

• **Bamboo Pole Cutter**

Daily max output	400 cuts
Power requirement	1hp 220 V
Approximate wt	60 kg
Machine dimension	L x W X H (m)
	1.5 x 0.75 x 1.5
Space requirement	9 sq m
Price	₱ 750

**Business Opportunities**

**Comparison of Financial Indicators**

Particulars	Production Option	
	Tile + Laminate	Tile Only
Investment (P)	2,497,161	2,467,162
Payback Period	2.81 yrs	2.39 yrs
NPV (12 yrs) (P)	7,787,367	1,625,475
IRR (%)	58.96	38.64
Profit Index (12%)	3.11	2.17
Net Return (P)	2.11	1.17

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*For more information, please contact:*

**The Consortium Director**

Ilocos Agriculture and Resources Research and Development Consortium (ILARRDEC)  
 Mariano Marcos State University (MMSU)  
 Batac, Ilocos Norte  
 Tel. Nos: (077) 792-3420/792-3688  
 Fax Nos: (077) 792-3688/792-3187/792-3191/  
 792-2547  
 E-mail: [ilarrdec@laoag.net](mailto:ilarrdec@laoag.net); [mmsuop@laoag.net](mailto:mmsuop@laoag.net);  
[ilarrdec@digitelone.com](mailto:ilarrdec@digitelone.com)  
 Website: <http://www.pcarrd.dost.gov.ph/ilarrdec>

**Dr. Patricio S. Faylon**

Executive Director  
 PCARRD, Los Baños, Laguna  
 Tel. Nos.: (049) 536-0014 to 20; 536-5907  
 Fax Nos.: (049) 536-0016/536-7922  
 E-mail: [pcarrd@pcarrd.dost.gov.ph](mailto:pcarrd@pcarrd.dost.gov.ph)  
 Website: <http://www.pcarrd.dost.gov.ph>



**DEPARTMENT OF TRADE & INDUSTRY**  
**BUREAU OF MICRO, SMALL AND MEDIUM**  
**ENTERPRISE DEVELOPMENT (BMSMED)**  
 5/F, Trade and Industry Building  
 361 Sen. Gil J. Puyat Ave. Makati City  
 Trunkline No.: 751.0384  
 Tel. Nos.: (02) 897.1693 / 897.7596 / 890.4968  
 Fax No.: (02) 896.7916 • Email: [bmsmed@dti.gov.ph](mailto:bmsmed@dti.gov.ph)  
[www.dti.gov.ph](http://www.dti.gov.ph)



**PHILIPPINE COUNCIL FOR AGRICULTURE,**  
**FORESTRY AND NATURAL RESOURCES**  
**RESEARCH AND DEVELOPMENT (PCARRD)**  
 Department of Science and Technology

Source: ILARRDEC write-up, 2006.

# The E-Kawayan Technology





## Introduction

Bamboo is a plant known for its many uses. It has become the best substitute for wood in the furniture, handicraft, and construction industries, not withstanding other benefits as a source of food, biofuel, and for environmental protection. In the Philippines, natural bamboo stands are luxuriantly growing along farm boundaries, roadsides, riverbanks, backyards, and hilly areas. There are about 65 known species of bamboo found in the country but the most commercially exploited species is *Bambusa blumeana* Shultez locally known as kawayan-tinik.

Kawayan is a general term for all species of bamboo in the Philippines. It regenerates fast, hence, can be harvested in three years. One mother pole can reproduce more than one shoot. It is the best substitute for wood because its strength properties are comparable with mahogany and other medium hardwood species. Likewise, bamboo and its related industries have provided income, food, and housing to over 2.2 billion people worldwide. In 2000, bamboo contributed \$3.81 M to the Philippine economy.

In Region 1, the income registered amounted to P40M in 1999 from sales of bamboo poles and butts alone.

## Background

The engineered kawayan (e-kawayan) is an advanced form of bamboo products produced by shaping the round bamboo pole into slats and glued/formed together to the desired sizes.

The principle of engineered bamboo is based on the concept that logs when converted into lumber, can be designed to suit specific uses. Bamboo poles when processed into bamboo tiles can be made into various products.

The Mariano Marcos State University (MMSU) introduced the technology through the development of the Kawayan Tile Maker (KTM). The tile machine can convert kawayan poles directly into slats of different sizes of 20–30 mm width by 10 mm thickness by 20 cm to 2 m long. From the kawayan tile machine, the sawn pieces can be made directly into parquet, composites and laminated boards. The butt and middle portions of the bamboo pole, approximately 6 m, are used in producing the tiles.

There are already available technologies generated through the years and now being commercialized. These are:

- Kawayan Technology which delves in planting material production
- Kawayan Technology on production of poles and shoot or also called as the PoPeYe technology which stands for Pole Per Year.
- Production of e-kawayan tiles and laminates
- Development of e-kawayan machines

## Features

The technology features the following:

- Design and construction of tile processing machines
- Establishment of processing plant
- Design construction of laminated products
- Finishing and packaging
- New product designs for bamboo and marketing
- Bamboo industry situationer
- Feasibility of tiles and laminates products manufacturing

## Economic and Social Benefits

- Developed new machines for bamboo
- Increased utilization of bamboo
- Increased farmers' income
- Provided employment opportunities
- Provided new market opportunities
- Developed new linkages with LGUs and NGOs



## Equipment and Other Requirements

### • Kawayan Pole Maker

Power requirement	2hp 220V
Approximate wt	80 kg
No. of operators	1 operator + 1 helper
Width of strips	25 mm
Length of strips	0.3 m to infinity
Output/day (max)	1,150 pcs @ 25 mm x 2 mL
Area equivalent/day	57 sq m
Work space requirement	6 sq m
Price	\$1500

### • Kawayan Tile Maker

Power requirement	2hp 220V
Approximate wt	90 kg
Machine Dimension	1 m x 1.5 m x 1.5 m
No. of operators	1
Thickness of strips	10mm
Length of strips	0.3 m to infinity
Output/day (max)	741 pcs @ 25 mm x 10 mm T x 2 mL
Area equivalent/day	37 sq m
Work space requirement	4 sq m
Price	\$ 2500

