POST-FLOOD REHABILITATION OF AFFECTED COMMUNITIES BY NGOS IN PUNJAB, PAKISTAN-LEARNING LESSONS FOR FUTURE

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Abstract

Flood is one of the most frequently occurring disasters in the world which causes loss of thousands of human lives and properties worth millions of dollars. Pakistan faced severe flood during the year 2010. Most of the damage occurred in Punjab, the most populous province of the country. The federal and provincial governments attempted to rescue people and to restore/provide shelter. But both could not meet public expectations due to lack of institutional capacity and financial resources. In this situation, several NGOs took part in rehabilitation of affected communities on existing as well as new sites. Two of such communities have been taken as case studies. A detailed investigation reveals that NGOs played very effective role in improving living conditions and quality of life in affected communities. Resultantly, a vast majority of residents is satisfied. Some issues pertaining to the rehabilitation process and maintenance of settlements have also surfaced. Nevertheless, the experience of NGOs in this regard demonstrates many attributes of good rehabilitation strategy which are worth considering by other countries.

Keywords: Flood Affectees, Rehabilitation of Communities, Pakistan

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1. Introduction

The monsoon season of 2010 brought devastation to various cities and villages of Pakistan. "Heavy rainfall, flash floods and riverine floods combined to create a moving body of water equal in dimension to the land mass of the United Kingdom" [1]. It took a death toll of nearly 1700 lives while displacing nearly 20 million of the surviving population. According to an estimate, some 2 million hectares of various crops and 1.1 million houses were damaged along with infrastructure. Its approximate financial cost amounts to Rupees 855 billion (US$ 855 million; US$1@ Rs.100) [2]. The province of Punjab was affected at massive scale especially its districts Rajanpur and Muzzafargarh. Almost 642 villages in Rajanpur district and 510 villages in Muzzafargarh district were severely affected (See Figures 1 and 2). According to the government statistics, 2.4 million people were displaced while 0.258 million houses were completely destroyed or damaged in these two districts [3; Also see Figure 3]. Major destruction took place in the areas close to river bed. In response to the flood, different agencies of the United Nations Office for the Coordination of Humanitarian Affairs (UN-OCHA), UNDP and UN-HABITAT etc. devised a plan. It was launched in August 2010 and named as Pakistan Initial Flood and Emergency Response Plan (PIFERP). The goal of the plan was to control the excessive mortality rate in flood affected communities and enable them to return to their normal life. Later on, it was revised to update the data and renamed as Pakistan Floods Relief and Early Recovery Response Plan [1].

Figure 1: Aerial view of Rajanpur submerged in 2010 flood waters
Source: Associated Press, 2012.

Figure 2: Villagers recover goods from their houses destroyed by 2010 flood in Muzaffargarh
Source: Daily Times, August 24, 2010

Different clusters were formed to provide for relief and early recovery needs in more effective manner. The clusters include: agriculture, camp coordination and camp management, coordination and support services, education, food, health, logistics and emergency telecommunications, nutrition, protection, WASH (water, sanitation and hygiene), community restoration and shelter/non-food items. The community restoration cluster attempted to rehabilitate critical infrastructure and restoring access to basic public services like education and health facilities as well as employment opportunities. The

shelter/non-food items cluster aimed at providing support for the rehabilitation of partially damaged houses and construction of new one-room houses in place of those which were completely damaged [1].In addition, the priority is given to most vulnerable households headed by women, elderly or disables people. The strategy also allows the repairing of community infrastructure, improving environment, imparting technical skills as well as generating nonfarm livelihood for the members of the affected communities. However, the strategy does not advocate the planned development but mainly focuses on community participation in rehabilitation activities.

The UN-OCHA in collaboration with the government agencies has also started imparting flood preparedness training to thousands of people living in flood prone areas [4]. The strategy developed by PDMA for the rehabilitation of settlements advocates the development of model villages. The strategy mainly emphasises the onsite rehabilitation of settlements with the provision of basic facilities. But the development of several flood affected settlements on new sites is also being done under this strategy. Location of these villages is not appropriate as many of them fall within the floodplain which could be dangerous in future. Geographic Information System (GIS) models were not used for finding appropriates sites which are safe from future flooding as suggested in the literature [5]. Some of the NGOs are undertaking onsite rehabilitation with or without considering planning of the villages and allied facilities. Nonetheless, establishing village level community based organizations for monitoring work is a positive aspect of the strategy. Experience elsewhere suggests that "strategies for post-flood housing programmes need to be based on the impact of flooding on houses and their long-term consequences rather than on the standard housing cycle concept (transitional to permanent housing)" [6]. Resettlement of flood affected communities in India has not proved very successful due to the distant location of new settlements from the affected ones. New locations also lacked opportunities for livelihood [7].

