

Owner Driven Housing Construction Strategy

Best Practices

for the

Resettlement of Disaster Victims

Through Housing Reconstruction Programme

By

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North East Housing Reconstruction Programme

(World Bank and EU Funded Programme)

Government of Sri Lanka

North East Housing Reconstruction Programme

General

North East Housing Reconstruction Programme is a war damaged Housing Reconstruction Programme being implemented by Government of Sri Lanka in Northern and Eastern Provinces with the financial assistance of the World Bank and European Union. The World Bank has credited US \$ 118.86 million as soft loan and European Union has given US \$ 21.98 million as grant for this reconstruction programme. The Government of Sri Lanka implements this programme of US \$ 146.86 million with the government counter part fund of US \$ 6.52 million. NEHRP has planned to construct 53,399 houses with this fund at the unit rate of US \$ 2900.

Background

Sri Lanka faced an ethnic conflict for more than 35 years. During this conflict, people were forced to leave from their home and lived as refugees in Sri Lanka and other countries. Due to the counter and continues displacement and disaster, most of the people frustrated and lost the hope of their future. Many of them lost their earning sources, opportunities and became idle. Most of these victims were looked after by Government, United Nation agencies and other organizations in refugee camps, and their home land itself. As a result, these victims become dependent on these care taking agencies for their survival, lost the interest of earning and lost the hope of self confident life.

Scope of the Programme

This programme is established to restore the normal life of the war victims by strengthening through motivating and training to reconstruct their houses themselves. To achieve this target, NEHRP has established its own strategy named, “Owner Driven Housing Construction Strategy” to reconstruct the war damaged houses through the victims themselves. Initially, NEHRP tested this “Owner Driven Strategy” by assisting to the beneficiaries to construct 860 houses in the year of 2004. Based on the experience, lessons learned from the pilot project, NEHRP modified its Owner Driven Construction Strategy and launched its construction programme in the year of 2005.

Owner Driven Strategy

Under the Owner Driven Housing Construction Programme, the donor provide cash grant, technical guidance, monitor the construction activities and ensure quality of the construction. The beneficiaries determine their housing requirement as they need, plan the housing construction activities and reconstruct their houses based on their requirement and economic capability, without deviating the basic requirement of the NEHRP housing construction.

Assumption

The basic assumption of the strategy is that no one will construct inferior quality houses for his own use. To ensure the construction quality of the houses, NEHRP provide cash grant of Rupees 350,000/- (US \$ 3,000/-) in five stages to the beneficiaries to reconstruct their houses. In NEHRP's implementing system, NEHRP issue the cash grant in advance to the worth of the construction materials and skill labour component of the particular construction stage and guide the beneficiaries to complete the target. NEHRP Technical Officers ensure the utilization of the grant for housing construction and the beneficiaries are not permitted to use the grant or part of the grant to any other purpose.

NEHRP Management System

NEHRP has integrated quality into its implementation strategy. Quality practices shift the focus from inspection to prevention of error, which turn eliminates the need for the expensive testing during the implementation. NEHRP adopts is "Total Quality Management System". In this approach, NEHRP ensure quality in every process, every job and every person such as materials selection, construction workers selection, and selection of construction plan, selection of construction technology, knowledge of beneficiaries, knowledge of construction workers and knowledge of Technical Staff.

This project is designed for a period of eighth years since 2004. Every year, NEHRP select the beneficiary and assist to construct their houses by providing grant and technology advice. NEHRP has designed it s "Owner Driven Strategy" and continuously improve to increase the efficiency of the project. To improve the quality, NEHRP follow 'Plan – Do-Check-Act (PDCA) cycle' methodology. Every year, NEHRP plan out their

annual activities with the previous year experience, and implement as they planned. While do the implementation, they study further and analysis to improve the efficiency for the future implementation.

The character of the implementing area varies from village to village and society to society. Success of the implementation is depending on the turning up of the implementing strategy to suit to the unique characteristic of the villages. To overcome this challenge, NEHRP has adopt “Keizen” approach. “Kaizen” is a Japanese approach, that defines management’s role is continuously encouraging and implementing small improvements involving every one.

NEHRP encourage individuals to work as group in order improve the group dynamics. The programme provide training to it’s staff, deploy to participate in strategy improvement, encourage for the innovation and respect them by giving leadership in the implementation activities. Therefore each staff of NEHRP are inner motivated by getting responsibility for the quality of his or her work and for the work of the group. This approach direct for the continuous improvements in small increments that makes the process more efficient, effective, controllable and adequate without sophisticated techniques and additional capital.

