

# Peer review minutes

## Third peer review of the guide on timber in humanitarian response

Date: 09 May 2008

Time: 13.00-16.00

Habitat for Humanity, Nairobi, Kenya

### Participants:

Kimberly Tilock, CHF  
Dyfed Aubrey, GOAL  
Douglas Osmond, UNHCR  
Evans Misati James, Health and Water Foundation  
Jes Tandal Moller, UNHCR-ERT  
Murray Burt, Tearfund  
Mark Wooding, Habitat for Humanity  
Vicki Wooding, Independent  
Peter Murani, Habitat for Humanity

Gote Hertz, UNHCR  
Elijah Agevi, Research Triangle Africa  
John Mwangi, IFRC  
Joseph Mukeku, Tecta Consultants  
Martin Owiny, Norwegian refugee Council  
Michael Makokha, FAO  
Ephraim Wachira, Habitat for Humanity  
Jon Fowler, (facilitator)

### Agenda

#### Third humanitarian timber peer review lead by Jon Fowler

13.00 Welcome and introduction  
13.15 Discussion of the six 'timber principles'  
13.45 Breakout groups: 1) Planning; 2) Construction; 3) Specification and logistics  
14.45 *Coffee*  
15.00 Report back by group and discussion  
15.45 Summary and close

#### Documents distributed for discussion – available from [www.humanitarianitimer.org](http://www.humanitarianitimer.org)

- Third Draft of Timber guide (April 2008)

### Key points

- Emphasise the 'owner-driven' compared to 'donor-driven' approach to humanitarian shelter projects
- Emphasise importance of thinking and designing 'incrementally' - e.g. can a simple frame be provided in the emergency phase that can be modified for longer-term use
- Design buildings with the re-use of timber in mind
- Develop Reduced Timber Construction further
- Re-work some diagrams (see construction manuals by Barry and Mackay)
- Provide structural timber span charts (see AJ Elder's Guide to the Building Regulations (UK))

### 6 principles for the use and purchasing of timber

Suggestions were made for revision of the 6 principles for the use and purchasing of timber that appear at the beginning of the book.

Inclusion of issues around country law, building regulations and structural safety were considered to be most important. It was suggested to combine the six principles into five (see annex for revised principles).

General comments made were as follows:

- Defining legal timber is difficult – depends on which country you are in. Must be aware of potential corruption
- Sustainable Timber is equally hard to classify
- The principles should provide some idea of a basic operating standard
- Local materials are better to use because of the ability to monitor cutting as opposed to getting possibly falsely legal timber.
- Add references about where to locate sustainable/legal timber
- NGOs MUST procure legally. In some cases it may only be possible to carry out due diligence – i.e. documenting the measures taken to try to ensure no illegal/unsustainable timber was used
- When procuring, look at multiple sourcing options – may be able to procure small % locally rather than 100% imported
- Shelter design should consult/include local standards but also include baseline safety standards.
- Consider who (and what activity) will be taking over the transitional building in the future (the 'house that grows')

- Safety regulations must be highlighted throughout the guide

Specific comments:

- Principle #1 - Incorporate the do no harm principle. Incorporate/consider the ideas and policies of the government/local authority and building regulations
- Principle #1 – disaster mitigation techniques – reference?
- Principle #2 - Don't compromise future sustainability.
- Principle #6 - Cut health and safety standards - not necessary.
- Principle #5&6 - Mention training - talk about technical support and specifications.

**General comments**

- It was suggested to have a new section in the introduction which could address 'Common myths about timber' or 'The advantages of using timber compared to other materials'. This could deal with some of the cost, design and environmental issues
- An economic market analysis sample for sourcing timber would be useful, though no suggestions for where to get this.
- Section of "Working with Experts" should have points to remember when working with experts, ex-pats and locals, programme staff and timber experts (i.e. engineers).
- What advice can be given on re-forestation and tree-planting programmes (e.g. could a seedling tree be distributed with construction materials?)

