

1. Introduction

With the support of Danida and in cooperation with the Forestry Administration and the cooperation of the German Development Service (DED), the Cambodia Tree Seed Project (CTSP) has developed a database and geographical model to describe and predict natural genetic variation in Cambodia's important timber-tree species. The **Gene-Ecological Zonation** provides a series of updated maps that describe the present-day distributions of Cambodia's high-priority timber species, and affords a means by which to predict the suitability of distinctive genetic varieties of trees for reforestation programs. When applied to activities on the ground, the system can also be used to facilitate ongoing programs to locate and monitor existing seed sources. In short, the system establishes a conceptual framework in which silviculturalists, forest managers, and land-planners can be prioritize and improve upon existing plans and activities to regenerate the forests of Cambodia.

The Gene-Ecological Zonation System was developed as a tool to address a variety of questions and considerations that confront modern foresters. It is based, therefore, on a number of different data-bases and information sources, all of which are integrated and cross-referenced by means of new and innovative computer methods. The system provides three distinctive outputs:

- A fixed Gene-Ecological Zonation Map
- A GIS model for species site-matching capabilities
- A user guide and documentation manual

The GIS manual is based on ArcExplorer software, and can be updated periodically as new meteorological data become available. Use of the GIS model is facilitated by an introductory user-level course in ArcExplorer, but general instructions to the use of our system, in both theoretical and practical terms, is provided in the manual. Like all models, the usefulness of the gene-ecological zonation system will depend greatly on the manner in which it is applied to practical questions. Due to the relatively flat and often homogenous topography of Cambodia's central lowlands, *we recommend to pay close attention to detail in their collection, application, and analysis of their ecological and forestry data.*

Readers and users who want additional information on the development of this model, or who have any critical comments on the manual, are kindly requested to contact the Cambodia Tree Seed Project or FA.

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