



Principles and Criteria Review

Briefing Paper on Regeneration Practices

Bonn, 10th November 2010

This paper was produced by the P&C Review Working Group to explain its approach to regeneration in the revised Principles and Criteria and to address stakeholder concerns raised in relation to this approach. The paper will also serve as a basis for further discussions at the P&C Review Workshop on the 15th and 16th of November 2010.

In accordance with its terms of reference the tasks of the FSC Working Group for the revision of the global Principles and Criteria for Forest Stewardship (the P&C, FSC-STD-01-001) are mainly –

- a. to clarify the FSC requirements, so as to reduce disparities in evaluations by ASI-accredited conformity assessment bodies;
- b. to shift the wording of Criteria towards outcomes where practicable; and
- c. to minimize the variety of interpretations found in national forest stewardship standards and national adaptations of the generic standards developed by the conformity assessment bodies.

Should you have any further questions regarding this issue, please contact Matthias Fecht at m.fecht@fsc.org

What is the issue?

Draft 3-0 of the revised Principles and Criteria included three Criteria dealing with the issue of regeneration. Two main strains of concerns were raised. On the one hand the concern was expressed that the proposed criteria would be too restrictive, especially for plantations, by requiring ecologically well adapted species, preferring native species and local genotypes over alien species and the safeguards required for the use of alien and invasive species. On the other hand it was expressed that the same criteria would allow for the gradual degradation of the native biodiversity of natural forests by allowing the use of, possibly ecologically well adapted, exotic species. It was felt that the required justification and safeguards for the use of alien and invasive species would not be sufficient to prevent this kind of degradation.

What is the answer?

The Policy Working Group of the Plantations Review (PWG) in its final report

- Recommend FSC to adopt one common set of Principles and Criteria for all management units;



- Appreciate that the difference between plantations and natural forests is not an obstacle to them both living within FSC;
- Ensure that the certification process prevents the transformation of a natural forest into a plantation regime.

Accordingly, one of the goals of the P&C Review WG, as a follow up to the recommendations of the PWG of the plantations review was to integrate Plantations and Natural Forests together throughout the entire standard.

Principle 10 has now been replaced with a new Principle entirely. The new Principle 10 responds especially to the concerns that the original Principle 1 to Principle 10 gave almost no guidance on field management and silviculture. Proposed Principle 1 to 10 do not distinguish between plantations and other vegetation types anymore. However, stakeholder comments indicate the need to clarify how the requirements in relation to regeneration may be applied in different situations, especially plantations and natural forests.

Plantations may target areas that have been previously denuded such as abandoned farmland. Therefore, in these cases, creating a plantation of a small number of **species** that complies with other the requirements of the P&C is considered an improvement over the previous land use because it increased biodiversity and habitat diversity, structural complexity, and ecological functions and interactions, as well as greater social utility and financial income.

Natural Forest management, on the other hand, exist on areas where the condition of the forest retains significant characteristics of natural conditions often with substantial species and ecological variety. One of the primary objectives of regeneration in these forest types is to maintain this ecological diversity and in select cases, perhaps perform restorative activities designed to reverse damage. A separate briefing paper addresses the P&C Review WGs approach to restoration.

Regeneration practices typically have the following objectives in the Principles and Criteria:

- Ecologically appropriate species
- Diversity of species where this was the situation before harvest
- Regeneration of targeted species
- Avoid potential invasive species issues
- Timeliness of regeneration
- Proper consideration of artificial and natural regeneration approaches.

For plantations, FSC recognizes that species diversity may be very small. Typical in many plantations, are species that may be classified as invasive and may not normally



be growing in the management unit under natural conditions (e.g. radiata pine or eucalyptus).

To comply with the Principles and Criteria, with regard to regeneration practices, plantations need to demonstrate that invasive effects outside the stand are properly controlled so that this invasiveness does not cause demonstrated damage to areas outside the stand that are not being properly mitigated. Appropriate species diversity targets are determined by the pre-harvesting state considering the nature of the management activity.

