

# UNHCR JOINT TRAINING TO USE RECIPROCAL frame SHELTER KIT (RSK)

Sittwe 8<sup>th</sup> and 9<sup>th</sup> May 2017

Reciprocal frame Shelter Kit  
(RSK)  
Winner Aid Innovation Award  
AidEx 2015



RSK SHELTER  
[www.RSKshelter.org](http://www.RSKshelter.org)



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**Sittwe**

**8<sup>th</sup> and 9<sup>th</sup> May 2017**

Municipal building and grounds Sittwe , Rakine State.

## Organised by:

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## Donors:

Netherlands : Principal donor.

NRS International  NRS International Tarpaulins

Angus Montgomery Ltd : Printing

## Participants:

Government DRD  
(engineers of Rakhine State x 25)  
UNHCR  
IOM  
ICRC  
Myanmar Red Cross Society  
Norwegian Refugee Council

Medaire  
DRC  
LWF  
MAUK  
MRF  
BBS

TOTAL 56

### Training objectives

Instructor level RSK shelter training course.

In addition, to determine the dimensions of the RSK frame to fit the 5m x 4m UNHCR tarpaulins. Our work to date has focused on a standard frame for the larger 6m x 4m IFRC tarpaulins to achieve Sphere guidelines.

As the shelter bamboo frame is designed so that it can be cut down to fit any size tarpaulin this should be straightforward.

### Training Site



Semi-rural location. Level site but rough broken surface with high sand content topsoil.

Challenge: to securely attach shelters to the ground.

### Materials



Local retail bamboo poles, bamboo posts,  
5mm polypropylene rope and 2 reels of  
coconut twine lashing.

Bamboo strips for tarpaulin attachment.  
Tarpaulins 5m x 4m UNHCR standard.

### Tools

Hand saws / hacksaw.

Machete

Knives.

Chisel

Tape measure.

Pick and shovel.

### Classroom practical.



Building reciprocal frames with bamboo chopsticks

### Observation

The chopsticks practical is useful as it helps to identify the few individuals that need a little support with the reciprocal frame concept.

The updated guidelines are mainly used for checking the bamboo pole lengths for the elevated shelters.

The laminated A5 sheet is a 10 point shelter checklist, in Burmese or English, for instructors to use in the field.

## Standard RSK



Support posts positioned inside frame

### Observation

This shelter frame was completed in less than 1 hour by all teams.

In Sittwe the 9 foot frame was cut down to an 8 foot frame to fit the smaller 5m x 4m UNHCR tarpaulin.

### Standard RSK



Using the smaller 5 x 4m tarpaulin on the large frame required an improvised awning.

### Observation

These shelters were built using a single tarp for demonstration purposes.

Participants were shown the IFRC technical sheets on how to fit the side wall tarpaulins and make an entrance at the front the shelter. This tarpaulin arrangement is similar to that used for the single elevated RSK that participants built later.



### Double RSK



At 19 square metres of covered space this shelter provides considerably more standing space than the single frame shelter.

### Observation

The single standard shelters were rapidly modified to this double shelter by simply rotating the 7'6" props to a vertical position and then placing the second frame in position.

It must be remembered that one side of this shelter can also be elevated onto a low stone wall if required.

These exercises add support to potentially using this 15 pole shelter for preparedness programs in cities. Immediately after an earthquake beneficiaries may get comfort from the strength and security of this shelter.

Single elevated RSK



Frame complete and ready for tarpaulin attachment



Double elevated RSK



At 5.6m x 3.6m this shelter provides 20 square metres of covered floor space

Double elevated RSK



Effective tarpaulin support in the middle where needed most

### Double elevated RSK



### Observation

Rapid assembly of this shelter provides dignified living space. There is every indication that the smaller UNHCR tarpaulins will be most suited to this shelter frame.

## Demonstration 1: Severe storm shelter



AIM: to show how the profile of the elevated shelters can be lowered within minutes to provide a severe storm shelter.

