SRI LANKA TSUNAMI 2004
LESSONS LEARNED

BELGIAN RED CROSS FLANDERS

A DONOR AND OWNER DRIVEN RECONSTRUCTION APPROACH
CONSTRUCTION DELEGATES

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SRI LANKA TSUNAMI 2004
LESSONS LEARNED

I. INTRODUCTION : SITUATION BASELINE

1. Facts and Figures

The tsunami of 26th December 2004 severely affected the social structure and the economy in Sri Lanka causing destruction to the entire coastal belt of the island. Within fifteen minutes, it took more than 30,000 lives, injured more than 15,000 people and displaced more than 800,000 destroying all they possessed.

The people lost their loved ones, property, their livelihood, access to education for their children and their confidence in life.
The costal belt was highly populated and was an area which contributed to the national economy through the fisheries and tourist industry, and other economic activities inclusive of traditional arts and crafts. After the tsunami it was devastated and turned into a desperate place to live.

The tsunami also destroyed the infrastructure in the area such as roads, railways, electricity, communication, water supply and all other community services such as education, transport, health facilities, businesses etc., paralyzing the entire social organization. Flooding of sea water had disrupted their agriculture, fauna and flora and the sources of drinking water. Some families had the opportunity to obtain temporary accommodation with their relations and friends but the majority were temporarily encamped on a large scale, at temples, churches, schools etc. Most of these people moved to temporary shelters but providing a house and sustainable means of living had become the highest priority of the country.

The Government of Sri Lanka launched an island wide program named “Rebuilding Sri Lanka” in order to lift up the low morals of the people who were subjected to the tsunami disaster by building 100,000 houses, restructuring physical and community infrastructure services and other related activities to re-establish civil society.

When recovery activities were carried out within the coastal zone, it was necessary to consider future coastal hazards such as cyclones, storm surges and spring tides. It was also required to protect public lives and properties as well as to minimize potential damages and risk of investment within the coastal zone.

The field investigations conducted in the coastal areas affected by the tsunami revealed that the spatial distribution of tsunami impact from the beach to the interior area varied from high to moderate and low levels. Accordingly, on the south and the west coast, the high impact area with a high degree of loss of lives and damages to properties was approximately 100 meters inland. Due to the naturally flat land in the north and the east coast the high impact zone could be considered approximately as 200 meters. Initially all people within these respective buffer lines had to be relocated to new relocation sites

All housing units outside the 100-meter building setback distance were enrolled in the Cash for Repair and Reconstruction program and were entitled to a compensation in form of an Outright Grant from the government of Sri Lanka depending on the damage of the house, with a view to rebuild their respective dwellings “On Site”. In the District of Matara SDC (Swiss Development Cooperation) in cooperation with the GOSL would handle this program.

In the beginning of 2006, the government of Sri Lanka decided to relax the former buffer zone and a new buffer line was being demarcated inside each district. Depending on the area the new line was set at 35-55 meters. People whose damaged house was situated in the area

beyond this new buffer line more inland were entitled to choose between a new house by a donor agency or to rebuild their damaged house on their own land.

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The authorities identified in the Southern District of Matara the requirement of 3.763 to 4.407 houses for the Relocation Program.

A total of 1,431 housing units located outside the 100-meter building setback distance (Costal Conservation Zone) were badly affected by the tsunami. Of this total, 27% was destroyed. The most severe damages were caused in Weligama and Matara Divisions. All these affected households were entitled to compensation in form of an Outright Grant depending on the damage of the house by the government of Sri Lanka to rebuild their houses “On-Site”.

Compensation program for the households that lived outside 100m conservation zone:

DS Division	Fully Damaged	Partly Damaged	Total
Weligama	182	561	743
Matara	155	316	471
Devinuwara	19	70	89
Dickwella	32	96	128
Total	388	1043	1431

(Source: McRAP, Matara City Renewal Action Program, March 2005)

A total of 1345 housing units located inside the 35-100-meter distance were badly affected by the tsunami. Of this total, 40% was fully destroyed. Houses beyond this new buffer line inland would have the right to choose between a new house by a donor agency or to rebuild their damaged house on their own land through the top-up/compensation program.

Compensation program for the households live outside the revised buffer line (35-100 meters).

DS Division	Fully Damaged	Partly Damaged	Total
Weligama	295	412	707
Matara	123	unclear	123 plus partially damaged
Devinuwara	120	unclear	120 plus partially damaged
Dickwella	9	unclear	9 plus partially damaged
Total	547	798	1345

(Source: SDC, July 2006)

One of the great difficulties during this paradigm shift was the fact that a lot of agencies started their quest for beneficiaries in an uncoordinated way and overlaps began to emerge. There was even a lack of cohesion between the two different programs, owner and donor driven. Eventually all this resulted into multiple agencies for one beneficiary and a surplus of housing in a lot of Districts.

In the district of Matara, where SDC was the implementing agency for the government grant, there was al lack of cohesion between organizations for all houses outside the 100 meter former buffer line. This was due to different implementation strategies, approaches, late decision making,… Inside the 100 meter, SDC took the leadership role in coordinating all organizations within the top-up program, which proved very useful.

II. RECONSTRUCTION APPROACHES

1. Reconstruction facts

After a disaster, humanitarian agencies engaging in post-disaster housing reconstruction confront a number of key questions. What kind of housing should be provided: temporary, semi-temporary or permanent housing? Should they offer financial, material and/or technical support? Should they bring in ready-made shelters, or should they involve disaster-affected people in construction? What housing technologies should be promoted or adapted? Should new materials and building techniques be introduced, or should projects build upon locally available knowledge and recourses? Should agencies support self-help housing reconstruction or engage a professional construction company?

Ideally all these questions would be answered through a detailed contextual analysis, based on what is most appropriate in specific economic, socio-cultural, technological, political and institutional contexts. However this is almost never the case as agencies need to provide their donors with quick answers and solutions. For temporary shelters, a quick and adequate solution should be provided which is in the best interest of all parties, especially of the beneficiaries. When the solution selected for the temporary phase is well thought through these shelters can be used throughout the entire reconstruction period. In this case there will be more time available to conduct a more thorough assessment on which the selection of the construction approach can be based. This means the duration of the reconstruction period will be longer, however the result will be far more satisfactory.

Reconstruction is much more than providing a family with four walls and a roof. Loss of housing destroys livelihood, protection and privacy. It is essential to restore dignity, livelihood community structure and cultural identity to those communities affected.

Often humanitarian agencies assume that rebuilding houses as quickly as possible is the best way to achieve this, and therefore, the most effective way of reconstruction after a disaster is to employ professional construction companies.

However, at the same time, these humanitarian agencies are also aware of the fact that this method of construction is not the most satisfactory as they do not always address the cultural or social needs of the disaster-affected communities. Introducing modern technologies and construction materials that may be inappropriate to the local environment make subsequent repairs and maintenance difficult or impossible.

The selection of an appropriate reconstruction approach is dependent upon many factors and can only be chosen after a thorough investigation of the situation on the ground. Because of this, a one-fits-all ideal solution does not exist.

Defining the pros and cons to the different construction approaches is personal. Every individual will have differing ideas about various methods, however, the different reconstruction approaches can be described as follows[1]:

A. Owner-driven construction

- **The owner-driven approach**
  - building work is undertaken by communities themselves
  - external financial, material and technical assistance
  - does not mean owners build the house on their own, but they retain full control over the housing reconstruction process.

- **The subsidiary housing approach**
  - agencies do not engage directly in housing reconstruction
  - agencies adopt a facilitators role, providing additional material and technical help within the framework of Government assistance

[1] Housing reconstruction in post-earthquake Gujarat, A comparative analysis by Jennifer Duyne Barenstein

- **The participatory housing approach**
  - agencies assume a leading role in housing reconstruction
  - by involving home-owners in the planning, design and reconstruction of the house

B. Donor-driven construction

- **The contractor-driven approach in situ**
  - involves tasking an architect, consultant to build the house
  - involves tasking a professional building contractor to build the house
  - it means that the houses are rebuilt on the same site occupied before the disaster

- **The contractor-driven approach or relocation**
  - involves tasking a architect, consultant to build the house
  - involves tasking a professional building contractor to build the house
  - the difference between the in situ and relocation approaches is that, the entire village is rebuilt on a new site.

In Addition to the situation in the field, the items described below will also play an essential role in the selection of a reconstruction approach.

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Sri Lanka Red Cross Society had taken the responsibility of implementing 15% of the national program i.e. to build 15,000 houses and facilitate the means of living within a period of three years. The required suitable land and physical infrastructure would be provided by the Sri Lanka Government. Every PNS had chosen one or two Districts in which to work.

The relocation program was meant for people living within the 100 meter zone. The government would replace all the houses situated in this area to make sure that all of these people would have a suitable house to live in. After the introduction of the revised buffer line, house owners within this area would have the right to choose between a new house by a donor agency or to rebuild their damaged house on their own land. This caused many problems as there was no official law differentiating the choice between one or the other. As a result, people who chose for a new house in a relocation site, could still retain ownership of the destroyed house on their own land.

1.1 Determination of Risk[2]

The selection between relocation or in-situ depends upon the type of disaster that occurs. It is important to minimize the displacement of beneficiaries and this should only be considered;

- when there is no other option;(when all the other above mentioned solutions are considered but will not work)
- when it is essential for reasons of safety; (Government can not guarantee the safety of the people)
- when there is a threat for physical hazards.

In this case the support must be offered to all affected persons in the community.

Risk management measures need to be put in place to select the appropriate relocation site or to start the in-situ reconstruction project.

The risk needs to be defined:

Hazards x Vulnerability = Risk

[2] IFRC Shelter Technical Training, Yverdon-Les – Bains, Switserland (March 2008)

Hazard : a natural or man-made event causing damage i.e., the loss of life or injury, property damage, social and economic disruption or environmental degradation.

Vulnerability : the conditions determined by physical, social, economic, and environmental factors or processes, which increase the susceptibility of a community to the impact of hazards.

Risk : The probability of harmful consequences, or expected losses resulting from interactions between hazards and vulnerable conditions.

Types of hazards:
There are two basic types of **security hazards** : ongoing conflicts and potential conflicts.
There are several types of **natural hazards** : Hydro-meteorological (floods, landslides, cyclones, fires), Geological (earthquakes, tsunamis, volcanoes) and Biological (epidemic diseases, plant or animal contagion, insect plagues and extensive infestations). Or a combination of any of these natural hazards.

A **risk map** must be developed and maintained by the community as part of a plan for risk management. Each hazard must be assessed as to its likelihood in terms of : frequency, magnitude or intensity, duration, area of extent, speed of onset.
Also the vulnerability of the population should be assessed and depends upon :
Where you are: the position where you are according to the hazard.
Who you are: displaced population, low-income population, high risk locations, poor-quality buildings, marginal groups.

Keeping people in their own village and on their own land is always the best option. People already need to cope with the disaster and the loss they suffered, hence additional moving to a new place makes the trauma only bigger. In some cases they will need to change their livelihood too which makes it only more complicated. Relocation is the last option if all other alternatives are tried.
The type of hazards will also determine the kind of construction and the situation of the site which will be selected in a later phase.

1.2 Beneficiary identification[3]

After a disaster the entire population of an affected area is in need. But what is the level of need? Basic needs such as water, food, clothing and simple household items will be handed out and replaced in the relief phase with no distinction among the affected population.
Also for the immediate shelter, a strategy will be developed in the early phase. All people without shelter, displaced or non-displaced, will be provided with transitional shelters.
Once the damage assessment begins and updated information of the damage level to buildings, infrastructure and livelihood is known, the strategic plan on how to approach construction or reconstruction can be developed.
To select the beneficiaries for a construction program, donor or owner driven, is a difficult task.

- Who will take the lead?
- What will be the selection criteria and who will define them?
- What will happen with house tenants or occupancy with no legal status?

From the outset, Government and humanitarian organisations must work together on beneficiary identification. It is an essential starting point to identify, and agree upon a method of beneficiary identification based on those most in need and those most vulnerable. In the ideal situation, the most suitable option would be for one humanitarian organisation to take the lead together with the Government to develop selection criteria.

[3] IFRC Shelter Technical Training, Yverdon-Les – Bains, Switserland (March 2008)

The purpose of beneficiary identification is to determine the type and level of support required in reconstruction by understanding:

- who has been impacted and the scale of response required;
- how they have been impacted in order to prioritize the response
- their needs and vulnerability, to determine the nature of response
- their legal rights, such as land tenure, to determine how they may be assisted

1.2.1 Benefits of beneficiary identification

Beneficiary identification through consistent and continuous assessment, monitoring and evaluation of population size, damage levels and needs, should benefit the affected population by:

- providing protection and conferring or confirming legal status of the beneficiary
- providing appropriate and equitable assistance
  - provides equivalent assistance to beneficiaries in all options
  - provides assistance that meets national & international standards
- providing information in relation to their rights to reconstruction options, and restitution support options
- providing access to representation and complaints mechanism

The above mentioned beneficiary identification process offers opportunities to:

- understand the priorities and resources of the beneficiaries
- begin the process of recording transitional reconstruction options, including land tenure and cadastral records
- understand better the movement of people between transitional settlement and reconstruction options
- support the response of all sectors of operation

1.2.2 Vulnerable groups of beneficiaries

Within the beneficiary selection process, criteria for identifying vulnerable beneficiaries must be developed with each response.
Vulnerable groups and individuals should be considered in every step of beneficiary identification, planning and implementation.
Vulnerable groups and individuals may have difficulties in expressing their opinions and may need additional support.

Vulnerable groups and individuals may include:

- minority groups – for example, if hosted in a community that is unfamiliar with their culture
- women – for example, if displaced with no social protection
- children – for example, if orphaned
- the elderly – for example, if not living with extended family

1.2.3 Process of identification and checklist

The Government is responsible for assessment, monitoring and protection of beneficiaries but can be assisted by humanitarian organisations.
The beneficiary identification process must be:

- ongoing
- coordinated with assessment, monitoring and evaluation
- part of regular strategic review

The process of beneficiary identification can consist of the following 10 steps:

- agree a strategy for beneficiary identification
- agree criteria for beneficiary identification
- agree criteria for group and individual vulnerability
- communicate strategy and criteria to the population
- interview the affected population
- announce preliminary beneficiary list
- over an agreed period, support a complaints procedure
- select beneficiaries
- publish the beneficiary list
- review and repeat

Several reconstruction options can be worked out at the same time, all depending on the type of hazard, the size of the affected population, the capability of doing building work themselves, the availability of building materials, the accessibility of the area, etc

In all circumstances an adequate beneficiary verification process needs to be undertaken.

The type of beneficiaries will determine the choice between owner and donor driven construction. Most of the people are very well capable of rebuilding their own house if they get financial support. Owner driven construction will lead to a higher feeling of ownership of the house. When people can rebuild their own home it will be easier accepted by the beneficiaries than when they get a completely finished house out of a donor driven project in which they had no involvement what so ever.

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As the Government of Sri Lanka decided in an early stage that a buffer zone of 100 or 200 meters should be taken into consideration, it was clear that the construction of the houses within this buffer zone would not be possible and people should be moved to a relocation site.
It is only after the Government of Sri Lanka decreased the buffer zone to 35 meter that reconstruction programs in-situ became possible. People who owned a house in the adjusted buffer zone still needed to be relocated. A next tsunami or high water could flood a larger area than the area of the new buffer zone. However the possibility of another tsunami was regarded extremely small. Therefore the Government agreed with reconstruction outside the buffer zone of 35 meters. With this new 35 meter rule the Government prevents the rebuilding of shacks on the beach.
The RC/RC initially chose for a donor driven solution claiming this was the only way to limit donor liability in construction. In the chapter about owner driven it is stressed that this is not the case and that owner driven housing construction can be done perfectly without any responsibility for the funding party.
On relocation sites the donor driven solution is preferred above the owner driven. As for the construction of the houses there would be no problem to go for an owner driven option but for the infrastructure a donor driven way is the best solution. Combining donor and owner driven construction on one site can cause some problems. People are not always willing or capable to see the necessity of a well organised water and electricity supply which needs to be maintained by the local Government. If this is not constructed according to their guidelines the local government is not always willing to take on the responsibility. The infrastructure works on owner driven sites always moved to a later stage, after which they are sometimes forgotten or there is no funding left. There are examples of this in several places in Sri Lanka.

1.3 Type of construction and construction principles[4]

[4] IFRC Shelter Technical Training, Yverdon-Les – Bains, Switserland (March 2008)

Not only the determination of the risk and the identification of the beneficiary will determine the selection between relocation or situ, or, owner or donor driven approach, several additional points need to be taken in consideration.
To determine the type of construction their advantages and disadvantages need to be addressed.
For this an assessment of the area and interviews with the beneficiaries need to be undertaken. The new construction should be similar to the existing ones in order to be accepted by the local community. On the other hand due to the disaster it can be necessary to introduce another type of house : different materials, double storey instead of single storey, bricks instead of wood, etc.
This always needs to be verified with the local community.
This assessment can be done while the tender procedure for a consultant is ongoing as all these principles will be based on local investigation, interaction with the local community and other stakeholders and no consultant is needed for this. When the consultant is selected a basic plan of what is needed has already been drafted. This plan can be discussed with the consultant and used in the design.

Basic structural considerations, impact of climate variations, various hazards and site management for health and safety need to be looked at.

1.3.1 Basic structural considerations

Dead loads, such as the weight of the building and live loads, such as wind and furniture, must be assessed in order to select an appropriate shelter.

Foundation :

- The function of foundations is to carry the loads of a building and distribute them over the ground in such a way that movement of the building is minimal.
- The types of foundation used depend on the following factors : building loads, structural form of building, soil condition and type, climate and geophysical factors, including risk such as storms, earthquake and floods.
- There are four main types of foundation: strip, raft/mat, pad, pile.

Floor :

- Floors can either be solid or suspended : solid ground floors rest on the ground and suspended floors span between supporting walls.
- All floors must be able to carry loads and resist excessive deflection
- Typical materials used for floor construction include : earth, reinforced or un-reinforced concrete, timber beams or joists covered with decking or sheet materials, concrete beams and infill blocks with floor screed.

Walls :

- Walls transfer building loads to the foundation, which then transfer them to the ground.
- Walls provide protection, security and privacy.
- Walls can either be load bearing or non-load bearing and their function is reflected in materials :
  - Load bearing wall materials : masonry, timber, steel, concrete
  - Non load bearing wall materials : lightweight framed structure, plastic sheeting, corrugated iron sheets, plywood, gypsum panels.

Roofs :
There are three main types of roof structure :

- Flat roofs common in hot and dry regions :
  - must have a slight gradient (3% minimum)

- common roof coverings include concrete and stabilised earth, sometimes with waterproof membrane such as bitumen

- Pitched roofs common in temperate and tropical regions :
  - roof trusses can be built from timber or steel
  - roof coverings include tiles, timber sheeting, corrugated iron
  - pitches of 20-30 degrees will be least susceptible to wind damage

- Vaulted or domed roofs, common in dry regions :
  - are often from the same materials as the walls
  - are relatively massive

1.3.2 Climatic design

To make appropriate choices in climatic design the climatic variations need to be taken in account.
The four climatic zones are characterised as follows:

- Hot dry – temperature will vary from high daytime temperatures to low night-time temperatures
- Hot wet – temperature will remain fairly constant throughout the year but precipitation levels will increase dramatically during the rainy season
- Temperate – seasonal variations in temperature and precipitation, extreme temperatures are unusual
- Cold – temperatures remain low throughout the year, often falling below zero, snow and ice are a common feature

Air temperature in any of the climatic zones will drop in accordance with increased altitude or wind strength.
Settlement planning and shelter design should be appropriate to climatic conditions for all phases of emergency shelter including transitional settlement and reconstruction.
Appropriate climatic design should ensure that:

- Settlement plans respond to site topographic and climatic conditions
- Shelter and settlement design and material use is adaptable to daily and seasonal temperature variations
- Shelters are designed to meet the worst likely weather conditions
- The health and survival of shelter occupants is paramount

Both shelter and household Non-Food Items (NFI's) are required in the design and planning of shelter, including transitional settlement and reconstruction.
Materials, tools and equipment to build, maintain and repair emergency shelter, whether supporting transitional shelter or reconstruction.

<u>Hot dry climate:</u>

Settlement

- In hot dry climates outdoor spaces are likely to be used for activities such as cooking and washing.
- Planning of outside space should be given as much consideration as the design and planning of shelter.
- An enclosed settlement plan will help to provide shade and protect from prevailing winds.
- The reconstruction of the houses should respond to hot, dry climatic conditions and site topography: narrow streets will help to provide shade, high terminal mass will minimise heat gain, avoid removing trees and

position buildings to provide shade for sun, position buildings to protect from prevailing wind and sand storms.

Shelter

- Shelter design for hot, dry climates should use materials with high thermal mass, minimise the size of windows and provide shade.
- Small window to prevent high solar gain during the day and heat loss at night
- Insulating roof: earth roof provide thermal mass while thatched roofs insulate through creation of air chamber
- Thick walls reduce heat gain during the day and increase heat storage at night
- Position doors and windows away from prevailing winds

NFRI (Non Food Relief Items)

- Variations in day and night temperatures may increase the need for household NFRIs such as blankets and mattresses to improve the occupants thermal comfort at night
- NFRIs may need protection from rodents and termites while in storage
- Material selection may be affected by amount of water required for their use in construction
- High afternoon temperatures may influence working times
- When using plastic sheeting, apply a double skin with ventilation between to minimise heat radiation

Hot wet climate:

Settlement

- The reconstruction of the houses should respond to hot, wet climatic conditions and site topography
- Position settlement out of danger from landslides
- Position settlements above flood plains and away from seasonal rivers
- Avoiding vegetation removal and disruption to slope structure will reduce the risk of landslides
- Space settlement to aid ventilation
- Ensure slopes provide adequate drainage but remain stable

Shelter

- Shelter design for hot, wet climates should ensure both good ventilation and protection from water penetration
- Roof overhang to protect walls
- Ensure roof has sufficient pitch for water drainage
- Drains connect to reservoir to preserve rainwater
- Surface water drainage
- Footing of walls protected with plaster or tiles
- Stratified and compacted plinth, equipped with raised floors to protect from flooding

NFI

In hot wet climates it is important to consider the effects of moisture on materials. For example:

- Mud bricks will be difficult to produce if moisture levels are too high and will need protection from rain while drying
- A protective coating must be applied to timber to prevent rotting
- Select materials that maximise ventilation

- Shelter and household NFIs will need protection from moisture, pests and rodents during storage and transportation
- Heavy rain is likely to make the transportation of materials more difficult

Temperate climate:

Settlement

- Local climatic variations and site topography should be considered when siting settlement in temperate climates
- Position settlement to maximise solar gain
- Position settlements above flood plains and away from seasonal rivers
- Select a site that avoids unnecessary exposure to cold wind

Shelter

- Temperate climates are likely to experience a variety of climatic conditions. Awareness of the season, and how it may change over time, is crucial in designing shelter and selecting NFI.
- Shelter design in temperate climates should:
  - protect from rain and flooding
  - insulate against hot and cold temperatures
  - shade from the sun

NFI

NFI planning in temperate zones must consider various climatic conditions including cold, hot and wet

- shelter NFIs should be supported by household NFIs such as clothing, blankets and fuel to protect from cold temperatures
- shelter and household NFI will need protection from the cold and wet during storage and transportation
- seasonal climatic variations must be considered when transporting materials, for example transportation will be more difficult in snow and ice
- shelters should be designed, and household NFIs supplied to meet the worst likely weather conditions

Cold climate:

Settlement

- Local climatic variations should be considered when siting settlement in cold climates, for example exposure to wind and shade from the sun will decrease temperature
- Select a site that avoids unnecessary exposure to cold wind
- Orientate shelter to maximise solar gain and minimise drafts

Shelter

- Shelter for cold climates should use materials of high thermal mass and additional insulation to give protection against extremely low temperatures
- Materials with high thermal mass and added insulation will protect from both high and low temperatures
- Strong roof to cope with heavy snow loads
- Small windows will prevent thermal gain in high temperatures and heat loss in low temperatures
- Seal openings to prevent draughts
- create a thermal buffer zone
- diving large rooms into several smaller rooms using plastic sheeting
- create at least one warm room with a stove

NFI

- Material planning should reflect priorities as temperatures drop
- Demand for shelter and household NFIs increase as temperature decreases
- If heating of appropriate shelter NFIs are not available, increase the distribution household NFIs, such as clothing and blanckets and mattresses
- Cold climates may cause problems in the production, transportation and storage of NFIs
- Shelter NFIS may need protecting against the affects of frost an damp during production
- Shelter and household NFIs will need protection from the cold during storage and transportation
- Heavy snow and ice is likely to make the transportation of materials more difficult

1.3.3 Hazards

Before and construction activity is undertaken, basic risk mapping should to be conducted including : the risk type, the location of the risk, the frequency of the risk, the duration of the risk.
Building design mitigation measures must be : affordable to implement and maintain, understandable in terms of functional principles, consistent with local cultural practices, consistent with local construction traditions, consistent with locally available materials, supported by appropriate enforced building codes, supported by appropriate technical advice through information centres and technical inspectors.

