BOAT BUILDING IN THE TSUNAMI AFFECTED AREAS OF ACEH AND NIAS

with support from

Food and Agriculture Organization of the United Nations

Ministry of Marine Affairs and Fisheries

FISHING VESSEL QUALITY ISSUES

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INTRODUCTION

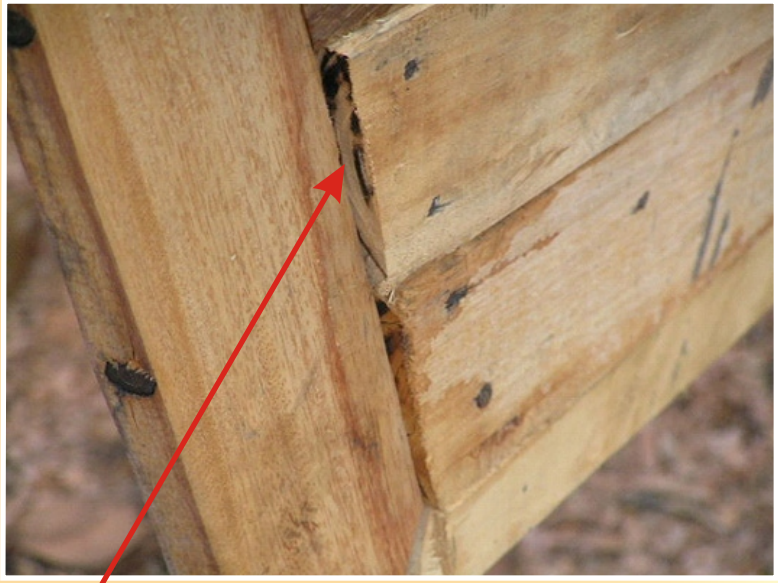
The following is a short pictorial for boat builders and donors as to the boat building situation in NAD. The intent of this paper is to demonstrate the concerns arising from poor quality boat building for safety of fishers. Further, it is to provide a few guidelines for better boat building for the future.

This presentation was developed by FAO's Master Boatbuilder, Mike Savins and FAO's Master Fisherman, Robert Lee.

MAIN PROBLEMS IDENTIFIED

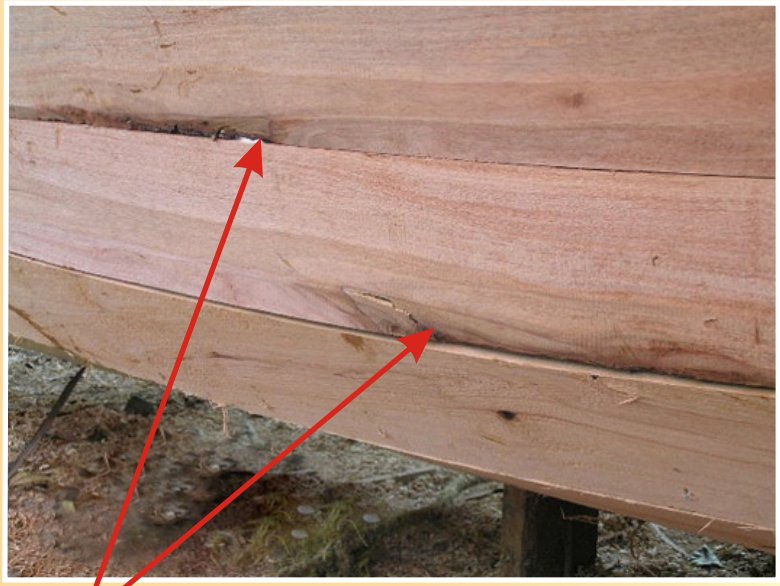
- POOR QUALITY BOATS BEING DELIVERED TO FISHERMEN.
- THE USE OF POOR QUALITY WOOD THAT HAS NOT BEEN PROPERLY DRIED.
- USING STEEL NAILS AND BOLTS THAT RUST VERY QUICKLY.
- UNACCEPTABLE AND UNSAFE INSTALLATION OF ACCESSORIES.
- ORGANIZATIONS BUILDING BOATS WITH NO COORDINATION WITH FISHERIES (DKP) OR THE AGENCY RESPONSIBLE FOR REHABILITATION AND RECONSTRUCTION OF ACEH AND NORTH SUMATRA TSUNAMI-AFFECTED AREAS (BRR).
- BUILDING BOATS WITH THE LOWEST BUDGET IN ORDER TO HAVE THE LARGEST VISUAL IMPACT IN NUMBERS.
- NO VESSEL REGISTRATION AND MARKING SYSTEM IN PLACE TO IDENTIFY NEW BOATS AND OWNERS.
- BOATS BEING DISTRIBUTED TO NON-FISHERMEN THUS REDUCING THE ASSISTANCE TO REAL FISHERS AND THEIR FAMILIES.