**Breakout group feedback**

Section	Page	Comment
<b>Introduction</b>		
i.1.2	6	Separate out bamboo and timber - don't use timber as the generic term.
i.1.1	6	Diagram - clarify the two types of shelter: emergency and transitional
i.1.1	6	When mentioning standards, clarify that have to follow in-country laws, building regulations and standards.
I		Have a section in the introduction that discusses the pros and cons of timber, timber's advantages, what is special about timber (different kind of item in terms of logistics considerations) OR have a section called "common myths about timber" and include the stuff about LCA.
i.3	8	Cut first two paragraphs (including i.3.1 Timber and trees) - mostly nonsense!
i.3.3	9	Mention common species of poles? E.g. cedar, cypress
i.3.3	9	Poles will generally be cheaper - cost of poles vs. sawn...
i.3.3	9	(Specification section?) Poles are normally sized by the diameter of the thin end
i.3.2	9	Terminology - is this British terminology only? If it is, should mention it.
i.3.5	10	Check growing time for softwood.
i.3.5	10	Promote bamboo as an alternative construction material.
<b>Section A – planning</b>		
A.1	12	Diagram - should have a 'no' box at the top and the pop-out boxes should be clearer about what they are.
A	12	Open-ended design concept. Design that can be deconstructed. "House that grows". Incremental design. Multiple solutions as one-size does not fit all (design also has issues of equality of response).
A		Consider making new section so you have Planning, Designing, Building to separate out the design issues: What will this building become? How will the building change? What is its purpose? What is its lifespan? Etc. PUT THE RIGHT THING IN THE RIGHT PLACE (or could have 'planning' and 'building design and construction')
A.2	13	This section needs clarifying and re-ordering to take apart what needs to be assessed. Need to assess resources (what people HAVE and DON'T have), what timber is available from beneficiaries themselves, what is available locally, nationally etc. (cross ref Niklas Hagelberg's comments from 2007). What is normally used? Is it available?
A.2	13	Local context (and building practices) can vary from town to town in the same area - assess locally!
A.2	13	What is the building's purpose? Is the project rehabilitation? Is it constructing from new?
A.2.1	14	Check diagram timber volumes
A.2.2	14	Include something about tree-planting (including a budget for it) to reforest deforested areas.