The requirements for regeneration in natural forests are more complex than those of plantations because of the objective to maintain as a minimum their ecological diversity (see above), Normally, using alien species would be difficult to justify as the ability to control invasiveness is seen as too risky for reducing species diversity in the Management Unit.

As a normal requirement, The Organization needs to demonstrate regeneration of the harvested crop species. The Organization needs to show how regeneration practices ensure these species will come back.

Therefore, the P&C require the ecologically appropriate species and age class diversification normally present in the Management Unit. This does not necessarily mean all parts of the forest will be managed as un-even aged and multi species if nature does not normally do this (e.g. pine forests in the boreal that are fire dependent).

However, other forest types such as coastal temperate rain forests tend to have very complicated age class and species diversity the Management Unit manager needs to consider in their own regeneration practices so that complex forests are not simplified into largely single species even aged entities, because that would go against the FSC approach towards more adaptability and resilience through maintained or enhanced biodiversity, habitat diversity, etc., as above.

The proposed P&C also recognize that the MU manager has the flexibility to choose between artificial and natural regeneration methods as long as it is demonstrated the results are ecologically appropriate to the site. Seedling nursery technologies have improved greatly in the last 30 years and in many cases, are able to provide genetically appropriate trees to the sites they are destined to be grown by using seed sources that reflect those ecological conditions. Also, some areas are best suited to natural regeneration approaches (e.g. lowland black spruce forests) where suitable seed remains viable in the soil layer for decades). The Organization needs to demonstrate that regardless of the approaches chosen, the results are ecologically



appropriate and managerially desired species are regenerating with adequate speed and spatial coverage.

The Organization also needs to demonstrate an appropriate level of species diversity is growing on harvested areas in a timely fashion. In most natural forests, species composition changes throughout the life cycle of the targeted crop trees so regeneration practices need to reflect this over the appropriate time scales. Also, the Organization needs to demonstrate normal species diversity persists on a Management Unit level. Again, appropriate combinations of natural and artificial regeneration (from nurseries) can be used.

Finally, the revised P&C retain the previous requirement to not use genetically modified organisms (GMO's).

In summary, the underlying ecology of the site is the best gauge to use to determine the species distribution and age class structure The Organization should use in its regeneration practices. Species used should be ecologically appropriate and not demonstrate invasive characteristics, or the invasive tendency should be controllable. Also, the regeneration requirement needs to ensure the forest is not "hi-graded" so that potentially expensive and difficult to regenerate species do not get reduced beyond their natural levels.

In line with the above the P&C Review Working Group is proposing the following revisions:

10.1 (new) After harvest, The organization shall, by natural or artificial regeneration methods, restore vegetation cover to pre-harvesting or more natural conditions.

Explanatory Notes:

1. Pre-harvest condition provides the baseline for regeneration requirements.
 - For an existing plantation, the species harvested may be the same as the one(s) used to regenerate. However, there may be a solid ecological, social and economic reason for changing the species. The chosen species must be ecologically well adapted to the site and management units (Criterion 10.2) and must not be invasive or their invasive tendencies must be minor and easily controlled or mitigated (Criterion 10.3).
 - For Natural forests, the first consideration for regeneration is to determine if the pre harvest condition was indeed purely natural or the result of previous harvesting activities that have left the area in a somewhat degraded condition. The goal may be to improve degraded areas, once harvested, to a more natural condition.
 - For natural forests, the ultimate end goal is to ensure on a forest level, that species occur in a relatively natural abundance for both population and size



condition. This may be demonstrated by following the concept of Range of Natural Variation since forests do not remain static over time. This allows the Organization some flexibility on a stand level or harvest area level to vary somewhat as long as the forest level species diversity is within the Range of Natural Variation.

2. The Organization is not required to restore the vegetation cover to more natural conditions. However, regeneration must ensure that no or that no further degradation occurs.
3. The restoration of vegetation cover to pre-harvest conditions is a pre-requisite for the maintenance or restoration of the environmental values of the management unit.
4. The period required for restoration is typically shorter for areas to be planted (artificial regeneration) than areas left for natural regeneration. However, this criterion does not give preference to planting as a way to shorten the period for regeneration because in certain cases, natural regeneration approaches are more suitable.