In the cases of Bangladesh and Nepal, flood affectees have been rehabilitated on the existing as well as on some new sites. Proper site assessment and disaster risk reduction measures were also taken into account while selecting new sites. In this regard, capacity building of the affected communities regarding disaster preparedness and mitigation was done along with the creation of 'funding window' to support such activities. More importantly, the funding for the rehabilitation of shelter for the flood affectees in Bangladesh had been arranged by reallocating financial resources from on-going projects or programmes to be approved [8, 9]. However, investment in housing is neither considered to be a problem nor a big achievement. Fundamental problem is the centralized or top down approach in which the housing development is generally governed after disasters [10]. As, post Tsunami reconstruction experience in Sri Lanka led to socio-economic disparities, loss of livelihood and disruption of communities, due mainly to Donor Assisted Programme (DAP). On the other hand, Owner Driven Programme (ODP) or decentralized approach performed better in these respects [11, 12]. These issues are central to the debate on disaster recovery efforts in developed countries as well

[13] ; more importantly, how far the decentralized approach is effective in terms of vulnerability reduction and overcoming the aforementioned issues [11].

The meanings of effectiveness of successful rehabilitation/resettlement may vary between 'relocating and returning of communities'. In this regard, 'participation' is considered most significant factor contributing towards the effectiveness of rehabilitation/ resettlement process. Especially, how and how much it is done, as communities should feel satisfied that those are better recovered [14, 15, 16]. Participation should include all stakeholders involving representatives of the affected communities, voluntary organizations/ NGOs and concerned government agencies in key decisions. These mainly include: identification of affectees, planning of site and type of public facilities/utilities services to be provided in the settlement. Involving stakeholders in the process is necessary because government alone neither has sufficient financial resources and capacity to meet the long term needs of affected communities [17]. Hickey and Mohan argue that development made through decentralization and affectees/beneficiaries participation can lead to sustainable gains [18].

In Pakistan, the rehabilitation of flood affected settlements is relatively new experience. This issue is multifaceted and also includes adoption of disaster risk reduction and protection measures to ensure the sustainability of rehabilitated settlements. Given the current wave of climate change, such devastating flood may reoccur, as it has happened in the province of Sindh during the monsoon seasons of 2010 and 2011. Hence, there is a need to develop a well thought strategy for rehabilitation. Key objective of this research article is to ascertain the quality and effectiveness of the role of non-government organizations/private sector in rehabilitation of flood affected settlements while involving the concerned communities. Since, the literature suggests the need to explore "the effectiveness of private disaster recovery efforts and whether or not there are reasons to believe that a decentralized rather than a centralized response to disasters could be more effective" [11, p.1]. This research article attempts to contribute to on-going debate in literature on this issue, since empirical evidence in case of Pakistan is lacking. By studying the rehabilitation of flood affected settlements in the Punjab, this research has identified some good attributes of the rehabilitation process which may be useful for developing future strategy. A few flaws in the process have also surfaced. This research suggests measures to overcome those flaws. It also identifies opportunities for flood preparedness training of affected communities. Besides, it attempts to address the need realised by some commentators to share the success stories in rehabilitation of affected settlements with international community and to demonstrate how resilient the nation is to cope with the aftermaths of disasters [19].

2. Research methodology

Firstly, research articles and reports on flood damages and rehabilitation of affectees in Pakistan were reviewed to apprehend pertaining issues and experiences. Following this, data regarding the

settlements affected during the 2010 flood in the Punjab was collected from the Provincial Disaster Management Authority (PDMA), Punjab. The data revealed that some of the affected communities have been rehabilitated by construction of model villages on existing sites whereas some on new sites, not far away from the ones affected by the flood. At the time of survey, the rehabilitation of only nine village level settlements was completed. Six of such settlements were situated in District Muzzafargarh and five out of these were developed on existing sites.