EXAMPLES OF POOR QUALITY CONSTRUCTION



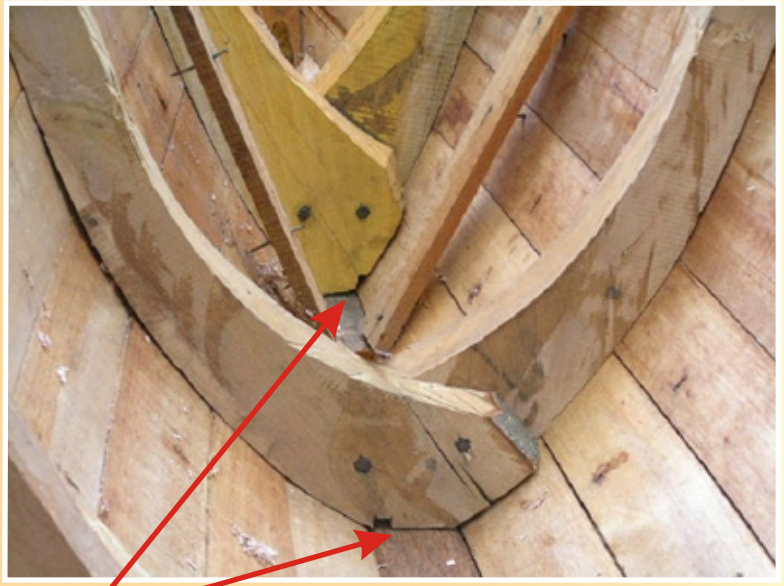
Inappropriate joints to the stem/bow will result in planning the thickness of the planks to make them flush thus reducing the strength of the boat at its weakest point.

EXAMPLES OF POOR QUALITY CONSTRUCTION



Poor quality wood reduces the strength of the boat and endangers lives. Recommended is to purchase approximate 25% additional wood to ensure good quality throughout.

EXAMPLES OF POOR QUALITY CONSTRUCTION



Already broken & remaining bolt does not provide enough strength to hold the frames together.

EXAMPLES OF POOR QUALITY CONSTRUCTION

This is one of the most stressed areas of the boat as it plows the seas. In this case it will leak forever and is very weak thus creating major safety concern for fishers from leaks as well as the potential for it to break up in a rough sea.

EXAMPLES OF POOR QUALITY CONSTRUCTION

Joints should not be on top of each other and should be stretched along the side to reduce the chance of focused stress in rough seas and capsizing.

EXAMPLES OF POOR QUALITY WOOD

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Use of wood with ***sap sections*** is unsafe as it rots when in the sea and thus reduces the strength of the boat. This is especially the case for the bow stem.

EXAMPLES OF POOR QUALITY WOOD

STEEL FASTENINGS THAT RUST VERY QUICKLY (1 WEEK OLD)

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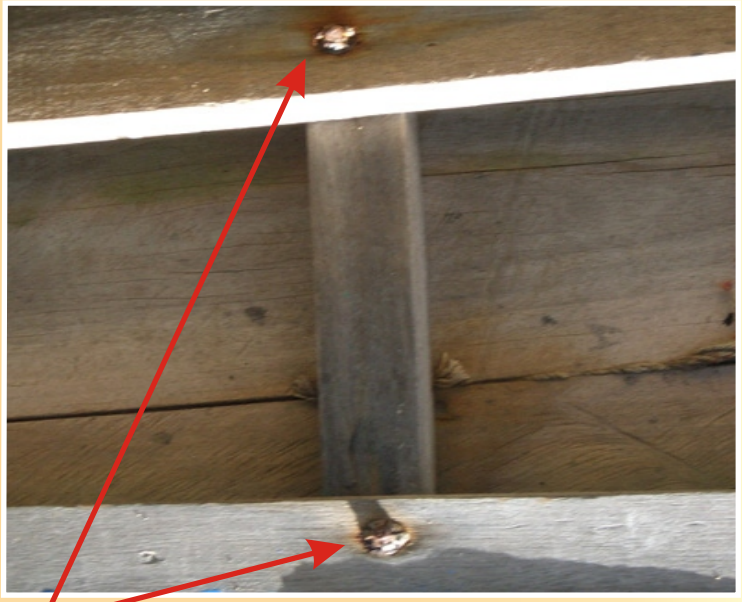


Rusting fastenings – hot dipped galvanized fastenings can extend the life of the boat to 10+ years instead of the 3-5 years with regular nails.

