

CHECKLIST #3 FORESTRY: NURSERIES, REFORESTATION, HARVESTING

Nursery projects for the reforestation of trees and shrubs, in a natural environment or elsewhere (for example, agroforestry projects).

A. Questions relating to the nursery site and the reforestation zone

1. What are the uses and activities on the proposed site of project implementation? What are the existing infrastructures? What is the land use master plan? What are the ownership rights and land use rights associated with the site? Do the reforestation objectives and implementation Plan correspond to the local population's needs, wishes and traditional uses, and comply with government policy? Could the project lead to:
 - changes in ways of life, the accentuation of social inequalities and/or the loss of territory (for example, if specific groups of the population, such as women, farmers, livestock herders and so on, have not been consulted; if the local population's means of subsistence are disrupted by introducing "modern" methods of production, cash crops or commercial activities, without prior analysis; and so on);
 - incompatibility in land uses (loss of agricultural land, pastures and so on), multiple uses of trees and shrubs, and the various functions of woodlands (fodder as opposed to medicinal plants; subsistence uses, such as the collection of fuelwood by women, as opposed to commercial logging by companies; sacred land and so on);
 - social and value conflicts and conflicting responsibilities (between nursery owners, owners of the reforested site, other members of the community and people passing through the area, or social problems associated with an unstable, precarious or inequitable financial situation, and so on);
 - changes in ownership and land use rights (related to the notion of private and communal ownership, due to water supply problems, problems with the supply of other resources and services, and so on);
 - an effect on the local or regional economy (links between traditional and "modern" activities); a decrease or an improvement in the quality of life;
 - greater awareness of the importance of a healthy environment, the role of the vegetation cover, grazing pressure, the pressures exerted by fuelwood collection, and improvement of the environment through the reforestation of woodlands and degraded and eroded areas;
 - community involvement and clearly defined responsibilities?

1. What types of environment and landscape are present in the area? What is their specific importance? Are there nearby water sources, waterways, slopes and other vulnerable sites? What are the characteristics of the region's indigenous and exotic vegetation? What type of wildlife do these habitats support? What sources of water are available, of what quality and in what quantity? What are the characteristics of the soil (composition, texture, drainage, fertility and so on)? Could the project have an effect on:
 - environments or sites of economic, ecological, cultural, archaeological or historical importance and the natural resources (water, soil, vegetation, wildlife and so on) they contain;
 - rare or vulnerable species and/or species of economic, cultural or ecological importance (biodiversity)?

B. Questions relating to the nursery and to reforestation

1. What are the various site preparation activities? Will there be demolition of existing buildings, installation of fences, soil leveling and amendment, clearing, slash and burn techniques or wetland reclamation? Will the nursery require a well, an irrigation system

and so on? Will the area designated for reforestation require the construction of access roads (see appropriate checklist)? Could the project lead to:

- changes in, encroachments on and/or the destruction of environments or sites of economic, ecological, cultural, archaeological or historical importance and the natural resources they contain;
- soil erosion, soil compaction or changes in drainage, soil permeability and/or fertility;
- nuisances (such as noise, airborne dust), health risks and/or risks of accidents for workers and the local population;
- communities taking charge of their own development through their participation in preparatory activities?

2. What species have been selected? What are their origin and characteristics (for example, need for water and nutrients, growth rate, required space, depth and range of the root system, vulnerability to climate and insects, and maintenance needs)? What is the seed quality and source? Have seeds been chemically treated, genetically manipulated and tested for resistance and survival? Could the project lead to:

- a change in, encroachment on or the destruction of indigenous environments and/or neighbouring agricultural environments, by introducing exotic trees and shrubs, a loss of biodiversity, and/or a decrease in agricultural yield, due to competition for nutrients, water, light, and so on);
- environmental degradation by selecting trees and shrubs that are not well adapted to climatic conditions (rainfall pattern, variations in temperature and humidity) and pedology of the site (for example, soil acidification, run-off and erosion);
- social and value conflicts (for example, if the population's preferences for the species to be planted, such as fruit trees, trees with multiple uses and so on, are not taken into account)?

