

## **Key issues for working with Bamboo**

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This memo provides an overview of key issues to consider when advocating for and/or working with bamboo as a construction material in the shelter response.

### **Key principles of bamboo**

1. Bamboo is different from timber, construction styles and techniques should therefore not be 'copied' from timber frame construction
2. Treatment can greatly increase durability of bamboo
3. Strength = around the membrane/node;
4. All connection should be around the node, max. distance from node = 1x width of the bamboo
5. After a connection, cut the redundant part on the other side of the membrane (otherwise it will get wet and rot)

### **Type of bamboo**

In region VI of the Philippines there are two kinds of bamboo species commonly used:

- Botong = mostly used and available at markets. Used for load bearing elements of shelters as well as for walling, flooring, etc.
- Kawajang = stronger, and more expensive, bamboo. Often used for posts.

### **Appropriate tools**

1. Machete (for cutting the bamboo + ropes)
2. Hand saw
3. (Hand) drill
4. (Adjustable) plier, also able to cut iron wire
5. Chisel
6. Hammer

### **Appropriate connections & fixing materials**

Note: explore local practices of connections and fixings well as it may vary considerably, e.g.:

- In coastal areas twine or nylon wire is often used (no iron wire as it can easily corrode).
- In rural areas iron wire can be most predominant. An additional consideration (and field observation) is the preference of using iron wire uplands, also because of limited knotting knowledge (this seems different in coastal areas).

In general however, the items below are commonly used fixing materials.

- Wire (iron and/or nylon), typically not too large diameter
- Black twine or PVC
- Nylon rope
- Pegs, typically made of bamboo
- Iron rods
- German wire to fix CGI sheets to bamboo (i.e. the head of an umbrella nail connected to iron wire)

### **Further reading, e.g.:**

- Bamboo Factsheet 2 (D. Hodgkin, Humanitarian Benchmark Consulting)
- ...