Advantages

Owner Driven Housing Construction is the most appropriate Housing Reconstruction strategy to motivate the victims to construct their own houses as they prefer and restart their normal life. This strategy have countless financial and non financial advantages.

Non Financial Advantages

In order to implement this programme successfully NEHRP guide and motivate the beneficiaries to participate in materials procurement, construction management, construction activities, involve in bank transactions activities and work together as community. Through the Owner Driven Housing Reconstruction, the beneficiaries get opportunity to get training in construction technology and self management to strengthen their ability and confidence for their self standing life.

Through this programme, NEHRP educate all the beneficiaries about the basic construction techniques and construction management. Further NEHRP train the rural youths in construction technologies and make them to involve in their housing construction activities. Further they assist to find jobs in the construction field after the completion of their houses.

In order to ensure the flow of materials, NEHRP identify the local construction materials production opportunities, guide the local manufactures to start construction materials productions. NEHRP train the local construction employees also to use locally available materials and encourage the beneficiaries to adopt those materials. Where ever necessary, NEHRP arrange training for local manufactures to get adequate training in local materials production technologies. Because of the NEHRP initiative, not only the selected beneficiaries but also whole area is getting benefit. By this activities, NEHRP ensure flow of materials throughout the construction period.

Generally, Sri Lankans prefer to maintain their Housing Construction heritage and follow the “Housing Astrology” during construction. These people do not like the houses, which were constructed by others with out their involvement in the matter of housing astrology and heritage. Since Owner Driven Housing Construction Strategy allow the beneficiaries to construct their houses themselves, beneficiaries get opportunity to adopt their heritage and housing astrology. This situation make beneficiaries to feel the ownership of the house.

Since each beneficiaries individually construct their houses under Owner Driven Strategy, entire houses are being constructed simultaneously. As a result, construction progress is very high in this programme.

Based on the size of the family and type of employment, the housing need varies from family to family. For example, bigger family may prefer some additional rooms to accommodate all the family members. Similarly different geographical area beneficiaries may prefer different type of house pattern to suit to their type of employment. For example, the farmers may need an air tight store room in their house to store paddy and

grains during the harvesting season. The fishermen may need a long verandah to store and maintain their fishing nets. In Owner Driven Housing Construction Programme, beneficiaries get opportunity to construct their house considering these requirements.

Financial Advantages

There is also a lot of financial advantages in Owner Driven Housing Programme. In North East Housing Reconstruction Programme, beneficiaries construct US \$ 7000 worth of house with US \$ 2,900

Since beneficiaries are allowed to plan and construct their houses themselves, the Beneficiaries get opportunity to construct their houses with their physical work contribution. According to the survey, 90 percent of the unskilled works and 20 percent of the skill works have been contributed by the beneficiaries. Further the survey reveal that they could save maximum \$ 3,000 and average US \$ 1,500 in their housing construction, due to their skill and unskill work contribution.

Further, the beneficiaries get opportunity to contribute their own money and construct bigger size house than the NEHRP minimum requirement. According to NEHRP survey, 50 percent of the beneficiaries have financially contributed for their housing construction. This financial contribution is mostly from their savings of the past. The survey report says that 7% of the beneficiaries received loan from the lending institutions to construct bigger size house. These lending situations further induce the beneficiaries to find a job and earn more money to meet their additional construction expense. According to the survey, beneficiaries; contribution is maximum of US \$ 1,599 and average of US \$ 150.

Most of the beneficiaries are from rural area and they have quality trees and sand etc. in their own land, which can be used for the construction of houses. Further they have the opportunity to collect different kind of indigenous construction materials such as river sand rubble etc., from their village itself with their labour contribution. Since beneficiaries construct their houses, they get opportunity to adopt the locally available

materials for their housing construction. According to the survey 21 percent of the beneficiaries have casted clay bricks and 62% of the beneficiaries casted sand screed blocks themselves. The NEHRP survey reveals that the beneficiaries have saved maximum of US \$ 1,500 and average of US \$ 500.

