which forest sustainable management can be

evaluated.

NOTE 1. Extracted from Section 2 Definitions of the Montreal Process.

NOTE 2. A criterion is a state or an aspect of the dynamic process of the forest ecosystem, or a state of the interacting social system, which should be in place as a result of adherence to a principle. They way criteria are formulated should give rise to a verdict on the degree of compliance in an actual situation.

3.7 biological diversity. Variability of living organisms of any source, including, among others, terrestrial and marine ecosystems, other aquatic ecosystems and ecological complexes they are part of. It includes the diversity within every species, among species and the ecosystems'.

NOTE. Extracted from article 2 of the Convention of Biological Diversity.

3.8 document. Information and its means of support.

NOTE. The means of support can be paper; a magnetic, optic or electronic disc; a photograph or pattern sample or a combination of these.

3.9 ecosystem. A dynamic complex of plants, animals, microorganisms, fungi and their abiotic environment, interacting as a functional unit.

NOTE. Extracted from article 2 of the Convention of Biological Diversity.

3.10 sustainable forest management. Stewardship and use of forests and forest lands in a way and at a rate that maintains their biodiversity, productivity, regeneration capacity, vitality and their potential to fulfill, now and in the future, ecological, economic and social functions relevant at a local, national and global level, and without causing any damages to other ecosystems

NOTE. Extracted from item D of Resolution H1 – General guidelines for the sustainable management of forests, Second Ministerial Conference on the Protection of Forests in Europe, Helsinki 1993.

3.11 singular habitat. An area or sector which belongs to the unit of management, normally of little extension, which is special for having singular natural characteristics which deserve to be preserved.

NOTE. A singular habitat constitutes a kind of environment which can be found replicated in space, like stream banks, mature forests, forests in a pristine state or with limited human intervention, rocky places, among others.

3.12 environmental impact. Any change in the environment, whether adverse or beneficial, wholly or partially resulting of the environmental aspects of an organization.

3.13 indicator. A quantitative or qualitative variable which can be measured or described and when it is observed periodically, it shows tendency.

NOTE 1. Extracted from Section 2 of the Montreal Process.

NOTE 2. An indicator is a qualitative or quantitative parameter which is assessed in relation with a criterion. The indicator describes, in a non-ambiguous and objectively verifiable way, the state of an aspect of the criterion which it refers to.

3.14 genetically modified organism (GMO). Any organism which has a new combination of genetic material obtained by applying modern biotechnology.

NOTE 1. By *modern biotechnology*, the following is understood:

- a) In Vitro techniques of nucleic acid, including recombinant deoxyribonucleic acid (DNA) and the direct injection of nucleic acid in cells or organelles, or
- b) The fusion of cells beyond the taxonomic family, which exceed the natural physiological barriers of reproduction or of recombination and which are not techniques used in reproduction and traditional selection.

NOTE 2. Extracted from the Appendix of Resolution 39/2003 of the National Secretariat of Agriculture, Livestock, Fisheries and Food.

3.15 interested party. An individual or group interested in or affected by activities of the forest management unit.

3.16 plan. A continuous and documented process, which establishes objectives and goals and implements programs to achieve them.

3.17 management plan. An instrument which regulates the rational exploitation and use of renewable natural resources of the management unit, with the aim of obtaining their maximum benefit, assuring at the same time the preservation, conservation, improvement and increase of such resources and their ecosystem.

NOTE. The management plan includes, at least, the following:

- legal aspects, in particular the matter concerning the possession or control of land;
- description and characterization of the place and the forest resource;
- appropriate cartography;
- definition of management objectives;
- economic-financial planning and accounting statements;
- annual plan of forest operations;
- a silvicultural system consistent with management objectives;
- activities to be executed contained in the silvicultural treatment;
- specifications, technical prescriptions and protection measures of the environment and hydrographic basins necessary to protect the soil, courses and water masses, flora and fauna.
- limitations and environmental risks;
- identification and evaluation of the relevant impacts and aspects of the activities in the management unit;
- protection measures to prevent damages caused by fires, plagues, weeds and illnesses, harmful agents and other disturbances.

3.18 principle. A fundamental law or rule serving as a basis for an action, and which expresses a type of objective or concerning the function of the forest ecosystem and the relevant aspects of the related social system.

