

2. Genetic Conservation and Natural Forests in Cambodia

2.1 Convention on Biological Diversity

The Royal Government of Cambodia (RGC) ratified the Convention on Biological Diversity (CBD) in 1995, and in fulfilment of its obligations, submitted a National Report on Implementing the Convention on Biological Diversity (RGC, 2001), and a National Biodiversity Strategy and Action Plan (RGC, 2002c). CBD objectives are :

- the conservation of biodiversity
- the sustainable use of biological resources
- the fair and equitable sharing of benefits resulting from the use of genetic resources

The Forest Gene Conservation Strategy is a step towards meeting Cambodian obligations under the CBD.

2.2 Natural Forests

Natural forests cover about half of Cambodia and represent a wealth of forest types ranging from mangrove, tropical humid evergreen, dry to mountainous. A high level of biodiversity in many of the primary forest types is evident. However, large tracts of forest have been degraded or converted to other uses, especially due to shifting cultivation, logging and forest fires. As deforestation progresses and logging of the remaining primary forests continues, the genetic resources of some of the economically important indigenous species become endangered, and therefore, the potential for good seed sources and reforestation of natural species is deteriorating.

2.2.1 Indigenous Tree Species

The role of indigenous species is vast. Over centuries they have had special uses for house poles, doors, frames, other construction and furniture. In addition many non-timber forest products such as oils, fruits and medicines have proved essential for rural livelihoods.

Economic calculations can demonstrate that a higher wood quality and value can compensate for a slower growth rate when comparing indigenous species with fast growing exotics.

A valuation that also includes biological and social considerations, and future demand, would clearly recommend planting indigenous species.

To date, indigenous species and populations have not been included in tree improvement programmes. Indigenous tree species are therefore believed to have a large potential for improvement in quality and growth rate. Unfortunately, the handling of indigenous tree seed is an area of which little is known, and therefore, further research is necessary to develop simple but effective methods of handling and storage.

2.2.2 Seed Sources

The starting point for seed production and conservation of tree genetic resources is to select and protect quality seed stands. Unplanned development and logging often result in the loss of valuable tree genetic resources reducing the options for Cambodian forestry in the future.

A network of seed sources, representing species and populations from various ecological zones, will ensure a broad genetic base for future seed collection, plantings and sound tree improvement.

2.2.3 Conservation Through Use

It is increasingly recognised that maintenance of forest genetic resources is a pre-condition for sustainable development. A number of tree species are vulnerable or endangered, and at the same time, genetic erosion is occurring through continuous selection of the best trees for cutting. Conservation of genetic variation at species and population level is important for future tree seed supply and tree improvement programmes, and for adaptation to environmental changes and planting sites.

Tree species are best conserved within their natural habitat, but in some circumstances the natural forest cannot be protected. Therefore, it may be necessary to establish conservation stands outside their present distribution range.

Conservation of natural forest areas with high biological diversity will form the base for the continuous supply of indigenous quality seed for forest rehabilitation. In addition a network of seed sources in un-logged natural forests will provide a tremendous basis for research.