EXAMPLE OF STAINLESS STEEL FASTENING (THIS IS 3 YEARS OLD)

EXAMPLE OF POOR INSTALLATION OF ACCESSORIES

1. Bicycle tubing and garden hose as a connection for self bailer easily disconnected and leaking.
2. Unprotected PVC piping
3. Unprotected shaft

EXAMPLE OF POOR INSTALLATION OF ACCESSORIES

Unprotected PVC piping and rubber connection spells disaster at sea. Lack of protection leads to broken connections and leaks in rough seas.

CAUSES OF THIS POOR QUALITY

- LACK OF TECHNICAL BOAT BUILDING SKILLS ON THE PART OF THE CONTRACTOR.
- CONTRACTOR NEGOTIATING THE LOWEST CONTRACT PRICE IN ORDER TO HAVE THE HIGHEST QUANTITY OF BOATS.
- THE NOTION THAT DONORS WANT QUANTITY DELIVERIES AND NOT QUALITY.
- CONTRACTORS ASKING UNREALISTIC DELIVERY TIMES FOR LARGE QUANTITIES OF BOATS.
- NO TIME GIVEN FOR THE WOOD TO BE SUFFICIENTLY DRIED.
- POOR QUALITY WOODS USED.
- USING MINIMUM QUANTITIES OF WOOD WITH NO ALLOWANCE FOR CULLING POOR QUALITY WOOD DELIVERED BY TIMBER SUPPLIER.
- CHEAP STEEL FASTENINGS.
- THE NOTION THAT THE LOCAL BOAT BUILDER HAS ALL THE EXPERIENCE NECESSARY, AND THAT TRADITIONAL IS BEST.
- BOAT BUILDERS LACK OF COMMERCIAL BUSINESS SKILLS.

EMERGENCY FUNDS = EMERGENCY BOATS

ANTICIPATED EFFECTS OF HIGH QUANTITY, POOR QUALITY BOAT BUILDING

- UNSAFE BOATS WITH HIGH RISK TO FISHERMEN'S LIVES.
- VERY SHORT LIFE SPAN OF BOAT ± 2 - 5 YEARS.
- LIVELIHOOD OF FISHERMAN NOT RESTORED IN A SUSTAINABLE MANNER - INCREASED VULNERABILITY OF FUTURE INCOME.
- WASTE OF PRECIOUS RESOURCES.
- ABANDONMENT OF VESSELS DELIVERED TO BENEFICIARIES (IN NIAS THIS HAS ALREADY HAPPENED).
- REDUCED INCOME DUE TO MORE FREQUENT BREAKDOWNS, HIGH MAINTENANCE AND REPAIRS.
- HIGH, AND UNNECESSARY, VESSEL REPLACEMENT COSTS EVERY 2 - 5 YEARS.

HOW TO BUILD BETTER

- USE DRY TIMBER AND HOT DIPPED GALVANIZED FASTENINGS.
- REMEMBER QUALITY NOT QUANTITY.
- CALCULATE MORE WOOD THAN THE EXACT QUANTITY - YOU MUST SELECT HIGH QUALITY WOOD FROM THE SUPPLIER.
- WOOD BOAT BUILDING IS A TIME CONSUMING CRAFT. BOAT. BUILDERS ARE CRAFTSMEN. GIVE THEM TIME TO DO A GOOD JOB.
- ENSURE THAT THE MASTER BOAT BUILDER HAS THE TRADITIONAL SKILLS TO DO THE JOB.
- REGISTER YOUR BOATS AND FISHERMEN WITH FISHERIES.
- TRAIN YOUR BOAT BUILDERS TO UPGRADE SKILLS.
- INSIST THAT THE BENEFICIARY PARTICIPATE DURING THE BUILDING PROCESS TO FOSTER OWNERSHIP AND QUALITY.
- GET INDEPENDENT TECHNICAL ASSESSMENT OF THE QUALITY OF YOUR BOATS.

