Appendix 1: Species Selection

The choice of species is based on the end-use objective of the rehabilitation effort. Species are often chosen on the basis of their fast growth rates so that the return can be recovered rapidly. There are some factors that need to be considered during species selection:

1. Purpose of the Plantation

For the purpose of economic development some industrial species are suggested below:

- Construction: *Dipterocarpus spp., Hopea spp., Anisoptera costata, Heritiera javanica, Pterocarpus spp., Shorea spp., Afzelia xylocarpa. Terminalia alata, Xylia xylocarpa, Sindora cochinchinensis, Tectona grandis* .
- Furniture: *Dalbergia olivery, Dalbergia cochinchinensis, Afzelia xylocarpa, Pterocarpus spp., Toona sureni, Tectona grandis, Khaya senegalensis.*
- Plywood: *Dipterocarpus alatus, Dip. costatus, Anisoptera costata, Mangifera indic, Gmelina arborea, Michelia champaca.*
- Pulpwood: *Pinus merkusii, Acacia spp., Eucalyptus spp.*, bamboos and other fast growing indigenous species.

2. Site Factors

In the process of species selection there is a need to study the ecological requirement of the proposed species in comparison to the site conditions which include (i) climate, (ii) soil, (iii) physiography and (iv) biotic factors. In general the species should be selected based on their natural occurrence (habitats) or on species composition of the site i.e. one cannot introduce *Anisoptera costata*, originally from evergreen forest, into a degraded deciduous forest.

3. Market Demand

This is one of the most important factors. Before embarking on tree planting there should be a market for the end products of the selected tree species. There should be a proper balance between the demand and supply. If possible, agreements with potential buyers should be made.

4. Species Elimination Trial

Identification of suitable tree species for the planting site requires some systematic /scientific studies, that is, research or experimentation. An experiment of simple species screening could be the first step, where species are planted out in field tests (in a plot of 1-4 ha) in order to observe the species as potential plantation species. This experiment can be conducted along with the ongoing planting operation. The result of research will reveal and confirm which tree or shrub species are most suitable for future planting in the area. It is very important for decision making, especially when a large scale planting programme is planned for implementation. The test may be followed by more complex trials where silvicultural methods, including species mixtures, shading etc. are tested. Research work is an important part in any plantation establishment programme.

In general the steps in species selection are summarised in the diagram shown on the following page.

Steps in Selection of Tree Species for Planting Programs