The seventh settlement was situated in District Rajanpur and this was developed on the existing site. The other two settlements were situated in District Bhakkar. These were also developed on the existing sites but not easily accessible. The development works in six out of these seven settlements were funded and undertaken by NGOs, while in the government organizations could only develop one settlement by that time which was located in District Muzaffargarh. Thus, out of the six settlements developed by NGOs two were randomly selected for detailed study and analysis of post flood rehabilitation works. These include: Basti Pakpur Noor Ghazi from Muzzafargarh and Basti Miani Mallah from District Rajanpur (See Figure 3). Basti Pakpur Noor Ghazi was selected randomly out of the six settlements, since preliminary discussions with concerned officials of NGOs and PDMA revealed that these were having similar development characteristics. Secondly, this settlement was comparatively more accessible than the others. Basti Miani Mallah was the only example of a settlement rehabilitated by NGOs in District Rajanpur.

Semi structured interviews with the officials of the PDMA and both NGOs were held to know how the flood affected settlements/affected communities were identified/shortlisted; how they interacted with them; what were the sources of funding and how the rehabilitation process went on. This also helped in identifying themes to be embedded in the questionnaire. A structured questionnaire was then developed consisting several themes including questions relating to: household and socio-economic characteristics of the respondents before and after the flood, nature of rehabilitation works, provision of utility services/community facilities, and the extent of involvement of the affected families in the rehabilitation/ development works, their level of satisfaction with the provided facilities as well as the rehabilitation process. For the sake of simplicity, three point scale was used to determine the satisfaction level including, 1= Satisfied, 2= Indifferent and 3= Dissatisfied.

A random sample of 40 houses, including 20 houses from each of the rehabilitated settlements was selected for survey**.** One of the authors with the help of a survey assistant conducted face to face interviews in both the rehabilitated settlements using the same structured questionnaire. In addition, an observation sheet was designed for recording the onsite situation and confirmation of the utility services/public facilities provision and functioning status. Due to limitation of resources and remote location of the villages, it was not possible to increase the sample size, though the initial target was much higher. The analysis of survey data was done using Statistical Package for Social Sciences [20]. Since most of the respondents in both the case were found satisfied with aspects of rehabilitation

process included in the study, it resulted in many constant variables and descriptive analysis. Thus, statistical analyses like bivariate/multivariate correlation or chi-square test were not possible. However, the information derived from the analysis of interview (survey) data was validated using secondary sources like government reports, website of PDMA and newspapers.

3. Introduction to the case study settlements and the developer NGOs

The first case study, Basti Pakpur Noor Ghazi, is basically developed on a new site having a high platform and comparatively safe location away from the flood affected settlements. It is situated at latitude 29°50' north and longitude 71°4' east, approximately 15 kilometres northwest of Muzzafargarh city. River Chenab is passing at an approximate distance of 13 kilometres from this site flowing from north-east to south-east direction. This settlement is spread at an area of 8 acres and accommodates 99 families (505 people) from different villages affected from flood in this area. This has been funded and developed by Pakpur Foundation and nine partner NGOs. The new site was procured on prevailing market price from the private land owners. During land acquisition process, the NGO collaborated with the PDMA and the Punjab Rural Support Programme (PRSP) and received administrative support from these organizations. Soon after the 2010 flood, a team of the NGO conducted a survey within 10 km radius of selected site to identify affectees whose houses were totally destroyed and they were unable to rehabilitate themselves due to lack of affordability (Personal Interview, 2011).

