

Context of visit:

Shaun Halbert (director of the RSK Shelter Charity) was invited by MSF to assist with the structural evaluation of existing traditional bamboo hospital units as they face the imminent onset of monsoon. In addition this was an opportunity to set up a half-day training session in the use of RSK shelters for staff at an In-Patient Department facility.

The RSK shelter project:

This is a not for profit, self-funding project. Since winning the AideEx Innovation Award in 2015 we have worked closely with the Shelter Cluster in Myanmar and Nepal to train local and INGOs on how to use the RSK method of roof construction for emergency and temporary shelter. All data is open source on our website www.reciproboo.org

Observations:

MSF are at the front line for their patients in CB, providing primary health care and also In-Patient facilities. This local need means that field hospitals and support units often have to compromise on the building sites available, the sources of the materials used for construction and the variable commitment shown by local building contractors. When hospitals are built of bamboo all three of these factors contribute to make the structures particularly vulnerable over the monsoon and cyclone season.

MSF are addressing these difficulties as best they can in the circumstances and I shall therefore concentrate here on how the Reciprocal frame Shelter Kit (RSK) could potentially assist these efforts in CB. This assistance is also applicable to MSF facilities in all countries that have bamboo resources.

It should be pointed out that reciprocal frames have a long and proven history in construction; it is only the application of this method to emergency and temporary shelter building that is an innovative step.

How the RSK method of shelter construction can help MSF.

Until now the shelter options in the field have been either tents or traditional bamboo structures. The RSK shelter, by virtue of its unique reciprocal frame roof offers a distinct third option that draws advantages from both of these shelters.

MSF can make specific use of the well defined health, security and dignified space advantages of the RSK for the benefit of its patients.

The RSK is cooler and better ventilated than a tent. It provides an option for solid walls that is not possible with a tent. The RSK units are truly modular to meet larger covered space needs and the roof frame is ideal for hanging partition walls for privacy or mosquito nets if required.

In existing medical wards the overhead split bamboo lattice is a constant source of dust and falling dross from insect attack. The RSK is the first shelter to use only whole bamboo poles to address this hygiene problem.

MSF staff that have been trained to use the RSK shelter kit will be able to rapidly provide secure temporary shelter for patients when needed; four units covering 40 square metres can be assembled in less than 2 hours by a team of eight persons (see classroom on website).

Where storm damage to an existing hospital has necessitated evacuation of patients it will now be possible to provide temporary wards for patients needing ongoing local care.

In cases where only the roof has been damaged, as in the recent roof damage to a primary health care facility, temporary RSK roof frames can be assembled and lashed to support posts within minutes to keep the facility operational. This speed and efficiency combined with strength and security has not previously been possible with traditional split bamboo lattice roofs.

The following 2 examples are based on the MSF ancillary staff training in the use of RSK shelters and the application of this training to repair hospital roof damage.

MSF staff receive training to build emergency RSK shelters.

MSF ancillary workers undergo RSK shelter training at hospital (IPD)
Photos. S. Halbert Bangladesh May 2018

Relevance to MSF:

1. SPEED OF ASSEMBLY:

These units, covering 20 square metres each can be rapidly erected in the event of severe damage to a field hospital .

2. MODULAR UNITS:

Multiple units produce a long house / triage / reception / ward while maintaining individual structural strength.

4. IMPROVED VENTILATION, A COOLER INSULATED SHELTER:

Option to build higher roof for better ventilation. Ability of roof to support heavy cladding /insulation making it cooler than a tent.

5. IMPROVED HYGEINE:

Using only complete bamboo poles for the roof makes it easier to clean and also reduces dust from split bamboo lattice overhead.

6. PARTITIONING:

The roof frame is ideal for hanging partitions for privacy and also mosquito nets if needed.

7. ADAPTABLE :

The units can be built on sloping ground. As the walls do not support the roof any available materials can be used to fill in the walls, from tarpaulins to bamboo lattice.