Toxic environments :
Local knowledge is critical for understanding toxic threats and sources of dangerous pollution.
Toxic hazards may include :

- Contamination of surface or ground water : arsenic, chemical fertilisers or pesticides, sewage.
- Carbon monoxide emitted by vehicles, generator or stoves
- Lead-based paints of glazes
- Abandoned mines
- Depleted uranium weapons
- Dust raised by wind or vehicles
- Acid or oil leaking from vehicles, burning vegetation on land, in yard, in stoves

Termite, ant and vector control :
Termite and white ant must be prevented from reaching timber : barriers angled at 45 degrees may be set into walls at floor level.
Appropriate site selection will reduce vector-borne diseases.
Two main categories to be considered :

- insects, eg mosquitoes and ticks
- small animals, eg rats and birds

Methods of vector control include :

- Improving surface water drainage to reduce standing water
- Locating settlements away from standing water
- Ensuring appropriate waste disposal
- Planning settlement to reduce the spread of dust by wind
- Providing mosquito nets and screens on windows and doors

- Rodent proofing

Fire :
The risk fire is particularly high in dry areas where forest fires or wildfires are common, and in cold or temperate climates where cooking and heating stoves are used inside shelters.
Methods for mitigating risk from fire include :

- Fire alarms and fire doors which should open in the direction of the escape
- Planning settlements to include fire breaks
- Providing water points and fire beaters for fire fighting
- Ensuring adequate fire escape from buildings and fire drills
- Ensuring fire escape are marked, clear and accessible
- The maximum travel distance to a fire escape should not be more than 18m from any part of the building
- Distance between buildings should be twice their height

Earthquake :
Earthquake resistant settlement planning should ensure that :

- Settlements are not located on alluvial plains, unstable soils, reclaimed land, unstable or steep slopes
- Buildings are spaced to avoid multiple collapse

Earthquake resistant building design should be developed appropriate to each locality, economic group and construction tradition. Design components may include :

- a serious of ring beams able to take tension and compression
- 'through stones' joining front and rear faces of rubble masonry
- columns able to take tension and compression
- regular buttresses and dividing walls
- all components are tied securely together and to the foundations
- square plans are used where possible
- fatigue stress is taken into account and effects monitored

Volcanoes :
Volcanoes produce various types of hazards : hot ash and dust, mud and lava flows, fires, floods, landslides, rock slides, avalanches, poisonous gases, tsunami, ballistics (rocks thrown into the air)
Settlements should not be located near volcanoes or lava flows.
Settlements planning should include escape routes and contingency plans.
Building design should ensure that : large openings face away from volcano, roof design allows for ash loading.

Landslides :
Past landslides should be assessed, including through consultation with local communities. Landslides tend to occur on steep slopes or where land is undercut by water.
One indication of previous landslides is vegetation at a different level of growth from surrounding areas.
Factors which can increase the risk of landslides : deforestation, overgrazing, heavy rainfall.
Foundation design can mitigate against the effect of landslides. Settlements should not be located in areas prone to landslides. Properly draining a site can also prevent landslides.

Storms :

Building design and retrofitting are measures that may include :

- reducing overhangs, eves and gables
- improving the strength of joints through bracket and cross bracing
- introducing cross bracing and ties especially for wall plates and rafters
- improving the fixing of roofing materials
- introducing storm shutters for windows and openings

If it is not possible to relocate a settlement, mitigation measures include :

- a contingency plan developed with the community and practiced regularly
- evacuation options to higher ground identified with escape routes
- flood or cyclone shelters with sufficient strength and capacity
- Early Warning Systems

Floods :

Floods can occur: following sudden rainfall or snowfall, when rivers break their banks, as a result of surges in sea level, as a result of rises in ground water.
Building design options include :

- raising the building on plinth
- relocating the building locally to higher ground
- raising the building on stilts
- building strong columns and roof, but sacrificial walls that are washed out in floods
- clear openings on opposite sides of the building parallel to the likely direction of water flood, such as under raised floors
- strong corners and foundations to resist scouring, beams barriers to divert flows and debris

Settlements should not be located in areas that are frequently flooded.

Tsunami :

A tsunami is a large wave, or series of waves usually caused by : earthquake, volcanic eruptions, underwater explosions or landslides.
In tsunami prone areas site selection should ensure that settlements are located on high ground away from the sea.
The impact of tsunami on settlements and population can be mitigated through:

- relocation of communities at risk
- identification of high ground for evacuation
- identification of escape routes
- reinforcement of flood defence systems including: through natural barriers such as reef, mangroves and sandbanks
- provision of Early Warning System

1.3.4 Site management : Health and safety

This item is now a natural component on all construction sites in the Western world but it also took several years before the law existed and several more before this law got implemented in a correct way. Still on small construction sites the law is changeable and not always followed strictly but on big construction yards there is no way around this law anymore. On construction sites in development countries health and safety management is something that almost never is taken in consideration. It is time to change that and add this component to the first estimations and the tender documents so that it has to a part of the whole construction process. It still is the contractors responsibility to ensure this health and safety component but we have to admit that we as client play a big role, if we don’t make the money free for this part it will be easily forgotten. This component cost money and we can’t just assume that it is somewhere incorporated in the total amount.

Site management includes:

- health and safety measures to safeguard the wellbeing of workers
- site layout and security to ensure that work can be carried out safely and efficiently
- labour management to ensure that all workers have access to the training, tools and materials required to carry out construction effectively
- the management of tools and equipment ensure availability, maintenance safety and security of all tools

It is the contractor's responsibility to ensure site safety and this should be detailed specifically in all contracts along with indicators and compliance.

Potential hazards on construction sites include:

- collapse of excavations
- falling while working at heights
- falling objects
- electrocution
- vehicle accident
- hazardous materials

Prevention measures include:

- maintaining and enforcing appropriate health and safety plan
- training of staff in first aid
- provision of safety equipment
- provision of appropriate tools and equipment
- provision of a first aid kit
- provision of staff who are trained in first aid
- allowing sufficient breaks during the working day
- limiting the amount of overtime worked by staff
- working in daylight hours where possible, if not make sure the site is sufficient illuminated.

In addition to the space where the building is being erected, adjoining areas will be needed for the following:

- Road access: consider a separate delivery entrance, in order to reduce congestion and increase security
- Storing materials: materials should be stored for as little time as possible prior to use to reduce risk of damage, deterioration or theft
- Staging work: involves the preparation of building materials prior to their use in construction
- Construction waste: consideration should be given to the disposal of construction waste before work begins. If an off site location is not available, waste should be separated in order to simplify disposal

Theft of tools equipment and materials must be addressed by a series of measures in order to reduce risk and impact.
Preventative measures include:

- Establishing zero tolerance and employing local workers
- Store tools and materials securely and use sign-out sheets in order to keep track of their location
- Restrict access to the site during non-working hours
- Hire trained security personnel for site surveillance

Site security is also requited to:

- Protect onlookers from site hazards

- Prevent onlookers from distracting workers, interfering with construction or engaging in opportunistic theft

Once these three items are taken in consideration a decision can be made on the type of housing.
A few examples of housing types are : single storey houses, double storey houses, single storey twin houses, double storey twin houses, apartments…..
One should also keep in mind that during the tender and construction process, which is at least one and a half year, the beneficiaries need to be given a transitional reconstruction option.
The tents or shelter kits given to the effected families right after the disaster can only shelter these people for a few weeks after this a longer term solution need to be provided. If no other organisation is taken care of this, this needs to be a part of the construction program.
What kind of transitional housing option can be provided? Host families, temporary shelters in camps or on their own land, empty apartments or houses….

SRI LANKA

In Sri Lanka the selection of housing types was not done as described above. It was the Government who decided what kind of housing was needed on which site. For example on the Grubebila site we were at first obliged to build 100 apartments for “fishermen” . This was for us not acceptable, first of all there was not enough space and apartments for fishermen are not the ideal solution.
At the very beginning there was an enormous need for new houses outside the buffer zone as at this time the buffer in the south was set at 100m. Nevertheless this idea was not acceptable. After negotiation with the local Government we convinced them of reducing the amount of houses on this site and we introduced the concept of double storey twin houses. In this way more houses could be built with still enough free space around the houses.
The selection of the type of construction was done by the consultant who used the local way of building. To strengthen the construction however, reinforced concrete was used for columns and beams. This was not done in Sri Lanka before the tsunami.
All sites were selected outside the buffer zone so they are all situated at a reasonable distance from the sea. In case another tsunami would hit, they will most probably not be affected.
Concerning health and safety no precautions were taken, this was the responsibility of the contractor but not separately pointed out. No big accidents happened but health and safety is something one should take care of in future projects.

2. Selection of reconstruction approach

Bearing the above mentioned criteria in mind the selection of the reconstruction approach can be made.
The pros and cons of the different approaches are illustrated in the following overview.

2.1 The owner-driven construction

2.1.1 the owner-driven approach

When after risk analysis it appears that the chance of a new disaster is extremely low and the Government decides quickly after the disaster that it is safe to rebuild on the existing land, than this approach is preferred. It can start off very quickly as the responsibility lays with the house owners themselves.
The selection of beneficiaries can also be done quite fast. In case the identification was already done during the temporary phase the beneficiaries can return to their homes as from the moment the area is declared safe. If the people are capable of rebuilding their own house with the additional financial, material

and technical advice this approach will be the fastest solution. It is important however that clear rules are agreed upon before starting the reconstruction and these rules are explained to the affected people.
This approach is only suitable for beneficiaries who are capable of constructing a house on their own and this has to be ingrained into their culture. These beneficiaries must have the capability and the knowledge to manage the construction quite independently.
Less capable people can be helped in a more participatory approach (see 2.1.3). In this case they still feel involved in the construction process but get the necessary help. The owner driven approach is not advisable if the construction techniques need to be changed because of the recent disaster or in case the chance for another disaster in the future is still existing. In this case a participatory approach is more advisable.

2.1.2 The subsidiary housing approach

This approach needs the same conditions as the previous one with only one difference. If the Government created a structure in which beneficiaries can get help through a grant system donated by the Government or through another system, the agencies can give further assistance by topping up this grant or by donating the whole amount of the grant. Nevertheless this approach always needs a system of technical assistance for the beneficiaries.

2.1.3 The Participatory housing approach

This approach will require a longer start-up period as it needs a planning and design phase in which the beneficiaries can participate. Before the project can start, the complete group of beneficiaries needs to be identified and selected. All the documents of land or house ownership need to be in place. The beneficiaries need to be divided in manageable groups so the discussion on planning and design can be undertaken. In this case if construction techniques need to be adjusted because the risk of a new disaster still exists it is possible to integrate this is the planning and the beneficiaries can get training on this issue. So also more vulnerable groups of beneficiaries can be taken on in this approach as the follow up of the project will be monitored very closely from start to end.

2.1.4 The owner-driven approach in relocation

This approach I want to add as another way of organizing the reconstruction but according to me there are a few constraints. Constructing the houses on a relocation site can be done in a participatory way which is a good solution but there is the problem of infrastructure. A contractor can be hired to level the land and prepare it for construction but this means also you will need to tender. After this the house owners can start the construction but still the responsibility for the infrastructure like roads, drains, water supply, electricity supply needs to be taken care of. When owner-driven construction is done in situ all these items are already present.
In case the Government takes care of the infrastructure, this approach is possible. One has to make sure that the Government will fulfil its commitment, which is not always the case. Another solution is to hire a contractor to finish the infrastructure but this means that the speed of the construction of the houses has to be monitored very closely and all the houses need to be finished within a certain time period. Otherwise, it will take too long before the infrastructure works can start.

2.2 Donor-driven construction

2.2.1 The contractor-driven approach in situ

This is not the most easy approach to establish. An architect/consultant needs to be involved to do the designs of the houses and this can take some time.
When building in situ this means that all the houses will be spread out over a certain area. For a big contractor this is not always an easy task, as this approach will cost him more than when he can work on one site. Hence, this approach can be more expensive. There is of course always the solution of working with several small contractors in the same area but this means more and closer supervision. Also the quality delivered by the different contractors might differ..
Nevertheless in some cases this is the only solution. Sometimes relocation is not an option due the lack of available land.
When the contractor-driven approach in situ is chosen, but there is still a chance of a future disaster in the area, the construction techniques will need to be changed drastically.

2.2.2 The contractor-driven approach in relocation

This approach should only be used when there is no other option. Only in areas where it is unsafe to live and the danger for a next disaster is too high people can be moved from their place of origin to a relocation site. This approach means more than giving families a new house, it often means that they have to look for new livelihoods opportunities. It also means that villages will be split up, with families and friends ending up in other areas.
When choosing for this approach these constraints need to be taken into consideration and one has to make sure that the transition is as painless as possible.
As the beneficiaries have no direct engagement in this kind of approach one should try to engage them indirectly. For example ask beneficiaries to help with clearing the site, discuss the design of the houses with them in advance, let them visit the site once in a while.
This is of course only possible when the beneficiaries are known from the very start which is not always the case.
Also keep in mind that this is certainly not the fastest approach, as additional steps need to be taken before the construction can start: selection of land, selection of architect/consultant, selection of contractor, etc. All this takes time, it will take approximately 6 months before the construction can start. However, as soon as it is decided that construction in situ is not possible because the place of origin is declared unsafe, the process of selecting land, consultant and contractor can already start in the relocation site.

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All of the above mentioned approaches where used in Sri Lanka in different area's by different agencies.
Some of them gave better results than others. The speed of construction for some approaches was definitely higher than others but this faster construction did not always have a satisfying result. A comparative analysis should be made of the post-tsunami reconstruction to find out the pro's and cons of all the different approaches.
The Belgian Red Cross only used two of the above mentioned approaches and can therefore only share experiences about these.
The owner-driven participatory approach will be explained in part III of this paper and the donor-driven relocation approach will be explained in part II of this paper.
On the other approaches I can only give my personal opinion as I did above.

Hazard high	**RISK**					
Vulnerability high	extreme high					
Hazard high	**RISK**					
Vulnerability middle	high					
Hazard high	**RISK**					
Vulnerability low						
Hazard middle	**RISK**					
Vulnerability high	middle high					
Hazard middle	**RISK**					
Vulnerability middle	middle					
Hazard middle	**RISK**					
Vulnerability low	middle low					
Hazard low	**RISK**					
Vulnerability high						
Hazard low	**RISK**					
Vulnerability middle	low					
Hazard low	**RISK**					
Vulnerability low	extreme low					

III. THE DONOR-DRIVEN RELOCATION APPROACH

The donor-driven relocation approach will be explained by means of the Belgian Red Cross post-tsunami experience in Matara, Sri Lanka.
All the different parts of this approach will be explained in a chronologic way (where this is possible as some items will cover a much longer time period).
The following explanation is partly based on the principles that are the items mentioned in part I. When Belgian Red Cross started not all of these were taken into consideration but this should be done in the future. Therefore these principles will be integrated.

The next overview will give some additional information on the projects done by BRC FL in the Matara District. The district of Matara was selected by the first delegate who came to Sri Lanka right after the tsunami took place. In the district it was my task to look for suitable land for the donor driven construction of 500 houses. The amount of donor driven houses was reduced due to the change of the buffer zone and the fact that suitable land was not available. This was the main reason why BRC FL decide to engage also in owner driven reconstruction. The selected sites were situated in the division of Weligama and Dickwella. Three chosen lands in Weligama were not allocated to us. (see chapter selection of land)

	GRUBEBILA	**MUDIYANSELAGHE WATTA**	**MEDA WATTA**
TYPE OF HOUSES	double storey twin houses	double storey twin houses, single storey twin houses	single storey twin houses
AMOUNT OF HOUSES	51	56	24
AGREEMENT CONSULTANT	September 2005	September 2005	September 2005
DESIGN PHASE	Sept/05 to Dec/05	Dec/05 to Feb/06	Aug/06 to Sept/06
TENDER CONTRACTOR	December 2005	February 2006	September 2006
START CONSTRUCTION	11/01/2006	20/05/2006	31/10/2006
CONSTRAINTS	court case 22/05/2006 TO 22/06/2006	court case 05/07/2006 TO 05/09/2006	court case in December 2005, first project of 48 houses had to be cancelled an replaced by new project of 24 houses
LOTTERY	11/12/2006	22/07/2007	7/04/2007
HAND OVER	8/02/2007	30/09/2007	30/09/2007
COST HOUSES incl. infrastructure	82.478.230 LKR 627.216 €	91.406.334 LKR 634.053 €	40.074.291 LKR 270.205 €
COST CONSULTANT	3.681.012 LKR 25.268 €	4.183.864 LKR 28.188 €	1.854.539 LKR 12.168 €
PREPARATORY COSTS	920.512 LKR	173.339 LKR	79.150 LKR

	7.251 €	1.207 €	620 €

TOTAL DIRECT PROJECT COST*	**87.079.754 LKR** **659.736 €**	**95.763.537 LKR** **663.447 €**	**42.007.980 LKR** **282.993 €**

** Total direct project cost excludes expat and local staff expenses, indirect (shared) cost of the HNS, and any other indirect related expenditure*

1. Selection of land/land acquisition

Once the risk assessment shows that relocation is the only option, a site for relocation needs to be selected.
The selection of land needs to be done in a very early stage of the operation, as there will be many other organisations on the ground and everybody wants to obtain the best piece of land.
There is no time to wait for the selection of a consultant. This must take place at the same time so once a consultant is selected the agreements on the lands are finalised and the design can start.

As RC/RC normally does not buy the land but depends on the local Government to receive the land, good working relationship with this local Government are extremely important.
Due to this way of working there is no influence possible to select whatever available land but the selection can only be made out of a list provided by the Government. Nevertheless there is a good opportunity to select some good pieces of land as long as the decision is taken fast and well thought through.
There are some points for consideration while selecting land.

Always visit the land more than once, this means in different weather conditions, as tropical rains can do a lot to the soil. The visits to the land should be done together with a small group of local people as they are the only ones who can give the background and the history of the available land.
Try to keep the newly designed sites small, around 50 houses is a good amount. It is very hard to make a new community of more than 50 families work. The new community has to fit into the host community and if the former is too big the latter can feel this as a threat.

1.1 Criteria to select land

- The free area left and right from a house needs to be at least 3 meter
- The house needs to have some distance from the street, at least 3 meter
- Depending on the type of sewerage system, enough space needs to be available to put all the items in place
- Some cultures prefer an open kitchen, therefore some space needs to be available in the back of the house, at least 3 meter
- The floor space of the house depends on the type of house, single storey or double storey. (approximately 60 m2 in total)
- The free space for roads, green area's, sewerage systems, water supply, etc is approximately 50% of the total surface needed for the houses.

			Perches	Roods	Acre
Space house	60	m2	2,37	0,06	0,01
House and surrounding	192	m2	**7,59**	0,19	0,05
Roads, free space…	50%	of total space for houses			
Amount of houses	50				
Space per house	192				
Total houses	9600	m2	379,39	9,48	2,37
Free space	4800	m2	189,70	4,74	1,19
Total land	14400	m2	569,09	14,23	**3,56**

Several criteria need to be considered while going through the selection of the land to ensure the land is technically suitable to build on:

- A flat land is easier and cheaper to prepare for construction than a steep slope.
- A steep land needs a lot of investments in retaining walls which can always cause stability problems.
- A thick forest is harder and more expensive to clear.
- Flat lands are not always the best solution. Empty flat lands often have a history. It can mean that they are used as water collection areas for the surrounding area, meaning they can be swamps. This is not always visible especially not in the dry season. As it is too expensive to do a soil test at this time of the process it is advisable to do a percolation test.
  (Dig a hole of 30 by 30 by 30 cm and fill it with water, after 24 hours the hole needs to be filled again with water and after one hour the height of the drop needs to be checked. This will show the percolation of the soil and will tell you if this land is a swamp area or not.)
- Check the distance to the nearby water disposal area. This is important for the design of the sewerage system.
- Check the public drainages. If there are none in the area, the disposal of rainwater and sewer water can be a problem.
- Check the distance to the public water supply net and the public electricity net.
- Check the land for rock areas. It is too hard to build around rocky areas and a lot of the available land will not be utilised.

1.2 Points of interest

Additional criteria need to be checked to see if the land is well located.

- Where is the nearest school, hospital, dispensary, shop, …
- What is the distance to the main road?
- What is the distance to the centre of town, village …
- Are there existing buildings on the land? What is going to happen with them and who is responsible for them?
- What is the reaction of the host community on the erection of a new village?
- Can the displaced community still execute their original livelihood? (Never move a fisherman more than 100 meters away from the sea…)
- There must be space available to make a public green area or a children playground.

Before the decision is taken on the best available land the legal status of this land also needs to be checked to make sure that no requisitions are resting on this land.
A survey plan made by an official surveyor is essential before taking the decision as this plan will give the information on the correct measurements of the site.

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All the land was provided to the RC/RC by the Government. Long lists with names of sites and available acres were provided.
As the district where the different PNS's would work was determined in an earlier stage we could concentrate on this area for the selection of land. As the BRC FL selected its lands in an early stage we got very well-located pieces of land. Nevertheless there were some issues which we only got to know later on.

In some cases the Government claims the land from a private person but does not recoup this person within the agreed time schedule. This led to several court cases which all delayed construction with several months.

Before the land was selected a small file was prepared for each land, with the most important information on it as mentioned above. All selected lands were visited several times on different occasions. By means of these files a selection of the lands was made and a request was made to the SLRCS NHQ who was responsible for requesting the land from the Government.

One additional remark has to be made. As the RC/RC did not start the reconstruction within 6 months after the tsunami they got a lot of obstruction from the Government. Therefore the Government was not keen to give land to the RC/RC unless they could show that work was going to start very soon. They were not able to do this as at that time the consultant was not selected yet. Therefore we decided to organize a soil test in each land that would be allocated to us in the near future only to show the Government that something was happening. This soil test is normally something that is organized by the consultant as he needs to have this information to make the calculations of the foundation. We were able to provide the consultant a complete report of the soil test before the design phase even got started. However, the three soil tests were done without any result as the land got taken away.

In the following table the pro and cons of the BRC FL selected lands are noted down.

For the selection of the land the determination of the risk and all the above mentioned criteria need to be considered. The selection must include as many positive criteria as possible This opens more possibilities when selecting the type of construction in a later phase.

NAME LAND	PRO'S	CONTRA'S
GRUBEBILA	bordering the main road	a court case was filed after the construction work was almost half way, it was won by R/RC but delayed the work with two months
51 houses	public water supply net available	part of the flat land was filled in the past but not mentioned to RC/RC in this part the soil was extremly wet and causes some problems during the construction of the foundation and still to the sewerage network
	public electricity net available	the land contained an existing school building which was demolished by the BRC Fl
	waste water collection point bordering the site	
	schools, shops, dispensary,... present in the close neighbourhood	
	flat, partly hill land	
	part of land was swap, this was know in advance so this area was filled and did not cause any problems	
	half of land was already cleared only the hill needed to be cleared	
MUDIYANSELAGHE WATTA	bordering the main road	a court case was filed after the construction work was started for two months, it was won by R/RC but delayed the work with two months
56 houses	public water supply net available	too flat land can cause problems with the level of the public drainage system and sewer lines
	schools, shops, dispensary,... present in the close neighbourhood	mistakes were made in the survey plan, the land seemed to be smaller in reality
	public electricity net available	
	waste water collection point bordering the site	
	completly flat land with coconut trees, the cost of preparing the land was small comparing with other sites	
MEDA WATTA	walking distance from main road	a court case was filed before the start of the construction, RC/RC had to let a part of the land to the previous owner, this delayed the start of construction with 6 months
24 houses	public water supply net available	the land is one slope through wards the road
	schools, shops, dispensary,... present in the close neighbourhood	the whole land was one thick forest
	public electricity net available	no connection to a public waste water collection point
	beautiful surrounding, a little village in the woods	
LEBBEGE WATTA	beautiful surrounding on top of a cliff	land was taken away by the Government
100 houses	flat land with coconut trees	
	all public facilities were in place	
YAKDEHIGEWATTA	walking distance to the main road	land was taken away by the Government
44 houses	one small slope with almost no trees	
	all public facilities were in place	

KURUNDOWATTA	next to Yakdehigewatta	land was taken away y the Government
100 houses	Walking distance to the main road	
	one small slope with almost no trees	
	all public facilities were in place	

2. Beneficiary selection

Once a land is selected and we know approximately how many houses can be built on it, beneficiaries need to be identified.
The identification of the beneficiaries should be done by the Government but the help of humanitarian agencies is desirable. During the relief phase beneficiary lists should be established. At least people who ended up in transitional camps need to be listed by the Government or humanitarian agencies.
In most cases this pre-selection will be done by the Government and the beneficiary list will get divided among the different agencies. Nevertheless it is very important that all the agencies have the ability to check and verify the beneficiary lists and that there is a system in place that beneficiaries can be refused if it seems that they are not entitled to a new house.

If relocation is the only option and a donor driven solution is decided on, one should make sure that from the start the beneficiaries are involved in the design process. This will not always be possible, for example when the beneficiaries are not selected at the start of the design stage. This will be explained more in detail further on.

