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DEPARTMENT OF SCIENCE AND TECHNOLOGY

"Providing R&D and techno-transfer services in the use of wood and non-wood forest products"

The Philippine Bamboo Industry: Issues, Potentials, Strategies and Action Programs

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OUTLINE

- **Background**
- **Philippine Bamboo Industry**
- **Issues**
- **Potentials**
- **Strategies and Action Programs**
- **Conclusions**



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BACKGROUND

- **Global trade of bamboo products averaged \$1.49 B (2007-2010)**
- **International market value for commercial bamboo is expected to hit \$17B by 2015**
- **45% of the total market will be accounted for by emerging products**
- **Philippines intends to maintain its rank as the world's 6th largest exporter of bamboo and rattan products**





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The Philippine Bamboo Industry

- **In 2010, the Philippine bamboo industry was formalized by virtue of Executive Order 879 that created the Philippine Bamboo Industry Development Council (PBIDC)**
- **Directs the use of bamboo for at least twenty five (25%) percent of the desk and other furniture requirements of public elementary and secondary schools**



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The Philippine Bamboo Industry

- Pole production and processing are the two major components of the bamboo industry.
- There are 70 known species of bamboo in the Philippines of which 53 are erect and 17 are climbing. Only 9 are economically important which include kawayan tinik (*Bambusa blumeana*), bayog (*B. merrilliana*), kawayan killing (*B. vulgaris*) giant bamboo (*Dendrocalamus asper*), bolo (*Gigantochloa levis*), kayali (*G. atter*), buho (*Schizostachyum lumampao*), and anos (*S. lima*).



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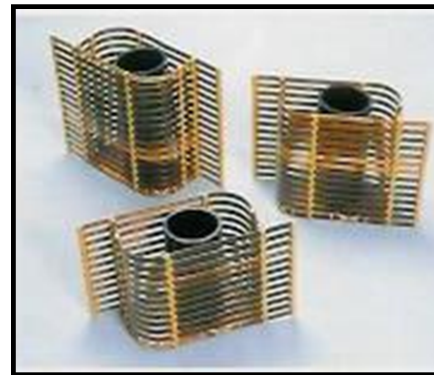
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The Philippine Bamboo Industry

- In 2011, US\$ 424,872 (PhP 17.4 M) worth of bamboo handicrafts were exported to Brunei Darussalam, Italy, Japan, South Korea, Poland, Turkey, United Arab emirates and United States of America. These included baskets and basketware containers, purses, handbags and wallets.





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The Philippine Bamboo Industry

■ Engineered bamboo for housing and construction





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The Philippine Bamboo Industry

Utilization of Engineered Bamboo

❑ Executive Order 879

- Use of Bamboo for at least 25% of desk and other furniture requirements of public elementary and secondary schools
- Prioritize the use of bamboo for furniture, fixtures and other construction requirements of government facilities





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The Philippine Bamboo Industry

Utilization of Engineered Bamboo

► Furniture





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Issues of the Bamboo Industry

- **Low yields and quality of bamboo poles**
- **Slow pace bamboo plantation development**
- **Optimum development of the traditional bamboo products relative to the local and export demands; and**
- **Promotion and commercialization of the developed technologies for the manufacture of new and globally competitive engineered bamboo products**



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Potentials for Global Market Positioning

- **Global market in 2006 stands at about 7 billion US dollars and is projected to increase to US\$ 17 B from 2015 to 2020.**
- **Global trade of bamboo products for 2013 were: furniture with 33.3%, followed by handicrafts (including blinds) with 32.1%, engineered bamboo (panels and boards and flooring) at 20.2% and then by bamboo shoots (10.1 %).**



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Table 1. Breakdown of the global bamboo market into component products.

Products	Million Dollars		% of total (2013)	Difference: 2013 and 2006	
	2006	2013		Value	%
Chopsticks	300.0	400.0	2.4	100.0	33.3
Charcoal	100.0	130.0	0.8	30.0	30.0
Activated charcoal	20.0	170.0	1.0	150.0	750.0
Bamboo shoots	1500.0	1700.0	10.1	200.0	13.3
Handicrafts	3000.0	4200.0	25.0	1,200.0	40.0
Blinds	500.0	1200.0	7.1	700.0	140.0
Flooring	700.0	1200.0	7.1	500.0	71.4
Panels and boards	200.0	2200.0	13.1	2,000.0	1,000.0
Furniture	1100.0	5600.0	33.3	4,500.0	409.1
Housing	-----	-----	-----	-----	-----
Scaffolding	-----	-----	-----	-----	-----
Paper	-----	-----	-----	-----	-----
Total	7420.0	16800.0	100.0	9,380.0	126.4

Source: Philippine Bamboo Industry Roadmap (2012)



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Table 2. Projected shares of the Philippines in the global bamboo market.