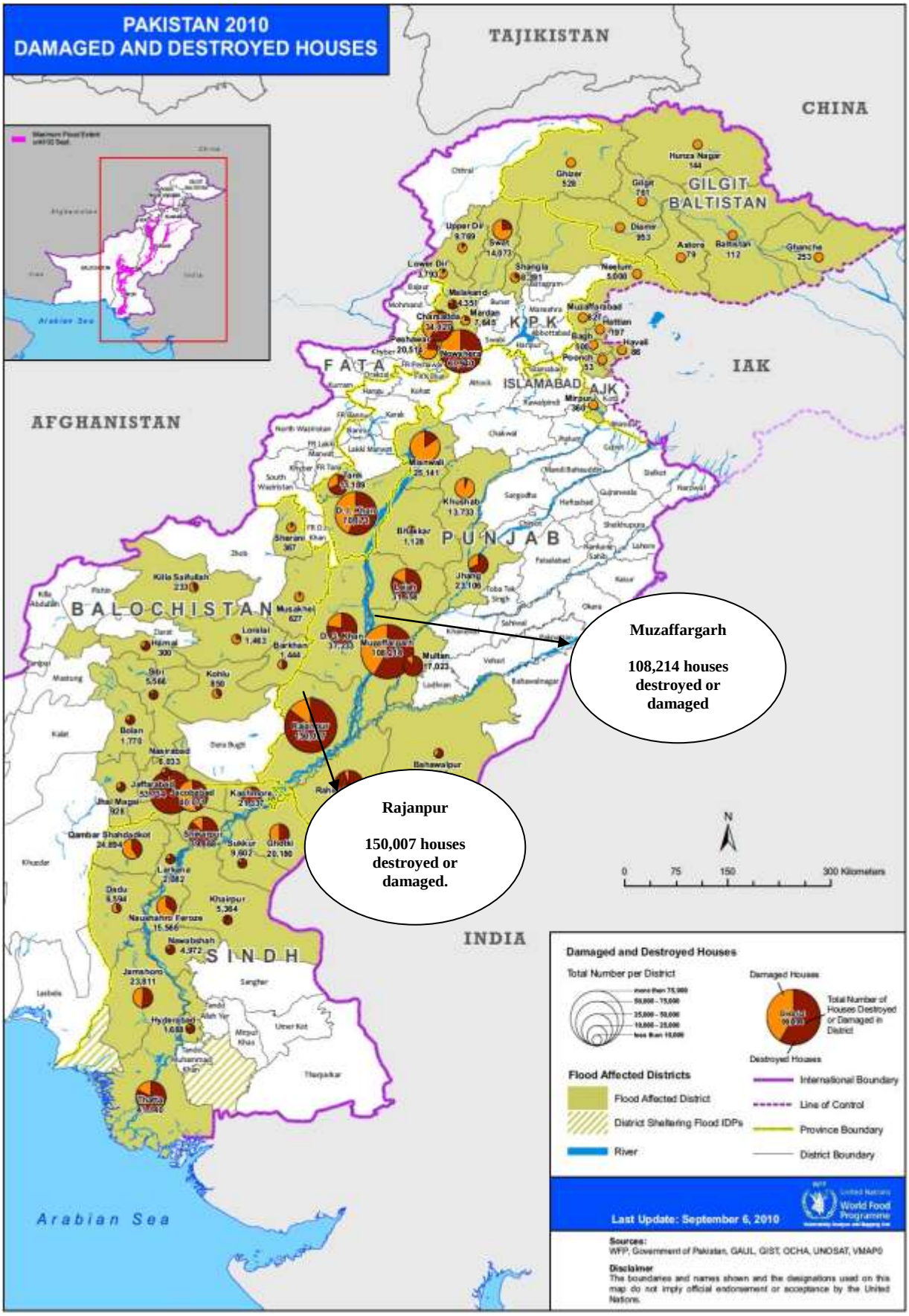

Figure 3: Number of destroyed houses and location of case study districts (Source: WFP, 2010).

Second case study, Basti Miani Mallah is situated at latitude 28°56' north and longitude 70°22' east. The famous city of Rajanpur is located at a distance of 18 kilometres. The River Indus is situated just 1 kilometre away from this site flowing in the south-east direction. However, the Indus Highway is located towards west of this site at a distance of 6.5 kilometres running along north-south direction. The houses are constructed on the same flood affected site spread at an area of 20.5 acres. This whole rehabilitation project is funded and carried out by an NGO Sukh Chayn Gardens Housing Estate. It provided 267 housing units along with public facilities accommodating approximately 2000 people.
All the affectees of this settlement were provided with constructed houses on the same site (Personal Interview, 2011). The following section presents results of our study and how the NGOs interacted with the communities during the rehabilitation process within the two case study settlements.

4. Results and discussion

4.1 Socio-economic profile of the affected families

Survey data shows that most of the people of the selected two settlements are living in predominantly nucleus family set up having independent households (See Table 1). The maximum household size is 11 persons. However, the average household size ranges from 5 to 6 persons, as nearly half of the households have 3 members.

Table 1 Socio-economic characteristics of families living in the case study settlements

Socio-economic Characteristics	Types	Basti Pakpur Noor Ghazi	Basti Miani Mallah
	%age of the surveyed households		
Type of family	Nucleus	95	80
	Joint	5	20
Household size	Maximum	9	11
	Minimum	3	3
	Average	5.1	6.7
Literacy rate	Literate	50	20
	Illiterate	50	80
No. of earning members	One	95	55
	Two	5	40
	Three	-	5
Predominant occupation	Labourer	90	80
	Farming	5	-
	Small business	5	10
	Govt. job	-	10
	Others	-	-
Monthly income	Up to 5,000	50	45
	5,001-10,000	50	25
	10,001- 15,000	-	20
	15,001-20,000	-	5
	20,001 & above	-	5

Source: Field Survey, 2011 (n = 20 in each case)