For programs where houses are reconstructed on the land of the beneficiaries, the verification of beneficiaries is easier since the land where the new house will be built on is easy to identify. Beneficiaries can prove it is their land, by showing the legal documents of this land.
For relocation programs it is more difficult to select the entitled beneficiaries.
Who are these beneficiaries?
Were they the owner of a land or house?
Were they affected by the disaster?
What criteria will be used for the selection?
Will only the most vulnerable people get a new house?
What to do with tenants or illegal habitants, squatters?

A common problem with beneficiary lists is that two names or more of one family appear on the list. When there are several agencies working in the same area and certainly when different types of construction programs are executed (owner driven in situ, relocation, etc) beneficiaries will end up on different lists.
Sometimes officials turn a blind eye and put people on the list who are not entitled for a new house. When higher officials are involved there is not a lot that can be done but it can be minimized.
How can this be prevented?

In many countries addresses do not exist or street names are similar and this can be very confusing. When another script is used, mistakes can be made during translation. Names of people can be very similar or several families have the same name which can cause a huge mix up.
All this needs to be figured out to reduce the possible mistakes made.

It is a huge task to work out a system that takes all the above mentioned issues into consideration. Therefore, it is advisable to appoint a specific person to fulfil this duty. If this selection can take place in a very early stage and the beneficiaries are identified during the period of tendering for a consultant they can be involved in the design process. This will give them a greater feeling of ownership afterwards. They are the architects of their own house.

2.1 Beneficiary identification process

- When the land is selected the Government should provide a list with beneficiaries from this area which are eligible to get a new house on this land according to the Government's criteria.
- As the correct amount of houses is not known yet this list should contain more names than the approximate amount of houses planned.

- This list should not yet be shared with the beneficiaries in this stage of the operation as not everybody will be entitled to receive a house.
- If no coordination system with other humanitarian agencies is in place, one needs to double check this list with as many agencies as possible.
- Visit all families listed and take pictures of their original house, ruins or land. However, make sure it is the correct place that is pointed out. Check it several times through different people.
    - When these families are living in camps: visit the camps as most of the time several of the listed families will stay in the same camp. Here there will always be people available who can point out the place where everybody was living before
    - When these people already returned to their place of origin there are two options:
        - they are legally not entitled to live in their old place since this zone is not declared safe by the Government. In this case the place of origin is known and these people are entitled to a new house in the relocation site.
        - they are allowed to return to their place of origin. In this case, you will need to find out what the reason is why these people are on the relocation beneficiary list.
- Start making a beneficiary file per listed name with all information available
    - Serial numbers used by the Government: sometimes it can be possible to trace beneficiaries in other lists through this number
    - The correct name of the beneficiary and the names and age of the family members
    - Occupation of all family members
    - Address before and after disaster
    - Information of the assessment you have conducted and compare it with the situation and damage type given by the Government :
        - Where is the land situated?
        - What is the damage to the house?
    - Is their name appearing on another beneficiary list or not
    - If they received any other help and if so, what kind of help did they receive
    - Are they willing to accept the new house or not
- Gather the following information to add to the beneficiary file, this is necessary to find the correct information on the name listed
    - Identity Card information
    - If any kind of donation sheet exists, verify the name of the person on this list and find out his/her relation to the family
    - A police report or any other report that was made after the disaster
    - If possible try to get a survey plan of the land
    - Documents that can prove the ownership of the land, deeds, ownership title, affidavit report…(note that in some cases the owner of the land is the wife therefore it is important to have all the names of the family members)
    - Bills of water supply, electricity supply, telephone,…
- By means of all the above information it is possible to select the eligible beneficiaries
- List the selected ones and get this list approved by the local Government, this list can get published
- The beneficiaries need to get a certain amount of time to hand in their objections officially
- A special committee will look into these objections and will take a decision. This will be the final decision and no further objections will be accepted.
- The final list is now known and in the best case scenario the correct amount of houses is also known. If not it must be mentioned in an addendum to the list that as from the moment the correct amount is known the list will be adjusted. This can be done at the lottery but only if the lottery is done in a very early stage. This would be the best option as people need to know on which site they will get a house. It will also

make sure that they are considered as potential beneficiaries of a house in another project.

2.2 Allocation of houses

The most common way to allocate houses is through a “lottery”. This system is well known by the beneficiaries.
When the beneficiary list is known and the lay out of the houses is final, it is advisable to do this lottery as soon as possible. In this way people can take part in the design process and know which house will be theirs. Therefore they will feel more connected to the whole project.

This system allocates by chance a certain house to a certain family. There is no previous assessment done by the donor nor a questionnaire that has to be filled in.
The house numbers are put in a big barrel and each beneficiary picks a number, this is then the house which will be his.
This system does not take into account any specific characteristics of the beneficiaries. Elder or disabled people can end up on top of a hill. Shop owners can get a house in the very back of the land. Three wheeler owners can have the land with the most difficult entrance of the site. Families who lived next door can end up on different ends of the site..

There are of course some things that can be added to the system to make it a bit more human. This can only be done when the whole community agrees with it, otherwise this will not be successful and it can cause many problems.
A solution could be to form small groups of people who lived together before. The site needs to be divided in areas according to the amount of little groups. This is not an easy solution and will only work if everybody is cooperative.
An easier solution is to make couples and divide the houses two by two. Like this it is possible to keep families together.

These lotteries take place on a selected date which needs to be announced well in advance by a letter sent to all the beneficiaries. This letter contains date and place of the lottery and explains the system. Additionally a lay-out of the site should be added so they can get an idea of the location of the houses with their attached numbers.
This lottery always has to take place in the presence of an official from the local Government, to make sure that this lottery is accepted and approved by the Government.

SRI LANKA

In the case of Sri Lanka the whole beneficiary selection was complex and chaotic. From the beginning the Government of Sri Lanka adopted the house for a house policy. This means that each house owner gets back the same amount of houses that he had before the tsunami. But this would also mean that tenants, squatters, etc would end up with nothing. The system of extended families, where several generations live together in one house (well known in Sri Lanka) was not taken into account. Before the tsunami the houses were adapted to the amount of people living in them. Tsunami houses in relocation however would all have approximately the same floor space, never enough to accommodate an extended family.

This house for a house policy was not an easy policy for humanitarian agencies to deal with, as they intend to help the most vulnerable. This meant that a house owner who owned two houses before the tsunami would get two houses and squatters would get nothing.
As the government was not willing to change their policy, BRC-FL decided to try and select the beneficiaries who were most in need and entitled for a house, the most vulnerable among the house owners. BRC-FL gave priority to people who owned a house inside the buffer zone before the tsunami. Even if people owned two houses before the tsunami, for BRC-FL they were only entitled to one new house. In other words, we made sure that we did not give two houses to the same family.

The beneficiary lists provided by the Government were not checked for mistakes before handing them over to the different agencies. Names ended up on different lists and there was no system among the agencies to check this. Lists were made on request and names were put on lists without verifying with the beneficiaries if they actually wanted to move to a certain site. During the registration process by the DS, beneficiaries could give their preference for 3 different sites. However, the government did not take into account these preferences.

The first beneficiary lists were given to the agencies around October 2005. They needed to be checked before they could be used. There was no time to check each beneficiary according to the system mentioned above because we were under huge pressure to give houses to the people as soon as possible. We tried to collect as much information as possible in the short time we had. We had to inform the DS that almost half of the people on the list were not entitled to get a house. But nevertheless he insisted and a lottery was organized.

To complicate things the Government decided in the beginning of 2006 to change the buffer zone from 100 to 35 meters. This meant that families between 35 and 100 meters could move back to their old land. As later explained in Part III they would get a Government Grant and a top up from different agencies. This system was already in place for people living outside the 100 meter line.

Instead of obliging all the families living between the 35 and 100 meter zone to go back to their place of origin the Government allowed them to chose the option they preferred. If they wanted they could choose for a house in a relocation site and also keep their old house. A lot of these people chose for a house in a relocation site as they realised that in this way they would get two new houses. The Government stated it would take away the original land of the ones choosing for relocation, but until now this has not happened.
However, less houses were needed in the relocation sites as still a lot of people preferred going back to their place of origin.

This meant that:

- the beneficiary identification needed to be done even more secure to make sure that only the most vulnerable families got selected
- as the total number of beneficiaries for the relocation sites went down, a rush started among agencies to find beneficiaries for the houses that they already started building.
- there was room available to take on extended families and squatters

GRUBEBILA

There was a transitional camp on the site before we started the construction. Almost all beneficiaries living in this camp were on the first beneficiary list (established before the change of the buffer zone) and hence entitled to get a house on the Grubebila site. Before we could start construction we had to move them all to other places. This was not a problem for them. They were very cooperative and we built a very good relationship.

After the change of the buffer zone in the beginning of 2006 the list needed to be adjusted by the District Secretary. This did not happen until July 2006 and almost none of the initial beneficiaries were still listed.

Construction work had started in January 2006 and the work was going well. However, the people that had participated in the design of the houses were no longer the people who would get a house on this site.

The whole selection procedure had to be done again. We found out that according to our criteria not all the beneficiaries on the new list were entitled to a house. Discussions went on with the DS until December 2006 when we finally agreed. Only people from the buffer zone who were not entitled to go and live in their place of origin were on the list. On the 11th of December 2006 the lottery was organized. This was two months before the hand over of the houses. The beneficiaries chose to do the lottery per couple as many of them lived next to each other beforehand or they were relatives.

MUDIYANSELAGHE WATTA

As mentioned before the DS of Dickwella insisted on a lottery already in October 2005. The list we got from him only a little while in advance was not thoroughly checked due to time limitation. But nevertheless we told him that almost half of the people did not fit into our requirements of being the most vulnerable. Also at that time we did not know the correct amount of houses so 72 people were selected when in the end only 56 houses were built. This lottery had to be redone after convincing the DS of the need for doing so.

When the buffer zone changed in the beginning of 2006 almost half of the people on the original beneficiary list chose to rebuild their house. Half of the people on the list could rebuild if they wanted but decided not to do that, in this way they would receive a second house. An adjusted list with additional names was given to us to replace the people who voluntarily gave up their place on the list. Most of the non-eligible people on the list were still there. At this time the correct amount of houses was not known as the land seemed to be smaller than expected, some wetlands needed to be fit in. However, we knew the amount of houses would be approximately 62.

We started a thorough investigation of all beneficiaries on the new list. In October 2006 we ended up with a beneficiary list with 37 eligible beneficiaries. This list was shown to the DS and we requested more beneficiaries. It seemed to be impossible to give us an additional list and as from that moment till May 2007 discussions on this subject went on. In the mean time the DS and the Assistant DS from Dickwella were removed from their positions and the new person hid himself behind the fact that he knew nothing, which didn't make progress easier.

Considering how hard it was to find 62 beneficiaries and after being informed police quarters were going to be built on part of the land previously allocated for the project, it was decided to build only 56 houses.

In May 2007 a final list with 56 names was given to us.

The lottery was organized on the 22nd of July in the same way as it was done for Grubebila.

MEDA WATTA

Construction on this site only started in November 2006 due to a court case. Here the same obstacles were encountered as in Mudiyanselaghe Watta. We received the first list in November 2005 but due to the change in the buffer zone a second list was provided in June 2006. While verifying this list it became clear most of the beneficiaries lived together in a village next to the beach within the buffer zone. Therefore this list was quite easy to check. The only problem here was the fact that there were 28 names on the list and we had only 24 houses. With the change of DS in Dickwella the adjustment of this list also took a while but at the 7th of April 2007 we could organize the lottery in the same way as in the previous cases.

3. Selection of consultant

Before a consultant can be selected the terms of reference for the selection procedure needs to be written. This always has to be done according to the law of the country in which the construction is taking place. This is in case the tender will be held locally. If the decision is taken to go for an international consultancy service because the local offer does not fulfil the need, international law applies.

These documents need to be designed by local lawyers who are acquainted with the local or international laws applicable for consultancy services and who have knowledge of RC/RC practices.

When the decision is taken to do donor driven reconstruction these documents need to be prepared and they need to be ready for use within a couple of weeks.

Once the documents are prepared a tender can be published to look for consultancy firms according to the needs of reconstruction.

In case of large reconstruction needs, the better-known and bigger companies will of course be involved. Therefore it is not always advisable to go for the biggest and most experienced firms as they will already be very busy. Their time allocation to your own project might not be to your satisfaction. It is often better to go for smaller firms with maybe less experience in this field but with a lot of enthusiasm and willingness to learn. They will have more capacity and will put much more effort in the project as this will be the only one they are working on. For them it can be a boost for their career.

SRI LANKA

In June 2005 the discussion on the development of the terms of reference for a consultant had been going on for 4 months. Although RC/RC had never undertaken a construction program of this size it was not the first RC/RC construction programme. There was the experience from the earthquake in Gujarat but the documents developed after that earthquake were not used in Sri Lanka.

In August 2005 a pre-selected list with consultancy companies was established. The terms of reference were sent out and interested companies had to send a letter with their intent. Out of these letters RC/RC developed the pre-selected list.
The tender documents were sent to all the companies appearing on this list and they were asked to give a quotation. At the end of August 2005 the first tenders were sent out.
RC/RC decided to divide the country in several areas and the consultants needed to submit their quotation for a whole area irrespective of the amount of projects in this area. This meant that they had to give a certain percentage that would cover the whole area based on the total cost of the projects in that area. So small projects would not be that profitable for them as big projects.
This led to the fact that some consultants ended up with more projects in one area than they could handle, which led to bad management once all the projects got started.
In a small country like Sri Lanka the amount of big consultancy companies is limited. It would have been an alternative option to tender for consultancy per project (and not for a whole geographical area at once). In that case smaller companies could have tendered for smaller projects and the management would have been better taken care of. The argument of the RC/RC was that smaller companies would not have the financial capacity to cover the liability aspect of the contract. When these smaller companies however would only have been involved in smaller projects this would not have been an issue.

All tender procedures for consultants were handled by the SLRCS construction cell. Our only involvement was the approval of the terms of reference and the tender documents. Once there was an agreement on these the pre-selected list of consultants was sent to us and we were asked to select at least 5 firms to which the tender documents would be sent. It is not an easy task to select firms you have never heard about and of whose capacities you are not informed. The only thing that could be done was double check if they were registered firms and ask around if somebody had any experience with these companies. If there were companies who were already very busy these could have been removed from the list.

After tenders were opened, they needed to be checked and compared. This was the responsibility of the construction cell. A comparative bid analysis was made and together with a tender evaluation report these results were shared with the PNSs. Once all documents were signed (see procedure explained below) a consultant was allocated to each area. This meant that several PNSs working in the same area had to share one consultant. After developing the terms of reference and tender, the contract documents needed to be made.

In September 2005 Suchith Mohotti Associates was appointed as our consultant. He was to design, at that time, approximately 500 houses divided over 5 plots of land. The consultancy cost would be 4,8% of the total construction expenditure.
The contract with the consultant was signed per project. This was a time-consuming procedure as several parties needed to sign each contract. The procedure was the following:

- construction cell would send the document to the PNS
- the construction delegate had to make sure that there were no mistakes in the contract
- the contract got signed by the consultant
- the contract got signed by NHQ: Director general SLRCS
- the contract got signed by IFRC : Head of delegation IFRC
- the contract got signed by construction cell SLRCS : Program officer construction
- the contract got signed by the country coordinator of the PNS

For the invoice system the same procedure had to be followed, which meant that the payments could sometimes take a while.

In the meantime we got approval for the Grubebila land so the design phase could start. The same consultant was also going to design the houses for IFRC in the same area. The design for the IFRC site started about two weeks before ours, single storey houses. So to make it easy they decided to use the exact same housing designs for our site although the site was completely different. This was not our idea of proper architecture and in addition to that the local Government wanted more houses on the site than would be possible with this design.
This led to the development of double-storey twin houses. This design was checked with the people who were living in the transitional camp at Grubebila as explained above. By the end of October 2005 we had an agreement on the design and the tender documents for the selection of a contractor could be prepared. During the design phase there was no support from/cooperation with the construction cell. IFRC took over these designs in some of their projects later on. The working relationship with the consultant was good but quite slow. The fact that the consultant needed to develop many designs at the same time might be one of the causes of slow progress.
Once the tender documents were ready a contractor needed to be selected.

4. Selection of contractor

The same procedure as for the selection of a consultant applied.

- Development of terms of reference
- Letter of intent from contractors to get on the pre-selection list
- Development of tender documents
- Selection of at least 5 contractors from the pre-selection list
- Sending out of the tender
- Opening of the tender
- Development of the comparative bid analysis and the tender evaluation report
- Selection of the contractor

The same remarks apply as for the selection of the consultancy companies. The RC/RC only selected large construction companies. As RC/RC frequently allocated the project to the lowest bidder, the same contractors got several RC/RC projects. This meant an enormous workload and a time schedule that was impossible to keep. In addition to this, big companies do not work with their own employees. They allocate the work to different small sub-contractors. The materials are bought by the main contractor and the work gets done by the sub-contractors who get allocated several houses per site. On one site several sub-contractors would be doing construction work at a different speed and with different quality. When this is not well monitored by the main contractor the construction can be of low quality. The more work accepted by a main contractor, the more sub-contractors will be working on the different sites and the less monitoring will take place. Therefore also in this case smaller

construction companies should be considered for smaller projects. One can also consider several contractors for one site with one main contractor for the infrastructure. This will lead to more work for the consultant (with which they will not always be happy) and for the construction delegate, but it is a way of decreasing the cost.

SRI LANKA

Once the tender documents were prepared by the consultant and checked by the PNS they were delivered to the construction cell. A list of 10 pre-selected contractors was prepared and sent to the construction delegate. Contractors could be added or deleted from this list but as mentioned before it is a difficult task to make a selection between contractors you never worked with and whom you don't know anything about. BRC-FL was one of the first PNS to start donor driven construction so there was no comparison possible and we had to trust the construction cell on this. As from the moment they were ICTAD listed there was nothing more to do.

It was notable that after doing a few selections always the same contractors appeared on the list and others were refused. The construction cell was responsible for sending out the tenders and opening the bids. In the best case this whole procedure would take one month.

After the opening of the bids it took the construction cell approximately two weeks to draft the comparative bid analysis and the tender evaluation report. After the necessary corrections were made it took another two weeks before it could go to the tender board for approval.

After selecting a contractor, a letter of acceptance could be made. As from this moment the contractor had three weeks to deliver the necessary documents to the construction cell. Once all documents were received the contract could be made and circulated for signature. This procedure was the same as the one for the agreement with the consultant.

The following time table shows that this procedure is very time consuming. At the early start by the end of 2005 when not too many projects were going on at the same time this procedure was much stricter as there was more time. Once construction was in full swing, it could easily take three months from the date the tenders were handed over to the construction cell until the signing of the agreement. When adding the design period to this, it took easily 4 to 5 months from the start of the design stage to the start of the construction.

	WEEKS											
	1	2	3	4	5	6	7	8	9	10	11	12
Invitation letter to tender												
Preparation of bid by contractor												
Opening of bids												
Comparative bid analyses												
Correction period												
Tender board												
Letter of acceptance												
Delivering of documents												
Signing of agreement												

There was not a lot we could do to shorten this period. In the beginning of 2006 when the Government accused the agencies, and in particular the RC/RC, that the speed of construction was much too low, RC/RC made a few changes to this procedure.

The preparation time for the bids by the contractor was reduced to two weeks and the tender board was held whenever needed instead of twice a week. They also tried to speed up the circulation of the documents so that signatures were collected faster.

From our side we checked the bids before sending them to the construction cell so we could skip the correction period and they only had to make the official documents.

In this way we could reduce the time needed with three to four weeks, although this whole period would still take three to four months.

For future donor driven reconstruction projects one should make sure these procedures can happen much faster.

5. Site supervision and project monitoring

Once the contractor is selected the physical construction can start. This is the most interesting part of a construction project but also the most demanding. Construction activities are certainly different in different countries as each country has its own specific construction methodology.
The choice of materials has an impact on the type of methodology. Also, the quality of construction is not always according to our habits. In some countries they are specialized in 'finishing' so structural items do not need to be straight as this will be "worked away" in a later stage.
Due to the recent disaster the decision can be taken to make small adjustments in the structural phase. Using more reinforcement or doing it in a different way can confuse the mason. The possibility exists that instructions are not always strictly followed which can lead to bad construction quality. Therefore it is necessary that site supervision is taken very seriously. If we want construction to be done according to our standards we have to take responsibility and take on the site supervision ourselves. If there is not enough time to do this due to the fact that too many projects are going on at the same time, an additional site supervisor should be hired. This person needs to be trustful, willing to learn and needs to understand completely what the level of quality is we want as donor. He can go to the sites on a daily basis and report on it. In case something goes wrong, immediate action can be taken. When site supervision is only done on a weekly basis and the consultant has not got the capacity to do it on a daily basis too much time will pass before construction mistakes will be noticed and rectifying these mistakes will be much more difficult.

SRI LANKA

In Sri Lanka there were a lot of problems before we could start construction on our sites.
As the Government had a problem with the slow start of RC/RC reconstruction, pressure was put on the PNSs to at least show that some activity was going on. There was the constant threat that the Government would take away the land.

One of the activities that was undertaken was the induction of a soil test. This was normally the task of the consultant as mentioned before in the chapter on allocation of land.
Several soil investigation companies were invited to give a quotation and the cheapest one was selected. We undertook a soil test for all the sites allocated to us to make sure that we could keep the sites. Nevertheless three of them got taken away as explained above.

At the same time signboards were erected on the side of the road with the information on who was going to undertake construction and who would be the donor. Also, the amount of houses was mentioned on this signboard. As this was done in a very early stage, on none of the signboards the correct amount of houses was mentioned, which led to a lot of confusion in a later stage.

However this seemed not to be enough to convince the Government that construction work would start soon. Therefore we decided to start clearing the land. This decision was twofold. While the site would be cleared of trees and bushes so the contractor could start immediately with the infrastructure work, we tried at the same time to involve the local community, potential beneficiaries.
For Grubebila this worked out very well, as at that time there was still a transitional camp on the site and the people living there would become the new inhabitants of the houses. Therefore, it was very easy to mobilize them. BRC-FL bought the materials used for the clearing and paid the workers a daily allowance. They organized themselves and kept a list of who worked which day. Every other day we went to the site to pay them. This was a cheap way of clearing the land and at the same time the beneficiaries were involved.

For Mudiyanselaghe watte the situation was a bit more complicated as at that time we did not have a clear beneficiary list and nobody was living on the land. We involved the volunteers of the Matara branch for a few days to cover the period before the contractor could start mobilizing. Only a small part was cleared but we could keep the land, which was most important.
Meda Watta was an easy situation. The beneficiary list was almost agreed on, all the beneficiaries came from the same village and they were living together in the same camp. So they were quite eager to start the clearing as they were very anxious to get into their new house.

Grubebila had two additional problems: an old school building was situated up hill and needed to be demolished before construction could start. Also, 72 transitional shelters needed to be moved to another location so the families had a safe place to stay during the construction period.
To demolish the old school building we made a BoQ and tender documents. Seven locally selected contractors gave a quotation and a selection was made. The second half of November 2005 the tender documents were given to the contractors and by the end of the year all buildings were demolished and the debris was removed from the site.
At the same time the 72 families needed to be moved as we were planning to start the construction in the beginning of 2006. Together with the beneficiaries we tried to find the best possible option for each family. As at that time some people already moved out of the camps to go back to their place of origin or to move in with family, the first option we tried was to move some of the beneficiaries to other transitional camps. It was impossible to find empty shelters in existing camps even though people moved out of them. In a very early stage it was clear that people kept their shelter even if they had moved out of the camp already. They came back to the camp only during distributions of household NFIs by different agencies. These agencies did not check if people were actually still living in the camp. It was just a matter of delivering goods and emptying trucks. Other options needed to be investigated. We discovered that many of these beneficiaries had family who was willing to take them in if we could provide the additional space. Then we came up with the idea of moving the shelter to the garden of these families and as an additional help we would restore the existing toilet.
For this task we called in the help of several other agencies who were working in the area. All had a specific task and BRC-FL was doing the coordination. Once again the beneficiaries helped, they were responsible for the first part of the moving process, the dismantling of the shelters.

- American Red Cross donated money for the construction of the slabs
- IOM constructed the slabs and rebuilt the shelters with the recuperated materials from the dismantled shelters
- IFRC repaired the toilets and took care of water supply
- Caritas took care of electricity supply
- Loadstar helped with the overall coordination and gave some extra space for the last two shelters.
- DS office kept track of all the moving activities and listed the beneficiaries

For the beneficiaries who did not have any land to rebuild the shelter we found places in existing camps to do so. However this was more complicated than it appeared at first sight. As there were already people living in this camp it was not a certainty that these new families could move in just like that. To make the moving process smoother IFRC rebuilt the complete water and sanitation system in these camps so all people benefited.
This was not an easy task as almost one year after tsunami we had to explain to the local Government that we were going to move people not to a new house but to a new transitional shelter.

All above mentioned activities were done during the design period and were finished by the time the contractor was selected.

