

# Bamboo Design and Construction in the Philippines: the Cabiokid Experience





1. Bamboo and its appreciation
2. Geographical distribution
3. Species and construction
4. Bamboo and Cabiokid
5. Sample of bamboo construction
6. Innovations and Techniques
7. Other fields of exploration
8. Challenges and Conclusion

## Overview



Nars Gumangan







# 62 species

climbing/clumping species

21-endemic

6 – commercially used

# 3 – used for construction

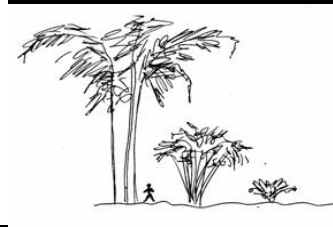
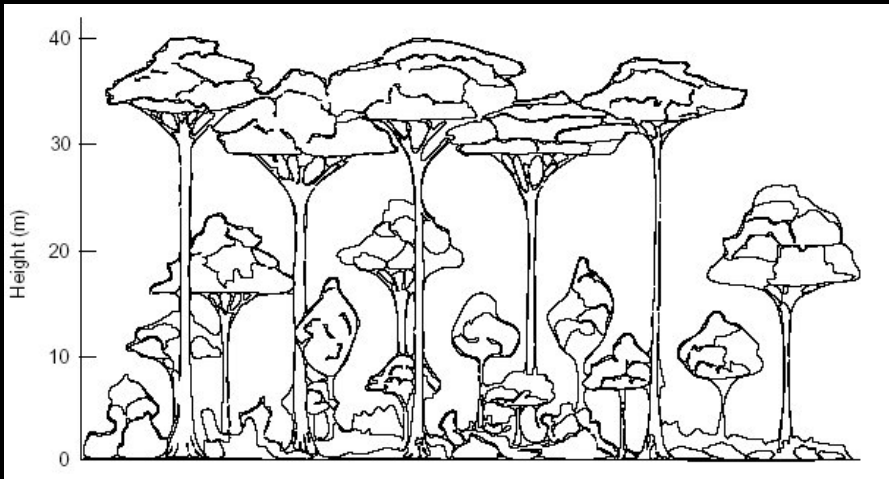