This finding contradicts with the family setup and household size before the flood. The interviews with such families revealed that that most of them were living in joint family sharing one household before flood. At the time of allotment, the joint families split up into 3 or 4 households to get separate house for each household. Whilst, the literacy rate in Basti Pakpur Noor Ghazi) was 50 percent, it was just 20 percent in Basti Miani Mallah. This is not surprising, as low literacy rate also prevails in the labour class living even in urban areas of Punjab [2, 21]. More than 80% earning members of the flood affected households were labourers. Nearly half of them were earning Rs. 5000 (US $ 53) per month. In Noor Ghazi, the income of half of the surveyed households ranged between Rs. 5001 to Rs. 10000 per month. However, the income of about half of the households in Miani Mallah was comparatively better, as 25% were earning up to 10000 and the other 20% were earning up to Rs. 15000 (US $ 158) per month. This is because such families were also doing farming or small business in addition to jobs. Given the increasing cost of living, even this may be termed as a low income. The very reason of low income is not only the lack of literacy but also lack of opportunities for technical education and a culture of avoiding formal education. Secondly, there are very few opportunities for labourer jobs on regular basis in Muzzafargarh and Rajanpur, which are relatively less developed districts of Punjab.

4.2 House building characteristics before flood

Owing to extremely deprived socio-economic characteristics of the flood affected families, it is unfortunate to know that most of their houses were poorly constructed using mud as a bonding agent even with baked bricks (See Table 2). Brick masonry with mud cannot sustain for a few days in three feet stagnant flood water. Such structures are called ‘katcha’ and ‘semi-pacca’ in local language. Internationally, these may be termed as slums or shanty towns like settlements. Such houses could not sustain despite the fact that the walls of 100% houses in Miani Mallah and 55% in Noor Ghazi had been constructed on foundations. But, the foundation design and construction was not according to the standards normally practiced in the cities of Punjab [22]. Poorly built houses with weak brick and mortar walls without structural connection to foundations and lack of drainage system also caused heavy losses in Tsunami hit areas in other developing countries [22, 23].

The material used for construction of roof is also important for the stability of house building. It is quite obvious from the above table that majority of the roofs of damaged houses in the case study settlements had been constructed with wooden beams, joist and mud or even bamboos. These materials may not develop a strong bonding with the walls unless properly designed with use of wooden columns. Hence, such structures are most vulnerable and cannot sustain the impact of flood. The roofs of only 10 to 15% houses were constructed by using T-iron and girders with cement and brick masonry. This type of roof is comparatively more robust than the one constructed with wooden material and mud.

Table 2 House building characteristics before flood in the case study settlements

House building characteristics	Types	Basti Pakpur Noor Ghazi	Basti Miani Mallah
	%age of the surveyed households		
Type of house	Katcha	60	30
	Semi pacca	40	70
	Pacca	-	-
Material used for construction of walls	Mud masonry	60	15
	Brick masonry with mud	40	70
	Brick masonry with cement	-	15
Foundation of walls	Yes	55	100
	No	45	-
Material used for construction of roof	Wooden beams, joist and mud	55	70
	Bamboos and bamboo sticks	35	15
	T-iron and girders	10	15
	Cemented lintel	-	-

Source: Field Survey, 2011 (n = 20 in each case)

4.3 Design and construction of new houses

The affected families living in the Noor Ghazi are given one bedroom houses constructed on 1360 sq. ft. plots (5 Marla) (Figure 4). Those living in Miani Mallah got 2 bedroom houses on varying sizes of plots ranging from 1360 to 2720 sq. ft. (Figure 5). Factors like the area of the house owned by the affected family before flood or the amount of land donated by the government and availability of finances contributed toward this variation in number of rooms and plot sizes. However, the designs of the houses constructed in both the case study settlements provide for future addition of rooms. Further, the houses have been provided with kitchens attached to the veranda of the houses keeping in view the cultural setting of the villagers but some houses have separate kitchens. Separate bath and toilets are also provided in every house.

Materials used for the construction of houses include baked bricks, cement sand mortar. It is good to note that pre-cast cement-concrete slabs were used for the construction of roofs. Doors and windows of houses in both the settlements were made up of steel. Overall, the houses are constructed according to the design considerations and recommendations of National Disaster Management Authority of Pakistan. Relevant literature suggests that house buildings provided with reinforced cement concrete roofs and brick walls having structural connection with foundations can resist the impact of flood or at the most cause slight or non-structural damages [24]. As far as the satisfaction of the beneficiaries is concerned, almost 100 percent interviewed families living in the case study settlements are satisfied with the design and construction quality of newly constructed houses. Nevertheless, some of the interviewees also showed their concern over the small size/covered area of the houses. They had to add one to two bedrooms on self-help basis.