Site supervision is not an exact science so each individual has his/her own way of doing this. Even different sites can require specific ways of supervision. In Grubebila for example the

quality of supervision was not very good at the very start. Therefore we decided to make a file for every house. These files contained pictures and materials of the ongoing construction and got updated every few days. This was very time-consuming however and it was replaced by a report once the quality of construction improved. Nonetheless it was an efficient way of showing the consultant (who hardly came to the site) what was going wrong and it made him change his attitude. These pictures showed what he had missed while he was not doing any supervision and what he would have been responsible for if we would not have instructed the contractor to do it differently.
In a donor driven approach it is the consultant who should be responsible to check the site on a daily basis. He actually should put somebody on the site on permanent basis. However even if that person is present, this does not mean that the construction delegate can leave the supervision to this person. The best way to keep track is writing your own reports next to the ones written by the consultant and take as many pictures as possible. Next to that a site log book is a very good tool. In this book the contractor should note down on a daily basis what the activity of that day was. The site supervisor of the consultant writes down his/here remarks and all other stakeholders who visit the site mention the reason of their visit. Whatever happens is written in that book, for example the day that the reinforcement is checked, the day that samples of the concrete are taken, etc.
This book will represent everything what happened on the site. Make sure you give the good example of writing your remarks down. Otherwise it will be hard for you to convince the others to do the same.
It is always advisable to keep track of the time schedule and try to work according to schedule.

On the construction site special attention should be paid to:

- Metal: small broken stones which are used in concrete, as certain concrete needs a certain size of metal, the bigger ones are cheaper than the smaller ones
- Iron for reinforcement: it needs to be threaded and not smooth plus it should be treated with rust prevention
- Reinforcement: before pouring the concrete the reinforcement needs to be checked by an engineer appointed by the consultant
- The mixing of the concrete needs to be done as described in the BoQ
- The way the shuttering is placed is very important for the correct covering of the reinforcement and the quality of the finishing later
- Make sure that all items are in place during construction or before the plaster phase, water supply, electricity, etc. .
- Treating wood and timber with several products. Make sure they have a colour to make it easy to check
- While rendering and plastering outside walls (all mistakes can be covered) make sure that not too much gets covered.

One very important item to keep in mind: sometimes people don't see the necessity of having a certain order in the way a house is constructed: inside walls get painted while the roof is still not finished, floors get rendered while the electricity is not yet in place, outside wall get plastered while the water supply net is not connected yet, etc.
Bringing an order in the different construction items is a big task and will not always work but it should at least be tried. This is very important: nice rendered floors can easily be demolished if needed but it will take ages to get it fixed and it will never look the way it looked before.

6. Contracts, invoices, variations and extra work

There are various types of contracts with a contractor[5]:

- Lump sum contract:

[5] The FIDIC Forms of Contract, Nael G. Bunni

The employer wishes to accept the least amount of risk with respect to quantities. It is sometimes referred to as a fixed price contract, since a duty is imposed on the contractor to carry out all the work included in the contract documents for a fixed specified tendered sum. This type of contract is useful when the quantities are expected to remain unchanged. Thus the contractor is made responsible for all the costs necessary for the completion of the work. However, despite the fixed price nature of this contract, there are a number of grounds on which a contractor can claim extra payment. If the drawings and contract documents do not accurately describe the work, or if they make provision for specific alternations, the contractor would be entitled to be paid additional sums. Payment is usually made at pre-determined stages related to the extent of progress achieved on site. The BoQ can be added to this kind of contract for analysis of and comparison between the tenders submitted, used as a base for valuations of variations and for the purpose of interim payments.

- Re- measurement contracts or measure and pay contracts:
  In this category of contract the employer accepts the risk of variation in the quantities originally estimated and in some of the rates and prices tendered. There is no warranty by the employer that the quantities measured in the BoQ are accurate. Compensation for any unexpected differences in quantities should be paid for on precisely the same basis as that already used in the tender and not as a variation ordered by the employer.
    - Contracts with a bill of quantities (BoQ): From a detailed analysis of the design calculations, specifications and drawings, the project is divided into its constituent trades and types of activities to be performed. Each constituent trade or activity is subdivided into discrete items, compiled into a bill, with a brief description attached to each item of work to be done. Quantities for each item are calculated from the drawings either precisely, where possible, or estimated where not. Whatever method is chosen for the selection of a contractor, he would have entered, when tendering, a unit rate or price against each of the items in the BoQ. The price of the contract is then calculated by adding the extended price bills. Accordingly, the purpose of the BoQ document is as follows:
        (a) Where tenders are sought by employers, the cost of tendering is reduced by having these bills prepared only once on behalf of the employer. The alternative would be for each of the tenderers to compute his own quantities, which would be very costly and would increase the time allocated for tendering considerably.
        (b) Where tenders are sought and received, the BoQ is used as a basis for analysis and comparison between the tenders submitted. Such analysis is essential since, for the experienced engineer, it can be quite revealing to scrutinise the rates and prices inserted by the tenderers and thus establish the intentions and the capabilities of the tenderers.
        (c) The BoQ is used as a basis for valuation of variations, if they occur, during the construction period. This benefit, however, may often depend on a schedule of make-up rates and prices being submitted by the successful tenderer after appointment but before he is permitted to commence work on site. The make-up of rates and prices should identify the cost of mobilisation, labour, material, plant, construction equipment, overheads and demobilisation. It should also include the make-up of any preliminary items which are incorporated in the bills.
        (d) The document is also used as basis for valuing the work executed by the contractor during the construction period for the purpose of certification and interim payments.
        (e) The BoQ is used at the end of the contract as a basis for re-measurement of the various items of work executed and for valuing the final contract price.

- Contracts with a schedule of rates: where the design of the permanent work is not sufficiently developed for a bill of quantities to be compiled and where the work is urgently required, it may be possible to have a contract based on a schedule of rates. This type of contract leaves to the end of the contract period the task of establishing which of the items of work was carried out and the respective quantities. No quantities are given in the schedule rates. Instead, the tenderers are invited either to quote a percentage to be added or deducted from rates previously entered by the engineer, or to enter their own rates to the various items of the schedule.

- Cost-reimbursable contracts:
  In this category of contract, the employer essentially accepts the whole risk of carrying out the works. The contractor is reimbursed for the actual cost of carrying out the work plus an additional amount of money in respect of profit. This may be done on the basis of the following:
  - cost plus percentage fee contracts
  - cost plus fixed fee contracts
  - cost plus fluctuating fee contracts; and/or
  - target price contracts

  In all of these contracts, very detailed and extensive day-to-day professional administrative services are required to check the quality and quantity of work done.

The choice of contract usually depends on the country where the work is done. If the drawings and the description of work is properly done by the consultant a lump sum type of contract is possible and will be preferred. However, as this is usually not the case and during construction changes are made, calculation of variations have to be made anyway. If at that time the lump sum contract is made without BoQ the quotation for the variation has to be asked for and no rates exist to compare.
The measure and pay option with BoQ is usual the best way to go. The BoQ needs to be made by the consultant and given to the contractors as part of the tender. It is an easy system to follow up the construction work in each stage and to do the attached payments. Variations are an inevitable part of construction as changes will be made during construction. In all of the mentioned contracts above variations or extra work need to be paid for, the measure and pay method is the easiest to keep track.

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A lot of discussions proceeded the decision on the type of contract with the contractor. A lot of people took part in the discussions, hence many different options were proposed. Due to the situation in Sri Lanka and the level of difficulty of the different projects, the decision was taken to use a measure and pay contract with BoQ. Later on it seemed that this was the best choice. The consultant had to design too many projects at the same time and practised the copy paste method for the designs of the houses. He did not always take into account the fact that foundations are different according to the soil. Drawings were not always changed according to the situation. When this was mentioned to the consultant the answer was that this would be changed during construction. This is the reason why we decided to go for measure and pay type of contracts. Local engineers working for RC/RC knew that this was the way construction works in Sri Lanka. Therefore it is very important to adapt the contract to the local way of working.
Drawings were adjusted and BoQ's were recalculated by BRC-Fl but this was only possible to a certain level and variations would be unavoidable. As mentioned above variations are a normal part of the BoQ and need to be incorporated in the contract amount. But there is one thing that should be done to keep track of all variations throughout the project.
Per item the used quantity needs to be added in plus or minus. This will add up in the end to a total per item in plus or minus. The rate per item remains the same also for the variations.Therefore it is best to add these variations per invoice in a separate column at the

end of construction. When the last invoice is made all columns can be put together. It is very important to keep the original BoQ unchanged so the variations will be already visible during the construction period. When there are big changes they can be tracked immediately and be investigated. This way the variations are part of the original contract but can be tracked easily.

For extra work the chosen method does not really matter as for both options this cost needs to be added separately and rates do normally not exist. As there are no rates for extra works mentioned in the contract, you need to ask for three quotations when the extra work amounts to less than 10% of the total amount of the contract and you need to re-tender when the extra works amount to more than 10% of the contract value. If the rates exist this additional work is a variation and not an extra work.
In reality the contractor on the site needs to give a quotation for this extra work. This needs to be compared with the general existing rates at that time and probably his rates will be nicely within this range as it will be more profitable for him to do the job himself instead of tolerating another contractor on the site. This is also the best solution for the client as otherwise problems with liability could occur.

7. Electricity, Water supply and Sewerage

It seemed that a lot of agencies who worked in tsunami projects did not pay attention to the extremely important issue of water of sanitation or they realised the importance of it too late.
What is often forgotten is the fact that houses need to be connected to the public water supply net and that they need to have an acceptable sewerage system. The fact that local people do not want to invest their money in an acceptable sewerage system is understandable as they did not have it before. Agencies however who assume to have the knowledge and the money to do so should know better.
In some new relocation sites the sewerage system is not adapted to simple technologies as a septic tank. The old system of a toilet directly connected to a soakage pit is still used. This means that all the solids soak directly into the soil. On the relocation sites houses are put quite close to each other and faeces will pollute the soil very quickly. For the grey water no solution is given as most of the time the houses are not connected to the public water system. Once connected the beneficiaries have to look for their own solution for the grey water. Their solution usually is to give it directly to the plants. This can only be done if the water has had a minimum retention time of 24 hours.
In other relocation sites complicated systems like centralised waste water treatment systems are installed. The black waste water goes from the toilet in a manhole. All the manholes are connected with a pipe system to the series of connected tanks. These tanks clean the waste water before releasing it back into the environment.
The system itself is acceptable but there are a few issues that need to be considered before installing this kind of system.
The pipe system needs to be installed perfectly as broken pipes or ill-connected pipes can cause a lot of unpleasant problems.
The system needs an important amount of electricity to be operational. Who is going to pay for this? There is no public authority which is going to take the responsibility of maintaining this system. The running costs and maintenance costs for this system are too high.
What makes a good waste water management system? There is no good or wrong answer to that. All depends on the amount of money available, the knowledge present to design and maintain a system and - very important - the condition of the soil.
A crucial point is that this needs to be taken into account from the very beginning. The design of the sewerage system needs to be done simultaneously with the design of the houses.

It is not always easy to connect the houses to the public water system.
When relocation sites are not bordering a main road the water supply net is most of the time not present in the area. This means that for drinking water people are using private wells or tube wells installed by the government.
In many cases agencies end up by paying for a public water supply net for many kilometres. This was not always incorporated in the original budget.

Therefore it is very important as mentioned in chapter 2 to select a land which is very well situated to avoid unnecessary costs.

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Electricity:
In the south of Sri Lanka the electricity on all new relocation sites was provided by the Ceylon Electricity Board sponsored by STAR. This NGO was responsible for the total cost of the installation of an electricity connection to each new relocation site, the installation of the transformer, the columns and cables in the streets and the connection with meter to each house. The only cost for the beneficiary was the bond for the meter, which would be refundable if he would move or sell the house.
Even though it was not the task of BRC-FL to connect the houses to the electricity net, the aim was to connect the houses before the hand over in the beginning of February 2007. In November 2006 we started to encourage the electricity board to start the work on our site but they were overloaded with work and kept postponing their visit. Finally they finished the work the day before the hand over.

Water Supply:
It was the donor agency of the tsunami resettlement site who was responsible for the connection to the public water supply net. The donor agency had to pay and the Ceylon Water Board would do the installation of the net and the connection to the individual water meter of each house. In some areas there was a need for a water tower because the pressure on the public network was not high enough and/or the water supply in the area was only done every other day so water needed to be stored at the site. The water tower and pump house with sump needed to be constructed by the donor agency. The connection and the future maintenance would be taken over by Ceylon Water Board.
In the entire district of Matara American Red Cross funded the public water supply net of all relocation sites. They worked together with a local consultant for the design and the Ceylon water Board executed the work.
Also the Water Board was overloaded with work. They also finished the individual water connection and the installation of the water meter a few days before hand over.

Sewerage:
In an early stage this was taken into consideration by BRC-FL. As American Red Cross was looking for additional projects to fund and since they were already involved in installing toilets and sewerage systems, BRC-FL decided to work together for all our relocation sites.
Amcross would be responsible for the design and technical advice of the sewerage system.
The correct way of designing the sewerage was discussed in depth before a decision was taken. Still some mistakes were made on the first relocation site. For the other sites we learned form our mistakes and we kept on improving the system.

- In Grubebila we chose a double system. The grey water of each house was collected in a grease trap of 1 m3. From there it was led through a collection system to end up in a subsurface wetland. This wetland cleared the water until it was sufficiently clear to be released into the environment. The black water of each house was collected in a pre-cast septic tank. From here the partially cleared faecal water went into a seepage trench of 7 meter length, from where it could soak into the ground. The system of a seepage trench was preferred above a soakage pit because the groundwater level on this site was extremely high. It was estimated that a soakage pit would not work because of the high ground water level which would prevent the faecal water from seeping away. A crucial issue which had not been sufficiently considered was the fact that due to this high ground water level even seepage trenches, situated approximately 40 cm under the topsoil, do not work properly in the rainy season. During the monsoon seazon the ground water level reached the top soil. After a few months action was taken to fix this problem. Different reparing measures were taken to try and fix the problem:

- septic tanks were put half way above the ground, this would make it possible to lift the seepage trench 20 cm which kept the trench longer in the dry area of the soil.
- longer seepage trenches were installed, so that the water had more time to seep into the ground
- additional seepage trenches were installed, next to the existing ones new and long seepage trenches were put into place to drain the surrounding area
- outlets of seepage trenches were connected to the grey water collection system, in case they got stuck, the faecal water would flow to the wetland. However this was not possible for all seepage trenches as the surface of the wetland does not have the capacity to process grey and black water of 51 houses and there was no additional space to create a new wetland.

1. With the lessons learned from Grubebila in mind we started the second relocation site of Mudiyanselaghe Watta. The soil was completely different, it was sandy soil which normally means that the water would seep in quite fast. However some areas were refilled with another type of soil, creating at certain locations the same problem as in Grubebila. Since there was enough space available to make several wetlands. we went for a different solution. The grey water was connected to a grease trap of 1 m3. From here it went through a collection system to end up in a subsurface wetland. The black water was led through a septic tank and from here it was sent to a seepage trench.In this case all the outlets of the seepage trench were connected to the same collection system as the grey water and also ended up in the wetland. Because the outlet of the seepage trench was connected to the collection system and since the site mostly consisted ofsandy soil the faecal water is supposed to seep into the ground quite fast, it was decided to connect two houses per seepage trench. This lowered the total cost of the sewerage system.
   Due to small difference in the level of the land which was almost flat three wetlands were installed and situated in such a way that each dealt with 1/3 of the houses. The level of the the collection system's pipes had the highest possible slope. Initially the sewerage system for black water would provide with one bio cell for two houses instead of septic tanks. In this case no seepage trenches were needed since the faecal water from these cells was clean enough to go directly to the wetland. But due to slow production of these bio cells (only one company in Sri Lanka was producing them at that time, with a speed of 4 per week) we were not able to purchase 26 cells within the limited time left.

- In Meda Watta the construction was happening at the same time as Mudiyanselaghe Watta. Here we combined and finalized the system we had been working on in the two previous sites. Positive about this site is that the houses were built on quite a steep slope and were located in such a way that the faecal water ran down hill from one higher positioned house to the other situated below. The system with one grease trap and one bio cell per two houses was applied. A collection system with a high slope collected faecal water, taking it to two subsurface wetlands. From there the cleared water was released into the environment.

The last option seems to be one that is working very well. One year after hand over the system seems to be working perfectly. The maintenance of this system is also easy to handle. Each grease trap needs to be cleaned out twice a year and a normal working bio cell should be cleaned every 5 years. A septic tank needs cleaning more often as the volume is smaller and more slug stays behind filling the tanks quicker. A bio cell on the other hand digests most of the slug. When the slope of the collection system is large enough, not too long and when there are enough inspection holes, no problems should occur. The maintenance of the wetland is easy and can be done by one person of the village once a month. Maintenance training was provided by American Red Cross on all sites. In all cases one person was trained in checking the in and out let of the wetland once a month to see if there were no blocks.

Every three months the whole community was cutting the reed of the wetland and did the general cleaning. When the people of the village understand the importance of a good working wetland they understand the need of keeping it clean.

8. Defect liability period

Once the houses are handed over to the beneficiaries the defect liability period starts. In this one year period the consultant and contractor are liable for all construction defects. At the end of this year all defects need to be rectified before retention will be paid back.
It is the consultant's responsibility to manage the inspection and the final hand over process, but the client can have a presence (usually through the PNS or IFRC).
It is advisable to visit the housing site somewhere halfway this period to make sure that there are no major problems. If there are they can still be fixed before the end of the period. After rectifying the defects at the end of the defect liability period all house owners need to sign a document releasing the contractor of his duty of fixing additional defects in the future. As from this moment the beneficiary will be responsible to maintain the house and repair defects.
The system developed by risk management to follow up the projects at the start of the defect liability period is the following:

1. Any minor defects: contractor to finish off with inspection afterwards. Construction cell to 'encourage' contractor to do the work - preparation and issuing of defects list - completion of outstanding works and rectifies defects 2. If the contractor refuses to fix the defects the 2,5% retention will be withhold and a small contractor will be asked to rectify the defects. 3. Consultant survey to confirm the rectification of damages. More than one consultant survey would be required if defects are still not rectified.	Survey by consultant (optional for PNS/Construction cell)
Approximately 6 months after hand over: Optional informal courtesy visit. Look around and make contact with beneficiaries. (Can encourage beneficiaries to make more claims)	Consultant
2. Final joint survey (about 10 months after hand over). All parties mobilized and visit the site together. All houses inspected and list of defects made for contractor to close out. 3. Minor defects: construction cell (or PNS if present) must 'push' consultant to 'push' contractor to complete. 4. If the contractor refuses to fix the defects the 2,5% retention will be withhold and a small contractor will be asked to rectify the defects. 5. Major defects: unlikely in a normal housing project (same solution as above) 6. Major defects (above 7,5%): very rare especially for housing. It would probably be a consultant design fault. 7. It would involve the consultant's professional indemnity insurance, and, could result in arbitration, or even a court case. 8. If necessary , another final survey is done to confirm rectification of defects.	Joint survey by PNS (or PNS HQ), consultant, Branch, construction cell, beneficiaries
NOTE: DLP is over when ALL defects are corrected –	

even if that takes longer than 12 months	
Beneficiary confirmation of satisfaction by signing form accountability When beneficiary is not available to sign a representative (e.g. whoever is living in the house) can be assigned	
1. No Claim Certificate from contractor. 2. Release of retention money to contractor 3. Agreement between construction cell & PNS for finalization of payment to contractor 4. Inform insurance company to release 5% performance bond. ACTION: Must decide WHO will be holding the funds if the PNS has left the country? If funds not held by PNS, is PNS authorization needed when releasing the funds? And how is this given when PNS is out of country? No Claim Certificate Issued by contractor Performance Certificate Issued by consultant Release of retention to contractor 1. No Claim certificate from consultant as above 2. Release retention to consultant	Contractor/consultant, Programme officer construction/risk management/PNS (if present)
Releasing Insurance Liability	Risk management Unit
Defect liability period finished	
Land deeds to beneficiaries Arranged by GoSL	District secretary

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At the beginning of the defects liability period a document with all information was prepared for each project. This document mentioned information on the consultant, contractor, project cost, the last defects detected and fixed before hand over, data of other stakeholders and information on retention. During the defects liability period new information was added to this document. This document was prepared for the construction cell so they could take over the follow up of the defects liability period. In reality this was handled by the BRC-FL construction delegate. A checklist was prepared for the final check just before the end of the defects liability period. After rectification of all remaining defects, this checklist was used signed by the beneficiaries. The beneficiaries also needed to sign the acceptance letter. At the time of signature the beneficiary agreed with the condition of the house and took responsibility for it hence forward.
A separate file was kept per project with financial information, additional reports, and forms signed by the beneficiary after final check up.

9. Land deeds

Since the land belongs to the government, title deeds present a complex problem in donor driven housing.
The houses belong to the Government as long as there is no clarity on the way the deeds will be provided. This initiative has to come from the Government but even more then one year

after hand over nothing has happened on this issue. Centre on housing Rights and Evictions – Sri Lanka (COHRE) made a guide on the various types of property rights (rights over housing and land) in Sri Lanka. They also made a booklet on "gender sensitive guidelines on implementing the tsunami housing policy".
Important guidelines which must be taken into account concerning land deeds are explained in this guide written by COHRE[6].

Ownership and possession

- Ownership is a legal term. It means that a person has full rights over a piece of land or property. Having full rights over a piece of land means that the owner can do anything with the piece of land, as long as this does not break any laws. The owner of a piece of land is shown on the title deed. This is a document which can be registered with the Land Registry. Registration of the title deed serves as evidence of ownership in case any un-clarity arises over who owns the land.
- Possession is another legal term. It means that a person has control over a piece of land, but is not the owner. For example a tenant: he is only allowed to use the land under the terms of the tenancy agreement.
  When a person lives on government land (as in the case of the donor driven tsunami houses) he can use the land only according to what the agreement with the Government says. Usually this means the person living on the land cannot sell or rent out the land or the house on the land. Or it can mean that a person can only farm on the land but cannot build a house or live there. Possession can also be formal (for example by permit holder) or informal (for example by a squatter). Informal possession means that the person has physical control over a piece of land, but may not possess a legal document. However, a person who is squatting still has many rights, some under national and some under international law.

This distinction between the full rights of ownership and the limited rights of possession is important because of the different ways in which land is used in Sri Lanka. Many people live and work on land that they do not own. People have permits, grants or leases, or they are squatting. All these types of property rights give them certain rights to use the land. But using land under a right of possession also means that the use is restricted in certain ways.

Different types of property rights

1. **Private land ownership**
   The title deed proves that a person is the owner of a piece of land. To obtain a title deed, a notary public needs to write and certify the relevant deed. This deed can be registered at the Land Registry.
   A person can become the owner of a piece of land in different ways. Examples include buying a piece of land, receiving it as a gift, by inheritance, or by claiming prescription. The owner has the exclusive right to possess, use and transfer the property. The owner can use the land and any building on the land as he pleases, as long as he does not act against the law. This includes the right to rent or lease out the property to somebody else, or the right to sell the land.

2. **Permits (Government lands)**
   A permit is a document given by the Divisional Secretary of the Deputy Land Commissioner. It authorises the permit holder to use a piece of land for a certain period of time. Permits always contain conditions about how the land can be used, which the permit holder has to follow. The permit can be cancelled if the permit holder does not comply with the conditions.
   - Annual permits (State Lands Ordinance)

[6] Guide to types of property rights in Sri Lanka

The rights of the permit holder are stated in the permit and are usually given for the purpose of agriculture. The permit holder has to pay every year for the permit. These permits are meant for low income families, the fee should be affordable for them. The Divisional Secretary issues the permits under the State Lands Ordinance and determines the amount that has to be paid each year, based on the location and size of the land.

- Land Development Ordinance permits
  The permit is given for a certain period of time and on the condition that the permit holder develops the land as specified in the permit. Permits can be given to use the land for agriculture, or to live on it, or for both. The land cannot be sold or rented out to others. The permit holder can nominate a successor from his/her family who shall inherit the permit in case of his/her death. The Divisional Secretary issues the permits.

3. Grants (Government lands)

The state can give land to people by way of different grants. Usually, grants are given out to people who have held a piece of land under a permit for some time. Grant holders have almost the same rights as owners of private land.

- Ranbima Grant (Land Development Ordinance)
  Usually, people are first given a permit under the Land Development Ordinance. This permit can be changed into a Ranbima Grant. Permit holders can apply for a Ranbima grant if they have developed the land in the way described in the permit and when they have paid all the fees connected to the permit. A successor can be nominated.
- Grants under the land Grants (special provisions) Act
  Under the Land Grants (special provisions) Act, the President can grant land held by the Land Reform Commission. Grants are usually given only for residential purpose. Grant holders have the right to make improvements on the land as long as they are connected to living on the land. A successor can be nominated.
- Grants under special circumstances
  Under special circumstances, the state can make special provisions to give grants to people who need land. This has been done after the tsunami, where tsunami affected families were given grants under a Presidential Directive. It may be that these types of grants are given in other areas as well, such as for conflict IDPs, if a large number of families urgently needs land to recover their livelihood.
- State Land Ordinance Grants (Tsunami)
  The Land Commissioner General issued special land grants to tsunami affected families under the State Land Ordinance based on a Presidential Directive made after the tsunami. Those who think they are eligible for a grant for tsunami affected families should contact their Divisional Secretariat. The rights of the grant holder are stated in the grant. Usually, the land given by grant under the State Land Ordinance after the tsunami can not be sold for a period of 10 years. Apart from that restriction, grant holders have the right to use the land for any lawful purpose. After the 10 years period is over, grant holders acquire full ownership over the granted land.
- National Housing and development Authority grants (Tsunami)
  After the tsunami, the National Housing and Development Authority issued grants over state lands to tsunami affected families.