10.2 (revised 10.4) The Organization shall use species for regeneration that are ecologically well adapted to the site and to the management objectives

Explanatory Notes

1. Regeneration practices must be selected so that they do not violate the requirements under Principle 6. That is they cannot lead to conversion (Criterion 6.9 and 6.10), losses of genetic and species diversity, as measured on the MU level, or damage to other environmental values.
2. The potential and actual negative impacts of the chosen regeneration practices need to be addressed in compliance with Criterion 6.2 and 6.3.
3. Ecologically well adapted species may include alien species. However, for the use of alien species Criterion 10.3 applies.

10.3 (revised 6.9, 10.4 and 10.8) The Organization shall use native species and local genotypes for regeneration, unless there is clear and convincing justification for using others. Alien species may be used only after local trials and/or experience have shown that they are not invasive or if invasive tendencies are minor and are effectively controlled or mitigated.

Explanatory Notes:

1. Recognizing that this might not always be the case and that each situation must be considered on its merits, FSC prefers the use of local species and genotypes because the communities they form are (1) usually more favorable for local species of plants and animals than communities dominated by alien species, and (2) expected to be more resilient to the effects of climate change.
2. This approach is also supported by the fact that legal requirements increasingly include recognition of the need for genetic diversity to accommodate



- unpredictable effects of climate change.
3. The preference for native species extends to all species in the management unit, not only the crop trees; for example, soil cover crops and understory shrubs for feeding wildlife and domesticated animals.
 4. The term Alien Species is used in accordance with the definition of Convention on Biological Diversity (see also glossary): A species, subspecies or lower taxon, introduced outside its natural past or present distribution; includes any part, gametes, seeds, eggs, or propagules of such species that might survive and subsequently reproduce.
 5. Any species may become invasive in some situations, but this criterion is designed to prevent or deal with invasiveness in and around the certified Management Unit. The ability to manage a community by natural regeneration may be a major advantage, and requires some small degree of invasiveness in the regenerated species.
 6. According to Principle 1 The Organization must comply with national and/or local laws for monitoring and control of alien species. Note that this legal compliance may involve management activities which are contrary to Criterion 10.2. According to section 8.20 of FSC-STD-20-007 Version 3-0 Forest Management Evaluations conflicts between laws/regulations and the P&C shall be evaluated by the certification body on a case by case basis, in arrangement with the involved or affected parties.
 7. Justifications for the use of alien species and non-local genotypes, compatible with FSC rules may arise with a wide variety of situations and objectives, and should be stated in the management planning documents. National or generic Indicators may describe some of these situations (see examples below).
 8. Criterion 10.1 by requiring restoration of pre-harvest vegetation cover would normally prevent the use of alien species for regeneration in natural forests. However, there may be situations where their use is justified, for example as temporary nurse crops to shelter and enhance the growth of preferred native species.
 9. The use of alien species is justified, if they have been used traditionally, that is usually before FSC came into existence in 1994 especially if the supply of wood or environmental services from the Management Unit has demonstrably reduced the degradation of natural forest in the region or country of the Management Unit. This can be demonstrated where there is significant natural forest formally protected and managed by a legally recognised conservation agency for conservation purposes, and where wood supply is primarily from plantations.
 10. Where alien species are used:
 - i. There should be a system of natural reserve areas within the Management Unit, and/or corridors primarily comprising natural forest vegetation linking reserves established for biodiversity protection and enhancement within the Management Unit to legally protected natural forest areas adjacent to the Management Unit, and/or



- ii. The Organisation should contribute to biodiversity protection/management outside, but within the general landscape of the Management Unit.
- iii. The management unit should provide an array of environmental services that contribute to biological diversity within the landscape. This can include providing a habitat for rare, threatened or endangered species; providing alternate recreation opportunities; providing clean water that enables water-bodies such as streams to contain natural biodiversity; and regulating water yield to reduce the impact of storm events etc.