8. COST EFFICIENT:

The RSK shelter uses up to 33% less bamboo than traditional shelter frames due to the exceptional span of the reciprocal frame roof. Transportation and storage costs of RSK kits are thereby reduced.

The double unit in this training cost 3,100 Taka (USD 37).

9. SPHERE GUIDELINES:

The RSK shelters are designed to aim to achieve Sphere Guidelines. (as per IFRC Technical Sheets 1311400)



RSK double shelter kit complete



Simple assembly of roof frame on the ground



Shelter frame complete



Open double RSK



Final fitting of tarpaulin inside shelter



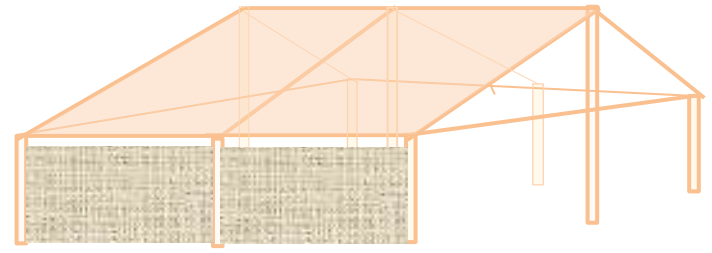
Walls are filled in with tarpaulins or bamboo lattice

MSF field staff can use their RSK training for emergency roof repair.

Relevance to MSF.
 MSF field hospital Bangladesh.
 Traditionally built roof : 2 layers of split bamboo lattice with tarpaulin in between.



Traditional roof hospital. Photo. S.Halbert May 2018



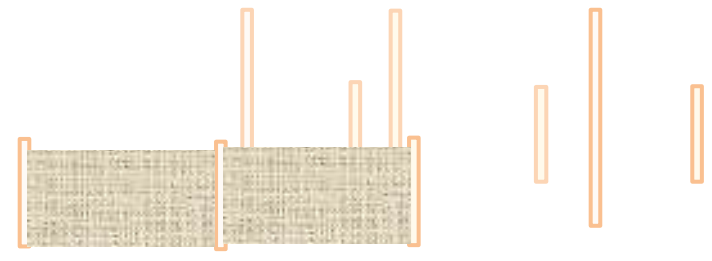
Traditional bamboo hospital construction.

Storm damage to hospital roof.

The top two layers of roof have been stripped off. Parts of this roof completely collapsed necessitating evacuation and temporary closure. A severe storm may completely destroy the walls and roof, leaving only support posts.



Storm damage hospital . Photo. S.Halbert May 2018



Storms can devastate roof and walls

Using RSK roof frames for temporary repair.

The RSK roof frames use only 2 lengths of pre-cut bamboo that are stored as a kit for emergency use.

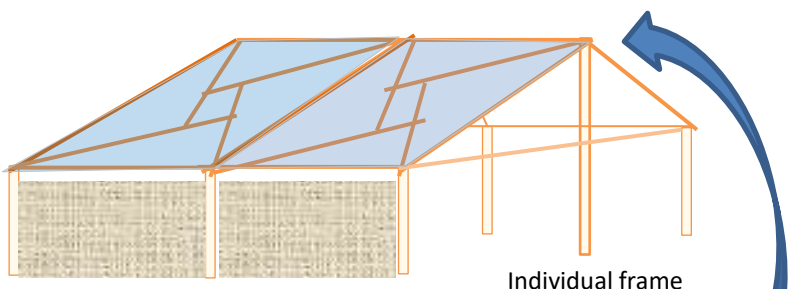
No special skills are required, poles are simply lashed together in the "self-supporting" reciprocal frame arrangement.