4. Leases (Government Lands – State Land Ordinance)

The Land Commissioner General issues long term leases of government land under the State Lands Ordinance. The Divisional Secretary will charge the rent from the applicant and then give the land to the applicant. Leases under the State Lands Ordinance can be given for residential, agricultural or commercial purpose. Usually, the lease is given for a period of 30 years and the lease holder must pay the lease

every year. The lease holder is not allowed to sub-lease the land to somebody else without the permission of the Land Commissioner General.

5. **Informal Settlements (Squatting/Encroaching)**
   In some cases, the Urban Development Authority issues cards to informal settlers who live on land for which the Urban Development Authority is responsible. In many other cases, informal settlers have not been given any formal documents about their housing and land by authorities. However, many other documents can be used to help protect your rights to adequate housing. The cards serve as proof that a family lives on public land. The card proves that the family has possession over the land and the house they live in. It notes details of the land and building at the time the card was issued. The card cannot be sold or given to somebody else. However, parents can give the cards to their children with the approval of the Urban Development Authority or the National Housing and Development Authority.

Claiming of land

1. **Acquisition**
   Under certain circumstances, the State can acquire private land from owners. The land Acquisition Act is the main law under which the State can acquire private land for public purpose. Following is a short explanation of the acquisition process under that Act:
   - The Minister of Lands earmarks a piece of land for acquisition and a notice is put on or near the land;
   - People affected by the notice can object to the acquisition or declare any grievance within the time specified in the notice. The Ministry of Land should consult with those affected, try to accommodate their concerns and decide on whether to acquire the land;
   - If the Ministry decides to acquire the land, those affected can claim compensation;
   - Should the landowner believe that the compensation offered is inadequate, the landowner can appeal to the Board of Review and, if unsatisfied with the decision, to the Court of Appeal;
   - Should the Ministry make no provision for compensation, the landowner can appeal to the District Court within 14 days;

2. **Prescription**
   Under the Prescription Ordinance, private land can be claimed by others under certain circumstances. Prescription can occur if a person is in possession of another person's land for a minimum of 10 years. Possession must be undisturbed and uninterrupted by the occupier and adverse to the title of the owner. The rules for when prescription can occur are set out in the Prescription Ordinance.

LAND RIGHTS FOR TSUNAMI VICTIMS IN SRI LANKA

Still no decisions are taken by the Government on how to solve the land deeds issue for tsunami donor driven housing projects. The beneficiaries received from the RC/RC certificates which state that the house is given to him/her by the RC/RC. This document is signed by the Divisional Secretary but has no legal status. One of the above mentioned Grants systems should be applied to the donor driven housing projects. Until this is done the house can be taken away from the beneficiaries by the Government. This gives a lot of uncertainty to the beneficiaries. According to the law they are at present time not allowed to rent out the house or to do changes to the house. In reality this is happening already which can cause problems in the future.
Another critical point that should be looked into at the same time is the discrimination concerning inheritance.
The grant holder can nominate a successor from his/her family who shall inherit the grant in case he/she passes away. If no successor is nominated, grants are inherited based on a

procedure specified in the Land Development Ordinance (called the "procedure of the third schedule"). This procedure is discriminatory as it gives priority to males over females. This means sons will inherit more than daughters if no successors are nominated. Grant holders should be encouraged to nominate a successor when they receive the grant.

In addition to this, as the land deeds still have to be issued the conferring of joint ownership of state land has to be worked out. In the law there is no prohibition on the conferring of joint ownership of property. It has emerged as a practice merely for administrative convenience[7].
The following are some general gender sensitive guidelines to be followed when allocating land and cash grants to those affected by the tsunami under the RADA Tsunami Housing Policy April 2006. They have been formulated on the basis that joint ownership of state land can be granted under the law. Divisional Secretaries and District Secretaries should be instructed to look carefully at previous ownership in every case to ensure that women are not discriminated against. It is also important to engage in a consultative process with the community and other interest groups in order to ensure transparency and non arbitrary decision making.
Three principles should guide the allocation of property to those affected by the tsunami:

- Where the title to land previously owned is not at issue- new land title should be given to the previous land owner/s;
- Where the land was encroached upon- new land title should be given in joint ownership to both spouses, unless there are compelling reasons to do otherwise;
- Where previous ownership is disputed or unclear or where both spouses have contributed to the previous property the DS must have the discretion to give new land title in joint ownership to both spouses.

There should be an explicit rejection of the "Head of the Household" concept, it is merely an administrative practice that has been followed without question. Households and families should be seen as being 'run' or 'administered' jointly. There should be no single head of the household.
The policy of the state is the allocation of a house for a house regardless of ownership. This means that encroachers too have a right to a house. When allocating land and property to encroachers, the head of the household concept should be rejected as it results in discriminating against women.
The entitlement to land grants comes in two stages. The first is a Gift Certificate for the land, issued by the Divisional Secretary (DS) and the second is a Land Grant signed by the President under the State Lands Ordinance. At present only the first step is underway.
The DS must verify who owned the land/house previously before issuing the gift certificate. There have been cases where even though the women owned the land/house previously the new housing certificates had been given in the man's name. This has lead to women losing land rights which they previously held.

10. CONCLUSION: Can donor driven become more owner driven?

Donor driven housing construction implies that all responsibility will be taken by the donor and there will be little involvement of the future owners.
As explained before this decision should only be taken when there is no option of working in an owner driven way. This applies when the risk of future hazards is high or middle high and relocation is the only option, or when the local community is not in the possibility of building itself due to external reasons, e.g. lack of materials, no culture of self building, no capacity.

Liability is a complicated matter for donor driven. As the future owners are not involved, the donor carries liability which will be passed on to the consultant and contractor.

[7] Gender sensitive guidelines on implementing the tsunami housing policy – Centre on Housing Rights and Evictions

To make the donor driven approach more owner driven, in other words to speed up the process, a few issues need to be kept in mind which all come down to liability in the end.

Every donor driven housing construction project starts with the selection of an architect, engineer or consultant, since a design needs to be made. This design can be made by the construction delegate but a local architect is needed to submit this design to the local authorities. It is however questionable if this local architect will accept liability for a design he did not make himself. Also it is not the designing which is time consuming, but the tendering process to select a consultant. Therefore, asking the construction delegate to do the design won't help in speeding up the process, since a consultant needs to be selected anyhow.
Once the design is finished the BoQ needs to be made. This could also be done by the construction delegate but since every country has his own way of using and describing materials, it will take time for the construction delegate to get acquainted with these methods. A local consultant needs to take responsibility anyhow, since a construction delegate has no legal status. Time could be saved by letting the construction delegate draft the BoQ. However it still has to be checked and approved by the local consultant as he is not going to take any responsibility for a BoQ that is not made by himself. Of course the architect, engineer or consultant has to agree with this alternative cooperation method.

A contractor is liable for the work he delivers. The main problem experienced is that the consultant was not dedicated in following up the work on the site. Deciding to replace this consultant by an engineer who would handle site inspection would cause a lot of problems with liability. It is not easy to find an engineer willing to follow up the work designed and calculated by somebody else. In addition, this engineer has to be independent as he will take over the liability of the site. An independent site engineer can be hired by the client to undertake additional supervision but can never replace a consultant as one company would get replaced by another.

The time consuming part of the donor driven housing construction is the tendering process. Once this is finalized construction can take place at the same speed as owner driven construction. The fact that the tendering was centralised slowed down the process. The start of the donor driven construction was slow but once contracts were signed and materials were on site, construction moved ahead at a good speed, with 50 houses being built in one year.

However, the choice between donor and owner driven construction should not be based on speed of construction but on the determination of risk, the selection/capacity of the beneficiaries, local construction principles and the selected construction type. Speed is not an issue, the satisfaction of the beneficiaries is. And this satisfaction of the beneficiaries is of course the final objective of any donor.

IV. OWNER DRIVEN INSITU APPROACH

1. Movement Response in House Construction

Sri Lanka Red Cross Society had taken the responsibility of implementing 15% of the national program i.e. to build 15,000 houses and facilitate the means of living within a period of three years. The required suitable land and physical infrastructure would be provided by the Sri Lanka Government. Every PNS had chosen one or two Districts to work in.

The relocation program was meant for people living within the 100 meter zone. The government would replace all the houses situated in this area to make sure that all these people would have a suitable house to live in. After the introduction of the revised buffer line, the owners of a house within this area would have the right to choose between a new house by a donor agency or to rebuild their damaged house on their own land.

1.1 Direct PNS Implementation

In general, many PNSs were hesitating to work on an owner driven basis and there was no real cohesion between the different implementation strategies. This was due to several reasons:

- Due to the escalation of violence in the country, Sri Lanka could be split up into two areas with different problems: the North/East and the South/West. When the conflict in the North escalated, one of the biggest problems the PNSs faced was the accessibility of materials (cement, bricks, etc). In the South, although it was much easier to implement, there were other problems which delayed implementation: too many donors, corruption, etc.
- Secondly within the Movement, there was no set of documents which facilitated harmonisation of all owner driven programs.

From the beginning BRC-Fl was hesitating to work together with the partnership. This process took a couple of months and due to the following reasons BRC-Fl decided to implement the owner driven part directly in the area of Weligama (Matara District).

One of the main reasons is that BRC-Fl had important links to Weligama from before and after the tsunami. The Belgian consul and partner of LOADSTAR was based in Weligama and a close collaboration during tsunami projects was established (owner and donor-driven housing). BRC-Fl was also implementing the (re-)construction of two hospitals and one donor-driven site in the same area. Furthermore the Belgian Army was widely present in the area after the tsunami, cleaning up the whole area in Mirissa and Weligama bay.

Secondly after making a thorough evaluation of the UN-Habitat program in Galle, a lot of constraints were found within the program. Rather than building quality, sustainable and urban planned houses, the reality showed rather different. This is a summary of the most crucial comments and questions.

- There was no adequate technical back-up to the project. One engineer would be in charge of around 900 houses. Although they used CHM's (Community Housing Mobilizers) and transferred their money through a CDC (Community Development Councils), the quality of the work could not be guaranteed.
- The CDC's itself were closed networks and had too much power. Were they truly elected by the community? A good control on UN-Habitat top-level and more direct power to the individual community members could have been an option.
- In the proposal of UN-Habitat nothing was mentioned of who would be checking the government beneficiary lists. Were the CDC's responsible for this? Were there any criteria?

- There was no mention of any Watsan activities. These are as important as the housing construction, because only then sustainable communities can be formed. After visiting one of their projects in Galle, it was clear that one of the major problems was a lack of infrastructure for water and sanitation: many houses would be surrounded by black water coming out of the soakage pit.
- The top-up of 250.000 LKR wouldn't be enough to finish a 500 sq feet house. Therefore quality would be less and could result in major problems (no tiebeam, no plinthbeam, bad water and sanitation, etc.)

Thirdly the scale of the program wouldn't be large enough for the partnership to start up a project in Weligama area. The CRRP partnership was still in it's start-up faze and time was a major issue.

2. BRC-F Response

2.1 Summary of Concept Paper and Initial Proposal

Following the tsunami of December 26 2004, the Government of Sri Lanka [GoSL] signed an MoU with the Ministry of Finance and Planning and the Swiss Agency for Development and Cooperation [SDC], to assist families that lived outside the buffer zone to rebuild their houses under a Cash for Repair and Reconstruction Project [CfRR]. Houses were divided in two groups – partially and totally damaged houses – and given a grant accordingly. As the range of destruction within this classification was quite broad, the reality on the ground showed that many families were not able to finish or even start repairing their houses with the given grant. The problem of most cases was not only tsunami but also the age. Specifically in the context of Matara District, these "pending cases" became visible all along the coast and this was where the BRC-Fl wanted to start its support.

Main stream reconstruction operations outside the buffer zone (whether it is 100 or 35 meters) tended to erect one stereotyped house next to the damaged or ruined one without establishing a relationship between the old and the new, without linking to the surrounding natural and urban environment, without looking to family sizes nor income generators, etc. BRC-Fl was interested in these cases: families that didn't need a new stereotyped house in the garden because it didn't fulfil their real needs, but who wanted to repair what they had. BRC-Fl started a pilot-project to give financial and technical assistance to families in the renovation and reconstruction of their original houses, initially for 20 houses out of the initial caseload of 100. BRC-Fl would only rebuild a new house on their own land if a thorough assessment on the housing physical condition justified that renovation was worthless. It was a meticulous work that required looking into each separate case, but it also needed to be done very quickly. The beneficiaries were to take ownership of the project: with the assistance of BRC-Fl, they would look for materials, labour, and manage the grant.

The overall strategy was therefore twofold: topping-up the government grant and capacity building of the community. The main idea was to give financial and technical assistance to the families on top of a partial or complete governmental grant for those who were not able to finish the reconstruction and this all through community participation and community building. BRC-Fl would assist 100 families up to a total amount of 400,000 Euro during a project period of 1 year. The concept of partially and fully damaged cases was understood by BRC-Fl in a different way than intended by the GoSL: each family was given the grant that was in fact needed to have a decent renovated house or a totally new house. The first instalment kicked-off activities and BRC-Fl had to make sure that all repairs were accomplished so that the family could be granted the subsequent instalments to finish construction.

BRC-Fl worked together with SDC to integrate its financial assistance (the grant) in the above scheme of the GoSL/SDC grants to avoid overlaps. BRC-Fl firstly distributed the money on cash-basis but after April 2006, BRC-Fl made use of the beneficiary's bank account opened for the GoSL/SDC grants earlier that year and where the 1st instalment had been already

deposited. As the CfRR works proceeded, beneficiaries would be entitled to further GoSL/SDC instalments.

The grant amount varied case by case, but BRC-Flanders had established a limit of 750.000 LKR. The grants were split up in several steps and each step in two parts. Furthermore the community only got paid for the work done after completion of a preceding step and official statement from the BRC-Fl construction engineer and construction delegate. The grants would be deposited to the entire community at the same time.

Technical assistance was given by one BRC-Fl staff member. Where possible, BRC-Fl would make use of the existing staff from the SDC and DS office: SDC had technical officers (TO) of the National Housing Development Agency/NHDA working in the entire district and following the reconstruction of fully damaged houses on a regular basis.

2.2 Evaluation of the initial proposal.

The above mentioned proposal was tested in a pilot program which started in the beginning of 2006 for some 20 houses in the Grama Neladari of Paranakade in Weligama. During the "test-period" several project features were checked and evaluated, leading to a number of identified constraints. The program in reality seemed too rigid and was un-transparent. The problems could be split into two groups:

- Internal issues within the program (the chosen beneficiaries)
    - The contract was made up in English, which was not understandable and too simplistic. The main line, '*that the beneficiary would be solely liable for his/her construction'*, showed that BRC-Fl would take only a small portion of the responsibility in the program. The contract needed to be worked out further to stipulate the direct roles and responsibilities within the whole owner-driven program.
    - Although the owner-driven program was set up as a community program, immediately the problem arose of simultaneous payments. The pace of each construction was different, which resulted into frustration with others who had to wait. The whole set-up needed to remain communal through community-learning but each house required individual follow-up, which would increase the ownership and participation.
    - One of the main constraints within the first period of the program, was the lack of transparency in the financial allocation to each household. Nobody knew how much they were going to get. They were going to get paid according to a BoQ, that nobody was able to read (although the BRC Fl engineer explained it to each beneficiary).
    - The criteria for setting up the BoQ were not objective and made it very difficult to keep equity between all individual houses (cfr initial proposal: *each family will be given the grant that is in fact needed to have a decent renovated house or a totally new house).* But what is the definition of a decent and renovated house? Is there no difference between a fully damaged house and a partially damaged one (according to government criteria)?
    - The degree of technical assistance given by the NHDA was of very poor standards and BRC-Fl didn't have any logbook/supervision-guidelines to help their own engineers. Although quality remained relatively high, standards needed to be set.
- External issues outside the program (NHDA, new beneficiary lists, DS,…)
    - There were no selection-criteria. SDC had given us initially a list of 50 people who weren't able to get to the next government instalment.
    - The DS lacked the capacity of starting a database listing people already helped by private donors or NGOs. The DS would redirect all people to the office of BRC-Fl in Matara, where we would have to choose case by case. This would open doors for corruption and subjective selection criteria.

- Integrating the government grant with the BRC-Fl grant was an impossible issue. The TO's working for the NHDA had their own set of criteria to release the next instalment and SDC didn't have control on their whole program due to the large scope of their CffR program (in total for around 3000 houses).
- BRC-Fl had refused to sign an MoU (Memorandum of Understanding) with the NHDA to provide technical assistance. This was due to the following reasons and resulted into a hard working environment with the TO of the NHDA.
  - SDC and NHDA had already signed an agreement for the same amount of houses and it wasn't necessary to make a double agreement.
  - The quality of NHDA supervision was poor and needed to be strengthened. By having our own BRC-Fl engineers, we would be able to strengthen the NHDA and especially our own programs.
  - Initially the NHDA wanted 15% of the total cost of a house for running cost. This would mean that for every 6-7 houses, the BRC-Fl would have to give up one house.

2.3 Final Scope of Project (changes made to initial proposal)

The process of reviewing started at the end of April 2006 with the arrival of a new Owner Driven Project Delegate. A revised project was finalized by august 2006 and furthermore worked out during the whole construction period, adapting to new and changing needs of the program. This revised project setup tried to overcome the constraints found during the pilot phase by changing the methodology to an owner-driven/owner-demand program with full participation both on communal as individual level.

The **selection procedure** was worked out more thoroughly. At first there were no real criteria set to make the project equitable, at most understandable for all. Therefore to avoid confusion within the community, some main criteria needed to be set up. BRC-Fl preferred working in whole Grama Neladari's (Gurubebila, Paranakade and Kapparthota South) to ensure equity. With the new buffer line demarcated and the chance to integrate the government grant from the start of the project, both areas were handled differently.

- Outside the former buffer zone (Gurubebila, Paranakade and Kapparthota South): Due to a great lack of coordination, a horde of donors and political pressure, it often occurred that one beneficiary had benefited from several donors. Eligible people were stranded and nearly-non-affected people were selected for the government grant. Due to the fact that most fully damaged cases already had built up a partial-finished house or received help from a donor, the fully and partially damaged cases would be treated equally. A set of criteria for the selection procedure would be drafted to make a thorough assessment.
- Inside the former buffer zone (Gurubebila, Paranakade, Kapparathota South, 23 houses in Pelena South and 44 scattered houses in Weligama Division): This area was vastly devastated by the tsunami and all people within the 100 meter line had suffered severely from the tsunami. All cases were assessed on a case by case system BUT partial and fully damaged cases were treated separately. All fully damaged cases (assessed and approved) were treated equitable and would have the chance to build a two-story house, adjoining it with a part of the house that is in good condition (demolition of the "non-safe" portion would be preferable). The partially damaged cases would still be assessed case by case and the reconstruction works would depend on the amount of work to be done (according to a set of criteria).

The main objective was still twofold: giving technical and financial assistance on top of a partial or complete governmental grant to the families that still needed to renovate or rebuild their houses. With the new buffer line demarcated, it was however much easier to integrate the government grant from the start of the project (at least for the fully damaged cases). **Several guidelines and workshops** were held to improve the technical capacity of the BRC-Fl engineers. Minimum standards were set and beneficiary files were made that needed to be

updated in the field. These workshops were eventually also used to strengthen the capacity of the beneficiaries.

Due to the fact that housing construction is an individual program and since allocating instalments at community level would delay construction, the project had to transform into an **owner-driven/owner-demand** program, where the beneficiary himself would take ownership from the beginning and would decide the pace of the construction. The donor would take up the role of advisor. The reconstruction of a house is in general a more individual process, but nevertheless a group-feeling through community should be obtained in order to guarantee equity. The methodology was further enhanced by the introduction of bi-weekly **community meetings** and started up initially only for the fully damaged cases. Only afterwards these community meetings became weekly and also for partially damaged cases. It was important to have a relationship based on honesty, transparency and equity. The overall goal of the meetings was to strengthen the capacity of the beneficiary on different levels (see 5.e capacity building).

In order to reach a greater transparency in financial allocation to households, clearer **end objectives** were set up. One of the major concerns of the BRC-Fl was to make sure that the houses reconstructed would be finished according to certain guidelines:

- Inside the former buffer zone:
    - fully damaged houses: The houses should be liveable and all essential rooms should be finished (living, bathroom/toilet, kitchen, bedrooms). Furthermore there were certain technical elements required: water-tightness (roof, walls and windows) inclusive inside plastering, rendering and concreting, plinth-plaster (pavements essential in front), electricity, water-supply (if water-connection can be obtained) AND proper water and sanitation according to BRC-Fl minimum standards. Maximum top-up of 750.000 LKR would be provided. The total estimate for the house would therefore be 1.000.000 LKR.
    - Partially damaged houses: this was done case by case. An individual BoQ was made for each house. In the beginning of the project, no real criteria were set out and we would restore the house as it was before the tsunami, making the house structurally safe, watertight and liveable. If people didn't have a kitchen or the toilet was in very bad state, an extra structure would be sponsored IF the house wasn't big enough to accommodate these extra's. Maximum top-up of 400.000 would be provided. The government grant would be used for painting and all smaller works and was therefore not integrated in the BoQ. This was done due to several reasons:
        - Some people had already used their own money for repairing their house or had already repaired parts during the 1.5 years of delay.
        - Some people had spent some of the money for livelihoods purposes.
        - The TOs of the NHDA had instructed the people to paint their house in order to receive the second instalment. This work had to be redone after repairing the walls.
- Outside the former buffer zone. Due to the fact that most fully damaged cases already had built up a partial-finished house or received help from a donor, the fully and partially damaged cases were treated equally. Criteria were set up to make sure equity was obtained.
    - Only the essential rooms would be restored: Living, kitchen, bathroom, toilet and bedrooms (depending of the size of the family).
    - The main house had to be structurally safe (roof and walls).
    - Each house had to be watertight (roof and walls); outside painting was essential.
    - All water and sanitation needed to function properly. Only if the existing system was failing, a new system would be introduced.
    - Internal electricity needed to be safe and in good shape. BRC-Fl would help out with the access to water, but only if no future project would be implemented

in that area. (There was no point of investing money if a better alternative would be introduced in a later stage).

2.4 Figures and data

Grama Neladari	Total number of houses	Average budget per house	Total (LKR)	Construction started
Outside the former buffer zone (partially and fully damaged)				
Paranakade pilot project	20	412.850	8.257.000	01/2006
Gurubebila	37	332.838	12.315.000	05/2007
Kapparthota South	3	206.667	620.000	05/2007
Paranakade	40	295.300	11.812.000	04/2007
Inside the former buffer zone (partially)				
Gurubebila	30	280.369	8.257.000	10/2006
Kapparthota South	2	241.530	12.315.000	10/2006
Paranakade	16	240.167	620.000	10/2006
Extra cases Weligama	2	400.000	11.812.000	05/2007
Inside the former buffer zone (fully)				
Gurubebila	16	750.000	8.257.000	09/2006
Kapparthota South	5	750.000	12.315.000	10/2006
Paranakade	31	751.935	620.000	10/2006
Pelena South	23	750.000	11.812.000	10/2006
Extra cases Weligama	42	750.000	8.257.000	03/2007
TOTAL				
	267		134.350.806	

2.5 Project Management Setup

For the owner driven program, the project started up with only one engineer (start date: 01/2006) and one construction delegate. Eventually when the scale of the program increased, two other engineers (start dates: 09/2006 and 01/2007) and an admin support (start date 08/2007) were recruited. The engineers were responsible for all field-work, including updating the progress check-up sheet, the construction report form, the water and sanitation report, checking all the invoices on field level and other related duties. The admin support dealt with all office works related to invoice registers and appeal-procedures.

One finance officer in Colombo handled all payment vouchers with the bank including all related problems and delays.

3. Cooperation with partners for Owner Driven Housing: roles and responsibilities

3.1 In General: Memorandum of Understanding between SLRCS/BRC-Fl/SDC/GOSL

As mentioned before, the owner-driven projects outside the former buffer zone faced major problems mainly due to the lack of coordination. Once the buffer zone was revised, SDC became the leading agency in coordinating between all donors. For each donor an MoU legalized all activities. Outside the buffer zone, BRC-Fl would work without an MoU with SDC, but with a contract signed by the DS, BRC-Fl, SLRCS and the beneficiary.

The MoU (dated June 2006) clearly defined the roles of each party in the implementation of the GOSL owner driven housing program's co-financing component for all houses within the buffer zone.
The main role of the BRC-Fl according to the initial MoU would be the provision of 30,000,000.00 LKR to cover approximately 60 fully damaged beneficiaries in the Grama Neladari divisions mentioned (750.000 LKR for each house in Gurubebila and Paranakade).