4.4 Satisfaction with utility services and facilities provided in the case study settlements

Table 3 shows the provision of various utility services and public facilities as well as the satisfaction level of the families residing in the rehabilitated settlements. Most of the utility services like electricity, water supply, sewerage and drainage system, and facilities like parks and open spaces, schools and vocational training centres have been provided in both of the case study settlements (See Photographs in Appendix-A Figures 6 to 21).

Fig. 4 House Design for Basti Pakpur Noor Ghazi
Source: (http://www.amcpakistan.org)

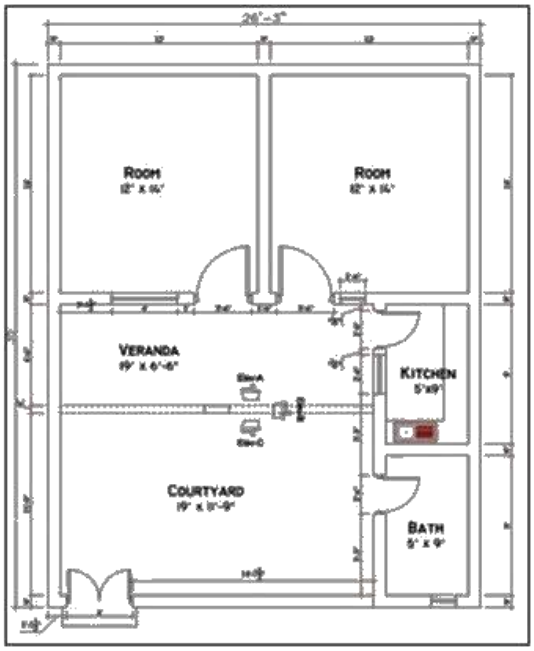

Fig. 5 House Design for Basti Miani Mallah
Source: Sukh Chayn Housing Estate

A vast majority of the interviewed families is satisfied with the provision and functioning of utilities and facilities in the case study settlements. The electricity was already available in Miani Mallah but not in Noor Ghazi, since it is developed on new site. That is why electricity connections were not provided in this settlement till the time of field surveys conducted for this study. However, the works on laying down electricity wires and poles were completed. Water supply is ensured through hand pumps in Noor Ghazi and through electric water pumps in Miani Mallah along with water filtration plant. It is worth mentioning that proper underground sewerage system is provided in Noor Ghazi with septic tanks attached with each house. This underground sewerage system will also have an oxidation pond. But in case of Miani Mallah, cemented drains are provided for the disposal of sewerage and drainage.

Table 3 Satisfaction with the public facilities provided in the case study settlements

Public facilities	Basti Pakpur Noor Ghazi		Basti Miani Mallah	
	%age of the surveyed households			
	Sat	Dis	Sat	Dis
Electricity	-	NP	70	20*
Water supply	70	30	100	-
Sewerage and drainage system	100	-	100	-
Parks and open spaces	100	-	100	-
Solar energy cells	90	10	-	NP
School and vocational centre	100	-	100	-
Dispensary	45	55	100	-
Solid waste management	100	-	100	-
Mosque	55	45	100	-
Commercial area	90	10	-	NP
Police station/security system	100	-	-	NP

Source: Field Survey, 2011 (n = 20 in each case)
Sat – Satisfied Dis – Dissatisfied NP – Not Provided
* The rest of the %age of the respondents remained indifferent

More importantly, primary schools and vocational training institutes have been provided in the case study settlements for educating the children and developing technical skills among the adults of the affected families. A few respondents were dissatisfied due to non-provision and improper functioning of some of the facilities in the case study settlements. In this regard, interviews with the concerned officials revealed that the rehabilitation organizations initially formulated very ambitious standards for the provision of facilities. But later on, the targets of rehabilitation works and provision of public facilities could not be met fully due to various financial, technical and temporal limitations.

4.5 Community involvement during rehabilitation / development works

The survey revealed that in case of the settlement rehabilitated on the existing site (Minai Mallah), the NGO (Sukh Chayn Housing Estate) involved all of the affected families were in the development works. The reason is that the affected families who owned the piece of land prior to flooding were available at the site and they also conveyed their demands to the respective development organization. On the other hand, very few people (30%) were involved in case of Basti Pakpur Noor Ghazi where rehabilitation was done on new site (Table 4), the plan was implemented first by the NGO (Pakpur foundation) and then the houses were allotted to the affected families who were identified after completing the development works.