RESULT: A dramatic lowering of the wind profile is easily achieved by removing the two longer support pole. The floor space remains unchanged and occupants can sit comfortably inside. The importance of spending further time anchoring the tarpaulin to the ground is stressed to participants. End walls need to be sealed with a tarpaulin and all tarpaulin edges buried in the ground.

## Demonstration 2 : Use of thin flexible bamboo



AIM: to show how flexible bamboo poles need not be cut at the central frame but extended to the outer side poles to add additional tarp support.

RESULT: As in this example the first of 4 poles has been extended to meet the outer frame. This provides an option to make use of thinner more flexible bamboo when resources are limited

### Lessons learned

#### 1. The practical work was difficult in very hot conditions.

It was necessary to considerably reduce the time for outside practical work compared to previous training that was held in cooler conditions. Future training needs to take this into consideration.

#### 2. Bamboo quality .

The end of season bamboo used was weak and brittle due to poor uncovered storage. While this had the advantage of demonstrating how the shelters can be built with any available bamboo, the strength of the shelter could not be fully demonstrated. One roof frame pole broke, it did not collapse, but had to be replaced in situ. There is no reason why careful drying and storage, using traditional methods, cannot produce quality bamboo that retains its strength for at least 2 to 4 years .

#### 3. Classroom / reception building.

In the Yangon training course Myanmar Red Cross volunteers demonstrated the speed and efficiency that it is possible to build this shelter. It looks like building two double elevated shelters independently, but close together, will be the best option for this shelter rather than using just a single central support pole.

#### 4. Basic skills.

It is advisable to demonstrate basic cross lashing skills to everyone before building the frames. Without demonstrating “frapping” some lashings were very loose and needed replacing; fortunately replacing any weak lashing is easy to do working from inside the shelter.



## Lessons learned



### **5. Cutting slots in top of support props of standard shelter**

As the bamboo was very weak and split easily this method of support was unsuitable for purpose. The necessity to attach the guy ropes to the top of these poles for anchoring the frame to the ground made this option too weak. However the arrangement could be useful where the support poles can be buried in the ground and the use of the 2 guy ropes is not necessary.

### **6. Using different size tarpaulins.**

All the frame dimensions to date have been calculated to fit the IFRC standard 6m x 4m relief tarpaulins and also to meet Sphere guidelines. We reduced the frame poles from 9ft to 8ft for one standard shelter in Sittwe to get an approximate fit for the 5m x 4m UNHCR tarpaulins. The final frame dimensions and / or tarpaulin arrangement will be agreed with UNHCR and put on the website shortly.



### Future training of trainers (TOT)

The participants of this training have all previously expressed a commitment to use their training for one or more of the following:

1. Training further staff members (TOT) in their shelter organisation.
2. Preparedness training in communities at risk from displacement.

### Feedback received after training

**UNHCR** is reviewing preparedness programs for repeat floods and also the possibility of using the double elevated shelter for refugees returning from Bangladesh.

**The government engineers (DRD)** representing 17 townships are proposing wider shelter community training throughout Rakhine State. They have identified 2 townships at high risk.

**Save The Children** is proposing to use the RSK for both preparedness and response with CBOs in Rakhine State.

**World Vision** natural disaster management team will incorporate the RSK in their training this July.

**Plan International**, in association with CDA, are to add this shelter as part of their BRACE project in 2 townships.

**ICRC**. Have indicated they will be implementing their RSK training in their next flood response.

### Feedback received after training (cont)

**NRC** have indicated their intention to share their training and will get back to us shortly.

**International Rescue:** After the training expressed the need to expand their shelter training to the IRC Country Emergency Teams (CETs)

**Trocaire:** Confirmed they will be implementing the training in their regional communities.

### NGOs that have been provided with tarpaulins for training

**1. HLDO ( Action Aid partner) :**

Training 30 village communities in Chin State.

**2. Community Development Association.**

Training in Taungoke Township Rakhine.

**3. Myanmar Professional Social Worker Association (MPSWA)**

Training Myin Gyan/Nwar Htoo Gyi/ Mandalay Region.