All parties agreed to participate in the reconstruction of the houses as per the minimum standards mentioned below (5e). One amendment were eventually made for the following reasons:

- Due to the quick set-up of the program in July 2006, the MoU was only signed by BRC-Fl, the GoSL and SDC. An amendment was made in November 2006 for the SLRCS to be integrated as an extra party to the MoU and to ensure transparency within the Movement.
- Two extensions were prepared for expanding the program to new territories:
    - Kapparathota South and Pelena South (28 Fully damaged houses)
    - Extra load of cases spread out in Weligama (42 Fully damaged houses)

  However the 2nd amendment to the MoU (including the extensions to the cooperation was never signed. A draft was prepared but never past the SLRCS approval stage.[8]

The MoU was only set up for the fully damaged cases and the different responsibilities were set in this document. For the partially damaged cases no MoU was made due to the following reasons.

- No other NGO would top-up the partially damaged cases. Therefore SDC wouldn't make a separate MoU for the partially damaged cases.
- It was very difficult to integrate the partially government grant of 100.000 into the BoQ. Each BoQ was different and it was a meticulous work to make all different BoQ's. Often the beneficiary had already used some of the money of the GG and therefore problems would occur immediately when people had used the money for other items.
- Not all partially damaged houses needed help. Some wouldn't be eligible according to BRC-Fl standards, which would make it difficult to elude them when having an MoU.

Nevertheless the partially damaged cases would have a contract signed by the DS, BRC-Fl, SLRCS and the beneficiary.

3.2 IFRC

IFRC could have had a great role in supporting BRC-Fl during the whole construction period. They set up three-monthly owner-driven meetings where all problems could be revealed and lessons could be learned. Nevertheless, except for the advertising for the partnership, no real assistance was found during these meetings. Most help was given too late at a time when all projects were already up and running. No major adjustments could be done.
On the field level, all problems related to partners (SDC, GoSL,…) would be handled between partners directly.

3.3 SLRCS NHQ & Branch

Although the SLRCS was not integrated actively in the implementation mechanism of the owner-driven housing program, there remained a very close link on branch level. Both the BEO and the Chairman of the Matara Branch were updated on a monthly basis to ensure transparency of the program. Major problems were always discussed and different ways to integrate the SLRCS were often introduced but difficult to realize.

3.4 SDC / CSO

- Would provide support services through the district secretary to develop and implement management tools for monitoring of implementation of the project. However no real support services were given by SDC, besides the CfRR guidelines that were not very useful during the project.
- Would provide statistical data as well as payment lists for banks and all stake holders to effect the beneficiary payments on weekly basis. This was done on a regular weekly basis.
- Would provide the technical advisory and evaluation services for the beneficiary as well as the co-financer through the engagement of NHDA technical officers, which was of poor standards and needed improvement to strengthen their capacity.

[8] The document remained at a desk at SLRCS and simply didn't get processed in time.

- The beneficiaries would be identified by the Divisional Secretary according to the GOSL Owner Driven housing program and a list in consultation with SDC would be provided. SDC had a very useful database with all necessary household information. All information from the selection procedure (DAT-form, legal status of ownership, damage reports, family situation,etc.) was bundled into a workable database, that was updated on a regular basis.
- The problem with delays in funds from their sides, were solved as quickly as possible (especially during the months March and April 2007 with the stop of advancing the money-flow by the government banks)[9].

3.5 Local Authorities (facilitation during the process)

Besides the below mentioned roles and responsibilities, more relationships with local authorities were established. During one of the community meetings, the PHI (Public Health Inspector) was invited to stand ground with the BRC-Fl on their water and sanitation issues.[10]

- Divisional secretary would establish the ownership of the land by available and acceptable means (especially regarding relocation-houses).
- Divisional secretary would identify the beneficiaries according to the GOSL Owner driven housing program guidelines and provide a list in consultation with SDC for Co-financer.
- For Fully damaged houses, GOSL provided the Grant of Rs. 250,000 in instalments as follows;

(1) 1st instalment Rs. 50,000 after all documents were in order.
(2) 3rd instalment Rs. 60,000 after finishing foundations
(3) 5th instalment Rs. 80,000 after finishing walls first floor
(4) 7th instalment Rs. 60,000 after finishing slab/roof

- Would provide the construction standards and guidelines to be used (CffR guidelines)
- District Secretaries would facilitate in obtaining all approvals and certificates in the provision of amenities such as water, electricity and sewerage. But due to the fact that the owner already had access, no real approvals were necessary. Furthermore the people who lacked certain amenities, had to wait until major projects would be implemented (for example IFRC upgrading the water-supply for Weligama Division)
- District secretary through divisional secretary would provide a list of eligible beneficiaries for the above Grama Niladari divisions on or before 30th June 2006. The lists of eligible beneficiaries constantly evolved and until 30th December 2006, new entries were constantly appearing. Also upgrading partially damaged cases was an on going activity until the 30th of December 2006. This was due to several reasons with the majority land-disputes, legal-disputes,…
- District secretary would facilitate the co-financer to operate through the two state banks in order to disburse the money to the beneficiaries. The advance & reimbursement mechanism was not used within the BRC-Fl program and took the risk of pre-advancing it themselves.
- District secretary would facilitate and moderate periodic meetings to monitor and report the progress of the program involving all parties concerned. Any implementation problems would be discussed and resolved at these meetings. On a monthly basis, these meetings were held at the GA office in Matara, but this was always done in Singhala. Major problems, related to delays in bank-transfers, were always put aside and SDC took a major role in handling these problems.

3.6 BRC-Flanders

[9] For more details, see 5.i.4
[10] For more details, see 5.i.1

The main objective was two-fold: giving technical and financial assistance on top of a partial or complete governmental grant to the families that still needed to renovate or rebuild their houses.
Furthermore the BRC-Fl would verify the list provided by SDC/Divisional Secretary and report promptly. Especially all fully damaged cases were checked case by case to verify the authenticity of their eligibility. Special attention was given to former donor assistance and to the fact of already having received a house elsewhere. During this verification process, first contacts were laid with the beneficiary mentioning that they would need the first Government installement to start the work.

BRC-Fl would also make the payment of funds according to an instalment scheme following the BoQ (given to the beneficiary in the beginning of the project, see later).

BRC-Fl would follow-up the whole construction process from the beginning and throughout the whole project. Due to the low-quality supervision of the NHDA officers (they would only come to check the progress, but gave no advice, or further assistance to the beneficiaries), BRC-Fl had 3 local engineers working, each in charge of around 45-120 houses. They would have double tasks in checking the quality of the construction and helping out the beneficiaries throughout the whole program.

BRC-Fl consulted an architect (Mr Prasanna Gunawardena – Galina Innovations) to make 4 different typologies for the fully damaged houses, ready to get the approval of the Local Authorities.

3.7 Beneficiaries themselves.

The beneficiaries themselves had a great responsibility within the program, since they would eventually inhabit the houses. They were managing and supervising their own construction site to the best of their abilities. This was a summary of their main duties:

- The beneficiary would be responsible for the building-approval with the Local Authorities for fully damaged cases.
- Cooperate with the construction engineer of BRC-Fl to integrate as much as possible the beneficiaries wishes and changes in the beginning and during the construction process.
- Management of the construction-invoices by filling these in the invoice register.
- Organization of the construction site and small scale supervision of the contractor's/daily labourers.
- Attendance at the community meetings.
- Handle own work on the site if they wanted to integrate a livelihoods aspect within the project and save money for other construction related aspects.

4. Identification of needs & selection of beneficiaries

4.1 General identification of the beneficiaries by the GOSL/SDC

The following process was followed in the selection procedure of the beneficiaries outside and later-on inside the former buffer line.

Step 1 - Conduct damage assessment and verification survey

- This survey would be conducted by the Damage Assessment Team (DAT) established by the Divisional Secretary in each GN Division under his purview. The four member team of the DAT would consist of:
  - Divisional Technical Officer appointed by the NHDA in consultation with the THRU
  - Grama Niladari
  - A donor representative appointed by the DS in association with the District Donor Consortium

- One member of the Village Rehabilitation Committee (VRC)

- The DAT would then visit each household affected by the tsunami and authenticate the eligibility criteria listed below. The DAT would use either the DCS housing list or the housing damage list prepared by the divisional administration as the benchmark for conducting the technical survey. The DAT would strictly abide by the eligibility criteria and acceptable evidence given below. Any revision/exception to the eligibility criteria, if deemed necessary was to be made by the National Steering Committee. Such revision/exceptions may be limited to a specified administrative division.

	Eligibility criteria	Accepted evidence
1	Be a citizen and a permanent resident in Sri Lanka	- National ID card - Driving License - Inclusion in the electoral register - Passport - Birth Certificate
2	Able to demonstrate title to the land on which the construction is to take place	- Title deeds - Land permits registered with the land registry - Any other document included on the damage, assessment and verification survey form - Legal Affidavit (notarized) of no objection from the landowner for reconstruction by the household
3	Damage sustained should be due to the tsunami	- inspection and certification by damage assessment team

Step 2 – Classification of houses in to damage category
Once the basic eligibility criteria had been established, the DAT would assess the extent of damage to the house based on guidelines stipulated in the housing Damage Assessment and Verification Survey form

- If a building had incurred damage more than 40% of the replacement cost of the building

OR

- If the foundation of the building had incurred structural damage, then such buildings would be deemed to be fully damaged
  IF NOT
- The house would be classified as partly damaged.

The Damage Assessment and Verification Survey was strictly guided by the assessment criteria published by the National Housing Development Authority (NHDA). Part 3 of the Damage Assessment and Verification Survey form dealed with the assessment and categorization of damage.
The level of damage was estimated as follows:
Level of damage was determined in relation to four categories with scores and separate weights. The main elements of the building assessed were: Walls, Roof, and Windows/doors.
The damage score is as follows:

Level of damage	Definition	Points
Low damage	Less then 10%	10
Medium damage	10 to 20%	20
High damage	20 to 40%	40
Fully damaged	More than 40%	100

The weight attached to each item was as follows:
Walls 35%
Roof 55%
Windows/doors 10%

Example:
If the house had incurred low damage to walls, medium damage to the roof and high damage to the windows and doors, the damage estimate would be as follows: (10x0.35)+(20x0.55)+(40x0.10)=18.5, hence this would be classified as a partly damaged house.
Cases with structural damage that could not be satisfactorily assessed by DAT would be recorded in a separate file and district level TRU/NEHRU would engage experienced civil/structural engineers, seconded by the NHDA to re-evaluate these cases. Many cases were therefore upgraded between the period 08/2006-12/2006.

Step 3 – Publication of the preliminary beneficiary list and resolution of grievances

- On completion of the Damage Assessment and Verification Survey, the Grama Niladari together with the DS would publish a provisional list of beneficiaries.
- Upon publication of the provisional beneficiary list, all members of the Grama Sevaka Division would be entitled to make written representation to the VRC in relation to any grievances relating to the assessment made by the DAT.
- Within a period of one week from publication of the provisional beneficiary list, the THRU/NEHRU Divisional Manager or the Divisional Secretary would convene a meeting of the VRC to address the grievances recorded.
- On completion of this first meeting, the list of beneficiaries would be updated to reflect any rulings by the VRC. This list certified by a majority of members of the VRC would be forwarded to the DS for inclusion in the beneficiary register.
- Any grievances unresolved at the VRC would be referred to the Divisional Grievance Committee for ruling. There would be a two-week time line between the public posting of the beneficiary list and the ruling of the Divisional Grievance Committee.
- Grievances referred to Divisional Grievance Committee, if unresolved, would move on to the District Committee whose decision would be final. Petitions cleared by a grievance committee would be certified by a majority of the members of that committee and submitted for inclusion in the beneficiary register.
- According to the BRC-Fl owner driven construction delegate, most appeals after two weeks were taken up on District level with the GA (Government Agent

Step 4 – Issuance of beneficiary certificates

- The finalized beneficiary list would be included in the beneficiary register maintained by the DS/THRU/NEHRU Divisional Manager.
- Each beneficiary included in the beneficiary register would have a unique identification number.
- The DS/THRU Divisional Manager would then complete the entitlement certificate included as per Part 6 of the Damage Assessment and Verification Survey form. This form is in triplicate:
  - Original (White) – To be surrendered to the Bank by the beneficiary. The Banks would not release the grant in the absence of a duly certified original Damage Assessment and Verification Survey form
  - Copy 1 (Blue) – Retained by the beneficiary
  - Copy 2 (Pink) – Retained at the Divisional Secretaries Office/THRU Divisional Office
- Each beneficiary would also be given a progress monitoring card:
  - Original – Retained with beneficiary – This will be used by the Banks and other donors to endorse the details of assistance provided to the households

- Copy – Retained with the THRU Project Manager – This will be used for progress reporting to the TAFREN/THRU/Presidential Secretariat

4.2 Outside Former Buffer zone

4.2.1 Pilot Project Paranakade

4.2.1.1 Beneficiary identification + Criteria

As mentioned before, the concept of partially and fully damaged cases was understood by the BRC-Fl in a different way than conceived by the GoSL: with thorough surveys and estimations, discussions with the beneficiaries, work plans (financial and technical) and common sense, each family would be given the grant that was in fact needed to have a decent renovated house or a totally new house. The list of SDC formed the backbone and from the beginning BRC-Fl decided to only work with the people who received the government grant. This was the main criteria for selection: BRC-Fl would not build a house for extended families, renters or squatters.

A thorough survey was done in collaboration with the SLRCS volunteers and each house was visited and surveyed. Due to the following reasons, no real evaluation could be carried out after the survey:

- The volunteers lacked technical capacity to evaluate the building structure.
- No information could be obtained whether the beneficiary had already received help or not.
- Some people were enlisted for the government grant, but the house was actually not really tsunami affected.
- There were no real objective criteria set to make the procedure transparent for all.

After consultation with SDC, a list was provided of 50 names that had difficulty in getting the work done of the previous instalment. Out of this list, the 16 most vulnerable families were selected and construction could start. At a later stage, 6 extra cases were added to the pilot project and 2 previously selected ones were deleted. Most houses were more damaged due to old age than due to the tsunami, but they were beauties representing the colonial era controversy to the 'new' concrete structures. Renovation of these buildings would cost a lot of money and the program looked like a heritage program in restoring old colonial houses.
Due to the fact that no real set of criteria were worked out, the program lacked transparency to the not-selected beneficiaries. This resulted in a lot of frustration and a loss of trust towards BRC-Fl. It was therefore decided to finalize the approximate 20 houses and to start with new and more objective criteria and objectives before expanding the program.

4.2.1.2 Scope of assistance

For the fully damaged cases (according to own assessment and not following the government guidelines) a design was made in collaboration with the beneficiary. After approval of the designs by the Urban Council/UDA, a BoQ was made to a maximum budget of 750,000 slr.

For the partially damaged houses we had prepared a grant scheme divided in 3, 4 or 5 steps based on the estimations. Security, hygiene, and the logic of the construction process were the guiding forces. Maximum budget was also kept to a maximum of 750,000 slr.

Two different BoQ's were made. One estimation with the steps that the beneficiary needed to follow. The second was a comprehensive BoQ ("in bags of sand") for the beneficiaries, which would help the beneficiaries purchasing all the materials. The last one would be translated into singhala.

4.2.2 Part II Paranakade + Grubebila (outside the former bufferzone)

4.2.2.3 Beneficiary Identification (Grama Neladari Paranakade)

A. Social assessment done in cooperation with the IFRC Livelihoods team in Matara

Executive Summary

The identification of the beneficiaries was first done by the DS and SDC. This was done according to the guidelines mentioned above. SDC made a database where all information concerning the beneficiaries was updated. This document formed the main source for the further identification by the BRC-Fl team.

There were 238 beneficiaries eligible for reconstruction support according to the list for Paranakada provided by the DS. The BRC-Fl's community-based owner driven reconstruction programme would be able to support 40+ households. The process of verifying the eligible beneficiaries for the project focused on 2 aspects for assessment; one considered the technical side (state of the house and reconstruction needs) and the other concentrated on supporting the community to self identify those most in need. Both aspects would be worked out simultaneously and be evaluated at the end.

A community meeting was held on 11.11.06 to which all 238 beneficiaries were invited and approximately 170 people participated. A total of approximately 40 participants left the meeting at this stage as they considered that they had sufficient capacities to finish their house themselves without BRC-Fl support. The participants devided themselves into 8 groups at the meeting in order to participate in the social assessment. Initially 3 group meetings were held starting on 22.11.06 (see record), which proved inconclusive so it was decided to start the TA first and revise the SA methodology for a later date. Of the 88 people who did not attend the first community meeting 32 were added to the existing 8 groups and formed a 9$^{th\ group}$, 32 people stated they did not need to be involved in the programme and 24 people could not be found.

Therefore between 19-25 January, the IFRC livelihoods team worked with the 9 groups with the purpose of identifying those who were considered by the groups to be the most vulnerable. The methodology was revised throughout the process and was finalized as follows:

1. Introduction: All people were given the TA in Singhala. To ensure equity in the approach all had the same opportunity to participate. BRC-Fl could support 40-50 cases. Although the past experience of the group work was unsuccessful, BRC-Fl was still committed to support the most vulnerable as identified by the community
2. Selection criteria were formulated by the community during group work on 22 November 2006. These criteria were used in the social section of the TA. The criteria that people were asked to consider were:
   a. Tsunami affected
   b. Fully or partially damaged house
   c. House owner or a member of the family was resident in the house
   d. Whether other NGO support had been received (>100.000 SLR)

e. Income to the household – savings, employment income, assets, remittances
f. Furthermore expenditure from the household were checked (debts, no of dependants in the house, Female Headed Households (FHH), sick and unemployed, family size,…)

3. Ranking of the group: people were asked to consider their own situation as against the criteria and had to place themselves at a point on the line between most vulnerable and well off.
4. Each individual needed to provide justification to the group according to the criteria as to where they had placed themselves on the line.
5. Adjustments were made to certain cases until consensus was reached amongst the group.
6. The groups were informed that results would be posted at the DS and GN and there would be an opportunity for any objections at that stage.

Methodology:
The first group work completed on 22 November tried to focus on the group deciding on levels of vulnerability within the group together. In this particular community this proved to be too threatening to encourage real and genuine participation. This was due to a number of reasons, not in the least the way that tsunami relief and recovery had been delivered to this community and the changes that that had caused.

During the second round of group meetings a different approach was taken which was more focused on each individual appraising himself/herself against the criteria and then allowing time for group consensus to be reached on the final output. This was ultimately less threatening for each group and hence produced more reliable results. The actual tool used was suitably simple and emphasis was placed on a thorough explanation of the actual criteria and well as facilitating that people really think about their situation honestly against the criteria. It was clearly beneficial to complete more of the TA first in that this did not distract people but rather provided results which the livelihoods team could use to inform what was coming out of the group work.

In analyzing the results of the group work, perhaps the biggest challenge was to try to compare the groups. People formed the groups based on their knowledge of each other (which was essential for reaching consensus) and hence some groups were fairly well off whilst others contained higher levels of vulnerability. Therefore the following steps were taken in the analysis stage:

1. Identification of the ‘clear cut’ most vulnerable cases
2. Identification of ‘gaps’ between the SA and TA results (where SA showed them as more vulnerable compared with a relatively high TA or where TA was a low or negative number and the SA ranking was high)
3. Group comparison: looking at all the most vulnerable cases and ensuring fairness and similarities between those selected.
4. Random cross-checking through looking at all those female head households (FHH) and those who received previous NGO support of more than 100.000 slr.

Out of this some general conclusions and lessons for the future could be extracted from the process:

√ It was extremely valuable to have the results of the TA so as to identify gaps between the results of the SA and TA. Often there were legitimate reasons for why the results differed but it was thorough to go through and consider this on a case by case basis. In most cases the TA results confirmed the SA and provided an important source of cross triangulation.

- √ The livelihoods team prioritized the findings of the SA over the TA where it was appropriate to do so. Most important when handling both the TA and SA was to remain objective to what the groups were telling them and try to keep these results separate from the existing knowledge taken from the TA. The 2 could come together in the final analysis where it is possible to look at both results and fairly take a decision.
- √ Group consensus was achieved in the majority of cases as people were moved from their original position through the final discussion. The facilitator should ask after each individual if the group agreed/objected and also allow time before and after the discussions for the individual to move themselves voluntarily. This allowed the facilitator to 'test' where people had put themselves and also helped to consolidate consensus.
- √ The idea to share the results of the TA was discussed and it would have had two benefits of full transparency with the community and provided more detailed information on the gaps. But due to the past experience in Paranakada it was decided that this would have resulted in tensions in the group as each thought that decisions would be made entirely on the TA results. Furthermore the TA was a guiding tool for the assessment but the weighting factors were not objective enough to be shared. This would have jeopardized the SA results and consensus reached through the more simple method.
- √ This methodology did not increase tensions between people where tensions already existed, it was non threatening and was able to produce results in groups that had previously refused to cooperate and had called for BRCF to take the decisions. Unfortunately this way did not result in final decisions made by the community, rather BRC-Fl could make decisions based on 2 sources of information provided by the community themselves and most importantly group consensus.
- √ As the livelihoods team worked through the groups, the methodology was refined and more and more emphasis was placed on facilitating each household providing detailed reasoning for their position based on the criteria. This provided useful information to triangulate with the TA.
- √ Even though BRC-Fl was initially looking to facilitate the community to identify the most vulnerable, the methods used allowed everyone to participate in the group work with no one being singled out which helped to ensure the cooperation within the group and with the livelihoods team.
- √ Subtle differences between where people placed themselves on the line were actually quite significant as people considered themselves comparatively to the other already on the line.
- √ Ownership of the process and results produced by the groups should result in less objections/appeals at a later stage as people already were likely to know what to expect in terms of whether they were eligible or not.
- √ When going through individual reasoning start at the well-off end.

- × The methods were not able to break down or even start to understand certain power relations that existed in the groups. This was not possible given the amount of time spent with people, understanding the power balances in a group would take a long time and a certain level of relationship that did not exist between the facilitator and the groups. However it was notable in each group where certain individuals were trying to influence the group regarding their own position and it was also

noticeable where the group went silent when it came to providing the consensus.

× Comparisons between the groups were very difficult and could only be cross checked in the final analysis.
× The methodology showed a tendency for each person just to place themselves in the next available space, meaning that the results depended partly on where the first person placed themselves. This had to be counteracted by the skill of the facilitator in being able to ensure that everyone fully understood the tool and if given several opportunities to move themselves once the first round was completed.
× More detailed reasoning of the gaps identified would have been beneficial.
× There could be more emphasis with the point scoring in the TA on the social factors.

B. Technical assessment through beneficiary household surveys.

The TA was one of the main tools that needed to be set up in order to get some general information of the area that needed to be reconstructed. Due to the fact that BRC-Fl was able to help only 80+ cases out of 238 (in Paranakade) and 110 (in Kapparthota South/Gurubebila) and the main policy of the Red Cross was to help the most vulnerable, the information collected needed to be both social and technical. Furthermore, due to a lot of tensions already existing within the community, it had to be transparent and understandable for all.

Due to the importance of the document, the document needed to be workable and should give prompt good back-up information (objective, real and equitable). Together with the limited time remaining for the BRC-Fl in the South, all this resulted into an excel sheet. By giving a weighting factor to each component of the questionnaire, an immediate result (two figures, one social and one technical) was obtained which made the program more manageable and objective. Besides the multiple choice questions, surveys with each individual household gave further separate information about their individual problems and requests. Y or N points were deducted/added according to vulnerability/non-vulnerability. If the house had a very low score, then the need for assistance with reconstruction was high (LOW GRADE=NEEDS HELP).

For setting up the technical assessment the following guidelines were utilized (see annex TA).
The importance of these criteria was reflected in the weighting factor by which the points were multiplied in the excel sheet.

- The whole intention was to rebuild their houses, not the businesses. No financial help could be given to businesses (boat repairing, shops,…). The business area would therefore not be integrated in the technical assessment.
- The technical assessment would focus mainly on all essential rooms (kitchen, living, bathroom, toilet and bedrooms according to the amount of people living there).
- Size of the house was an important issue.
- Each individual part of the construction needed to be evaluated technically: foundations, walls (stability), roof (stability and water-tightness), plastering (watertight), floors (stability and rendering), doors and windows, pavements, water and sanitation, electricity and water-supply. A separate section for the kitchen and the bathroom was also established (two important essential rooms often lacking in each house)

- The social part of the TA would specifically look into the following characteristics of each household. This would help the IFRC Livelihoods team in evaluating the group works.
    - The beneficiary had to own and live in the fore mentioned house. If they had ownership of the house, they would have received the government grant (proof of ownership, CCD officer signature, DAT signature,…)
    - All information concerning work done with the government grant was reported.
    - Did they receive NGO support or not? If more money had been spent, the beneficiary had to explain where the money came form (loans, bank-details, savings…)
    - Information concerning the size and demographic make-up of the household was reported. Who is the main income-generator(s)? Are there extended families? What is the main in and outcome expenditure of the household?

C. Evaluating the Social and Technical assessment.

Through the analysis of the group work and the TA results that were available at the time of the social assessment done by the IFRC Livelihoods team, 45 cases could be considered the most vulnerable and therefore eligible for BRC-Fl support. After completing the remaining TA's, BRC-Fl checked the results for those considered eligible by the SA but as yet unverified by the TA. Also BRC-Fl needed to look at those cases that scored a very low TA and who were not on the most vulnerable listing of the SA.

