Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Federal Department of Foreign Affairs FDFA

Swiss Agency for Development and Cooperation SDC
Swiss Humanitarian Aid and SHA

HUMANITARIAN AID (SDC-HA) PAKISTAN

RECONSTRUCTION AND LIVELIHOOD PROGRAMME RLP

Housing Reconstruction Programme Pakistan
Report on Model Houses in the two union councils
(Shamlai District Batagram, Mohandri Tehsil Balakot)

October 2007 to May 2008

Authors:

Muhammad Yousuf — HRC Engineer Batagram
Asad Farooq — Head of HRC Balakot

Contributor:

Martin Weiersmueller — Programme Advisor Reconstruction and Livelihood Programme (RLP)
Azam Beg Tajik — Programme Manager Community Development

Mansehra 16th June 2008

Table of Contents

Abbreviations:

AI Team	Assessment Inspection Teams (Army)
AJK	Azad Jamu Kashmir
BHU	Basic Health Unit
CBO	Community based Organization
DRU	District Reconstruction Unit
DHC	District Housing Coordinator
ERRA	Earthquake Reconstruction & Rehabilitation Authority
GTZ	German Technical Cooperation
HRC	Housing Reconstruction Centre
IP(s)	Institutional Partner(s)
JWO	Jirga Welfare Organization
LFA	Logical Framework Analysis
MT	Mobile Teams
NGO	Non-governmental Organization
NWFP	North West Frontier Province
ODC	Organization for Development and Cooperation
OT	Outreach Team
PO	Partner Organization
RLP	Reconstruction and Livelihood Programme (SDC-HA)
SDC	Swiss Agency for Development and Cooperation
SM	Social Mobilizer
SRSP	Sarhad Rural Support Programme
ToT	Training of Trainers
TMIS	Training Monitoring Information System
UC	Union Council
VRC	Village Reconstruction Committee

1 Background and need of model houses

The devastating earthquake on the 8th October 2005 over an area of 30,000 square km across NWFP and AJK killed 88'000 and injured more then 100'000 people. As a result according to the official statistics of government of Pakistan 460'000 houses damaged. Most of the damages occurred in the rural and mountainous areas.

Soon after the earthquake, the government of Pakistan established Earthquake Reconstruction and Rehabilitation Authority (ERRA) with the mandate to coordinate the implementation of reconstruction and rehabilitation of all affected areas in all sectors, private housing reconstructions was one of the key sectors.

The overall objective of the rural housing reconstruction programme is to ensure that an estimated 460'000 houses that were either destroyed or damaged, will be rebuilt by using earthquake resistant building techniques, through grant assistance from the Government to eligible households.

Awareness on safer construction practices is the key for ensuring earth quake resistant construction of houses and thus reduction of risk for future earth quake disaster. How ever common people have very little exposure to get information on safer construction practices and also have limited access to such information, there was a tremendous need of public awareness campaign and information dissemination on earth quake resistant construction practices and as many as possible house-owner, self builder have to be covered by such information dissemination training and orientations. Beyond trainings and mass campaign on different earthquake resistant construction techniques and designs, construction of model houses was one of the very effective activities in the communities. Model houses aimed to serve as unique sample of the ERRA's approved different construction designs available in the communities, and serve as a hand on training for the local craftsmen in order to learn practically. Moreover, these model houses will be given to the extremely vulnerable families and some will be used as community centre or vocational training centers.

1.1 Procedure for selection of model house

A detail survey was carried out in UC Shamlai and Mohandri for the selection of sites for constructing model houses. The following steps were adopted to find out vulnerable / community welfare center.

- VRC and cluster meetings were conducted
- Selection of accessible and focal point in cluster through public meeting
- Meetings of all chairmen of VRCs conducted and selected sites for model houses with mutual consensus.
- Sensitized the people regarding welfare activities in public meeting.
- Vulnerability were discussed
- The criteria of vulnerable were identified
- MTs identified and assessed the most vulnerable families as per the criteria.
- Final list of direct beneficiaries approved from VRCs and MTs.