As far as the extent of community involvement is concerned, the affected families of Miani Mallah were involved at every step of the project development and their demands were incorporated into the rehabilitation plans. A majority (65%) contributed to the construction of their houses as labourers without demanding money against their labour. It shows that they really needed houses and they did

not have enough resources to rebuild their destroyed houses. This also reduced the cost of labour for the development organization. In Noor Ghazi, the people who contributed to the construction of their houses were provided with daily wages against their labour. It is a good approach by the NGOs to provide livelihood to the affected people at their doorstep. It is worth mentioning that the communities belonging to both of the case study settlements were found to be satisfied with the rehabilitation process (See Table 4). The reason is that the communities were involved during various stages of the rehabilitation process and most of their demands were fulfilled. Community involvement is considered 'one of the most important steps for local holistic recovery' [25]. Rehabilitation/resettlement experience elsewhere suggests that involving affected communities can help achieving higher level of satisfaction, enhancing community awareness and resilience [26]. The World Bank has suggested very effective strategies for this purpose [27].

Table 4 Community involvement during rehabilitation/development works in the case study settlements

Extent of community involvement	Options	Basti Pakpur Noor Ghazi	Basti Miani Mallah
	%age of the surveyed households		
Community involvement	Yes	30	100
	No	70	-
If yes, stages of community Involvement	Planning of site	5	35
	Designing of house	-	55
	Provision of facilities	25	10
	Decision about number of rooms	-	-
	All of above stages	-	-
Community contribution	Not contributed	5	35
	Money	20	-
	Unskilled labour	70	55
	Skilled labour	5	10
Satisfaction with the rehabilitation process	Satisfactory	95	100
	Unsatisfactory	5	-

Source: Field Survey, 2011 (n = 20 in each case)

4.6 Provision of livelihood opportunities

Provision or availability of livelihood opportunities at convenient distance from the flood affected settlements is of utmost importance for the success of rehabilitation efforts. Otherwise, the rehabilitated families gradually shift to other areas after selling or renting out the new houses. To avoid this practice, the rehabilitation organizations in case of the selected settlements have posed restriction on the sale of new houses by holding ownership documents and instead handing over possession letters to the beneficiaries. Perhaps that is why the rehabilitated families are actually living in the new houses.

Nevertheless, approximately 80 percent interviewees from both the settlements have to travel 2 to 15 kilometers distance to reach their work places in the nearby cities. This is not a long distance and one

can commute daily in less than an hour time. Table 1 shows that more than 80 percent earning members are predominantly labourers, only 10 percent are engaged in farming and small business. The remaining 10 percent earning members have been engaged by the rehabilitation organizations in security, maintenance, teaching and healthcare activities within the new settlements.

4.7 Views on the safety of rehabilitated site and willingness to shift elsewhere

Most of the interviewees (75-80%) residing in both of the case study settlements believe that the rehabilitated site is safe from future flood hazard (See Table 5). However, a small number of residents (20-25%) are still suspicious about the quality and strength of the embankment provided close to the rivers which brought flood water in these areas. The ground reality is that Noor Ghazi has been developed on raised platform 13 kilometres away from the flooding River Chanab but Miani Mallah is situated 1 kilometre away from flooding River Indus.

This fear is mainly due to the psychological after effects of the devastations caused by the flood. The trauma of displacement and helplessness may even require mental health care and monitoring for many years [28, p.29]. Despite this fear prevailing among a few residents, none of the families of both the settlements is ready to shift to comparatively safer place, even if provided by the Government, because of easy access to livelihood opportunities and other places as well as better living environment. The other reason is that, in case of Miani Mallah, all of the families own the rehabilitated land.

Table 5 Views on safety of rehabilitated site and willingness to shift to other comparatively safe site

Views on rehabilitated site and willingness to shift	Answers	Basti Pakpur Noor Ghazi	Basti Miani Mallah
	%age of the surveyed households		
Safety of rehabilitated site from flood hazard	Safe	75	80
	Unsafe	25	20
Willingness to shift to other site if provided by the government	Willing	-	-
	Unwilling	100	100
Reasons for lack of willingness to shift to other site	Land ownership	-	100
	Livelihood	15	-
	Easy access to other places	10	-
	Site is safe	75	-

Source: Field Survey, 2011 (n = 20 in each case)

4.8 Overall benefits gained by the flood affectees

Before the flood, most of the affectees were living in dilapidated houses as joint families with 9 to 11 members in each household. The utility services, safe drinking water, formal education and health facilities were completely missing. The condition of streets was very poor and those used to become muddy tracks during rains. After the flood, they have been provided with properly designed houses

constructed with flood resistant material. Now, nearly half of the households have 3 members, while the average household size has decreased to 5 persons.