3.19 procedure. A specified way to carry out an activity or process.

NOTE. The procedures can be documented or not.

3.20 process. A set of mutually related activities or activities which interact, which transform entry elements into results.

3.21 chemical product. The variety of fertilizers, herbicides, pesticides, fungicides, hormones, fuel and lubricants which are used in the management unit.

3.22 forest producer. A physical or legal person responsible for the operations of the resource management and the forest company, as well as for the management structure and system, the planning and of the field works.

3.23 program. An organized series of actions which tends to achieve particular objectives. It shall specify functions, responsibilities, processes, resources, deadlines and priorities.

3.24 forest resources. They include the resources which are found in forests and in other wooded land, and the trees outside the forest.

NOTE. Extracted from the Update of the evaluation of world forest resources until 2005. Terms and definitions (definite version). FAO 2004.

3.25 road network. A set of streets and roads used for movement, personal transportation, machines, equipment and product supply in the forest management unit.

3.26 record. A document which shows obtained results or provides evidence of performed activities.

3.27 monitoring. A continuous evaluation which allows to determine the occurrence, size, direction and importance of the changes which take place in key indicators of forest management.

NOTE. In the jargon of the forest sector, the term *monitoring* is used when referring to follow up.

3.28 silvicultural system. A planned program of treatments throughout the stand to achieve stand structural objectives, be they for wood production or other values, based on integrated resource management goals.

NOTE. A silvicultural system includes the harvest, regeneration and intermediate treatments of the stand and covers all the activities for the complete extension of a rotation or cutting cycle.

3.29 a priority place for conservation. An area which has ecological, biological or sociocultural values, considered of big or critical importance at a local, regional or global scale.

NOTE. When identifying the areas, the presence of some of the following attributes is considered:

- areas with concentrations of values of biological diversity (endemisms, critical endangered species, endangered species, vulnerable species, fauna refuges, resting places for migratory birds, nesting places, unique species assemblies, among others);
- wooded areas which constitute rare ecosystems, rare ecosystems or both threatened or endangered;
- areas where special processes appear: volcanism, natural floods;
- wooded areas which provide environmental services in critical situations (protection of basins, protection of recharge zones, protection of hillsides, among others),
- areas with critical cultural, religious and economic value for local communities.

3.30 forest worker. A worker who acts at the forest management unit, as a self-employed worker or with a direct work tie with the organization or with service provider companies.

3.31 management unit. An area which is subject to sustainable forest management.

NOTE. The management unit is the area of land mainly covered in forests and clearly demarcated, managed by a series of explicit objectives and in accordance with a management plan.

4 PRINCIPLES, CRITERIA AND INDICATORS

The principles established in this standard constitute the reference for sustainable forest management and are developed on the basis of the criteria and indicators of the Montreal Process.

NOTE 1. The Montreal Process is the Group of work about criteria and indicators for the conservation and sustainable management of temperate and boreal forests, created by initiative of the non-European countries which have temperate and boreal forests, to elaborate and motivate the application of criteria and indicators agreed at an international level for the forest sustainable management.

NOTE 2. The Criteria and Indicators of the Montreal Process foresee their application nationwide in all the forests of a country and in every kind of land ownership, and consider sustainable forest management globally, taking into account all the products, values and forest services. The participating countries, when adopting these criteria and indicators, engage in trying to achieve sustainable management of all their forests.

NOTE 3. Argentina has adhered to the Montreal Process since 1995, and it has participated actively at the meetings of the Group of Work of Montreal and the Technical Consultant Committee (TCC).

The principles are itemized in criteria which are the expression of situations or aspects of the dynamic process of the forest ecosystem or a situation of the associated social system.

The verification of the compliance of every criterion is established through the careful evaluation of a set of specific indicators, subordinate to it, which can be quantitative or qualitative. Depending on the location and the objective of the management unit, not every indicator is applicable, is present or is as important. It is always necessary to guarantee all those corresponding to a local situation.

In this way, a hierarchical structure of principles, criteria and indicators which have to allow the monitoring and demonstration of forest management sustainability is defined.