1.2 Out comes of model house

- Awareness campaign for the ERRA approved conventional construction methods.
- Train the craftsmen of the area so that in future these construction methods could be replicated.
- The craftsmen (mason, self builder and carpenters) are trained in the basic concept of earth quake resistant construction (see Table 4)
- To build houses for the most vulnerable for whom it was almost impossible to construct houses in other words to help the most needy people of the community.
- To construct model houses so that in future these facilities could be used as communal buildings such as for VRCs, Jirga welfare, training centers etc.
- Build an earth quake resistant Model house on low cost.

2 Technical aspects of model house

Before the EQ in union council Shamlai and Mohandri no earth quake resistant structures were available with respect to ERRA policy.

Avoiding high cost of transportation and using local available material (wood and stone) to a reasonable price, the majority of the houses are constructed in traditional Bhatar or Dhajji structure.

SDC-HA constructed 11 Model houses on different construction methods (5 in union council Shamlai and 6 in union council Mohandri). The construction methods were Dhajji, Bhatar and confined masonry.

The covered area of the structure of Model house (29'X22') provides for the following accommodation: two bed rooms, kitchen, Bathroom and front veranda with proper facilities like drainage, electricity and good surrounding environment.

The sanitary and electrical facilities have only provided for the individual houses in UC Jared. The community used houses (UC Shamlai) basically are not equipped with such facilities

2.1 Types of model house

SDC-HA is working in the two Districts Mansehra and Battagram. In this two regions most of the rural houses are constructed in Bhatar or Dhajji structure. Bhatar and Dhajji primarily are using local available construction material as stone and wood. Beside this two structures SDC built as well 2 houses in confined masonry a construction method which is common wherever the construction site is easy accessible.

2.1.1 Dhajji model house

SDC-HA constructed 7 Dhajji Model houses in the earth quake affected area. The detail is given below

Table # 1

S#	U/C	Village	Types of Model House	Beneficiary
1	Mohandri	Nakka Dandai	Dhajji Model House	Widow
2	Mohandri	Lassaa	Dhajji Model House	Widow
3	Mohandri	Tarkan Koi	Dhajji Model House	Disable
4	Mohandri	Boothana	Dhajji Model House	Disable
5	Mohandri	Katta Bakera	Dhajji Model House	Disable
6	Shamlai	Dood Patti	Dhajji Model House	Community used as VTC
7	Shamlai	Khait	Dhajji Model House	Community used as a kindergarten for approx. 30 girls and boys

2.1.2 Technical specification of Dhajji Model House

- The structure of Dhajji Model house is dry stone masonry foundation with foundation bolt.
- The size of Post and Dassa is 4x4 inches
- All joints are made according to ERRA policy.
- Thickness outside walls 4”
- In side of wall is ½ to 1 inches mud plaster
- The doors and windows were made 1-3/4’’ thick from first class Deodar wood.
- The roof of Model house is made from CGI sheet with wooden trusses
- 22- Gauge CGI sheet is used in roof
- Constructed septic tank

2.1.3 Bhatar Model House

SDC-HA constructed 2 Bhatar Model house in the earth quake affected area. The detail is given below:
Table # 2

S#	U/C	Village	Types of Model Hose	Beneficiary
1	Shamlai	Ronta Hill	Bhattar Model House	Community used as traditional school
2	Shamlai	Hill Kalla	Bhattar Model House	Community used as community meeting house

2.1.4 Technical specification of Bhattar Model House

- The structure foundation is dry stone masonry.
- The size of horizontal reinforcement (wooden) and brasses is 4x4 inches
- In Bhatar Model house all joints are made according to ERRA policy.
- Thickness outside walls 18”
- In side of wall in Bhatar Model house are ½ to 1 inches mud plastered.
- The doors and windows are 1-3/4’’ thick made from first class Deodar wood.
- The roof of Model house is made from CGI sheet with wooden trusses
- 22- Gauge CGI sheet is use in roof
- Constructed septic tank