3. What are the maintenance activities planned for the nursery and the reforestation site? Have all users of forest products been involved in the process? What techniques will be used (mechanical or manual maintenance, pesticides, organic and chemical fertilizers, plastic material, mulch, thinning, type of watering system, follow-up and monitoring, and so on)? How will the plants be conveyed to the various sites? How will they be protected? Is the means of protection (for example, care taking and the distribution of responsibilities) suited to local resources and customs? Could the project lead to:

- the creation of habitats favourable to organisms that are harmful to the vegetation cover and/or favourable to disease vectors, through the extensive practice of monoculture, or the use of wide-spectrum pesticides, for example;
- an increase in harmful species (for example, plants that are undesirable for agriculture, invasive plants, and so on), and disease vectors associated with humid areas (depending on water use and supply and the proximity of water sources);
- increased risk of fire in arid areas where dry litter accumulates;
- soil degradation (erosion, compaction, changes in drainage, for example) by using heavy machinery or inappropriate techniques on small plots of land;
- a decline in soil fertility and water-holding capacity, resulting from a poor choice of the quantity and location of species;
- a reduction in the quantity of available water for other uses and users, considering the water supply needs of young plants;
- changes in the quality and quantity of groundwater (depending on the source of water supply, water availability, groundwater recharge rate, and so on) and/or a decrease in the level of soil humidity, especially in semi-arid areas;
- risks of sedimentation in nearby waterways and erosion associated with transportation and access roads used in transferring plants from one site to another;
- air, soil, groundwater and surface water pollution, bio-accumulation of toxic substances in the food chain, foul odours, health risks or risks of accidents (spills, seepage into water and soil, and so on), resulting from improper use, lack of

protective equipment, poor management, or improper storage of pesticides (herbicides, insecticides, fungicides and so on) and/or organic and chemical fertilizers;

- greater involvement of the local population (men and women) in taking charge of their needs, through caretaking, maintenance and monitoring activities for the various sites, plants, their products, techniques and equipment;
 - fair and equitable participation of the local work force and a positive effect on the local and regional economy?
4. Will harvesting take place in the reforested area? What will be the harvesting characteristics, and who will be involved? What will be the intensity of harvesting (the quantity harvested in relation to available quantity and regeneration capacity)? What is the land use Plan, and does it include subsequent plantings? What are they? If timber harvesting is planned, will there be selective cutting, regeneration schemes and protection of banks and waterways? Will there be processing of forest products? Could the project lead to:
- compaction, erosion, run-off, or leaching of soils, resulting from the extraction of roots, the cutting of dry stems or green stems, overexploitation of the forest, and/or inappropriate means of harvesting and transportation;
 - problems of soil compaction, desertification or degradation of the vegetation cover due to livestock grazing pressure;
 - erosion of sloped areas and river banks and/or sedimentation of waterways by removing or damaging the vegetation cover (during the rainy season and the dry season);
 - decrease in soil fertility by removing leaves from the ground;
 - degradation of the vegetation cover and its regeneration capacity, through the harvesting of fruits and seeds that is not well adapted to the climate, soil conditions, or biological characteristics of trees and shrubs, and so on;
 - environmental degradation (soil erosion, compaction, loss of soil fertility and soil degradation, climatic change, loss of biodiversity, loss of wildlife habitats, change or decrease in vegetation, desertification, degradation of water cycles, and so on) associated with abusive logging methods;
 - socio-economic problems (noise, loss of subsistence resources for indigenous peoples, problems with control of resources by commercial operators, rivalries between various users and owners, unplanned and spontaneous development of agricultural facilities, absence of diversified markets, and so on) associated with abusive logging methods;
 - surface water and groundwater pollution, air and soil pollution, as a result of harvesting and processing resources;
 - an increase in population and additional pressures on water, soil, arable land, flora, fauna, infrastructures and local services, and so on;
 - socio-economic conflicts, conflicts over the use of resources and territory, ownership rights, and opposition between traditional and/or modern forestry methods;
 - any form of overexploitation of forest products that exceeds the environment's carrying capacity, that is, what an environment and its components can sustain without compromising their growth, regeneration and roles in ecological regulatory functions;
 - equitable reinvestment of profits and/or positive outcomes for the community and its specific groups;
 - sustainable economic development, forms of fair and equitable partnership, and easy access to trees and shrubs of multiple uses, for subsistence, and of good market value?