The implementation of a criterion is considered complied with when it is demonstrated that the respective indicators are properly complied with. At the same time, a principle is considered implemented when it is confirmed that the respective criteria are complied with. Finally, forest management is considered to be implemented in accordance with this standard when there is evidence that the following principles are complied with:

4.1 Principle 1 – Compliance with the law

The forest producer shall respect the Argentine laws and regulations of national, provincial and municipal order which are in force, legally binding international treaties and conventions of which the country is signatory, as well as the signed commitments for the management unit. In the same way, they shall demonstrate a long term commitment to the principles, criteria and indicators of this standard.

4.1.1 Criterion 1.1. The forest producer performs the activities corresponding to the management unit in accordance with the laws and regulations applicable and in force.

Indicators:

- a) proceedings of identification and update of laws and regulations applicable to the management unit, including among others, forest, environmental, work, on transportation and on use and rights of land ownership.
- b) compliance with applicable laws and regulations related to the activities of the management unit;
- c) the implemented management plan approved by the competent authority;

NOTE. The cases in which the application authority requests so.

- d) the forest producer complies with the policies, procedures, reference manual and codes of practice which are signed or defined for the management unit.
- e) the service providers comply with the laws and regulations applicable to their activity.

4.1.2 Criterion 1.2. The possession and the long-term rights of use on the land and the forest resources of the management unit are clearly defined, documented and legally established.

Indicators:

- a) the forest producer has a suitable and updated document which proves their right of use of the land or the forest resources of the management unit.

NOTE. The accreditation is done by means of some of the titles recognized by the Argentine legislation (a title deed, a lease or concession contract, a real surface right, recognition of traditional rights, etc., and the right of use is for a period which is coherent with the planning horizon of the management plan).

- b) cartography which indicates the status of ownership of each management unit area;
- c) the limits of the management unit are legally determined;
- d) the forest producer acts in an effective way for the resolution of possible legal conflicts and conflicts of any kind related to the possession of land and damages caused to third parties;
- e) in lease or concession contracts, soil purchase or forestry projection, the amounts arranged with the owner are paid.

4.1.3 Criterion 1.3. The forest producer knows and respects the legally binding international treaties and conventions of which the country is signatory, applicable to the management unit.

Indicators:

- a) updated record and knowledge of the international treaties and conventions which apply to the management unit;

b) appropriate measures are implemented to assure the compliance of the convention articles and corrective actions are taken in case of breach;

c) records of the fact that forest workers have been trained on conventions and treaties applicable to the management unit.

4.1.4 Criterion 1.4. The forest producer pays all the fees, taxes, royalties and other charges legally established and applicable.

Indicator:

records which show the compliance of the work, tax, commercial, professional and contractual obligations.

4.1.5 Criterion 1.5. The forest producer assumes a long-term commitment to support the principles and criteria of this standard.

Indicators:

a) the forest producer makes public and documents their commitment to provide long-term support to the principles and criteria of this standard.

b) long-term planning of sustainable forest management in the management unit;

c) service provider companies know and respect the principles and criteria of this standard.

4.2 Principle 2 – Search for forest resources sustainability

The forest producer shall plan and implement forest resource management in a sustainable way, so as to maintain or increase the production of goods and forest, environmental and social services through time, in accordance with a long-term forest management plan, appropriate to the operations scale and applicable to the management unit.

4.2.1 Criterion 2.1. There is a management plan which is documented, updated and implemented, consistent with its objectives and with the scale of the considered entrepreneurship which assures the compliance of the principles defined by this standard.

Indicators:

a) a documented and updated management plan where the management objectives, the means and activities to achieve them and a description of the social and environmental characteristics of the management unit and adjacent areas are clearly specified, which assures the compliance of the principles defined by this standard.

b) the management is economically feasible in the long term;

c) planned management activities reflect correspondence with those which are executed;

d) traditional activities carried out in the management unit by indigenous and other members of the local community are agreed to and are contemplated in the management plan;

e) an implemented procedure of the management plan update which contributes with the continuous improvement of forest management;

f) a summary of the management plan available to the interested parties.

4.2.2 Criterion 2.2. In the management plan the uses and possession regime of the different areas of the management unit are defined.