2.1.5 Confined Model House

SDC -HA constructed 2 Confined Model houses in the earth quake affected area. The detail is given below

Table # 3

S#	U/C	Village	Types of Model Hose	Beneficiary
1	Shamlai	Shamlai	Confined Masonry	Community used as VTC
2	Mohandri	Ochari	Confined Masonry	Disable

2.1.6 Technical specification of Confined Masonry Model House

- The building structure of confined masonry are stone masonry foundation with RC pillar up to plinth level and the supper structure have been made from Block/Brick work in cement mortar having ratio of 1:6
- In confined masonry model house sell, lintel, and roof band/Beam reinforce with 2#4 Bars and 4#4 Bars. The distance between two adjacent Ring/strip is 6 inches.
- In side and out side wall is ½ inches cement plastered.
- The door and windows with hold fast are 1-3/4 inches thick made with first class deodar wood
- The roof of Model house is made from CGI sheet with wooden trusses
- 22- Gauge CGI sheet used in roof
- In side and out side wall whit washed.
- All the wood work panted 3-coat of oil paint.
- Constructed septic tank

Feedback from community for future use of model house

In UC Shamlai the hoses are constructed for communal use. The land was donated by a community member to the VRC which is as well responsible for the operation of the model house. The five houses are serving for different proposes:

- Traditional school / Madrassa for children education
- Vocational training center
- Cluster meeting as well as community origination meeting.
- Training center.
- Social activities like marriage ceremony death, social gathering, and common guest house like Hujera.
- Learning from Model houses, sample house with easy access for everybody which is not always the case for model houses handed over to private owners.

See under Annexes interviews with beneficiaries

4 Practical training on model houses

A great majority of people of district Mansehra and Battagram especially in UC Shamlai and Mohandri are living in remote where transportation of material and availability of skilled labor is a great problem. To solve this issue SDC-HA together with UN-HABITAT advocated towards ERRA the introduction of indigenous construction techniques like Dhajji, Bhattar and other methods. Along with this, SDC-HA arranged master level training on model house. The detail of training participants on model houses mention as under

Table # 4

S#	Name of Model House	Mason	Carpenter	Self Builder	Other	Total
1	Dood Patti	12	10	9		31
2	Ronta Hil	9	5	1		15
3	Hill Kalan	13	6	6		25
4	Khait	9	8	8		25
5	Shamlai	4	4	6	2	16
6	Nakka Dandai	4	6	2		12
7	Lassaa	15	6	4		25
8	Tarkan Koi	7	7	9		23
9	Boothana	6	5	2		13
10	Katta Bakera	3	4	4		11
11	Ochari	4	-	-	12	16
Total		**86**	**61**	**51**	**14**	**212**

5 Costs

All prices are in PKR.

Table # 5

S#	Location	UC	Structure	Material	Training	Transport	Total
1	Dood Patti	Shamlai	Dhajji	171'315	62'700	6'300	240'315
2	Ronta Hil	Shamlai	Bhattar	145'288	74'700	12'798	232'786
3	Hill Kalan	Shamlai	Bhattar	148'251	83'200	5'550	237'001
4	Khait	Shamlai	Dhajji	138'388	82'450	3'000	223'838
5	Shamlai	Shamlai	Confined masonry	425'696	125'911	128'100	679'707
6	Nakka Dandai	Jared	Dhajji	196'807	133'740	29'900	360'447
7	Lassaa	Jared	Dhajji	219'690	117'900	34'550	372'140
8	Tarkan Koi	Jared	Dhajji	211'229	129'320	49'800	390'349
9	Boothana	Jared	Dhajji	190'047	100'550	23'200	313'797
10	Katta Bakera	Jared	Dhajji	198'702	88'316	27'510	314'528
11	Ochari	Jared	Confined masonry	345'439	105'835	1'700	452'974
	Total						**3'817'882**

The costs in UC Shamlai are below UC Jared as the houses are not provided with sanitary and electrical installations.