Red Cross Myanmar . Photo S.Halbert April 2016

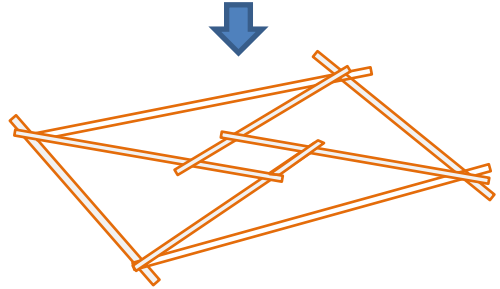
The roof frame panels have the advantage of being able to be assembled on the ground within minutes. The tarpaulin is attached to the frame which is then lifted onto existing support posts and secured.

The temporary repair is similar to that outlined in the IFRC Geneva published Technical Sheets 1311400 which uses the RSK method.

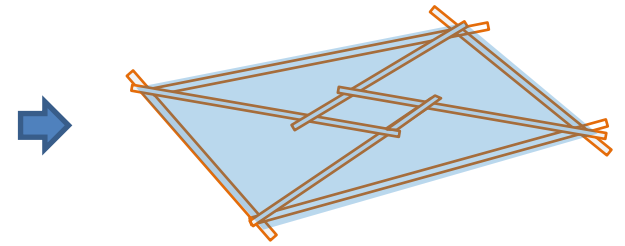


Temporary repair using RSK panels

Individual frame panels secured to roof



Reciprocal frame roof panel lashed together



Tarpaulin attached to frame

Conclusions

1. Although the MSF role is not provision of shelter, the often remote location of its field hospitals make them especially vulnerable when bamboo is, out of necessity, used for construction. This vulnerability is compounded by contractors that continue to use untreated insect infested bamboo and poor quality methods of construction.
2. The proposal to train MSF staff in the use of the RSK shelter kits are the first proactive steps to respond to the consequences of this vulnerability.
3. A doctor working in a field hospital that was experiencing flooding of his wards and collapse of a large section of the roof, was rightly concerned about the type of response being put in place and the welfare of his patients rather than his own personal working conditions. The makeshift response of pinning up of black plastic sheeting to cover the ceiling was clearly not sufficient, and the anticipated protracted delays of waiting for repairs did not provide assurance.
4. Rapid on site repairs using 4 or 6 rigid RSK roof panels with standard IFRC quality tarpaulins would have given far greater assurance to staff and patients.
5. Three MSF doctors inspected the double RSK that had been built by the trainees for the first time. Their opinion was wholly positive especially when it was pointed out that the roof height could be easily constructed higher and that ventilation gaps could be left open at eaves level. It was agreed that 3 beds per unit was workable. Basically they approved of the shelter that had been built by staff for the first time.
6. It is always made clear that the RSK is designed for emergency and temporary shelter and not for permanent dwellings. One of its safety features is its use of a lightweight interlocked roof frame overhead.

Proposals to MSF

1. The offer of RSK training for field staff.

I have been working closely with the Shelter Cluster Myanmar for 3 years and have trained staff of most of the INGO members; the most recent was a joint RSK training session with UNHCR in Sittwe (May 2017) which at that time was to provide temporary double RSKs for returning Rohingya refugees from Bangladesh.

NRC have taken this RSK training to IDP camps in Rakhine State. The Myanmar Red Cross have taken it to villages at risk from flooding in the Delta region. Both of these initiatives are achieving our ToT objectives.

The full RSK training course to attain instructor level takes one day of mainly practical instruction.

For the reasons and advantages for MSF set out in this report I would like to offer this training to MSF staff.

2. The offer to partake in the monitoring and evaluation of the RSK pilot project.

The RSK Shelter Charity has recently secured funding for a bamboo RSK shelter pilot project.

I am inviting INGOs that can directly benefit from the use of RSK shelters to be involved with the pilot, either in a direct monitoring capacity or in evaluating the results thereof.

I consider the future use of the RSK to have special relevance to the work of MSF for the health and welfare of both its field staff and the patients as outlined here.

I would be grateful if MSF could give these two offers their due consideration.

I look forward to answering any questions that you may have.

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