

**Sustainable Forest Plantation Management****Part 1: Requirements****1. Scope**

- 1.1 This industrial standard defines the sustainable forest management requirements for entrepreneurs to be able to manage forest plantation sustainably and for certification bodies to use as the criteria for certification, which are applicable to both small and large-scale forest plantations in Thailand. In the case of small-scale forest plantations, applicable exceptions are listed in the Appendix.
- 1.2 The industrial standard covers sustainable forest plantation management in definable areas belonging to entrepreneurs.

**2. Terms and definitions**

The definition of words for this industrial standard is as follows:

- 2.1 Sustainable forest plantation management (SFM) is management that preserves and enhances the integrity of timber (health of the forest stand) in forest plantation ecosystems over the long term. Moreover, SFM can be sustainably beneficial to people in the economic, social and environmental sense both now and in the future.
- 2.2 Endangered species are any species that exist in forest plantations and have been declared on the endangered species list of Thailand.
- 2.3 Exotic species are species that exist in forest plantations and which have been introduced from other countries and have not been studied for suitability as exotic species in Thailand.
- 2.4 Threatened species are species that exist in forest plantations and are included on the endangered species list of Thailand.
- 2.5 Endemic species are native species that exist in forest plantations and for which there is a specific, unique and geographical indication of the species in that area.
- 2.6 Reserved species are species that exist in forest plantations and are included on the reserved species list of Thailand.
- 2.7 A genetically modified tree is a tree whose DNA has been modified using man – made techniques for modifying plant breeding or natural fertilization.
- 2.8 Forest plantation resource refers to products that occur in forest plantations and are not only timber and non – timber products but also service values.
- 2.9 Forest refers to a plant community that consists of trees and other species including animals, microorganisms, and is of value of plant communities.
- 2.10 An entrepreneur is a person or legal entity who organizes and operates his/her/its own business. For example, an individual, a partnership, a government organization, a state enterprise, an academic or an association involved in forest plantation.



- 2.11 A stakeholder is a person or legal entity or organization which is affected by the activities of forest management in a defined area.
- 2.12 A defined area is a forest plantation area indicated by an entrepreneur.
- 2.13 Forest land is land or forested area that is mentioned in forest laws.
- 2.14 Economic trees are trees that were planted for utilization of their timber or commercial or other utilizations such as, essential oil and latex extraction.
- 2.15 An ecosystem is an area that consists of living and non – living organisms coexisting in the same environment. There are behavioral, interactive and unique areas.
- 2.16 A silvicultural system is a practical system that enables trees to thrive throughout their lives starting from reproduction and through planting, tending and harvesting.
- 2.17 An economic plantation refers to land where entrepreneurs grow trees for direct or commercial use and for the other purposes. Moreover, the term “forest plantation” is used in this document.
- 2.18 A small economic plantation is a management area of forest plantation which does not exceed 1,600 hectares (10,000 – rai).
- 2.19 A large economic plantation is a management area of forest plantation which is larger than 1,600 hectares (10,000 – rai).
- 2.20 Chemical refers to a synthetic substance which is used to manage forest plantations such as, chemical fertilizer, pesticides and hormones.
- 2.21 The environment includes various things that exist in and around forest plantations, all living and non – living organisms that have been caused by natural or man – made agents.
- 2.22 Tenure refers to ownership rights or the possession right to utilize, harvest or manage forest plantation resources as mentioned over time and relating to area.

### 3. General requirements for SFM standards

The general requirements for sustainable forest plantation management shall:

- 3.1 include management and performance requirements that are applicable at forest management unit level or at another level where appropriate, to ensure that the forest is able to achieve the purpose of the requirements.
- 3.2 be clear, objective-based and auditable;
- 3.3 apply to activities of all operators in the defined forest area who have a measurable impact on achieving compliance with the requirements;
- 3.4 require record-keeping that provides evidence of compliance with the requirements of sustainable forest management standards.