**4. MEET**

Training Pa Lat Wa Township, Chin State

**5. Future World Organization**

Training Nga Pyaw Kyun Village, Nyaung Done Township, Yangon

**6. Sonne Social Organization**

Training South Dagon Township, Yangon

**7. Lin Thit Organization**

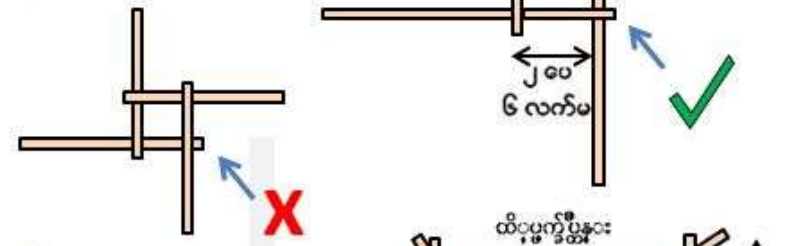
Training Taungoke Township, Rakhine

10 point checklist

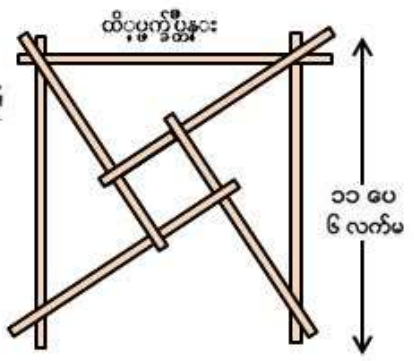
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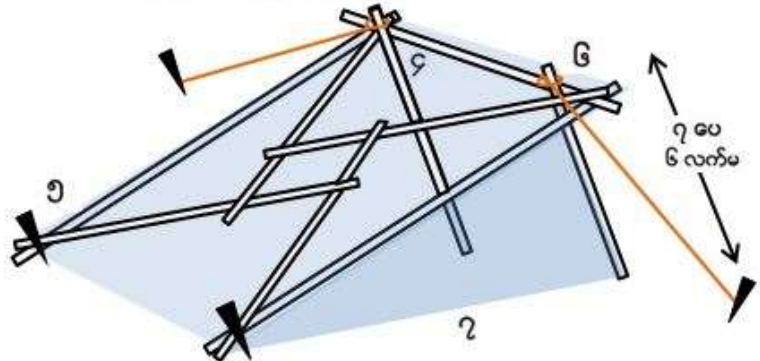
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### Conclusion

The training achieved the instructor level standard for the 56 participants.

The aim of the training was not to teach skills of working with bamboo but to introduce the reciprocal frame concept used by the RSK. The first 15 minutes spent overlapping the 4 poles in turn to make the roof frame are the most important part of this training. The subsequent hours of this training are mainly to demonstrate the numerous applications for shelter construction that this simple roof frame can be used for.

To ensure all participants maintain the high level of instruction required, we have provided a 10 point shelter check list for them to use for reference. This single laminated sheet in Burmese will help to ensure all the key points of instruction are covered when training further communities.

As indicated, the feedback from participants on completion of this training has been most encouraging. Participants are indicating they will use their training as intended for both disaster preparedness and response. RSK Shelter, Health and Education Charity will continue to provide support over the coming months to these endeavours, particularly through the sharing of all data on our website [www.RSKshelter.org](http://www.RSKshelter.org) In addition we plan to return to Myanmar to assist in the evaluation of the use of this shelter kit by communities in the near future.

## Comments by participants

### Yangon day 1

“Thank you training very useful in Myanmar society”

“Very useful for us. We will share knowledge of RSF shelter package with our colleagues and communities”

“ Thanks for training and hope to use training in future.”