Indicators:

a) updated cartography where the areas with their present and potential uses and the possession regime are delimited;

NOTE. The periodic update of the cartography allows to reflect the changes in the areas use and the situation of the forest resources.

b) the prescriptions contained in the management plan reflect correspondence with those which are executed in the land.

4.2.3 Criterion 2.3. The applied silvicultural treatments are clearly specified and justified in the management plan and they assure that the forest resources are sustainable in the long term.

Indicators:

a) the silvicultural processes applied are based on the ecology, on the dynamics or on both, of each place and on information obtained through forest inventories of the management unit and they make sure that forest resources are sustainable in the long term.

b) an implemented procedure for the performance of forest inventories;

c) in case there is not enough technical information on the ecology and dynamics of the place, the silvicultural treatments are defined on the base of the precautionary principle and these make sure that the forest resources are sustainable in the long term.

4.2.4 Criterion 2.4. The harvest rate of forest, timber and non-timber products used is technically justified in the management plan and assures the maintenance or the increase of the production of goods and services.

Indicators:

a) the defined and used harvest rate is based on valid technical information and records of periodic inventories;

b) the defined and used harvest rate maintains or increases the production of goods and services;

NOTE. The extraction or harvest rate does not exceed the forest possibility, so as to maintain or improve its quality and productivity.

c) in all the harvested forest surface in the management unit, an adequate regeneration or an adequate reforestation or an adequate regeneration and reforestation is assured;

NOTE. It is considered adequate when it is verified that the regeneration of the native forests and the establishment of plantations are effective and appropriate.

d) the composition of species and the density of the native forests regeneration and the degree of establishment of the plantations are evaluated and corrective measures are adopted, when it is necessary, to assure an effective regeneration, or an effective establishment or effective regeneration and establishment.

4.2.5 Criterion 2.5. In the management plan, actions to optimize the generation and exploitation of goods and services and to stimulate their diversification in the long term are foreseen.

Indicators:

a) the management plan considers and foresees mechanisms for the diversification and use of other forest, timber and non-timber, commercial and non-commercial products;

b) planning and implementation of actions which tend to maintain or increase the future value of the forest resources of the management unit;

c) adoption of techniques to minimize the waste of forest products associated to the *in situ* transformation and exploitation operations;

d) implementation of techniques, actions or both to minimize forest operations damages to the remaining forest;

4.2.6 Criterion 2.6. The introduction of genetic material and its use is controlled and evaluated

Indicators:

a) records of experience in the locality or region about the fact that the genetic material to be introduced has had no negative environmental, social or economic impacts;

b) an updated and implemented procedure to monitor and evaluate the productive potential and the possible

environmental, social and economic impacts of the genetic material introduced;

c) compliance of the regulations in force with regard to the release of genetically modified vegetable organisms into the environment;

4.2.7 Criterion 2.7. The planning and implementation of forest management maintains the forest contribution to the carbon cycle.

Indicators:

a) the forest producer recognizes the ability of the forests to act as *carbon drain*;

b) the forest producer implements actions to reduce emissions of greenhouse gases.

4.3 Principle 3 – Maintenance of forest resources vitality, health and productivity

The forest producer shall plan and implement the forest resources management in a sustainable way, so as to maintain its productivity, health and vitality.

4.3.1 Criterion 3.1. The forest producer implements forest practices appropriate to local peculiarities and justified throughout the project which assure the vitality, health and productivity maintenance of forest resources.

Indicators:

a) the definition of the used silvicultural system is based on results from studies and research carried out for conditions similar to the ones of the management unit and assures the vitality, health and productivity maintenance of forest resources;

b) documented, updated and implemented procedures for forest production processes which assure the vitality, health and productivity maintenance of forest resources;

c) the equipment, machines and consumables used are appropriate to the local conditions of topography, soil, weather and characteristics of the forest resources produced and they assure the vitality, health and productivity maintenance of forest resources;

d) implemented training programs and courses for forest workers on the tasks they perform and on how these contribute to the vitality, health and productivity maintenance of forest resources.

4.3.2 Criterion 3.2. The forest producer adopts effective measures to maintain and if necessary to recover the productive capacity of the management unit soils.