A.2.2	14	EIA - say something about needing an expert. Was raised that sometimes EIAs do not consider human side enough - appropriate to draw this out?
A.2.4	15	Must follow the law of the land. Also consider building regs. Also consider issues of release of timber by national government - this may be a slow process...
A.2.4	15	May be hard to talk about legality as the minimum. Maybe talk about an agency doing due diligence to ensure the timber is not from an unsustainable, illegal or 'corrupt' source.
A.3	16	Reduced Timber Construction - need to emphasise safety at all points, so diagram needs a safety warning somewhere
A.3	16	Diagram - needs stuff on open-ended design etc. Needs re-working, section references and more thought about material choice (e.g. it might start with "are the materials usually used for such a construction available?" "Have you done due-diligence in checking the environmental impacts of different materials?")
A.3.2	17	Cautionary note about use of environmentally-friendly 'appropriate technology' materials - if untested they may fail or not be accepted (example of compressed blocks - they work fine but if not laid properly with proper skill they won't tolerate much weight and will collapse, as happened in Sri Lanka.
A.4	18	Supply - be clearer about potential beneficiary supply (part of the needs assessment - what have they already got?). Do not import poles from abroad if people could source them locally for half the price.
A.4.2	19	Call 'beneficiaries construct' "Owner driven" instead and have a call-out box with some of the advantages of owner-driven construction (and contrast with 'donor driven'?)
A.4.2	19	Final paragraph should clarify that the intention of monitoring quality control is to prevent standard dropping.
A.5	20	Communicating the design to beneficiaries - built examples are extremely effective. Design process is part of managing expectations.
A.5.1	21	Reduced Timber Construction - expand this section. Too brief to be useful at the moment.
A.5	20	This section, plus checklists, is too light on structural design. Needs more about safety of construction etc. and link more cleanly to section B.
<b>Section B – construction</b>		
B	26	Need to have something about checking national construction/building regulations
B	26	More on timber fixings to other materials (e.g. roof, walls etc.)
B	26	Design for earthquake, floods, safety and disaster - can we put in references?
B	26	Need more on medium-sized buildings - could have stuff on longer spans and joints over longer spans.
B.1.1	27	get advice - specify who from (local builder, construction professional)
B.1.2	27	Clarification on land ownership - get documentary evidence (title deed etc.)
B.1.2	27	Check drainage height of water table (need to know flood plain height OVER TIME - may be higher than it is at the moment). Check ground contamination (other WATSAN stuff?)
B.1.5	28	Be aware of complicated roofing designs - the more complicated they are the more skill someone needs to put them together or repair them.
B.1.5	29	Diagram - drop 3rd roof diagram - it's nearly the same as the other. Text should read "square buildings...need longer and deeper timbers."
B.1.5	29	"their pitch...to the wind and snow load."
B.1.5	29	BEWARE: Prevailing wind and horizontal wind-driven rain (important for keeping timber dry)
B.1.5	29	Add note about rainwater and add picture of rain-water harvesting barrel to diagram
B.1.7	30	Needs to show 'before' and 'after' more clearly (bad photocopying? - note, diagrams need to be easily photocopied so make the line drawings thicker)
B.1.8	30	Some suggestions for poor-quality timber construction: include off-cuts; remove barks; check for nails; use short spans; assume high moisture content and design for shrinkage
B.2	31	Fixings and deconstructable designs - what are best fixings to use (bolts?)
B.2	31	DIAGRAMS - some of them not very clear. Publications by Mackay/Barry good resource. Cut the biscuit diagram and the others look like furniture diagrams rather than structural diagrams. Need a joint POSITIONING diagram, beam joint etc.
B.2.1	31	Add plywood as another possible material for plates (as well as metal)
B.2.2	32	Nails can be quite varied. Need right nail for right job (normally should be galvanised) so quick tip on selecting appropriate nails for strength of joint

B.2.2	32	Poor quality nails (big problem in Africa) - use longer nails and bend them over. BUT beware that this might be dangerous if people can get hurt on them.
B.2.3	33	Pegs might not always be ridged and should be glued when possible
B.2.4	33	String and wire need specifications (what kind of wire and what is it for?)
B.2.5	34	Use plywood plates as well as metal ones
<b>Section C – specification</b>		
C.1	36	Replace "port" with "at time of loading"
C.1	37	Co-ordinated procurement - mention something about how often a UN organisation will act as a central procurement agency (e.g. Darfur pipeline)
C.1	37	what kind of supply are you looking for? One-off? Repeated?
C.2.3	39	"Green Belt Movement" in Kenya is a certification body. Give an example of an African certification scheme.
C.2.4	41	Community verification - no suggestions but maybe a case study exists?
C.2.4	41	Direct verification - need to be tools developed for this. Especially due to heavy bureaucracy in ex colonies. Ministry of Forestry may take a long time in issuing permits for cutting/transportation of timber. CHECK GOV POLICY and LOOK AT PRIVATE SUSTAINABLE SOURCES.
C.2.4	41	Look at CEPT and develop matrix further - level of demand, level of supply, and sustainability of both. GET EXPERT ADVICE. Link verification to sustainability.
C.2.4	41	Consider bulk purchase effects on local markets.
C.3.1	45	Check consistency of 2-3 weeks drying time for bamboo (i.e. not less than air-drying timber)
C.3.1	45	Check moisture content at point of loading (not port) and get an independent inspection company like SGS to check.
C.3.1	44	Seasoning information is 'background knowledge' - unlikely to be needed unless making a local procurement in special circumstances.
C.3.2	46	Ensure pre-treatments are acceptable to importing country
C.3.2	46	Writing the Procurement Order is important. Environment Ministry will often be able to assist or advise on specs. Check the PO conforms to national regulations or it may be rejected.
C		Check trade agreements present when importing
C.3.2	46	Coloured treatments are good so you can see what's been treated (green or black etc.)
C.3.2	46	Include advantages/disadvantages/risks of treatments and try and make some recommendations or suggest a way to get the best option locally.
C	48	Use UK Building Regulations part A as an example and get the timber tables from the annex and the accompanying graph.
C.4.1	49	Is there a more relevant table? How can you find out which strength grade to order? (e.g. roofs normally construction grade, 2x4 or 2x2 etc.
C	51	Use of a physical sample when procuring wood (from supplier or provided by buyer to supplier) can be good way of specifying.
C.4.1	49	Need to understand how the grading system is derived in order to verify the order
C.4.3	49	Give one specific example for the visual grading (e.g. pine and mahogany)
C.5	55	Lengths and volumes - converse is also true. Ordering by volume can lead to wrong length being provided.
<b>Section D – logistics</b>		
D	61	SGS should be present at the time of loading (essential) and they can also do verification on arrival (often more powerful than having a simple buyer/supplier dispute
D	57	Letters of Credit - NOT used by the humanitarian community. (also see C.6)
D	61	Best practice is for supplier to deliver to stock destination.
D.1.1	61	Ensure you know what the importation documents are
D.1.2	61	Change 'port of departure' to 'time of loading'