According to the survey, 30% of the damaged houses are still remaining in damaged condition. These houses are in different level such as foundation level, lintel level and roof level etc. Some of the houses have been damaged and parts of the house remain in living condition. Since beneficiaries are constructing on their own, they get opportunity to adopt the portion of the damage houses to their new house, which are in good condition. Further they get opportunity to reuse the materials from their damage houses also. According to the NEHRP survey, 30 percent of the beneficiaries has uses the materials of the damaged houses and saved maximum of US \$ 2,000 and average of US \$ 500. Another 30% of the people have adopted the portion of the damage house to their new house and saved average of US \$ 600.

Most of the construction activities are in rural area, where the public transportation and infrastructure facilities are very poor. Therefore these beneficiaries face difficulties to transport building materials from the cities and have to spend more money to transport the materials. To overcome these issues, NEHRP coordinate between beneficiaries and the whole sale suppliers and encourage for the “Community Based Bulk Procurement”. In this approach, beneficiaries get together and purchase building materials in bulk from the whole sale dealers and share among them. According to the NEHRP survey, 90% of the beneficiaries have procured certain portion of the building materials through “Community Based Bulk Procurement”. By community bases bulk procurement, the beneficiaries have saved maximum of US \$ 500 and average of US \$ 150.

In the existing “housing project implementation through contract”, the government recover 15% of the total cost as Value Added Tax. Generally the contractor requires another 20% of the budgeted cost as his profit. The contractors also have to spend another 10% of the cost for their supervision and management activities. Since the

beneficiaries directly involve in Owner Driven Housing Reconstruction programme, beneficiaries could save average of 45% of the construction cost, which are spend for the contract activities in normal contract system..

Further the NEHRP expenditure statement of past four years says that, the implementation cost of North East Housing Reconstruction Programme is just seven percent of the total project cost. This implementation cost include the administrative cost, consultancy service cost and skill training cost. This cost effective implementation is another remarkable achievement of the Owner Driven Strategy.

Description	Adoption Rate	Saving Range in Rupees	Average Saving in Rupees
Adoption of the portion of the damaged houses, which are in good condition	30%	Rs. 30,000/- to Rs. 200,000/-	Rs. 60,000/-
Reuse of Damaged House materials/Temporary shelter materials	50%	Rs. 30,000/- to Rs. 100,000/-	Rs. 50,000,-/-
Use of locally available materials	80%	Rs. 30,000/- to Rs. 150,000	Rs. 50,000/-
Community based bulk procurement	90%	Rs. 10,000/- to Rs. 50,000/-	Rs. 25,000/-
Beneficiaries' Physical Contribution	90%	Rs. 50,000/- to Rs. 300,000/-	Rs. 150,000/-

Source: NEHRP Survey

Table 1: Saving in Owner Driven Housing Reconstruction Programme (NEHRP) Challenges

Even though there are lot of advantages in adopting the Owner Driven Constructing Implementing Strategy, North East Housing Reconstruction Programme faces lot of challenges to implement this housing reconstruction programme.

- Most of the beneficiaries are not educated;
- People are de-motivated due to three decade of ethnic conflict and continuous disaster and displacement;
- They are seriously affected by ethnic conflict and have lost their hope of future;
- Most of them are poorest among the poor and living invulnerable condition;
- They do not have permanent income sources for last three decade. As a result, they become dependable community;

- Most of the beneficiaries are not having adequate knowledge and experience on housing construction;
- Most of the project areas are not having adequate infrastructure facilities to implement the construction programme;
- Construction materials are not available in required quantity and appropriate quality in the local vicinity;
- Shortage of construction workers and laziness among the beneficiaries;
- There are possibility that the beneficiaries may spend portion of the grant for their other immediate needs;
- Uncertainty in certain places which de-motivate the people to concentrate in housing construction;

Action to Overcome the Challenges

This programme is designed to implement with adequate measure to overcome these challenges. First of all, this housing reconstruction programme is planed to implement in 7 years to ensure the availability of adequate resources and readiness of the people. Every year, NEHRP select the villages and after that they identify the eligible beneficiaries for their grant based on the selection criteria.

During the village selection, the engineering section takes following steps to measure the construction requirement and plan out the implementation activities to overcome the implementation issues of the particular area. For this purpose, NEHRP has arranged pilot survey with the team of engineering and technical staff to visits to the selected villages.

- They study the existing infrastructure facilities of the area such as roads, electricity, lodging facilities;
- Water level, capacity of the soil etc;
- Quality and quantity of the locally available construction materials;
- Quality and availability of the construction workers;
- Nearest construction material purchasing locations and the tentative prices and
- Local material production possibilities.