Indicators:

a) adoption of techniques which assure the maintenance of the soil productive capacity;

b) soils which present nutritional deficiencies, or structural deficiencies, or nutritional and structural deficiencies as a consequence of forest activity are recovered using appropriate methods;

c) the *in situ* transformation and the harvest waste are arranged in the forest so as to favor the *natural nutrient cycling*, avoid erosion and maintain the place productivity.

4.3.3 Criterion 3.3. The forest producer plans and controls harmful pathogenic agents following the guidelines of integrated management so as to assure the vitality, health and productivity maintenance of forest resources.

Indicators:

a) identification of the potential harmful and pathogenic agents which require control;

NOTE. When identifying potential harmful and pathogenic agents, plagues, weeds, illnesses and livestock (overgrazing and browse) are considered, when this affects the health and vitality of forest resources.

b) a procedure implemented for the prevention and control of harmful and pathogenic agents which considers the best practices available and assures the vitality, health and productivity maintenance of forest resources;

c) forest workers responsible for the prevention and control of harmful and pathogenic agents are trained for the work they perform.

4.3.4 Criterion 3.4. The forest producer adopts a responsible program of use of chemical products in general which assures the vitality, health and productivity maintenance of forest resources.

Indicators:

a) use of chemical products which are not prohibited by international agreements or laws in force in the country;

b) the use of chemical products is limited to situations where there is no other economic or technically feasible and effective alternative;

c) updated record of chemical products purchased, stored and used in the management unit which includes the safety sheet of the product;

d) a documented and implemented procedure for the appropriate transportation, handling, use and storage of chemical products and maintenance and cleaning of equipment used in accordance with the laws and regulations in force and with the manufacturer instructions, which assure the vitality, health and productivity maintenance of forest resources;

e) a documented and implemented procedure to prevent and mitigate negative impacts caused by the use of chemical products;

f) implemented procedures of chemical products use consider weather, soil and topographic conditions;

g) forest workers who work with chemical products are trained and use appropriate personal protective equipment.

4.3.5 Criterion 3.5. The forest producer adopts effective measures to prevent, detect and control forest fires.

Indicators:

a) an implemented program, to prevent and control the occurrence of forest fires;

b) training for forest workers on how to prevent and control forest fires.

4.4 Principle 4 – Biological diversity maintenance

The forest producer shall plan and implement the forest resource management in a sustainable way, so as to maintain or improve biological diversity and ecosystem functions present in the management unit.

4.4.1 Criterion 4.1. Forest management is planned and executed so as to maintain biological diversity values and ecosystem functions present in the management unit and so as not to reduce the native forest surface of value for conservation or of another kind of vegetation of value for conservation.

Indicators:

a) the planning and implementation of plantations and the works of infrastructure and services identify the areas suitable for each use or areas subject to transformation envisaged by the legislation, or both kinds of areas;

b) the planning and management for areas not affected for plantations (native forest) identify the key elements for the functioning of the ecosystem and assure their maintenance;

NOTE. Those forest species or those forest structures, or both, whose disappearance causes a cascade effect in the ecosystem, determining the disappearance of other components so that the changes in the bio-mass of the ecosystem widely exceed those produced by their only removal are considered key elements for the functioning of the ecosystem. The *key species* help to structure the ecosystem they are part of.

c) the planning and management of the plantations and works of infrastructure and services assure the connectivity of the natural systems of the management unit or the areas adjacent to it;

NOTE. The connectivity of natural systems or design of an interconnected landscape is achieved through corridors of an appropriate

size (functional) which connect remaining patches of the original native system and protected areas, between each other.

d) the planning and management promote the species and ecosystems diversity;

e) the planning considers actions to prevent the reduction of genetic diversity;

f) planned activities reflect correspondence with those which are executed and assure the maintenance of biological diversity values and the functions of present ecosystems.

4.4.2 Criterion 4.2. In the planning of forest management, singular habitats and priority places for conservation present in the management unit are identified.

Indicators:

a) procedures for the identification of singular habitats and priority places for conservation present in the management unit.

NOTE: When the identification of singular habitats and priority places for conservation takes place, protected areas already established, of any land or jurisdiction, adjacent or which include the management unit in part or in its entirety are considered in the same way.

b) identification in the cartography of the management plan and the land of singular habitats and the defined priority places for conservation.