### 4. Specific requirements for SFM standards



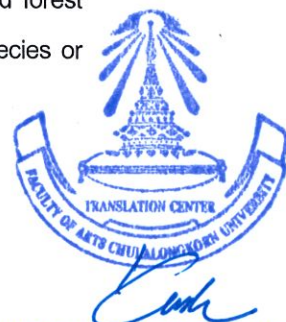


**4.1 Compliance with legal requirements**

- 4.1.1 Forest plantation management shall comply with legislation applicable to current local, country and international laws which deal with the protection of nature, the environment, reserved species and endangered species, tenure and land-use rights for indigenous peoples, health, labor and safety issues and the payment of royalties and taxes.
- 4.1.2 Forest plantation management shall provide for the adequate protection of forest plantations from unauthorized activities such as illegal logging, illegal land use, illegally initiated fires and other illegal activities.

**4.2 Appropriate maintenance of the forest plantation as a carbon source**

- 4.2.1 Forest plantation management planning shall aim to maintain or increase forest areas and conserve existing native trees (if any) and enhance the quality of the economic, social and environment of the forest plantation including soil and water. This shall be done by making full use of related services and tools that support land-use planning and nature conservation.
- 4.2.2 Forest plantation management shall consist of a cycle of inventory and planning, implementation, monitoring and evaluation that includes an appropriate assessment of the social, environmental and economic impact of forest management operations. This shall form the basis for a cycle of continuous improvement to minimize or avoid any negative impact.
- 4.2.3 Making inventory and mapping of forest plantation resources shall be established and maintained and shall be adequate to local and national conditions and correspond with the topics described in this document.
- 4.2.4 Management plans shall be appropriate to the size and use of the forest plantation area, shall provide details and shall define the responsible person clearly and be periodically updated. A summary of the management plan shall be made available for public viewing.
- 4.2.5 Monitoring of forest plantation resources and the evaluation of their management shall be periodically performed and the results fed back into the planning process.
- 4.2.6 Conversion of forests to other types of land use, including conversion of primary forests to forest plantations, shall not occur unless in justified circumstances where the conversion:
- a) is in compliance with national and regional policy and the legislation relevant for land use and forest management; and
  - b) entails a small proportion of forest type; and
  - c) does not have any negative impact on threatened (including vulnerable, rare or endangered forest ecosystems, culturally and socially significant) areas, important habitats of threatened species or other protected areas; and



d) makes a contribution to long-term conservation and economic and social benefits.

4.2.7 Responsibility for sustainable forest plantation management shall be clearly defined and assigned.

4.2.8 Forest management practices shall safeguard the quantity and quality of forest resources in the medium and long term by balancing harvesting and growth rates, and by preferring techniques that minimize direct or indirect damage to forest, soil and water resources.

4.2.9 Forest plantation management shall apply silvicultural methods appropriately to maintain or reach a level of growing stock that is economically, ecologically and socially desirable.

### 4.3 Maintenance of forest ecosystem health and vitality

4.3.1 Forest plantation management planning shall aim to maintain and increase the health and vitality of forest ecosystems and to rehabilitate degraded forest ecosystems, whenever this is possible by silvicultural means.

4.3.2 Forest plantation management plans or their equivalent shall specify ways and means to minimize the risk of degradation of and damage to forest ecosystems. Forest management planning shall make use of those policy instruments set up to support these activities.

4.3.3 Forest plantation management practices shall make best use of natural structures and processes and use preventive biological measures wherever and as far as economically feasible to maintain and enhance the health and vitality of forest plantations. Adequate genetic, species and structural diversity shall be encouraged and/or maintained to enhance the stability, vitality and resistance capacity of the forests to adverse environmental factors and strengthen natural regulation mechanisms.

4.3.4 The health and vitality of forest plantations shall be periodically monitored, especially key biotic and abiotic factors that may potentially affect the health and vitality of forest plantation ecosystems, such as pests, disease, fire and damage caused by climatic factors or by forest plantation management operations.

4.3.5 The monitoring and maintaining of the health and vitality of forest ecosystems shall take into consideration the effects of naturally occurring fire, pests and other disturbances.

4.3.6 The lighting of fires shall be avoided and is only permitted if it is necessary for the achievement of the management goals of the forest plantation management unit.

