

Steps from single use plantation to multiple use production areas:

## A strategic Forest Management combining economic demands with social- and ecosystem services on Hainan Island, China

DAAD PPP Project between Chinese Academy of forestry and Burckhardt Institute, Section Forest Inventory & Remote Sensing

### 1. Main issues of forest Management in China

- Protection of forest and related resources
- Growing biomass demand
- Prevent land degradation
- Prevent rural migration
- Prevent desertification
- Minority protection
- Biodiversity loss
- Carbon storage

Baisha country



### 2. Background Hainan island:

About 8.6 million people are living on sub tropical Hainan island. 800 thousand belonging to minority cultures, heavily dependant on agricultural and forest resources. Many kind of Non Timber Forest Products (NTFP) support their daily life. But only 6% natural forest cover is left, where many NTFP and ecosystem services depend on. A logging ban for natural forests had been established 1994 to stop the uncontrolled loss of resources and biodiversity and to follow the main issues of forest management in China. But this set rural people under economical pressure, while timber was an income generator till then. About 30% of the island are covered now by tree plantation, including eucalypt, pine, gum tree and agricultural production trees like mango. But now the time has come, where short rotation plantation - who now only fulfill the need for Biomass - have to be optimized for biodiversity, social and economic demands. The aim: Combine NTFP - with high quality timber production to strengthen rural life and biodiversity.



### 3. Situation: case study and risk analysis in Baisha

#### Case study:

- Populated from Li minority, depending on agriculture and forestry
- Logging ban weakened local economy
- Plantation developed for biomass and with improvable management
- Already established NTFP: Rattan, *alpina katsumadai*, pine resin
- 30 NTFP described during plot survey and market analysis
- Multi-use options like silvopastoral uses identified
- Several indigenous tree species in pine area verified during strip analysis

#### Risk Analysis

- Storm damages (Hainan situated on the "street of taifun")
- Pests, fungi, grass (*Miscanthus floridulus*), Asian Longhorn Beetle (ALB)
- Fire events
- Mutual disturbing NTFP (e.g. Rattan leaves being cut during daily pine resin collection because of their thorns)
- Knowledge transfer (how to tread and market NTFP)
- Ownership and policy

### 4. Case sensitive Management

The sustainable management of renewable natural resources is a key for the development of rural areas. The combination of indigenous timber tree and NTFP production (in a broader sense also the impact on water, soil, wildlife and others) take direct effects on the social functions of forests. On the long run a successful forest management has to combine this issues to guarantee yield, income and basic living conditions. For the pine plantation in Baisha case sensitive management options are suggested for discussion, covering plantation enrichment (A, B), plantation conversion (C,D) and disaster situation (E). To underline the importance of a combined strategy a key sentence in STONE et al. (2004) can be modified:

#### To sustain rural development

- the use of locally made goods and services and the employment of community members whenever possible
  - combined within a diversified market chain and supported by multiple use forestry
- is absolutely critical for biodiversity and to generate and retain benefits in the community!

### 5. Management options for Baisha pine forest

**A: Additional NTFP Trees and shrubs along road side: easy to reach and harvest, future alternative for pine resin**

**B: Timber production: indigenous timber tree insertion for high productive area**

**C: „invading“ indigenous tree species Supporting single tree stand: more shade tolerant trees within the plantation**

**D: Border cutting: slow change from plantation to close to nature forest**

**E: Disaster planting: fast reaction preventing grass (*liquidambar formosana* group)**



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FAO 2005: Global Forest Resource Assessment. Progress towards sustainable forest management. FAO Forest Paper No. 147  
Deutsche Botschaft Peking 2007: Wirtschaftsdaten Kompakt - Daten zur chinesischen Wirtschaft. Stand: 7. März 2007

Stone, M.; Wall, G., 2004: Ecotourism and Community Development: Case Studies from Hainan, China