4.4.3 Criterion 4.3. The singular habitats and priority places for conservation have specific prescriptions, included in the management plan and based on the precautionary approach, which assure the maintenance or increase of their values.

Indicators:

a) every singular habitat and priority place for conservation has specific management objectives which assure the maintenance or increase of their values;

b) buffer zones adjacent to singular habitats and priority places for conservation in the management unit.

c) in conservation zones the presence of invading wooded species and bushes is minimized;

d) a monitoring program to evaluate the maintenance of the values of every singular habitat and priority place for conservation.

4.4.4 Criterion 4.4. Rare, vulnerable, endangered and critically endangered for conservation species, as well as their habitats have specific prescriptions of protection, included in the management plan, which assure their conservation.

Indicators:

a) implemented procedures for the identification and record of rare, vulnerable, endangered and critically endangered for conservation species, and their habitat, present in the management unit;

NOTE. In the identification of rare, vulnerable, endangered and critically endangered for conservation species, it is considered what is important in the red books or what is stated by the competent authority, among others.

b) identification in the cartography of the management plan of rare, vulnerable, endangered and critically endangered for conservation species and their habitats;

c) adoption of practices for the protection of rare, vulnerable, endangered and critically endangered for conservation species and their habitats during forest operations;

d) the extraction, cutting, hunting of any rare, vulnerable, endangered and critically endangered for conservation species is controlled;

e) implemented procedure of record and report to the competent authority, of the presence of non-authorized hunters, fishers or harvesters within the management unit.

4.4.5 Criterion 4.5. Forest operations are performed so that the negative impacts in the biological diversity and in the

landscape of neighbouring areas are minimized.

Indicators:

- a) implemented procedures to minimize the negative effect of forest operations on biological diversity;
- b) evidence that no trees are extracted from areas of native vegetation excluded from the management plan;
- c) evidence that the adjoining areas to the ones considered in the management plan are not negatively affected by forest operations.

4.4.6 Criterion 4.6. Forest workers are aware of the importance of the protection of biological diversity and have been trained so that the activities they perform do not damage the protection areas and they know their location within the management unit.

Indicators:

- a) implemented training program for forest workers on the different protection aspects of biological diversity;
- b) the cartography of protected areas is at the forest workers' disposal.

4.5 Principle 5 – Water, soil and air care

The forest producer shall plan and implement the forest resource management in a sustainable way, so as to favor the soil recovery and conservation and to minimize the negative impacts on water resources.

4.5.1 Criterion 5.1. Sustainable forest management planning is based on environmental information of the area and it favors the maintenance of the soil quality and the quality and availability of water resources.

Indicators:

- a) the description and record of base environmental information, considered in forest management planning;
- b) the cartography which represents soil characteristics indicating their degree of erosion and fragility;
- c) the cartography which identifies the characteristics of the hydrologic basin, water bodies and courses, where the management unit is inserted;
- d) the documented, updated and implemented management plan clearly specifies the environmental objectives and the means and activities to achieve them, related to the maintenance of the soil quality and the quality and availability of water resources;
- e) planned management activities are based on the environmental characterization of the area and reflect correspondence with those which are executed.

4.5.2 Criterion 5.2. The forest producer adopts effective measures to maintain the quality of the management unit soils.

Indicators:

- a) adoption of techniques which consider the maintenance of the soil quality;
- b) the use of fire is avoided for the authorization of lands assuring the maintenance of the soil quality of the management unit;
- c) forest operations are planned and the equipment and technologies appropriate to the characteristics of the slope, soil fragility and pluviometry are selected, so as to minimize the erosion and soil compression and maintain its quality;
- d) technical specifications which consider the soil conservation of the management unit, in the planning, building and maintenance of the road network, irrigation network, drainage network, engineering structures and possible works which imply significant movements of land;

e) damages in the land caused by forest operations which can cause erosion are mitigated or repaired before the task end;

f) procedures of emergency response for soil contamination, product of forest operations, which foresee mitigation mechanisms of negative impacts;

g) forest workers are trained and are aware of the necessity to preserve the soil and know the methods and technologies related to their work to avoid damages.