Together with the IFRC team, the BRC-Fl, went through all the findings and cross-checked all cases. Due to the fact that the program remained a construction program, another 18 cases were chosen according to their low-technical score or according to their middle-technical/middle-social score. A list comprising 63 names was chosen and the appeal process was started on the 20th of February 2007. A community meeting was held and the whole selection-procedure was explained. To make it understandable for all the following guidelines were utilized.

- The project engineer did all the TAs, so all cases were assessed in an objective way.
- The RCRC movement was neutral and impartial.
- The TA was a guideline to check the most vulnerable chosen by the community. All candidates were given the same chance. It was especially the SA that helped make our decisions. In this way most of the people were elected by the community and not by us.
- The amount of support by BRC-Fl would be limited to a max of 400.000 LKR and a minimum of 100.000 LKR. It was the intention of BRC Flanders to make sure that all essential rooms would be fixed again: kitchen, bathroom, living, bedrooms (depending on the size of the family), electricity/water-sanitation and that the building would be watertight. It was a CASE BY CASE assessment.
- The beneficiary had to own and live in the fore mentioned house.
- The procedure of appealing was clarified. They could send letters for their own or question the list posted in the DS office. When questioning the process they had to look at the following items:
    - Tsunami affected
    - Fully or partially affected
    - House owner or member of the family residing in the house.
    - NGO support given or not.

- § Income to the household: savings, employment income, assets, remittances,…
- § Expenditure: debts, sick, unemployed, family size,…
- § If the participant has a second house, we will not be able to help.
- § If the beneficiary has received help from another NGO, for an amount more than 400.000 LKR, it will be impossible to intervene.

The DS Mr Sarat signed the 63 names and the list was posted.

The appeal process was long and tiring and a total of approximately 160 letters were sent. After having read all the letters, we had to verify all the information and summoned a meeting for the whole of Paranakade in the beginning of March 2007. We explained the people that the list of 63 names were chosen not by the BRC-Fl but by the information collected during the TA and the SA. Therefore it was the community itself that identified the most vulnerable. We mentioned that all letters were read and analyzed but it was very difficult to verify what was true or false. This was caused by different internal and external forces:

1. BRC-Fl didn't have lists of all the organizations and most of them weren't totally updated.
2. Most of the lists didn't use the same names that were used by SDC. Often the husband's name is mentioned in one file and the mother in the other file. It was impossible to check all this data as a non-coordinating body.
3. Thirdly all singhala names were very similar. One letter changed could mean that it is a total different family (for example Piyasiri and Piyasili).
4. The DS didn't have the capacity to give lists mentioning all families who already had received help from other parties.
5. There were a lot of NGO's and other smaller organizations (tourists,…) that helped people without following the normal procedures (SDC or DS or CHA).

After getting more information on other NGO's/Humanitarian actors working in the area (JAGA, Jayawickrama foundation, CHF, Movimondo, Loadstar) we verified all the appeals and protests. Furthermore the project engineer, spoke informally with the GN and tried to verify all information. The GN didn't want us openly to tell people that we verified all beneficiary files together with him. We therefore said to the community that the group of people we would select needed to be approved by the GN.
After spending an entire week together with the GN, the project engineer came forward with all information and 42 beneficiaries were selected by the project engineer in coordination with the project delegate, according to the following criteria.

- The person had to own and live/lived in the house.
- The family was only allowed to own one house (not including children): if the husband/wife had a second house that was in good state, we would not help.
- The minimum budget would be 100.000, so if the repair costs would be less, no help would be given.
- NGO support already received could not exceed 400.000
- Stability and Liveability criteria:
  - o The house should be watertight and in a good stable condition.
  - o A house should have all essential rooms: living, kitchen, bathroom, bedrooms, toilet.
  - o Electricity, water supply and sanitation should be in proper state.

Due to the fact that the BRC-Fl was limited with resources and the number of eligible households was higher than what BRC-Fl could take on, an additional

set of social criteria needed to be set up and priority would be given to the most vulnerable of the community.

- Widows.
- People with a small income
- Fully damaged house who received no or small support of a donor.
- Very small houses (less than 500sq feet).

During the last community meeting on Thursday the 5th of April, we found out that perhaps a group of people were going to obstruct the meeting. There was no option of postponing the meeting and we decided to ask one police officer to join us. We explained the people what had happened in the past three weeks and how we decided to help 42 people now. Only after the assessment of the BoQ, a final decision would be taken in order to check the above mentioned criteria.

4.2.2.4 Beneficiary Identification (Grama Neladari Gurubebila)

Learning from the first community based approach, BRC-Fl made a second assessment without the help of the IFRC Livelihoods team: Gurubebila and Kapparthota South in total for around 110 houses. Immediately it was obvious that these new area's were totally different than the former one (Paranakade). Whereas Paranakade had received a lot of help of both private and public donors, Gurubebila and Kapparthota South hadn't been that lucky. They are located on the side or outside the bay of Weligama and are more the outskirts of Weligama Division. In contradiction with Paranakade, which is located in the centre of Weligama, these areas are much more rural and the people have less assets to be able to restore their life after the disaster. Furthermore there was a huge difference in the vulnerability of families. The people often didn't have a permanent income, had no water-supply and their houses were of minimum size (500 square feet), lacking both kitchen and bathroom.

On the 5th of March 2007, a community meeting was held and the whole procedure was introduced to the community. The beneficiaries immediately found the social assessment too threatening and they preferred not to be part of the selection process. Therefore it was decided to further improve the TA and to split up the social and technical part. In this way, two separate scores would be obtained and would give us a good insight on both aspects.

After having finished the technical assessment, a list of 63 people was discussed with the GN's of both area's. All information was verified and according to both the project engineer and the project delegate, the GN's were quite honest: the information of the beneficiary was very similar to the extra information we received. The initial list would be comprised of 5 cases in Kapparathota and 30 cases in Gurubebila (9 extra cases still needed to be checked). In the second community meeting, all the selected households were publicly listed. Due to a time-limit, we did not ask the community to send appeal or protest letters, but nevertheless 30 letters were sent. Most protests were not genuine and a main reason was that we shouldn't help (non-)retired government servants. According to BRC-Fl knowledge (delegates and local engineers), this was not a real objection for the program. Government workers perhaps have a stable job, but the salary differs from the position. Therefore it was decided not to exclude these households. While making the BoQ's, the engineer of the BRC-Fl kept verifying obvious cases which had been overlooked during the assessment.

A final list of 37 cases in Gurubebila and 3 cases in Kapparthota South were selected.

4.2.2.5 Scope of Assistance

Learning from the ongoing cases inside the former buffer zone, it was necessary to rethink the scope of assistance that would be given. To make the program more understandable, especially what the financial allocation concerned, a set of criteria had to be worked out to ensure transparency. These were the guidelines given as tools while preparing a BoQ.

- The amount of support was limited to a minimum of 100.000 LKR and a maximum of 400.000 LKR.
- Only the essential rooms would be restored: Living, kitchen, bathroom, toilet and bedrooms (depending how many people are living in the house: minimum 2, 3 bedrooms for max 8 people and 4 bedrooms for even bigger families). All these area's should be minimally plastered, rendered, fitted with doors and windows and properly roofed (slab or tiles). Inside painting was considered as a non-essential item.
- The main house had to be structurally safe.
- Each house had to be watertight (roof and walls); outside painting is essential. Nevertheless valence-, bargeboards and gutters are non-essential.
- All water and sanitation needed to be in good order. However this doesn't mean that all houses would receive a septic tank. Only the cases where the water and sanitation doesn't function properly (black water coming out of the ground with severe rains) will be improved with a septic tank and seepage trench.
- Electricity should be in good shape.
- If there was no water pipeline, other options had to be checked but were not essential (rainwater-harvesting tanks, tanks to be filled by water bowsers, etc.). This was due to the following two reasons
    - IFRC Matara was starting a project to improve the capacity of the water supply in Weligama. Normally each house should get water-supply before 2009.
    - USaid already implemented a big program of harvesting tanks (concrete eggs).

It often occurred that the houses lacked certain essential rooms (kitchen, bathroom and toilet). We had standard plans for these kinds of extensions and it was up to the beneficiary to get the necessary approval. See later approvals UDA.

For each different partially damaged house, a BoQ was made comprising all criteria mentioned above. Having learned from the initial projects within the former buffer zone, the BoQ was split up into maximum 5 different steps, following the logics of construction: for example, first windows and then plastering. The first and the last instalment would be smaller, the former for site-preparation and the latter for the finishing touches. All middle instalments would be bigger to ensure construction progress.
All instalments were deposited in the same way as the fully damaged houses in a bank account opened for the GoSL grants.

4.3 Inside Former Buffer zone

4.3.1 Beneficiary Identification

The identification of the beneficiaries was first done by the DS and SDC. This was done according to the guidelines mentioned above[11]. SDC made a database

[11] For more details, see 4.a

where all information concerning the beneficiaries was updated. This document formed the main source for the further identification by the BRC-Fl team. It bundled the following information and more:

- Names and age of all family members
- Address of current residence as well as damaged house
- Occupation(s)
- Approximate floor area
- Damage assessment of house and end score
- Government instalments done including bank details
- Remarks

Per Grama Neladari, two different lists were provided: fully and partially damaged cases. Due to the huge scope of the project and the lack of technical staff during the damage assessment, the BRC-Fl had difficulty in agreeing with this 'too' simple classification and wanted to split up the two different cases into four:

1. Fully damaged according to BRC-Fl and SDC/DS and in need of a total new house. The old house would be totally demolished after the project.
2. Fully damaged according to SDC/DS, but wanting to renovate/reconstruct the existing house.
3. Partially damaged according to SDC/DS, but in need of a total new house according to BRC-Fl. The old house would be demolished and they would get a new house.
4. Partially damaged according to SDC/DS and BRC-Fl. The house would be renovated.

It was immediately obvious that this was too complex and the beneficiaries couldn't understand the split-up. The main problems in splitting up the government categories could be summarized as follows:

- What kind of criteria could be used to upgrade the partially damaged cases? (case nr 4)
- It was not easy for a beneficiary to decide between renovation of the house and demolishing.
- Often the old house was built according to the size of the family. The new designs were made for a 4-6 person household.
- The new designs were all double storied houses and therefore more 'safe' for future tsunami's, having bedrooms on the first floor. BUT was it the intention of the BRC-Fl to demolish good portions of structures or would it be more appropriate to connect the new house with the good portion of the old house?

Therefore it was decided to stick to the government classification. Only if a partial damaged case needed to be demolished for approximately 50% in order to renovate it, BRC-Fl would upgrade it for the total top-up of a fully damaged case (only one case was done in this way). Other initially partially damaged cases, were upgraded to fully damaged by the DS/SDC and no problem occurred for these.

Each house was assessed on a case by case study by the BRC Fl engineers in cooperation with the construction Delegate. All fully damaged cases were rechecked and most cases were totally broken or were full of scars (big cracks in walls and foundation). BRC-Fl wouldn't intervene using the following criteria (for partially or fully damaged cases):

- People already received another house from another organization (private, NGO or others) in response of the tsunami.
- People already repaired their house and it was in good condition.
- People wanted to be relocated and were getting a house from a relocation site (this information was given by SDC).

No additional vulnerability criteria were considered. Due to the fact that the first 100 meters were severely devastated, most people had major problems in rebuilding up their lives. Therefore it was decided that the house was the main subject and not the social situation within the family.

In a later stage of the project (February 2007) another list of around 120 fully damaged houses in the area of Matara District was introduced by the DS/SDC. Together with the two last donors (Caritas and Leeds) working in Matara, it was decided that BRC-Fl would tackle the extra cases in Weligama Division (around 50-55 cases). The reason for these pending cases was mostly related to ownership problems (no documents,etc). BRC-Fl would co-finance the GG after assessing each case. 44 Cases were selected (42 starting from scratch and 2 cases which already had started).

4.3.2 Scope of Assistance

The scope of assistance was differentiated between the fully damaged cases and the partially damaged cases.

The fully damaged cases would get the possibility of using one of the four typologies prepared by BRC-Fl in consultation with a local architect OR had the option of choosing a typology of their own. The main focus of the program was to finish all houses according to the following criteria:

- Each house needed to have all essential rooms: kitchen, bathroom/toilet, living area and bedrooms.
- In all rooms internal plastering, concreting/rendering and electricity needed to be finished.
- The building had to be watertight (roof and walls) which would mean external plastering and painting needed to be finished.
- All internal electricity and water-supply needed to be fixed properly with a trip-switch.
- All water and sanitation issues needed to be done according to BRC-Fl minimum standards: septic tank, greasetrap and seepage trenches (if the amount of space around the house was sufficient).
- Internal painting, soffit plastering and gutters were non-essential items.

If people decided to use their own plan, BRC-Flanders would play an advisory role to make an estimate. The beneficiary would have to prove he had the extra money needed to finish the project. This was done on an informal level and it was explained that they would receive the same instalment scheme as the BRC Fl typologies (according to a BoQ).
For all fully damaged cases a maximum of 750.000 SLR would be provided, which would top-up the 250.000 from the government.

The partially damaged cases were assessed case by case according to the following criteria:

- The house would be restored in the initial situation of before the tsunami.
- If the house was small (many cases in Gurubebila) an external kitchen or bathroom could be provided.
- The water and sanitation situation of the house would be checked and only if major problems occurred (overflow of soakage pit or septic tank) a new system according to the minimum standards of the BRC Fl would be introduced. In the case of Paranakade, the AmRC was already providing toilets (same as BRC Fl) through a community based assessment. This resulted in overlaps due to non-coordination with the AmRC program.

5. Implementation mechanism

5.1 Needs Assessment – scope of works

Fully damaged houses

Initially it was decided by the movement to maximize the top-up for fully damaged cases with 500.000 SLR. After a thorough investigation on all owner-driven housing schemes implemented in the Southern Districts of Sri Lanka, BRC-Fl believed that it was impossible to build different types of LIVEABLE two story typologies for the price of 750.000 LKR (250.000 LKR of the government grant and 500.000 LKR as a top-up on the government grant). Therefore the initial top-up of 500.000 LKR was increased to 750.000 LKR due to the following reasons.

- Just after the tsunami, the general estimate for a small 60 m² house was around 400.000 LKR. Due to the boom in construction, the prices had doubled or even tripled (for example the price of reinforcement iron had tripled in between the period 2005-2006 and the price of cement bags had doubled). We did believe that it was possible to offer a 750.000 LKR house to the people in the buffer zone, but this design would lead to a very simple house with a negative image:
    1. It would be a one-story house, which people didn't really want for safety reasons (scared for a second tsunami).
    2. All the houses would look the same, so the whole area would just be 'bombed' with this typology. The area would have no identity.
    3. In the future the house was non-expandable in height. We believe that due to the psychosocial behaviour of people who were affected by the tsunami that this option would be irresponsible and after the assessments nearly all people preferred two-storied houses with bedrooms on the first floor.
    4. The quality would be reasonable (but this probably required around 800.000 LKR). If needed we would have to reduce the cost by leaving essential things out or by using inferior materials.
- After having a discussion with the project-manager of the Irish organization Goal, we found out that we were not the only ones facing this difficulty. Goal was giving a top-up of 450.000 LKR through an MoU with the NHDA (National Housing Development Agency). In this MoU it stated that the NHDA would provide plans for around 700.000 rupees. After analyzing these plans and its associated BoQ, we concluded that these buildings could never be finished for the approximate figure. BRC-Fl would be engaged in a commitment without fulfilling the basic criteria of a finished house. For example this is a summary of one case (which is a two-story house according to plans of the NHDA):
    1. the total cost was 700.417 LKR
    2. Although the plan indicated walls on the ground floor, they were not mentioned in the BoQ (this would be an extra cost of around 45.000 rupees)
    3. There was no mention of a staircase in the BoQ (another 25.000 rupees)
    4. There was no mention of a balustrade in the BoQ (another 15.000 rupees)
    5. The price for painting was not sufficient (another 20.000)
    6. The estimate for the toilet (which is totally external) was approximately 25.000 LKR. This would be the cost of the septic tank and the soakage pit (so if they would build a small toilet with plastered walls and a roof there would be another extra cost of around 35.000 LKR).
    7. The plans indicated only two rooms on the slab (only two windows and two doors). The beneficiary could expand the building with his own expenses.

The rated BoQ gave a false impression of what was possible for a two-storied building. If these plans would be chosen, the beneficiary would feel played out. The Red Cross Red Crescent movement's main objective was to provide finished and liveable houses to people.

- A main concern in enlarging the top-up was the new partnership between IFRC and UN-Habitat who were building houses for the amount of 650.000 LKR. According to the partnership it was possible to build a decent liveable house for the amount of 650.000 LKR and as example they would mention the ongoing work of UN-Habitat in Galle. We do

agree that UNHABITAT was building houses for this price but BRC Fl was worried about the quality of living standards and of the construction materials. After visiting the project in Galle, a lot of major problems were already occurring after 3 months of inhabiting the house (see chapter 1).

- Furthermore there was a major issue concerning equity between owner and donor-driven sites within the Red Cross Movement. Why could relocation projects spend a budget of about 1.300.000 SLR per house (exclusive infrastructure) and on owner-driven sites we should be able to handle it with only half? Even if people would save money to build themselves, we would be disturbing their own livelihood. But what were we to do with people who weren't able to organize their own construction, for example elderly people, widows, disabled, etc.

- We made a design ourselves for a small two-story house, which in time could be extended in height and width. The total amount added up to 1.100.000 LKR. According to us it could be possible to build 60 m² houses for the amount of 1.000.000 LKR.

Partially damaged houses

As mentioned before the partially damaged houses were assessed and the main intention was to restore the house as it was before the tsunami. It was therefore important to look what the criteria were from the government to assess a building as partially (DAT form). According to these, a house would be assessed partially if the cost for repairs would exceed 40% of the cost to completely rebuild it. Often houses lacked kitchens and bathroom and therefore the cost to renovate and extend the smaller cases would often exceed this 40%.

Furthermore, many cases were affected by the tsunami. Therefore the major force struck houses located in the first 80 meters. The water lost most of its force and did not structurally damage the other houses. Most plastering, doors and windows, electricity, concreting and rendering had to be redone. This would add up to approximately 2/5 of the price of a new house. If some small structural work still needed to be done nearly ½ of the house needed to be renovated.

It was therefore decided to top-up the renovation to a maximum and a minimum.

- Top-up of min of 100.000 LKR: by using the 100.000 LKR of the government grant properly, people would be able to renovate the house without help of a donor.
- Top-up max of 400.000 LKR: together with the 100.000 LKR this would be sufficient in renovating the whole building and rebuilding kitchens, bathrooms and toilets.

A standard BoQ was made for the project. This BoQ had been worked out during the pilot project and was a good tool to make different assessments. It showed all construction items regarding renovation of houses. It was split up into different 'chapters' (see annex standard BoQ). In the beginning of the pilot project, a whole assessment of actual rates was done by the BRC Fl engineer through experience and governmental guidelines. These rates were updated every 6 months. Nevertheless, once the contract was signed, no changes could be made to the rates. If the construction would take 8 months, the increases in price would not be taken up by BRC-Fl.

Design

In total three quotes were asked by three different architects (working in the surrounding of Weligama) to make originally 5 different designs for the reconstruction project in Weligama. They would have to prepare all drawings according to the UDA regulations and would make them ready for approval with the local authorities. This was a summary of all architects with the following remarks:

1. **Galina Innovations**: in total he asked for 37.500 LKR to make the plans according the BoQ. Each typology would be around 650 sq feet. TOTAL=187.500 LKR.

No real positive or negative remarks: the construction engineer knew the office in Galle.

2. **Manamperi Architects**: They would ask 30 rupees per square foot and 2% of the construction cost for the BoQ (knowing the building cost would be around 750.000). This would round up to about 34.500 per typology.
   TOTAL=172.500 LKR.
   Negative remark: it wasn't the architect himself who came to our office.
   Positive remark: normally he wanted to have a percent of each building that would be constructed, but due to the fact that it was a tsunami project he was willing to just make his quote for the typologies.
3. **Kapila Priyantha**: They would ask 45 rupees per square foot and 2000 LKR for the BoQ. They also put in a budget for consultancy fee for the layout-planning, which was 20.000 LKR. TOTAL=176.250 LKR.
   Negative remark: most of the time he was working in Colombo.
   Positive remark: he lived in Paranakade

All three architects were rated nearly equally. There was a conversation between BRC-Fl and each individual architect. Galina Innovations gave a very good impression. He was already working as a consultant architect for CHF and was preparing plans for them for all their reconstruction projects. So he had some experience with working for other NGO's. Furthermore he gave us a lot of information regarding the approval process. We had a look at his architecture firm and he had around 8 people working for him. He promised us he could work with a strict time frame. Although he rated a little more expensive, Galina Innovations was chosen.

He immediately started with the designs before even signing the contract. By working closely together with the architect, the final result ended in three good designs, which were easily adaptable to variations and one less adaptable design. The whole process perhaps toke a little more time than expected, but BRC Fl was very positive of the consultancy provided. In general BRC Fl preferred spending a little more time making the typologies logic and liveable than speeding up this process and providing unsustainable architecture. Nevertheless, a great deal of time was spent by the BRC Flanders construction delegate in checking the drawings. On a weekly basis, updates were given. The architect furthermore provided a set of plans on a bigger scale for implementation.

Once a typology of the BRC-Fl/Gallina and the positioning of the building had been chosen by a beneficiary, the architect would provide three sets of drawings (signed by the architect and the engineer) for the approval with the Local Authorities for the amount of 1500 SLR per different case. If the architect needed to insert a survey drawing (Paranakade, Kapparathota South and Extra cases in Weligama) an extra 1000 LKR would be added.

Receiving the BoQs from the architect, took more time than expected and eventually the construction delegate (in cooperation with the BRC Fl engineer) made the BoQs himself. The rates used for the BoQs were updated from the standard BoQ (partially damaged cases) according to actual increases in building materials and wages. The eventual estimate for each typology ranged between approximately 1.000.000 and 1.150.000 LKR. Therefore all non-essential items were removed from the BoQ and the BoQ became the main document for contractual purposes. These were the main differences between plans and BoQs:

- No internal painting would be provided.
- The amount of pavements was reduced around the building. Mostly only one side had a pavement, while the rest was protected by the plinth plaster.
- No valence-, bargeboards and gutters would be provided.
- The sink of the kitchen would not be provided in some cases.
- No furniture would be provided, which was drawn on the designs.

The beneficiary had been told that we would not provide all items, BUT we would be providing a house which is most liveable for the beginning. If they saved money, they would be able to invest in extra items or some furniture.

5.3 Variations to designs

Initially the typologies of the fully damaged cases were followed very strictly. No real changes could be made to the typologies. The main reason was that BRC-Fl wanted to finish all houses and feared that by allowing changes, the people wouldn't be able to finish the house. Secondly there was the main issue of approval. The beneficiary had received approval to build this typology and therefore couldn't make any changes according to BRC-Fl. This led to a great deal of frustration and problems within our relationships with the communities. The design of the house was not according to auspicious belief and what was the point of building a house if the house-owner would not feel happy living in it. However, beneficiaries had been allowed from the beginning to bring forward an own design, but most preferred to accept one of the four standards and then tried to make changes after approval by the authorities.

Therefore, the program needed to be revised and certain guidelines were drafted according to the following ideas:

- Auspicious beliefs
  - The width and length of the house needed to be astrologically decided. An increase of 1-1,5 foot was allowed.
  - The roof-design could not be symmetrical. The ridge-plate always needed to be shifted from the centre.
  - The amount of perlins can never be even. It was therefore permitted to increase the amount of perlins, but not decrease.
  - The amount of gable walls should be always even. The centre gable wall could therefore not be closed totally.
- The fine for alterations made by the beneficiary: According to the BRC-Flanders engineer, the fine for alterations would be around 50 LKR. As mentioned in the contract, the beneficiary remained solely liable for the whole construction and also for the approval.
- Stability issues concerning the BRC-Fl designs:
  - As mentioned the width and the length of the house could be increased with 1-1,5 foot. Due to the over-dimensioned beams and columns, there was no problem whatsoever from a stability point of view.
  - Internal walls could be deleted or added. They were non-bearing walls and all the forces were shifted to the beams and the columns. Only on the second floor, minimum distances needed to be respected due to the loading capacity of these walls (united by tie beams and stiffening columns). Therefore if the beneficiary wanted to combine the veranda and the kitchen into a bigger kitchen, no problem would arise.
  - Projections for eaves of a slab had to be checked by the engineers. A double reinforcement was needed according to basic engineering rules.
- Extensions to the existing BRC Fl designs were seen as a separate issue (not related to our design). Eventually it was an owner driven project and as mentioned before the beneficiary was solely liable for the building approval and construction.

In general the program, which started very strict, became a program with a lot of freedom. BRC Fl had a major advisory role informing beneficiaries of the extra cost of extra's or alterations and reminding them that the instalments would not be changed. They would have to finish the extensions, the enlargements and the changes within the same instalment scheme. By being more flexible and giving more responsibility, the beneficiary appropriated the whole building process to his own family situation. This resulted in a higher beneficiary involvement, higher creativity and a very personal touch.