# Bamboo in the Philippines





# EDGE PLANTS in RAINFORESTS



Bamboo in the Philippines



**Naturally** occurs along riverside



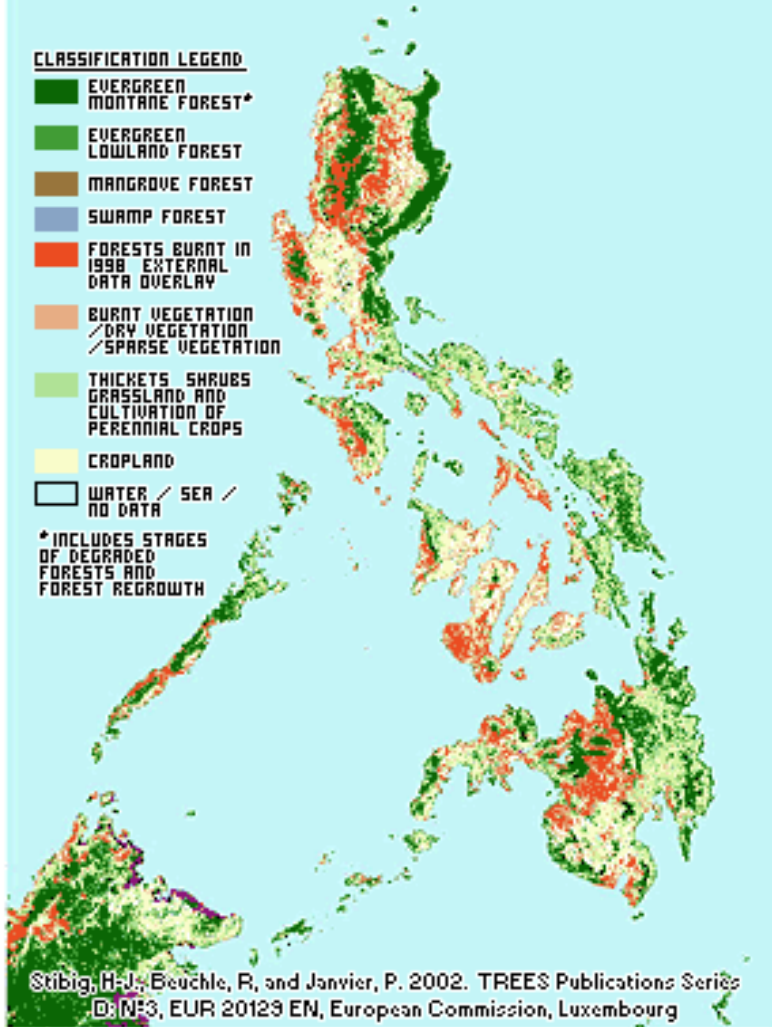
Bamboo in the Philippines



TREES Forest cover map of insular Southeast Asia, 2000

**CLASSIFICATION LEGEND**

- EVERGREEN MONTANE FOREST\*
  - EVERGREEN LOWLAND FOREST
  - MANGROVE FOREST
  - SWAMP FOREST
  - FORESTS BURNT IN 1998 EXTERNAL DATA OVERLAY
  - BURNT VEGETATION / DRY VEGETATION / SPARSE VEGETATION
  - THICKETS SHRUBS GRASSLAND AND CULTIVATION OF PERENNIAL CROPS
  - CROPLAND
  - WATER / SEA / NO DATA
- \* INCLUDES STAGES OF DEGRADED FORESTS AND FOREST REGROWTH



Stibig, H-J., Beuchle, R., and Janvier, P. 2002. TREES Publications Series  
D: N3, EUR 20129 EN, European Commission, Luxembourg

**Humid** tropical climate

7.1M hectares (23.9% of total land area)

Bamboo **39,000-52,000** hectares (estimated)

