

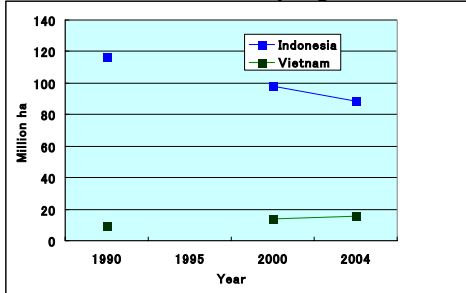
Prospect of woody biomass utilization from plantation resources in Vietnam



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4 Big Forestation Projects so far

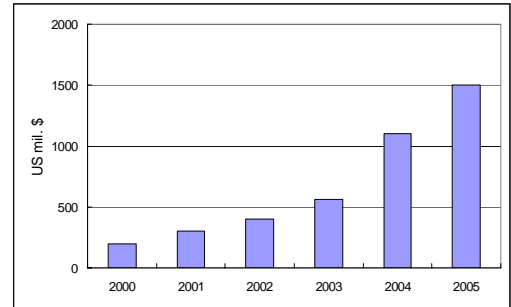
- 1) Scattered tree planting program from 1955 to 1985.
- 2) World Food Program from 1975 to 2000.
- 3) Greening the barren hills program from 1993 to 1997.
- 4) 5 million hectare reforestation program from 1998 to 2010.



Increase of Forest area in Vietnam (FAO2005)

Value-adding from Plantations

- 1) Export of furniture including plantation *Acacia* Increasing from 200 million US\$ in 2000 to 1500 million US\$ in 2005.



Vietnam's wooden furniture export

Source: Dao, T.M.: Vietnam solid wood products update 2005, USDA Foreign Agricultural Service, GAIN Report No. VM5008, pp.7 (2005).

- 2) Plantation species such as *Acacia mangium*, *A. auriculiformis* and hybrid *Acacia* are considered to be an environment friendly material for European customers.



Acacia Furniture factory in Ho Chi Minh city

Importance of Plantation Resources

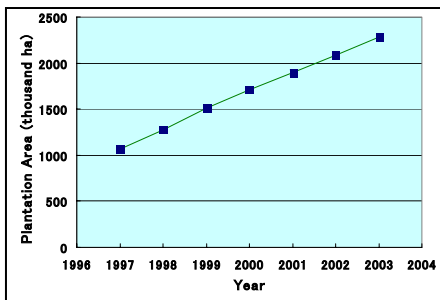
1) Sustainable management

Because of current 5 million ha reforestation program



7 years *Acacia* hybrid plantation in Hoabinh

2) Constant increase of plantation area



(Data: Personal communications)

Some Minor Problems

- 1) Smaller increment than expected?
Mean volume in a *Acacia* hybrid plantation is 75- 80m³/ha in a 7 years rotation, which is rather smaller than expected.
- 2) Biodiversity and sustainability of mono-culture plantation in short rotation is not well recognized yet.

Prospect of Plantation Biomass

- 1) Major wood production in Vietnam are sawn timber (2,950,000m³) and wood chip/particles (1,683,000m³), mainly from plantations goes to overseas, which may results shortage of raw materials for domestic use for several years.
- 2) 5 Million Program establishes 3 million ha of production forest in 2010 and enhanced plantation resources will help wood industries, in terms of raw material security.
- 3) Small logs produced from fast growing species may reduce the recovery rate, and generates huge amount of industrial residues. Cost effective technology to utilize these residues is an essential issue for biomass industry in Vietnam.

Current Use of Wood Residues

1) Wood fuel production was 26.5 Mm³ (FAO2005) containing logging residues are used intensively for fuel in local.

2) Industrial residues can estimate to be 2.5Mm³ calculated by 40% of recovery rate from 4.2 Mm³ of log (FAO 2005) to timber, mainly used for energy.