4.5.3 Criterion 5.3. The forest producer plans and implements forest operations so as to maintain the quality and availability of water resources.

Indicators:

a) the producer knows and considers the uses of water of local communities of the area of influence of the management unit when planning forest operations;

b) planning, building and maintenance of the road network, irrigation network, drainage network, works of art and possible works which imply significant movements of land and water, include actions to minimize the erosion and the dragging of sediments towards water bodies and courses;

c) protection strips on the banks of water bodies and courses which contribute to the maintenance of the quality of water resources;

d) procedures of emergency response for the contamination of water resources, product of forest operations, which foresee mitigation mechanisms of negative impacts;

e) procedures to prevent or mitigate the fall of harvest waste into water bodies and courses which contribute to the maintenance of the quality of water resources;

f) forest workers are trained and are aware of the necessity to preserve water resources and know the methods and technologies related to their work to avoid damages.

4.5.4 Criterion 5.4. The forest producer uses chemical products to prevent the contamination of the soil and water resources.

Indicators:

a) when applying chemical products, measures are taken to avoid soil contamination;

b) when applying chemical products, measures are taken to avoid the contamination of water resources;

4.5.5 Criterion 5.5. The forest producer adopts and implements a program for the reduction, the reuse or the appropriate treatment or the reuse and appropriate treatments of solid, liquid and gas waste.

Indicators:

a) documented and implemented procedure of waste management of any kind which includes the identification, classification, transportation and final disposal;

b) dangerous waste is treated in accordance with the legislation in force;

c) dangerous waste and liquid effluents are treated and are disposed of in accordance with the legislation in force;

d) maintenance procedures of vehicles and machinery which minimize environmental contamination risks;

e) the forest producer avoids the use of fire for waste treatment;

f) forest workers are trained on the waste management policy.

4.6 Principle 6 - Economic and social growth of the local community in which the forest activity exists

The forest producer shall secure the improvement of the life quality of forest workers and the local community.

4.6.1 Criterion 6.1. The forest producer knows and respects the uses, customs and rights of the local community where the management unit is placed.

Indicators:

- a) the forest producer is aware of the social situation of local communities and respects their uses, customs and rights;
- b) the forest producer establishes and maintains effective channels of communication and of information exchange with local communities;
- c) the forest producer identifies, respects and protects the places which have a special meaning for local communities;
- d) the forest producer identifies and evaluates the social impacts and aspects associated to the activities in the management unit;
- e) procedures agreed with the local community to prevent and mitigate the negative impacts identified, associated to the activities in the management unit;
- f) a compensation procedure for direct damages to the people or local communities caused by the activities of the management unit;
- g) a dissemination procedure towards the local community on the performance and risks associated to forest operations;
- h) implemented procedures of conflict resolution in a participative way, where every interest involved is considered.

4.6.2 Criterion 6.2. The forest producer knows and respects the possession rights and land management and resources of indigenous who live in the area of influence of the management unit.

Indicators:

- a) the forest producer knows and respects the rights of indigenous who live in the area of influence of the management unit.
- b) the forest producer recognizes the lands and territories reached by the rights of indigenous and these are clearly demarcated in the cartography of the management plan and in the field;
- c) identification and protection measures, agreed between the parties, of the places with a special cultural, religious and economic meaning of indigenous and that these are clearly delimited in the field;
- d) the forest producer identifies and respects the exclusive traditional knowledge of indigenous;
- e) indigenous have been informed of the use of the knowledge identified in 4.6.2.d) and of its potential benefits;
- f) the forest producer adequately compensates indigenous for any use of this knowledge in accordance with what was established in previous agreements;
- g) the forest producer allows indigenous and other members of the local community to access the lands of the management unit, when they had traditionally had access to them, for their traditional and survival activities;
- h) procedures to avoid and resolve conflicts with indigenous where the particular characteristics of negotiation of the parties involved are respected.

4.6.3 Criterion 6.3. The forest producer promotes actions which lead to the development of local communities.

Indicators:

- a) complementary actions, specified in the management plan, which promote or support developing entrepreneurship, health and education programs on environmental and forest topics together with local communities;
- b) the members of the local community, in equal suitability conditions, are prioritized when it comes to hiring, employment and work promotion possibilities and training;
- c) the forest producer supports the maintenance and improvement of local infrastructure;
- d) under equal market conditions, the sale of forest products coming from the management unit to local processing factories is prioritized, when this does not affect the commercial objectives of the management unit.