Bamboo – Rainforest Distribution





90 km North of Manila

**Permaculture**

development site

Rice production province

Bamboo propagation site

**PERMACULTURE = ENERGY +  
PATTERNS**



*Kawayan Tinik*  
*Bambusa blumea*



*Buho*  
*Schizostachyum lumampao*



*Bayog*  
*Bambusa blumeana*  
*Luzonensis*



Bamboo species

RATTAN

MUD

GRASS ROOF

PALM LEAVES

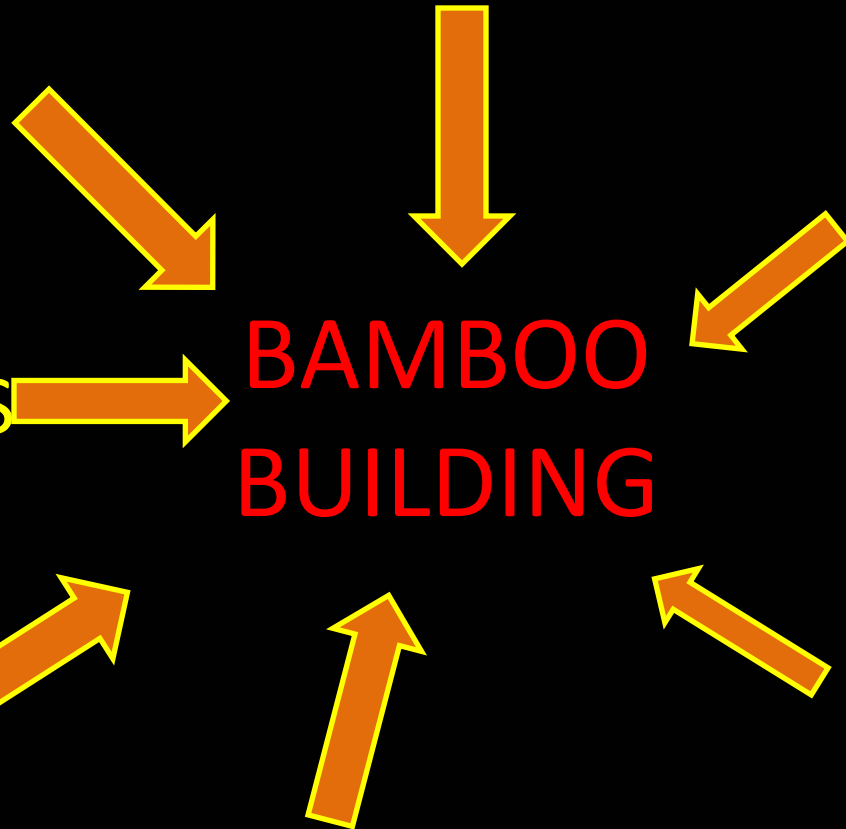
**BAMBOO  
BUILDING**

VINES

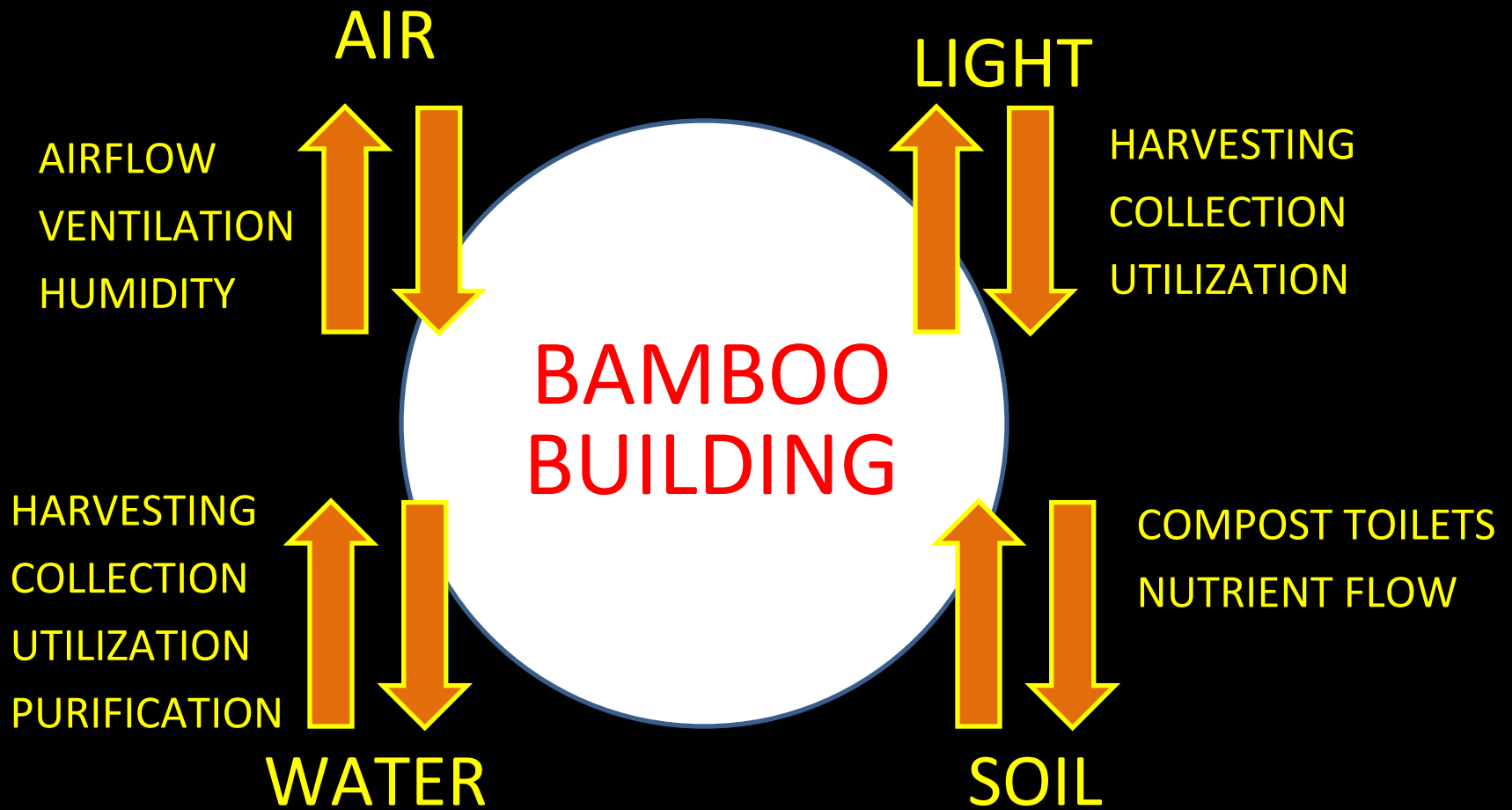
FIBER

WOOD

OTHER NATURAL MATERIALS







Connect to natural elements

Soaking – 2 weeks



Traditional preparations in  
Bamboo





Skinning – humidity control - beauty

Traditional preparations in  
Bamboo





# LIFE SPAN-HEIGHT-TOPOGRAPHY



Traditional structural methods





## JOINTING-SPLITTING-BEATING-WEAVING



Traditional preparation techniques



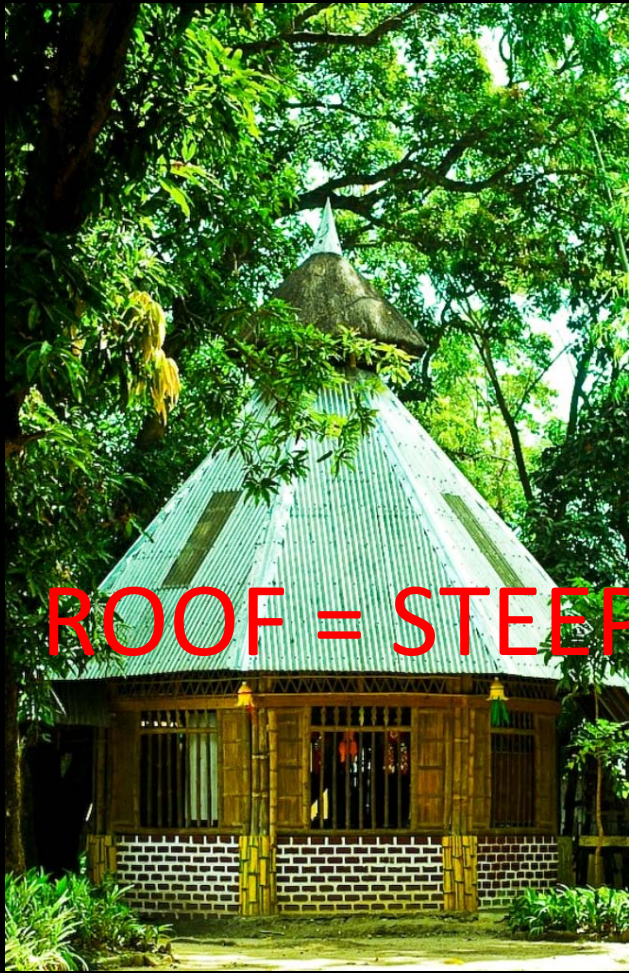


# TYING-LASHING



Traditional preparation techniques





ROOF = STEEPER -> BETTER

Traditional Roof Structures

Promotion

Protection

Production

Processing

Bamboo Architecture



# DESIGN FOR - EDUCATION

Bamboo Projects