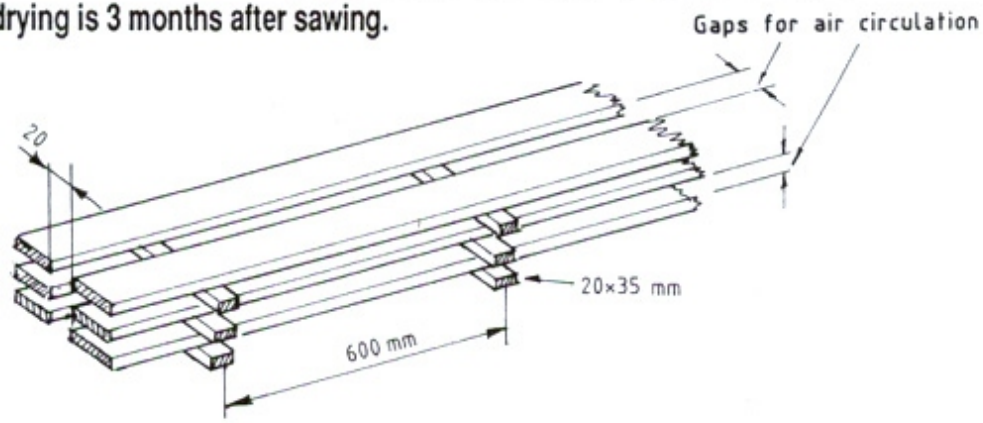
BETTER BOATS SAVE LIVES

UNDERWATER STRUCTURAL IMPROVEMENTS NEEDED

PROPER WAY TO DRY TIMBER

AIR DRYING

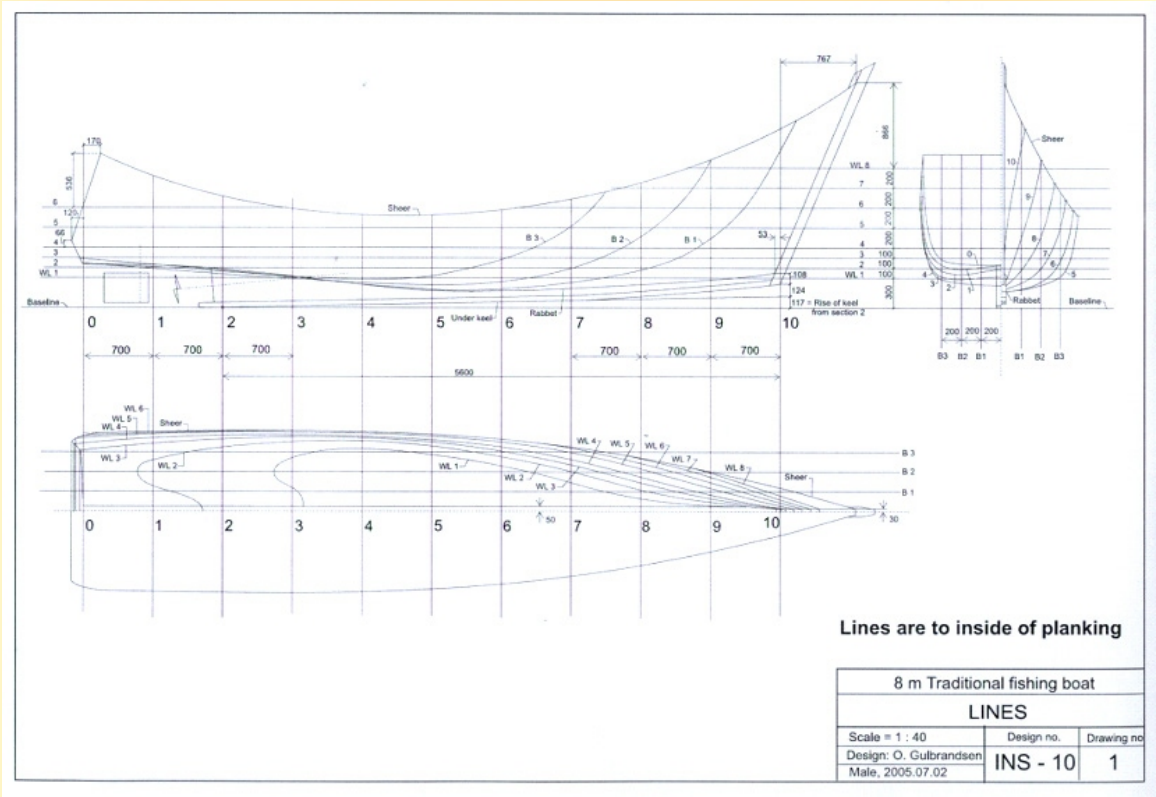
The timber must be stored under a roof, protected against sun and rain. Minimum time for air-drying is 3 months after sawing.