4.3.7 Appropriate forest plantation management practices such as reforestation and afforestation with tree species and provenance that is suited to the site conditions or the use of tending, harvesting and transport techniques that minimize tree and/or soil damage shall be applied. The spillage of oil during forest plantation management operations or the indiscriminate disposal of waste on forest plantation land shall be strictly avoided. Non-organic waste and litter shall be avoided, collected, stored in designated areas and removed in an environmentally-responsible manner





- 4.3.8 The use of pesticides shall be minimized and appropriate silvicultural alternatives and other biological measures preferred. WHO Type 1A and 1B pesticides and other highly toxic pesticides shall be prohibited including other toxic pesticides that may accumulate in the food chain in any case.
- 4.3.9 The use of pesticides shall follow the instructions provided by the pesticide producer and be implemented with proper equipment and training.
- 4.3.10 Where fertilizers are used, they shall be applied in a controlled manner and with due consideration for the environment.

#### **4.4 Maintenance and encouragement of the productive function of forests (wood and non-wood)**

- 4.4.1 Forest plantation management planning shall aim to maintain the capability of forests to produce a range of wood and non – wood forest products and services on a sustainable basis.
- 4.4.2 Forest plantation management planning shall aim to achieve sound economic performance taking into account any available market studies and the possibility for new markets and economic activities in connection with all relevant goods and services relating to forests.
- 4.4.3 Forest plantation management plans shall take into account the different uses or functions of managed forest plantation areas (wood and non – wood). Forest plantation management planning shall make use of those policy instruments set up to support the production of commercial and non-commercial forest goods and services.
- 4.4.4 Forest plantation management practices shall maintain and improve forest resources and encourage a diversified output of goods and services over the long term.
- 4.4.5 Regeneration, tending and harvesting operations shall be carried out in a timely fashion and in a way that does not reduce the productive capacity of the site, for example, by avoiding damage to retained stands and trees as well as to the forest soil and by using appropriate systems.
- 4.4.6 Harvesting levels of both wood and non-wood forest products shall not exceed a rate that can be sustained over the long term and optimum use shall be made of harvested forest products, paying due regard to the nutrient off-take.
- 4.4.7 The exploitation of non – timber forest products, including hunting and fishing, shall be regulated, monitored and controlled.
- 4.4.8 Adequate infrastructure such as, roads, skid tracks or bridges shall be planned, established and maintained to ensure the minimization of the negative impact on the environment.

#### **4.5 Maintenance, conservation and appropriate enhancement of biological diversity in forest ecosystems**



- 4.5.1 Forest plantation management planning shall aim to maintain, conserve and enhance biodiversity in ecosystems, species and at the genetic level as appropriate in individual areas.
- 4.5.2 Forest plantation management planning, the making of inventories and the mapping of forest resources shall identify, protect and/or conserve ecologically important forest plantation areas containing significant concentrations of:
- a) protected, rare, sensitive or representative forest ecosystems;
  - b) areas containing endemic species and the habitats of threatened species;
  - c) areas containing endangered and reserved species;
  - d) large landscape areas of national, regional and international importance.
- 4.5.3 Protected and endangered plant and animal species shall not be exploited for commercial purposes and, where relevant, measures shall be taken to prevent to increase their population.
- 4.5.4 Forest plantation management shall ensure successful regeneration through natural regeneration and replanting at the same time.
- 4.5.5 For tree planting, the origins of native species and local provenance that is well-adapted to site conditions shall be preferred, where appropriate. Only those introduced species, provenances or varieties shall be used whose impact on the ecosystem and on the genetic integrity of native species and local provenance has been evaluated and if any negative impact can be avoided or minimized.
- 4.5.6 Genetically-modified trees shall not be propagated in forest plantation areas until sufficient scientific data on genetically-modified trees has indicated that there is no impact on humans, animals, vegetation and the environment.
- 4.5.7 Forest plantation management practices shall, where appropriate, promote a diversity of both horizontal and vertical structures such as uneven-aged stands and a diversity of species such as mixed stands. Where appropriate, practices shall also aim to maintain and restore landscape diversity.
- 4.5.8 Traditional management systems that have created valuable ecosystems on appropriate sites shall be supported, when economically feasible, by actions such as coppicing in appropriate areas.
- 4.5.9 Tending and harvesting operations shall be conducted in a way that does not cause lasting damage to ecosystems. Wherever possible, practical measures shall be taken to improve or maintain biological diversity.
- 4.5.10 Infrastructure shall be planned and constructed in a way that minimizes damage to ecosystems, especially to rare, sensitive or representative ecosystems and genetic reserves, and those threatened or other key species – in particular their migration patterns – are taken into consideration.