“The youth bamboo and the bamboo from sunlight are also broken. The strong bamboo is the years of three or five old. We know many experience on this training and learn about the shelter how to build. But require is the time frame but weather is hot”

“Thank you so much for training”

“ Service suitable for Myanmar. Please compare your own method and Myanmar with how to use the bamboo, prefer traditional design”

“Interesting and useful for us”

“Good use ,thank you as cost is very low”

“Trainer need to prepare well he didn't prepare well. It make us confuse”

“You're a good teacher”

“Explanation more easy to understand with disaster facts”

### Yangon day 2

“Simple and will be useful for emergency situation”

“Very interesting for deserted area”

“ Nice training. I like this training. After training I will think how to improve as technically and I will share with my colleagues. Thanks.

“Some points aren't useful and suitable for Burma”

### Sittwe day 1

“It's very interesting training and I have learnt many things related to making various types of bamboo shelter”

“I respect to your job and I like all”

“Good ,nice training”

“Good training”

“Experience getting”

“Good sharing for rural public”

## Comments by participants

### Sittwe day 1 (cont)

“Training new and interesting. Useful disaster flood. We will do it at disaster time”

“Very useful training and very good to learn”

“It is a very useful training and really practical”

“Very useful, straight to the point training. Technics will be implemented in our next flood response”

### Sittwe day 2

“This training is very useful during rainy season in Myanmar. Because this temporary design to save money, save time during the emergency case. Thank you very much.”

“The training is very useful in the villages for the flooding”

“I like this. But we will need good bamboo”

“Thank a lot for training.”

“I have knowledge for bamboo and how to build shelter”

“This training make me improve structural knowledge. And share make free..”

“Helpful for emergency situation. Easy to apply when it's time of emergency condition. Great to join this training.”

“Useful idea for emergency. Needed to be decided for training location because very hot. Thanks for this training that is very useful our region”

“Easy construction”

“Useful idea for emergency”

“Better make activities in morning before sun rise.”

“Very simple and easy to construct, quite rigid and can erect short of time.”

“It should do again and again, repeatedly for qualification”

“Time not enough and need more proper day to get TOT point but got a lot of temporary shelter experience and thanks a lot UNHCR and trainer.”

“Interesting! First training for me. This training is so useful for me because of when we meet emergency situation time we can support as soon as possible to communities. Many thanks to UNHCR and Mr Shaun our good trainer”

“Interesting. Useful. It soon be very effective in emergency respond. But one thing I am concerning is if bamboo is able easy to buy in rapid respond.”

“It's good and actually its of use for emergency. I'll share it to the communities if I have a chance. Thanks!”

“It is good. I think we have to do the best before we live inside. And make the strong. Thank you.”

### Closing remarks

#### Challenges of training.

Unlike previous training courses where 5 hours of practical work outside were possible , the excessive heat , especially in Yangon, reduced our outdoor time to only 3 hours. It was therefore necessary to completely re-adjust the training content of each day to avoid losing any important instructions. I must point out that we had had to take this window of opportunity ahead of the monsoon rains to try and be of assistance this year. I would like to thank all participants for enduring these difficult conditions and assure you that future training will take this timing into consideration.

#### Personal observations.

I always learn a great deal from each training session. First to impress me was the ability of 12 inexperienced Red Cross volunteers to build the classroom so effectively in only a few hours, well done!

Then there was the support given by the more experienced bamboo participants to those handling bamboo for the first time, you know who you are , many thanks.

The discussion about the potential of using the double RSK as a free standing shelter in urban disasters , particularly earthquakes, was invaluable and will be followed up.

### Closing remarks (cont)

The debate on whether the storm shelter is needed was interesting. It centred around regional weather differences between Yangon and Sittwe . I understand the need for this option may be greater in western coastal regions where secondary severe storms can track in from the Bay of Bengal. It is a simple option that remains reassuring if ever needed.

Tarpaulin attachment is always limited by the time available, but we continue to emphasise its importance with this shelter and draw attention to the IFRC publications on this subject.

### Personal thanks

I would like to take this opportunity to thank my sponsors for funding the Yangon training and making this possible. To Dr Khin and staff at CDA for all your assistance and support with the Yangon training. To Richard Tracey and his team at UNHCR for organising the Sittwe training. Special thanks to NRS International for donating the tarpaulins and to Montgomery Ltd for funding the publications used for training.

Shaun Halbert.