



## Research & Development on Bamboo Production in the PHILIPPINES

Aida Baja Lapis, Cristina A. Roxas and Paulino A. Umali, Jr.  
Ecosystems and Research and Development Bureau  
UPLB College, Laguna 4031, Philippines

### Distribution



### The Genera of Philippine Bamboo

#### Erect Bamboo species

- *Bambusa* Schreber (16)
- *Dendrocalamus* Nees (6)
- *Gigantochloa* Kurz (3)
- *Guadua* Kunth (1)
- *Melocanna* Trinius (1)
- *Phyllostachys* Siebold & Zuccarini
- *Pleioblastus* Nakai (2)
- *Sasa* Makino & Shibata (2)
- *Schizostachyum* Nees (4)
- *Shibatana* Makino (1)
- *Thyrsostachys* Gamble (1)
- *Yushania* Keng f. (1)

#### Climbing Bamboo species

- *Dinochloa* Buse
- *Cyrtochloa* S. Dransf.
- *Cephalostachyum* Munro

### Economic Uses and Potential Importance of Bamboo

- ✿ Construction and Infrastructure
- ✿ Handicraft and Furniture Industries
- ✿ Agriculture and Fishery
- ✿ Industrial Uses
- ✿ Food and Food Processing
- ✿ Cultural Uses
- ✿ Aesthetic (landscaping, ornamental)
- ✿ Environmental

### Ecological Uses

- ✿ Riverbank stabilization
- ✿ Wind break
- ✿ Erosion control
- ✿ Farm boundary demarcation



### Estimated Total Aggregate Area of Erect Bamboo in the Philippines (1997)

Nature of Source/Origin	Estimated Total Aggregate Area (Ha)
Forestlands	20,580 – 34,000
Government Plantations	2,292
Private Plantations	3,040
"Natural Stands"	13,435
<b>Total</b>	<b>39,218 – 52,568</b>

### Estimated Annual Potential Culm Production in the Philippines (1997)

Nature of Source/Origin	Estimated Annual Culm Production (in million)
Forestlands	20.5 – 34.0
Government Plantations	1.118 – 2.236
Private Plantations	1.520 – 3.040
"Natural Stands"	6.715 – 13.435
<b>Total</b>	<b>29.817 – 52,653</b>

## Bamboo Growing Area

- \* 10.18 M ha - India
- \* 06.79 M ha - China
- \* 50,000 ha - E. Java & S. Sulawesi
- \* 810,000 ha - Malaysia
- \* 1.21 M ha - Vietnam
- \* 62,891 ha - Nepal
- \* 39,000-52,600 ha - Philippines

## Bamboo Exports (finished goods)

- \* 206,990 tons, US\$1.04 B - China
- \* US\$24.31 M - Philippines
- \* US\$243,350 - India
- \* US\$757,027 - Nepal
- \* US\$176,474 - Malaysia
- \* US\$40 M (shoots only) - Thailand
- \* US\$3.84 M (chopsticks only) - Indonesia
- \* US\$182 M (1988) - Taiwan
- \* US\$47.30 M (1988) - Hongkong

## Conservation Measures

- a) Bambusetta
  - Los Banos Experimental Station
  - Cordillera Administrative Region
  - Region 13, Agusan
  - Antipolo, Rizal
  - Majent Foundation, Pangasinan
- b) Protected Area System
  - 120 nature reserve
  - Watershed, etc.

## Relevance to CDM/ Carbon Sequestration

- \* Afforestation and reforestation species
- \* Alternative substitute to fossil fuel
- \* Small scale plantations
- \* Compatible with existing agricultural system example: agroforestry
- \* Rehabilitation of degraded areas: mined out, mine tailings

## Plus Factors of Bamboo for CDM

- a) Air Purifier (Fibre2fashion.comIndia)  
30-35% Oxygen returns to atmosphere
- b) Carbon sequestration  
([www.cdmcapacity.org](http://www.cdmcapacity.org))  
12T CO2/ha/year
- c) Fast growing plant  
1-1.5 m culm/day

## Biomass Production (ton/ha/year) (Decipulo et. al, 2007)

Species	: Giant Bamboo Dendrocalamus asper
Plantation	: more than 10 years old
Spacing	: 7 x 7 m
Duration	: per year
Average	: 60.55
Average total leaf dry weight	: 3.72
Average total branch dry weight	: 6.89
Average total culm dry weight	: 49.93
Part contribution (percentage)	
Leaf	- 6.15
Branch	- 11.39
Culm	- 82.46

## Issues and Concerns

- Inventory of resource supply
- Land allocation for bamboo production
- Policy in support to production and investments
- Enterprise and business development for livelihood and income generation
- Investment incentives
- Competitive marketing strategies
- Fusion of production and utilization
- Regulations re: harvesting and transport of bamboo culms
- Institutional linkaging
- Advocacy for environmental/ecological values

## On research

- Genetic evaluation and mapping
- Propagation for other erect species and climbing bamboos
- Environmental impact assessment of bamboo plantations on biodiversity, ecological succession, watershed, carbon sequestration, etc.
- Harnessing bamboo as ornamental plant. Plantation establishment and management for bamboo shoots.
- Analysis on geographical distribution vis-à-vis end product profitability
- National survey and inventory for specific bamboo species per use
- Effectiveness of planting bamboo in mined out areas
- Effect of bamboo plantation on the livelihood of rural folks down the barangay level

## On technology transfer and extension

- Verification of harvesting and management technologies
- Diffusion of technologies to grassroots, LGU
- Downloading and expanding extension activities to communities
- Transforming bamboo science to grassroots level (IEC Materials)