# Community-Based Learning Resource Center, TUMANA – Tiwi, Albay





# REBUILD – LEARN - PLAY



EkoPalas

# DESIGN FOR - HABITAT

Bamboo Projects





# LIVING SPACES — 10 - FOREST



Social "Tent" Houses





# STUDIO – LECTURE - CONFERENCE



Geodesic Dome building





RECYCLE - COLLECT – USE – SLOW DOWN



RAINWATER HARVESTING

# DESIGN FOR - MOBILITY

Bamboo Projects





**BAMBOO E-TRIKE**





Nars Gumangan



Nars Gumangan



Nars Gumangan

# BAMBOO BIKES



- Growing bamboo in different environments
  - more water – faster - thin
  - Less water – slower - thick
- CAREFUL COMBINATION OF MATERIALS
- BUILDING CODES / LAWS



# BAMBOO BIKES

Old habits – old technologies

Old habits – **new** technologies

New habits – new technologies

CONCLUSION



IMPROVE BIODIVERSITY  
CONNECT TO LOCAL SPECIES → KNOWLEDGE  
USE NATURAL MATERIALS



Nars Gumangan

CONCLUSION

SMALL-SCALE  
USE NATURAL MATERIALS  
CREATE LOCAL ECONOMIES



CONCLUSION



AIM FOR MULTIFUNCTIONALITY  
GROW AND IMPROVE COMMUNITY  
FORESTS  
ATTITUDE



CONCLUSION

THANK YOU FOR LISTENING