A traditional houses can be reconstructed with ERRA grants in total 175’000 PKR. The most expensive part of the house is the wood up to 40% of the total material costs, wood usually can be reused from the old destroyed building

The costs for the confined masonry structure is more then 100% above the price for a traditional house.

6 Findings and lessons learned

+ Effective training method taking in consideration the low technical understanding and the high rate of illiteracy of the self builders
+ High improvement of the understanding about traditional construction
+ Complementary action to the theoretical training
+ High acceptance by communities
+ High visibility
+ Cash incentives of 300 PKR per day was paid to the workers during construction.
- Late and slow start of the programme
- Training aspect was not at all sites a priority
- Difficult selection of the beneficiaries

7 Annexes

Interviews with beneficiaries

A FIELD STORY FROM UNION COUNCIL SHAMLAI DISTRICT BATAGRAM N.W.F.P PAKISTAN

Author: Mr. Shakeel Ahmed (Social Mobilizer)
Date: November 10, 2007

SDC-HA is committed to ensure earthquake resistant and safer houses in the target areas. Apart from trainings and awareness campaigns, SDC-HA initiated the construction of Model Houses in Union Council Shamlai (District Batagram) and Union Council Mohandri (District Mansehra Tehsil Balakot) with the goal to let the communities practically understand about the earthquake resistant techniques and serve as a long lasting model for all self builders. Secondly to provide a earthquake resistant house to a limited number of extreme vulnerable beneficiaries identified by SDC-HA MT in consultation with VRCs and the communities.

Muhammad Mushtaq resident of village Kata Baikery Union Council Mohandri Jared is one of the vulnerables. He is disabled from legs. During the earth quake he was stuck at his home. He has one daughter of six years old and a wife. Due to disability he is not able to earn and even not started constructing his home. During the field visit and community meetings, SDC-HA Mobile Team identified it and visited his damaged house and found him and his family in miserable condition.

So it has decided to construct a house on his land which is also a center place for the community to visit. The construction is now completed up to wall and by mid January it will be completed.

Mushtaq is very happy to get support from SDC-HA. The whole community appreciated the way SDC-HA is supporting the vulnerables.

AN ATTITUDINAL CHANGE: FROM CONSERVATISM TO MODERATION A FIELD STORY FROM DOODH PHATI UNION COUNCIL SHAMLAI DISTRICT BATAGRAM

Author: Mr. Shakeel Ahmed (Social Mobilizer)

Date: November 10, 2007

Gul Zar is a 55 year old man. He is living in village Doodh Phati UC Shamlai. By profession he is a farmer. His home was destroyed in earth quake. After the massive earth quake he was reconstructing his house on his traditional local design, and was not ready to reconstruct his house according to ERRA policy. Even he was not ready to meet representative of any organization. When the SDC-HA mobile team visited the area and conducts a mass meeting he was the only person who did not listened a single word. He was totally opposing our program but by the regular contact and motivation, he agreed to cooperate with SDC-HA mobile team.

At first he took social and technical training from SDC mobile team and builds his house according to ERRA policy. When the SDC-HA mobile team with the support of community decided to built a community model house he was the first one to donate his land for community model house on free of cost and even involved himself in labor activities. Finally he promised that he will look after the community model house for the best future of whole community.

At the end he himself accepted that “I was totally conservative minded but regular meetings with SDC-HA mobile team, changed my mind in pursue me to cooperate in welfare activities with a full commitment in my rest of life now”. Now he is willing and in fact ready to run one of the model houses as a Vocational Training Center with the help of his wife and son for the betterment of the male and female of the area.

Standard drawing of a model house