Variables	2012	2016	2020	2024	2028	2032
Global market value	13.700	17.400	21.200	24.900	28.600	32.300
Furniture (33.3 %)	4.562	5.794	7.060	8.292	9.524	10.756
Handicrafts (32.1%)	4.398	5.585	6.805	7.993	9.181	10.368
E-bamboo (20.2%)	2.767	3.515	4.282	5.030	5.777	6.525
PH shares						
Furniture share %	-----	2.5	5	7.5	7.5	7.5
Value	-----	0.145	0.353	0.622	0.714	0.807
Handicrafts share %	-----	2.5	5	7.5	7.5	7.5
Value	-----	0.140	0.340	0.599	0.689	0.778
E-bamboo share %	-----	1	2	3	4	5
Value	-----	0.035	0.086	0.151	0.231	0.326
Total value, PH share	-----	0.320	0.779	1.372	1.634	1.911
All values in billion \$						

Source: Philippine Bamboo Industry Roadmap (2012)



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Strategies and Action Programs

Nursery/Plantation Establishment

- Establishment of 100 thousand hectares of new plantations of bamboo
- Two million propagules will be produced using conventional methods of propagation by 30 to 40 strategically located nurseries
- Training on bamboo propagation, (both conventional and modern methods), proper planting, maintenance and harvesting should also be conducted to ensure sustainable supply





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Strategies and Action Programs

Table 3. Calculated minimum areas of bamboo plantations needed for different end uses in the Philippines.

Industry Type	# poles required	Pole harvest/h/y	Minimum area
Traditional			
<i>Furniture and handicrafts</i>	24,000,000	800	30,000
<i>Fish pen, housing and construction</i>	15,000,000	800	18,750
<i>Vegetable and fruit industries</i>	6,000,000	800	7,500
<i>Others</i>	15,000,000	800	18,750
Subtotal for traditional	60,000,000	800	75,000
Emerging or New			
E-bamboo	16,000,000	800	20,000
Fuel products			
Charcoal	4,000,000	800	5,000
Pellets	8,000,000	800	10,000
Pulp and paper	8,000,000	800	15,000
Subtotal for emerging or new	36,000,000	800	45,000
Grand Total	96,000,000	800	120,000

Source: Philippine Bamboo Industry Roadmap (2012)



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Strategies and Action Programs

Engineered Bamboo Processing

- **Furniture, handicrafts and engineered bamboo are the foremost bamboo products that have high potential for the local and foreign market**
- **In the Philippines, micro- to small-scale engineered bamboo plants have been established. Engineered product from flattened bamboo using the FPRDI-developed bamboo flattening machine was already found comparable to premium hardwood lumber.**



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Strategies and Action Programs

- **Development of cheap adhesives, preservatives, binders (for charcoal briquettes), and finishing chemicals from local species of plants.**
- **Development of economical methods of drying and preservation**
- **Product development and processing of lesser-used species of bamboo**
- **Development of processing tools, equipment and machineries**
- **Production of rayon from bamboo (cellulose derivatives)**
- **Development of more engineered bamboo products**



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RECENT DEVELOPMENTS

- Do-It-Yourself Bamboo Shelter

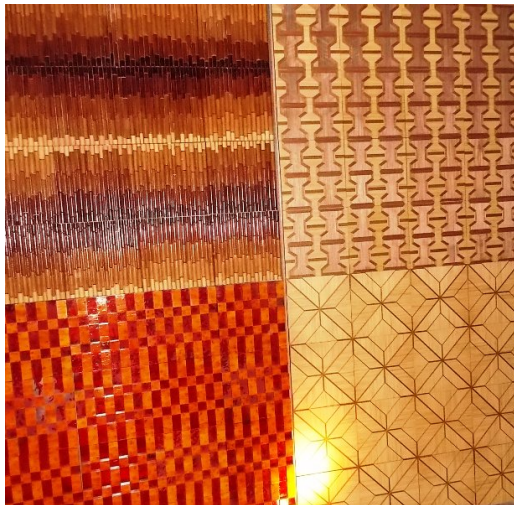




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Philippine Bamboo Showcase 2014





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CONCLUSIONS

- Most primary processing facilities can be fabricated locally**
- In the short term, secondary processing facilities can be imported**
- Reverse engineer or design own facilities with improved functionality**
- In most cases, local experts are knowledgeable in all bamboo-based technologies**
- Grading system for bamboo**
- Acceptance of bamboo as structural material**



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