Considering the pilot survey data, the technical group prepare suitable structural and architectural house plans to suit to the particular area. After the selection of the beneficiaries, the team of NEHRP officers conduct meeting with the selected beneficiaries, construction workers and other interesting well-wishers. During the meeting,

- NEHRP issue the construction guideline and explain about the Owner Driven strategy;
- Further they explain about the advantages and disadvantages of the housing construction through Owner Driven Strategy;
- Opportunity and possibility of the physical contribution.
- Cost reduction methods such as bulk purchase, use of low cost materials, use of locally available materials, reuse of the damaged house materials, reduction of material waste and preservation of materials;
- Further they show the samples of house drawings with material, construction workers details and explain about the construction steps in brief with the costing and beneficiaries' contribution
- Guide to purchase materials and check the quality of the materials;

During the construction period, North East Housing Reconstruction Programme monitor the construction activities very closely, ensure the quality of the materials, quality of the workmanship and certify for the payments.

These activities are followed throughout the construction period. For the implementing purpose, NEHRP has arranged to pay the grant in five installments. The first part of SLRS 50,000/- is paid as advance to construct the portion of the house, not less than the foundation to of 500 square feet and purchase construction materials to the balance money.. With the certification of the Technical Officers, the second installment of the grant is paid and guided to construct up to the roof level. Then the third installment of SLRS. 100,000/- is paid and guided to complete roof and frames of doors and windows. Then they pay the forth installment of SLRS 70,000/- and guide to do all the finishing and finally pay SLRS. 30,000/- to settle the loan if any. Each stage grant

amount is fixed by NEHRP after studying the cost of the materials, skill workers and unskilled workers.

Table 2: Construction Cost Different between Owner Driven Construction Strategy and Contract System Implementation

Description	Standard Construction cost	Construction Cost in Owner Driven Construction		Construction Cost in contract system	
		Rs.	%	Rs.	%
Tax	500,000		0	15	75,000
Supervision Charge	500,000	0	0	10	50,000
Income Tax	500,000	0	0	5	25,000
Profit	500,000	0	0	15	75,000
Beneficiaries physical Works	500,000	17.8	-89,000	0	00
Bulk Procurement	500,000	9.4	-47,000		00
Damaged house portion adoption	500,000	2.2	-11,000		00
Use of damaged house materials	500,000	1.0	-5,000	0	00
Use of preserved materials	500,000	2.2	-11,000		00
Use of Local Materials	500,000	2.8	-14,860		00
Actual Construction Cost in Percent and Rupees		-35.4%	322,400	+37 %	725,000

Source: NEHRP Initial Assessment Records

In addition to the NEHRP supervision, independent Consultant are deployed to guide and assist to construct the houses to the acceptable quality. The consultants assist to prepare village level construction programme, during the village selection. During the construction, they monitor the construction activities and periodically report to NEHRP with their recommendations to improve the quality of the construction.

NEHRP conduct appropriate training programmes to ensure the availability of rural construction workers, update the knowledge of the traditional workers and improve the construction knowledge of the beneficiaries conduct skill training course for rural

youth in masonry and carpentry technology in the construction field itself. Further they train the existing traditional construction workers in short training camps to learn the latest and low cost construction technologies and understand NEHRP requirements. In addition to this, the beneficiaries also have been trained to know about the construction activities minimization of wastage, identification of building materials and supporting action to ensure the construction quality through out the construction period.

To avoid adverse affect the construction activities, NEHRP has hired independent environmental consultant to asses the construction activities and in form in advance with their suggestion for the safety measure to avoid environmental disaster.

Up to June 2009, NEHRP has assisted and beneficiaries successfully constructed 33,000 houses under war damages reconstruction project and 43,000 houses under Tsunami victims project.

Conclusion

North East Housing Reconstruction Programme has assisted to reconstruct 43,000 houses of tsunami victims and 33 thousands houses of war victims through Owner Driven Housing Reconstruction Strategy. Further these 76,000 house owners were motivated and strengthen to come to normal life with by making them to participate in the construction activities. These houses are minimum US \$ 7,000 worth and NEHRP has spend maximum US \$ 2,000. The project implementation cost also average 7 % of the total project cost.

The Owner Driven Housing Strategy is the most ideal strategy to implement housing projects for disaster victims to strengthen their capacity and restart their life through training and construction their houses through them.