- 4.5.11 With due regard to management objectives, measures shall be taken to balance the pressure of animal populations and grazing on forest regeneration and growth as well as on biodiversity.
- 4.5.12 Standing and fallen dead wood, hollow trees, old groves and special rare tree species shall be left in a quantity and distribution volume necessary to safeguard biological diversity, taking into account the potential effect on the health and stability of forests and on surrounding ecosystems.

**4.6 Maintenance and appropriate enhancement of protective functions in forest management (notably soil and water)**

- 4.6.1 Forest plantation management planning shall aim to maintain and enhance the protective function of forest plantation for society, through measures such as the protection of infrastructure, protection from soil erosion, protection of water resources and from adverse impacts of water such as flooding or avalanches.
- 4.6.2 Forest plantation areas that fulfill specific and recognized protective functions for society shall be registered and mapped.
- 4.6.3 Special care shall be given to silvicultural operations on sensitive soils and erosion-prone areas and in areas where operations might lead to the excessive erosion of soil into watercourses. Inappropriate techniques and use of unsuitable machinery shall be avoided in such areas.
- 4.6.4 Special care shall be given in forest areas with soil and water protection functions. Inappropriate use of chemicals and silvicultural practices influencing water and soil quality in a harmful way shall be avoided.
- 4.6.5 The construction of roads, bridges and other infrastructure shall be carried out in a manner that minimizes bare soil exposure, avoids the introduction of soil into watercourses and preserves the natural level and function of water courses and river beds. Proper road drainage facilities shall be installed and maintained.

**4.7 Maintenance of other socio-economic functions and conditions.**

- 4.7.1 Forest plantation management planning shall aim to focus on the functions of forests in society, give due regard to the role of forestry in rural development and, especially, give new opportunities for employment in connection with the socio – economic functions of forests.
- 4.7.2 Forest management shall promote the long – term health and well – being of communities within or adjacent to forest management areas.
- 4.7.3 Property rights and land tenure arrangements shall be clearly defined, documented and established for forest plantation areas. Likewise, legal, customary and traditional rights relating to forest plantation land shall be clarified, recognized and respected.



- 4.7.4 Forest plantation management activities shall comply with the law, cultural rights and customs. These rights must not be violated, without prior notice to and independent consent from the holders of rights and should include the provision of compensation where applicable.
- 4.7.5 Adequate public access to forest plantations for the purpose of recreation shall be provided taking into account respect for ownership rights and the rights of others, the effects on forest resources and ecosystems, as well as compatibility with other functions of the forest.
- 4.7.6 Sites with recognized specific historical, cultural or spiritual significance and areas fundamental to meeting the basic needs of local communities (e.g. health, subsistence) shall be protected or managed in a way that takes proper regard of the significance of the site.
- 4.7.7 Forest plantation management operations shall take into account socio – economic function, especially the recreational function and aesthetic values of forests, by maintaining, for example, varied forest structures.
- 4.7.8 Forest plantation managers, contractors, employees and forest owners shall be provided with sufficient information and encouraged to keep up – to – date through continuous training in relation to sustainable forest management as a precondition for all management planning and practices outlined in this standard.
- 4.7.9 Forest plantation management practices shall make the best use of local forest-related experience and knowledge, such as that of local communities, forest owners, NGOs and local people.
- 4.7.10 Forest plantation management shall provide for effective communication and consultation with local people and other stakeholders that is relayed to sustainable forest management and shall provide appropriate mechanisms for resolving complaints and disputes between forest operators and local people that relate to forest plantation management.
- 4.7.11 Forest plantation work shall be planned, organized and performed in a manner that enables health and accident risks to be identified and all reasonable measures to be taken to protect workers from work – related risks. Workers shall be informed about the risks involved in their work and also about preventive measures.
- 4.7.12 Working conditions shall be safe and guidance and training in safe working practices shall be provided to all those assigned to a task in forest operations.
- 4.7.13 Forest plantation management shall be based inter – alia on the results of scientific research. Forest plantation management shall contribute to those research activities and data collection needed for sustainable forest plantation management or shall support relevant research activities carried out by other organizations, as appropriate.

## Appendix



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Feasible exemptions for small plantations

Criterion 4.2.1, 4.3.1, 4.3.3, 4.4.6, 4.4.8, 4.5.1, 4.5.7, 4.7.4, 4.7.5, 4.7.7 and 4.7.13



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