***The next peer review of the humanitarian timber project will be Washington DC, 21<sup>st</sup> May 2008. See [www.humanitarian-timber.org](http://www.humanitarian-timber.org) for more details.***

## Annex – Revised timber principles

Timber principles have been modified based on the feedback from this peer review:

### Principles for the use and purchasing of timber

#### 1) Think before you build

OLD:

*There should be a strategy, made in consultation with the beneficiaries, that takes into account issues including who owns the land, who will repair the building and who will take over the building in the future.*

NEW:

All construction projects must be part of a wider strategy which takes into account the broader social, economic and political factors such as patterns of settlement; land ownership; maintenance costs and responsibilities; in-country laws and regulations and planned timeframes. (See section A)

#### 2) Choose appropriate materials

OLD:

*Compare the environmental and economic impacts of using timber with other construction materials when deciding what to use. Check that the species available can be safely used for the correct purpose.*

NEW:

Compare the environmental and economic impacts of using timber with other construction materials. Use materials that can be supplied in sufficient quantity without compromising future environmental sustainability. (See section A).

#### 3) Recycle timber wherever possible

OLD:

*Before ordering new timber, investigate options for reclaim and re-use of damaged or fallen timber. Such timber must be checked for its structural safety and any ownership issues clarified.*

NEW:

Investigate all possible sources for timber including timber that can be salvaged or reused. Such timber must be checked for structural safety and for ownership. (See section A).

#### 4) Buy timber from legal, and ideally, sustainable sources

OLD:

*Timber should, at the very least, be legal, even though there is no guarantee that a national program is correctly administered. When practical, source timber from verifiably sustainable sources.*

NEW:

In the absence of reliable verification systems, humanitarian agencies should demonstrate due diligence in attempting to ensure timber is from a well-managed source. Agencies must always follow the law of the country of operation and never purchase illegal timber. (See section C).

#### 5) Design appropriately:

OLD:

*Ensure that people who will use the building consider the material to be acceptable and understand how to build and repair with it, particularly when introducing an unfamiliar species through importing. Design using 'reduced timber construction' methods in order to maximise the efficient use of timber. Think long-term and design for potential re-use of timber at a later stage.*

#### 6) Use timber appropriately:

OLD:

*Timber is different to some man-made construction materials in that it is 'irregular' and requires special handling to ensure the highest durability. Choose the treatments according to the context and don't compromise the safety of those that are using the timber. Keeping timber dry is one of the best ways to protect it and ensure it is safe to use.*

NEW:

#### 5) Design and build using timber appropriately and efficiently

Design should be familiar and acceptable to those using the construction and it should be possible to repair the construction locally (in terms of both materials and skills). Technical support training is one way of ensuring appropriate skills are available.

Always design for safety first (following in-country building regulations), then consider reduced timber construction methods; re-usability of timber components; and adaptation of the building by those using it.

Design to preserve timber by the best method – keeping it dry. Ensure all fixings and treatments are safe.