4.6.4 Criterion 6.4. The forest producer knows and guarantees the forest workers the rights inherent to their condition and compensates their work adequately and equitably.

Indicators:

- a) the forest producer trains forest workers with regard to rights and obligations of their condition, established by the legislation and the fundamental conventions of the International Labor Organization (ILO) and this information is available and accessible to every forest worker;
- b) the forest producer guarantees the rights of forest workers and recognizes the benefits of getting organized and negotiate collectively, in accordance with Conventions 87 and 98 of the ILO;
- c) forest workers have opportunities of being hired and promoted and they receive an adequate and equal compensation for their work without discrimination related to gender, race, creed or social condition;
- d) the forest producer, when necessary, provides forest workers with adequate conditions of transportation, accommodation, rest and food;
- e) the forest producer and service providers do not involve child labor;
- f) the forest producer fulfills the obligations of social rights of health, provision and social security of forest workers;
- g) the working day does not exceed what is established in the law.

4.6.5 Criterion 6.5. The forest producer safeguards the health and safety of forest workers and trains them in the correct performance of the labor they do.

Indicators:

- a) the forest producer provides first aid and transfer in case of health emergencies and labor accidents;
- b) health file for each forest worker where there is a record of the pre-employment and periodical medical examinations, in accordance with the specific activity they perform;
- c) records of work illnesses, accidents and evidence of the implementation of corrective measures when necessary;
- d) documented and implemented procedures to safeguard the occupational health and safety of forest workers;
- e) the forest producer provides safety equipment appropriate for the task and in good condition and takes measures to assure their use;
- f) forest workers are trained for the work they perform and on occupational safety and health topics.

4.7 Principle 7 – Monitoring and control

The forest producer shall establish and implement a monitoring and control program of the management plan which contributes to the continuous improvement of forest management, to evaluate the condition of the management unit and the degree of advance in the compliance of the principles of this standard. The monitoring is systematic, replicable in time and allows the comparison of results and evaluation of changes.

4.7.1 Criterion 7.1. The forest producer establishes, documents and implements procedures to evaluate periodically the condition of forest resources and the most significant environmental, social and economic impacts of forest operations.

Indicators:

- a) documented and implemented procedure which includes the query to the relevant interested parties, to identify, monitor, evaluate and register the most significant environmental, social and economic aspects of forest operations;
- b) documented and implemented procedure to measure and record periodically the productivity of the place, the growth and forest health state;
- c) documented and implemented procedure to monitor, evaluate and record the performance of every harvested or produced forest products;
- d) documented and implemented procedure to monitor, evaluate and record the performance of service provider companies;
- e) documented and implemented procedure to monitor, evaluate and record periodically financial and economic results;
- f) documented and implemented procedure to monitor, evaluate and record the compliance of the management plan and forest operations with the legislation and policies, procedures, instruction manuals and good practices codes signed for the management unit.

4.7.2 Criterion 7.2. The forest producer incorporates the results of the periodical evaluations so as to improve forest operations in a continuous way. Effectivity and efficiency of forest management is regularly evaluated and improved.

Indicators:

- a) the results of the periodical evaluations are recorded, compared and analyzed so as to determine changes in the performance of the forest management of the management unit;
- b) the management plan and all their procedures are revised periodically so as to incorporate the monitoring and evaluation conclusions;
- c) a documented and implemented procedure to evaluate and record emergency situations occurred during forest operations and the conclusions are properly incorporated in the management plan.

4.7.3 Criterion 7.3. The forest producer establishes documented procedures to describe and quantify forest products from their origin, coming from their own forests or from third parties'.

Indicators:

- a) a methodology to identify and record in a unique and precise way the identity, the source and the origin of forest products;
- b) monitoring of forest products from their point of origin to their sales place or destiny;
- c) the forest producer has control of the origin of their own forest products and of third parties' until their sales place or destiny.

Appendix A

(Informative)

Bibliography

In this standard setting the following background has been taken into account:

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Appendix B (Informative)

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