5.4 Building permits and approvals

Once a typology of the BRC-Fl/Gallina and the positioning of the building had been chosen by a beneficiary, the architect would provide three sets of drawings for the approval with the Local Authorities. Only if needed by the Local Authorities, the beneficiary had to provide a survey plan (drawn by a licensed surveyor). The people living for example in Pelena South and Gurubebila lived in plots which had been laid out by the government. They didn't belong to a municipality and had to get the approval NOT from the Local Authorities but from Pradeshiya Saba (Village council elected by the people).
The beneficiary had to submit these plans together with the following documents.

- Building Application duly filled
- The Tsunami Police Report
- A.G.A letter of fully damaged case
- The former assessment paying strip

The beneficiary also got the choice to present his own plan, but then needed to take care of the design and signatures for the approval himself.

Due to the fact that quite a lot of sites were smaller than the 6 perches needed according to local regulations, the BRC-Fl engineer went to the Local Authorities explaining the whole owner-driven project. Normally these buildings wouldn't get approval but due to the nature of the project (tsunami) there would be no problem in approving all cases. The chairman gave his permission and no objection was ever filed by the local authorities to the beneficiaries according to BRC-Fl. A letter was asked by the chairman of the Local Authorities which mentioned that BRC-Fl would be helping them financially and checking all the progress. Due to the signed contract between BRC-Fl and the beneficiary which mentions the financial and progress check-up side of the operations, no letter was sent.

5.5 Capacity building / building with pride

Due to the fact that housing construction is an individual program and working financially through a community would delay construction, the project had to transform into an **owner-driven/owner-demand** program, where the beneficiary himself would take ownership from the beginning and would decide the pace of the construction. Nevertheless a group-feeling through the community needed to be obtained in order to guarantee equity.

The methodology was further enhanced by the introduction of bi-weekly **community meetings** and started up initially only for the fully damaged cases. at first this was only done for the fully damaged cases due to the following reasons:

- The first community meetings were of a very technical standard and were intentioned to strengthen the capacity of the beneficiary to become a small-scale supervisor.
- Due to the fact that most partial cases didn't always need any structural work, no time was spent to make a specific workshop for partial damaged cases.
- Only afterwards it was recognized that these community meetings were important for all beneficiaries due to the change in atmosphere. The community meetings had two different sides: social and technical problems would be solved.
- Due to the major time limitations, each sub-project needed to be checked on weekly basis to ensure a continuity in construction.
- Most important was the close contact between beneficiary and aid agency. This helped the BRC-Fl engineers as well as the beneficiaries to keep all activities transparent. All major problems and questions could be asked to the BRC-Fl delegate on a bi-weekly basis.

It was important to have a relationship based on honesty, transparency and equity. The overall goal of the meetings was to strengthen the capacity of the beneficiary on different levels:

- Make sure that there was an open communication with the donor and a mutual understanding of the program: money related issues, changes that the beneficiary wanted, problems with contractors,…
- Strengthen their management skills. All purchase of materials and labour cost had to be kept and written down on the invoice register. These documents would be further used to check if all money had been spent accordingly and was an interesting tool for further audit purposes. The last instalment would only be paid after checking all invoices.
- Beneficiary as own site supervisor to check quality and minimum standards. Initially the program was set up to strengthen the skills of the beneficiary in supervising his own site. Each beneficiary should know the different progress check-ups that need to be checked by the BRC-Fl engineer and should ask for technical guidance during this period. Workshops concerning basic building standards were held during the first two months, which would help them improve quality of work and materials, reduce costs and risks,... At the end of the program, we would further expand this workshop to the site-supervisors. The site-supervisor from each individual household would be appointed to maintain quality and accountability. Nevertheless, the BRC-Fl engineers would be supervising the whole construction on an owner-demand way (not randomly) and make sure that everything was done according to the minimum standards.

5.6 Payments: Instalment schedule and payment mechanism

Payment schedule handled by SDC in general

All affected households outside the buffer zone that were able to demonstrate ownership to land would be entitled to a Grant by the State. Households that did not have ownership to the land were not entitled to this assistance.

Extent of damage	Fully damaged	Partially damaged
Definition	Repair cost is more than 40% of replacement cost of house	Repair cost is less than 40% of replacement cost of house
Assistance policy	Grant of LKR 250,000/- disbursed in 4 stages	Grant of LKR 100,000/- disbursed in 2 stages, irrespective of the level of damage
Disbursement	1st Instalment: LKR 5000 2nd Instalment: LKR 6000 (after foundation) 3rd Instalment: LKR 8000 (after walls ground floor) Final Instalment:LKR 6000 (after roof or slab)	1st Instalment: LKR 50000 2nd Instalment: LKR 50000

- Households within the buffer zone could also utilize the above grant to build on alternate land owned by them outside the buffer zone, but within the same DS Division. Families that had chosen this option would forfeit the right to receive a house built on land allocated by the state.
- Families (other than tenants), with damaged houses on land owned by relatives, would be eligible for financial assistance provided they were able to produce an affidavit from the land owner stating no objection for reconstructing or repairing the damaged house.
- In addition, households that had successfully utilized the grant, would be eligible to apply for a concessionary loan of LKR 500,000/-. The loans would be disbursed through Bank of Ceylon and Peoples Bank. The borrower would have to demonstrate repayment capacity and offer security acceptable to the lending institution. The details of the loan scheme would be finalized and published by the participating bank.

All payments were done by SDC on a weekly basis on Friday. Nevertheless many beneficiaries often had to wait for 3 weeks before the money was in their bank-account. This was caused by internal and external factors.

- The TOs of the NHDA would be responsible for weekly visits to the construction sites. These visits became more and more bi-weekly.

- The TOs were very strict and even after 90% completion of a certain step in construction they wouldn't recommend the next instalment. Construction was then delayed for another two weeks.
- Due to the large scope of the project, SDC needed time to summarize all material given by the NHDA and prepare the next payments that needed to be signed by the DS, GA and SDC.
- If Friday would be an auspicious day (Poya,…) no bank-transfers would be done during that week.
- Bank delays: The whole system was set up that the government banks would pre-advance the money. The bank needed to check the identity of the beneficiary and would be reimbursed by the Treasury. Due to delays in refunding by donors (due to internal problems) the banks would often hold on to the money longer than strictly required.
- Furthermore, one of the major delays in the beginning of the fully damaged cases, was the confusion about payment schedules between the NHDA and BRC-Fl. Although SDC and BRC-Fl agreed to release the next payments, the TOs of the NHDA were constantly hesitating to release the payments. They were refusing to release the third instalment for the slab because the slab was smaller than 500sq feet. They were referring to 'toy-houses' when talking about the BRC-Fl houses. Only after a thorough field investigation together with SDC, NHDA and BRC-Fl, was the matter resolved and payments were resumed.

Payment schedule handled by BRC-Fl in collaboration with the GG.

To be able to supervise the whole financial side of the construction, the beneficiary had to inform BRC-Fl that a certain step had been finished. Every time an essential faze was finished, a request for visit had to be put in the 'Belgian Red Cross BOX' located at the DS office of Weligama. Therefore the program was conducted on **owner demand basis.**

The project delegate built op a managerial structure in excel to make all payments prompt and with a minimal of input. Payments would be made on a daily basis and through this excel document a constant overview of expenses was available. The individual payment requests (signed by the project delegate) were sent together with a summary (bank voucher) to Colombo, which needed to be checked and signed by the country coordinator. Through this set-up, payments could be done on a daily basis and with a minimal input of time.

The payments of BRC-Fl were done separately according to the amount of work done. Two different schemes were worked out: one for partially and one for fully damaged houses:
FULLY DAMAGED HOUSES

- Initially for the fully damaged houses the BoQ was split and the first four instalments of BRC-Fl were seen as a top-up of the government grant. Each top-up would be enough to finish the following stages of construction
    - Step 1 as a top-up of the GG: Foundation finished (plinth beam)
    - Step 2 as a top-up of the GG: Walls ground floor finished
    - Step 3 as a top-up of the GG: slab finished
    - Step 4 as a top-up of the GG: roof finished
    - Step 5 and 6: doors and windows
    - Step 7: internal plastering, elec, water
    - Step 8: external plastering, concreting
    - Step 9: water and sanitation, rendering, tiling and finishing touches
    - Step 10: 40000 LKR for demolition of the old house.
- In a later stage, this was changed and BRC-Fl would reduce their instalments to 8. It was noticeable that during the first part of the programme problems occurred at the end of the project. People didn't want the suggested water and sanitation system; they didn't want to demolish their old house, etc. Therefore some changes were introduced:
    - The septic tank, grease trap and seepage trenches were moved to the middle of the payments.

- No money would be left for the demolition of the old house. Advice would be given from case to case depending on the situation of the old building.
- It was important to start with a small instalment and end with two smaller ones. The ones in the middle could be bigger (even up to 150.000 LKR).
- The entire government grant would be given at the beginning of construction and BRC-Fl would take over from the moment the walls on ground floor were finished.

PARTIALLY DAMAGED HOUSES

- The partially damaged houses were initially split up into maximum 7 instalments. Eventually this was reduced to a maximum of 5 instalments.
- It was important to start with a small instalment and at least end with a small one.
- The BoQ was split up in a logical way according to the process of construction: first demolishing works, then doors/windows and roof, then plastering, then concreting, etc.

5.7 Technical check ups / stage approvals

The main objective was still two-fold: giving technical and financial assistance on top of a partial or complete governmental grant to the families that still needed to renovate or rebuild their houses. Several guidelines and workshops were held to improve the technical capacity of the BRC-Fl engineers. Minimum standards were set and beneficiary files were made that needed to be updated in the field. These workshops were eventually also used to strengthen the capacity of the beneficiaries.

The project engineers of the Belgian Red Cross Flanders would perform progress check ups at the end of the milestones (16 in total: see contract with beneficiary). No further work could be performed until the milestone had been checked. Every time a milestone had been reached, a request for visit had to be put in the 'Belgian Red Cross BOX' located in the DS of Weligama. This BOX would be emptied on a daily basis and the project engineer would come to visit the construction site the following day.

Workshops were given to make the beneficiary an own site supervisor to check quality and minimum standards (see 5.e: capacity building).

5.8 Site Reporting: receipts – engineers site reports – photo's

All the invoices related to the acquisition of materials and labours needed to be handed over and filled in invoice register by the beneficiary. After finishing a certain step of the construction, this document had to be handed over before the next instalment would be transferred. This procedure delayed the construction process and was eventually changed. Most important was the fact that the last instalment would only be transferred after a financial assessment of the whole project. If the beneficiary did a lot of work himself and saved money, BRC-Fl would permit that the savings would be used for further finishing touches of the house (for example painting, gutters, etc.). The engineers would have to testify that the beneficiary had approximately saved a certain amount of money by working himself. The administrative support of BRC-Fl in Matara would update all invoices on a weekly basis.

The engineers were responsible for the technical progress check-up on field level and needed to update several documents for internal and audit purposes.

- One document which both the beneficiary as the engineer had to sign off showing all milestones.
- Furthermore the construction reporting file needed to be updated on a weekly basis: this is a document with general information concerning each milestone in construction but with extra comments and remarks of the engineer (good work, which materials, which problems, etc.)
- A summary of the as-built drawings of the water and sanitation including extra questions.

- Picture-files of the construction.

The project delegate (construction delegate) would be in charge of final-pictures and collages for donor purposes and as a souvenir/gift for the beneficiaries.

5.9 Issues and constraints

5.9.1 Water and Sanitation solutions

In general the following guidelines were used for the owner-driven projects in Weligama Division concerning the water and sanitation issues. A lot of time was spent on advocacy for a good system. All systems used in the country for separate households were introduced to the beneficiaries. During the bi-weekly meetings the water and sanitation issue was elaborated on with different guest speakers.

- IFRC Watsan presentation on dry toilets.
- BRC Watsan presentations on different systems
    - Biocell filters
    - Dry toilets
    - Normal septic tank, seepage trench and soakage pit systems
- Also the PHI (Public health inspector). accepted BRC-Fl minimum standards as a good alternative and tried to persuade the community with the following comments:
    - By a very participatory conversation with the communities he would ask what problems most people had suffered before. Most of the complaints were due to high water level and therefore the solution of BRC-Fl was considered a good solution.
    - He talked with the community about auspicious elements. Drinkable water and water and sanitation are put in two diagonals according to the building so that the former doesn't get contaminated by the other.
    - If there were problems due to the high waterlevel, the tank needed to be put 1/3 above the ground.
    - By telling all different stories of soakage pits, he tried to convince the beneficiaries that the BRC-Fl model is one of the good ones.

Most of the beneficiaries had chosen for the most basic system of a septic tank with seepage trench for the black water and a soakage pit for the grey water. BRC-Fl provided two different sketches which had to be adapted for all the fully damaged cases and certain guidelines needed to be followed:. One system was for high water-table and another was for low water-table. With the high water-table the septic tank as well as the grease trap should be put 1/3 above the ground up to a level where the outlet was put above the ground. In this way there would never be a back-flush of water into the tanks. The tanks were therefore contained and no black or grey water could pollute the surrounding area.
These were the basic guidelines for the water and sanitation:

- GREY WATER (from kitchen sink, wash basin and shower area):
    - All the water should be collected in pipes with a diameter of 2".
    - At each bend a pvc (6"*6"*9") man hole or concrete manhole had to be placed for cleaning out the pipes in case of obstruction.
    - All water had to be collected in a grease trap (3'*3'*3') with a capacity of minimum 500 liters. Both the inlet and the outlet had a T-bend. The inlet had a diameter 2" and the outlet has a diameter 4". The cost should not exceed 8000 LKR.
    - The outlet needed to go to a soakage pit consisting of concrete rings 3 feet diameter or a 110mm PVC tube perforated with holes, at least 3 feet in the ground. Another option was to direct the outlet to a seepage trench (if enough land was available) of minimum 10 meters long depending on the percolation rate of the ground. The rings of a soakage pit had to rise at least 1 foot above the unleveled ground. This way the dirty water would be contained, if the water level rose above ground level.

- BLACK WATER (from the toilet):
    - All the water needed to be collected in pipes with a diameter of 4" (110mm). These pipes had to be laid in a layer of sand to protect them from the surrounding rougher ground.
    - At each bend a concrete manhole or special pvc-fitting had to be placed. In this way the sewerage system could be cleaned every time.
    - From the manhole all the black water would be released into a two-chambered septic tank (see annex 2). All plans needed to be followed as given. In Sri Lanka there were pre-cast cylindrical septic tanks (3 feet diameter and 8 feet long). They are of relatively good quality (in some places) and guarantee water-tightness. The inlet and outlet had to be sealed off properly and the outlet had a T-bend so no 'floaters' could go to the seepage trench.
    - The overflow had to go to a seepage trench OR if the land-area was not big enough, a soakage pit wasthe alternative.

Furthermore due to the fact that a lot of the properties often suffer seasonal flooding, each house was checked case by case. If a beneficiary decidesd to deviate from the BRC-Fl system and chose a cheaper system, BRC Fl did not pay for this and a certain amount of money was deducted.

Constraints and resolutions

One of the major problems in implementing the minimum standards set by BRC-Fl was the mentality of the population. Most people had used a normal soakage pit all their lives. Sometimes it didn't work, but it was still there. Most people had no interest in upgrading their system. Even after months of workshops, advocacy for respect for nature, related diseases, etc., many households were not persuaded. Eventually BRC-Fl decided to deduct 20.000 LKR from the last instalment if they didn't fulfil the minimum standards. (All people in Pelena South choose for this option). In total the cost of the most basic water and sanitation system would be around 20-25.000 LKR and in our budget we had allocated 55.000 LKR.

In a lot of area's there was no water supply. Therefore it was impossible to obligate the beneficiaries to make a grease trap. All beneficiaries in this area did install the septic tank and the seepage trench.

In Sri Lanka, the diversity in quality of septic tanks was tremendous. Even one supplier wouldn't be able to provide two identical septic tanks. Some were of very low quality and the thickness of the concrete was insufficient to be watertight. Most tanks used in the owner driven program were brought by a contractor helping widows from a factory based in Colombo. The quality of the concrete was very acceptable and the inner division of the septic tank was of adequate quality.

5.9.2 Unauthorised variations to design

As mentioned before (variations to designs), the program became very flexible and a summary of all authorised variations have been given above. Nevertheless there were a couple of unauthorized variations mostly related to health or stability/water tightness.

- No Asbestos material could be used for health reasons, nor metal sheeting (which would be too hot in this climate and probably too expensive). Off course if they would use it as under-roof, BRC-Fl couldn't do anything (not in BRC-Fl BoQ).
- All stability elements had to be respected: foundation depth, diameter of reinforcements, inter-space between the reinforcement, etc. Only when necessary could changes be made: for example one house hit rock while laying the foundation.
- If a BRC-Fl design was used, the top-floor had to be finished off with tiled roof. A slab would not be watertight for more than 10 years and problems would promptly appear. Even for partially damaged cases with a small extension, it was not permitted to end with a slab.

5.9.3 Slow implementation pace

Due to the fact that the program was owner driven, the pace would be decided by the beneficiaries themselves. The project engineer and delegate were mostly there as advisors and even had an important role to follow up on the implementation. Each sub-project had different time-lines, but nevertheless each time-line should have been sufficient to finish the building.

Furthermore, although the implementation pace was viewed as slow, the process of construction was mostly quicker than the donor-driven sites. There was no problem with supply of materials or the search for daily labourers and most of all there was a strong motivation within the community to rebuild their lives and hoods. The initial slow implementation pace was mostly caused by lack of information and a total new set-up of the program. Once the pilot project was evaluated and a managerial structure was set in place with objective criteria, goals and tools, construction progressed quicker and more fluent.

5.9.4 Problems with counterparts: SDC, RADA, NHDA, etc

One major problem was encountered with SDC. At the beginning of the project SDC had heard from their TOs that BRC-Fl was building “toy-houses”. After field-visits these rumours were dismissed and construction could proceed. Due to the fact that the houses were two-story, the ground floor wasn’t very big and when putting the foundation, it seemed very small. Nevertheless, now that the houses are finished, most of them are of very nice standards and all essential rooms are present. (for more details see 5.f)

5.9.5 Financial constraints : bank problems, Government Grant problems

During the months of May and April2007 there was a great constraint with the Government grant. The banks wouldn’t pay the beneficiary. The treasury hadn’t paid out the banks who pre-advanced the base grant and the banks were starting to worry if they would ever be reimbursed. The government wasn’t able to show reliable documents regarding the selected beneficiaries. The donors who were reimbursing the grant, put everything on hold and the money flow was stopped. After two months of negotiation between SDC and the Treasury, all banks in Matara District paid the remaining balance to the beneficiaries. Nevertheless, hundreds of families are still waiting for their last instalment in Matara District.

5.10 Handover / Liabilities

Due to the fact that in the contract it is mentioned that the beneficiary is solely liable for construction, there is no real liability towards BRC-Fl. Nevertheless, it could be that some beneficiaries would come back to the BRC-Fl mentioning that they didn’t receive a totally finished house according to the objectives set. This is due to several reasons:

- For each different sub-project (inside or outide the bufferzone, partially or fully), a different set of objectives was set. These differences complicate the transparency of the program and people start comparing the different situations.
- Some people used the money for other items not mentioned in the BoQ and therefore were not able to finish their house.
- In some situations, the cost for repairing the partially damaged houses exceeded the 400.000 LKR and therefore the objectives could not be fulfilled.
- Sometimes, after removing the decayed plaster extra items needed to be fixed. These were not integrated in the initial BoQ and the beneficiaries had to make decisions what they wanted to renovate.

Due to the fact that the reconstruction program was owner-driven on owner-land, the handover would be much easier than relocation sites. The beneficiaries already had ownership of the land and the house.

6.Final Results (this needs to be filled in at a later stage)

6.1 No Houses finished/unfinished according to criteria/stopped

Definitions

Finished and unfinished houses: according to the criteria set in chapter 4

There are several reasons why the houses are unfinished:

- people start to build bigger houses then planned but did not have the money, in this case the payment got stopped by BRC-Fl.
- people don't follow the pre-set rules also in this case the payment got stopped.
- the progress of construction was very slow so by the time the program was finished and the grant got stopped the house was not ready

Payments were stopped by BRC-Fl for several reasons:

- one of the main reasons was that people had already received help from another NGO
- the beneficiary had money of his own and finished the house by himself before the program was closed down

So houses can be finished but the grant can at the same time be stopped by BRC-Fl.

Grama Neladari	Total number of houses	Finished	Unfinished according to the criteria set (including watsan acitivies)	Grant Stopped by BRC-Fl
Outside the former buffer zone (partially and fully damaged)				
Paranakade pilot project	20	19	1	3
Gurubebila	37	37	0	0
Kapparthota South	3	3	0	0
Paranakade	40	37	3	3
Inside the former buffer zone (partially)				
Gurubebila	30	30	0	0
Kapparthota South	2	2	0	0
Paranakade	16	13	3	3
Extra cases Weligama	2	2	0	0
Inside the former buffer zone (fully)				
Gurubebila	16	13	3	3
Kapparthota South	5	4	1	1
Paranakade	31	25	6	7
Pelena South	23	18	5	5
Extra cases Weligama	42	34	8	8
TOTAL				
	267	237	30	33

6.2 No Houses Self built / through contractor/unfinished watsan activies

Definitions

Self-built: the owner looked himself for daily labourers for each different step in the construction (masonry, carpentry, plastering, etc). He further had the possibility of integrating his own labour.

Through contractor: the owner asked a contractor to build everything. Nevertheless he could save money in integrating his own labour.

Unfinished watsan activities: the minimum standards of the BRC-Fl were not fulfilled (see 5.i.1)

In total there were 8 cases of which the watsan items were not installed.

6.3 Financial Report

Preparatory cost and	25.490 LKR

community meetings	221 €
partially damaged houses	42.798.770 LKR 302.942 €
fully damaged houses	88.735.000 LKR 621.254 €
consultant	378.500 LKR 2799
TOTAL DIRECT PROJECT COST	131.937.760 LKR 927.216 €

** Total direct project cost excludes expat and local staff expenses, indirect (shared) cost of the HNS, and any other indirect related expenditure*

6.4 General Remarks and lessons learned.

Overall the project evolved towards a participatory owner-demand program embedded in a well-outlined program structure with clear criteria and objectives. Throughout the whole setup and implementation, the project had to transform and these are some of the lessons learned:

1. Community based beneficiary selection procedure: the overall goal of BRC-Fl was to involve the community in the selection procedure to identify the most vulnerable. Different strategies were tested but all seemed too threatening. This was probably due to several reasons:
   - The whole set-up of post-tsunami construction where the government had a major role in coordinating the beneficiary selection procedure. No leading agency was sent to strengthen their capacity or even to control them (SDC had a small role in the district of Matara). In general the population had lost confidence in their own government and didn't trust their interventions.
   - Although BRC-Fl was trying to work through a Community Based Approach, the program itself wasn't communal at all. The money would be only allocated to individual households and only the selected people would benefit from the program.
   - Probably one main constraint could have been the cultural history of casts in Sri Lanka.

   A lot of time was spent in integrating the technical assessment with a social assessment. The TA would assess the household and the house and would help BRC-Fl to choose beneficiaries in a much more objective way without putting pressure on the community. A strong set of criteria and objectives had to be worked out to ensure transparency within the selection procedure and implementation mechanism. Criteria had to remain simple and workable but had to ensure equity among the selected beneficiaries.
   If more time could've been spent with the community and if the reconstruction program could've been integrated in a larger scope of programs (livelihoods, water and sanitation programs, waste-management, etc), perhaps the community would've been open to participation: the whole community could then benefit from different smaller programs.

2. Allocating money to individuals instead of to communities: the reconstruction of a house is in general a more individual process, but nevertheless a group feeling through community meetings needed to be established. Money had to be allocated on individual level (owner-demand basis).

3. Community meetings helped to ensure equity between all individuals and helped to form an open-relationship between the donors and the beneficiaries. Although

these meetings started off very technically, they transformed into an open forum where all people could address their problems and frustrations.

4. To ensure clarity and practicability of the program, several managerial structures needed to be made. Contracts, reporting files, assessments, etc need to be in place from the beginning. Payment systems need to be simple and fast. If the program would needs to be enlarged, simplicity would help accomplishing this.

5. Working together with other agencies as a top-up program. It is always difficult in combining two different objectives from two different organizations in one single program. Although the relationship with SDC wasn't all too bad, a lot of delays and problems occurred during construction. Nevertheless it has to be said that SDC took a major leading role in coordinating the revised buffer zone. The two different actors (BRC-Fl and SDC) had different end-objectives due to scope of works (scale).

6. Freedom of design versus finished houses. After having set all the criteria and objectives, it was important to address these issues to the beneficiaries. Therefore it was important to have a relationship based on honesty, transparency and equity. BRC-Fl never believed in total freedom of design. BRC-Fl would take a very advisory role in checking the beneficiaries own design. From the beginning the community was informed about the objectives that needed to be reached and a constant drive towards this goal had to be stimulated. In many cases, all objectives were reached but in some cases only for 80-90% (back-wall not plastered, kitchen not rendered, etc).