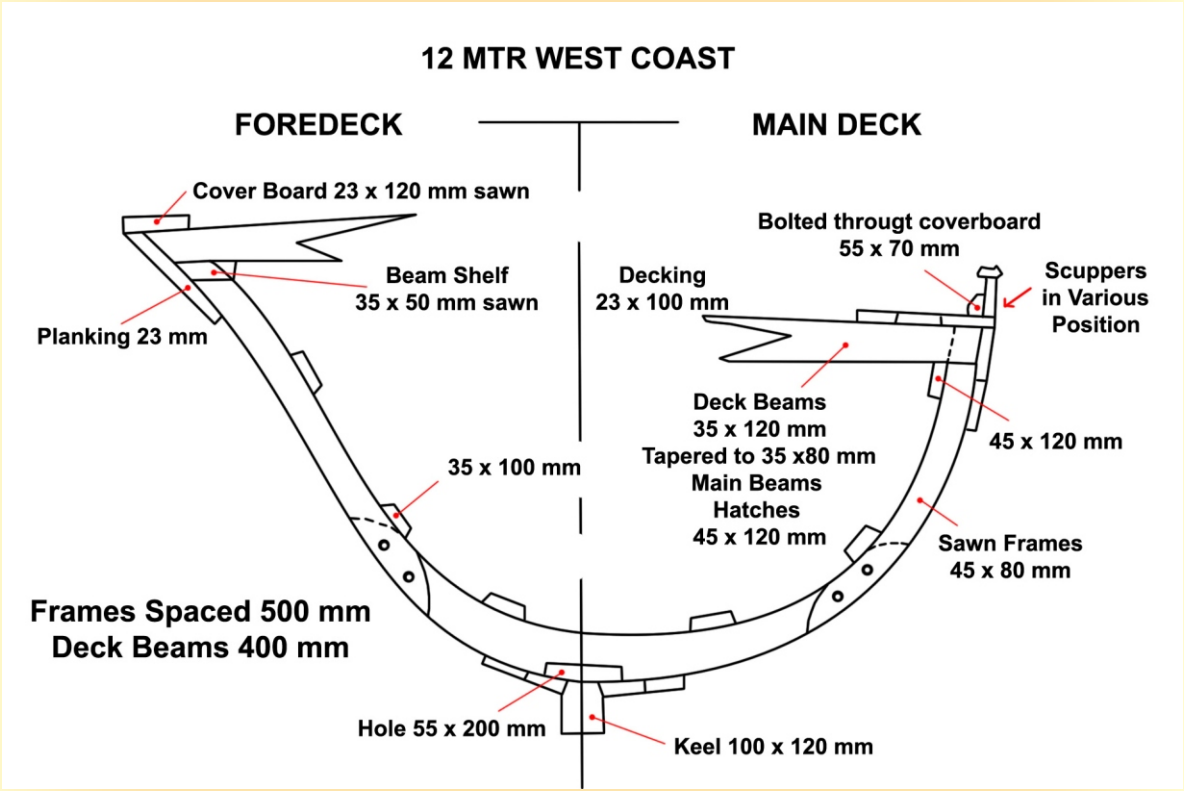
TRADITIONAL TIMBER DRYING

This is fine if weather cooperates and good wind flow
to dry the wood, but bends and warping will result

LINES PLAN


Sheer
Baseline
Rabbet
Under keel
WL 1
WL 2
WL 3
WL 4
WL 5
WL 6
WL 7
WL 8
B 1
B 2
B 3
0
1
2
3
4
5
6
7
8
9
10
700
5600
Rise of keel from section 2
Lines are to inside of planking
8 m Traditional fishing boat
LINES
Scale = 1 : 40
Design: O. Gulbrandsen
Male, 2005.07.02
Design no.
INS - 10
Drawing no
1

TECHNICAL IMPROVEMENTS



FAO ACTIONS

BOAT BUILDING TRAINING

Place	Date	Number of Boatbuilders
Tanah Pasir, Aceh Utara	25th July - 26th Aug 2005	16
Nagan Raya	22nd Aug - 30th Sept 2005	15 - 20

- FAO guidelines for better boat building will be developed.
- FAO Minimum Standards for Vessel Construction will be published.
- FAO assistance to Vessel and Fisher Registration.
- Improvements in Construction Techniques while maintaining traditional lines (Shape).

NIAS BUILT BOAT AFTER TRAINING

Donors:

EUROPEAN COMMISSION

Humanitarian Aid

Layout Design by: Zullya