Survey data revealed that 45 percent of the families of Noor Ghazi were living as tenant before the flood. But they have got houses on ownership basis after the flood. Although, the residents of Miani Mallah were owner of their houses; but most of the structures were semi-pacca and unable to sustain the flood. They have now got newly constructed pacca houses and a better quality of living environment. They are also getting training of flood preparedness and adopting mitigation measures. The rehabilitated settlements have been provided with necessary modern facilities. Those include, for example, utility services, safe water supply, technical education institutions, basic health care facilities, solid waste collection and disposal system, biogas plants, solar energy cells, and parks. Some of the affectees got livelihood opportunities within the rehabilitated settlements. Thus, it can safely be stated that the flood affectees have been transformed to beneficiaries as a result of the rehabilitation process.

5. Conclusions

The 2010 monsoon flood brought devastation in several areas of Pakistan. A number of towns and villages of the Punjab province were severely affected. Millions of people were displaced and suffered heavy loss of moveable and immovable properties, though the death toll was comparatively low. The rehabilitation process of the affected population was initiated with hurriedly prepared strategies. In the due course of time, more refined strategies and guidelines have been formulated with the help of international agencies. These still need to be analyzed with respect to contextual relevance, technical capacity building, community preparedness, disaster risk prevention and sustained availability of financial resource as well as the sustainability of the rehabilitated settlements.

The rehabilitation of the affected settlements was initiated a few months after the flood. Both the government agencies and NGOs took the initiatives in various settlements on the basis of their own priorities. Through this research, the effectiveness of the role of NGOs/private sector has been determined by thoroughly investigating two case study settlements situated in the biggest and worst hit province (Punjab) of Pakistan.

Whilst most of the affected communities were rehabilitated at the same sites of the flooded settlements, some new sites were also developed for this purpose. But flood resistant embankments have not yet been provided around rivers which brought flood in the case study areas. Even some of the new sites are prone to future flooding. To this end, the international experience suggests that rehabilitation on the same site but with proper flood protection measures can prove to be more suitable for the affectees as compared to new sites. This strategy is more viable due to the availability and continuity of exiting livelihood opportunities for the affected communities.

Analysis of the case study settlements demonstrates some salient features of the rehabilitation experience which are worth sharing with the international community. These may also help building better image of the non-government organizations regarding the use of money collected through donations, effectiveness and quality of their post-disaster recovery efforts. The salient features of the process adopted for the rehabilitation of flood affected settlements in Punjab include, mobilization and involvement of flood affected communities and provision of modern facilities. As a result, a significant proportion of the affected communities are satisfied with the rehabilitation process adopted by the NGOs.

Nonetheless, some weak points also surfaced through the analysis of rehabilitation process adopted for the case study settlements. These mainly include: selection of new sites which are prone to future flooding, no opportunities for formal training to the affected communities regarding preparedness to face future flood and mitigation measures to minimize possible loss of lives and properties. A recent visit to the case study settlements revealed some malpractices in the construction and allotment of houses and maintenance of the public facilities. This is leading to poor living conditions and disputes among the original land owners and the new allottees.

Overall, the rehabilitation of flood affected settlements by some NGOs is a good initiative. It led to planned development of villages with provision of utility services and public facilities usually available in urban settlements of Punjab. The 2010 flood in Pakistan and resultant efforts for rehabilitation of the affected settlements may be termed as an opportunity to provide the weaker segment of society with planned development and modern public facilities and learn lesson for the future. This research also concludes that bottom-up post–disaster recovery though NGOs/private sector in coordination with concerned government agencies may prove to be more effective. However, there is a need to have a continuous monitoring system during the rehabilitation process and afterward.

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Appendix A Photographs of Houses and Public Facilities in the Case Study Settlements

Fig. 6 3D View of houses in Noor Ghazi
(Source: http://www.pakpur.org/plans.php)

Fig. 10 Commercial area on main road in Noor Ghazi
Source: Photograph by the Authors, 2011

Fig. 7 Open space and brick paved street in Noor Ghazi
Source: Photograph by the Authors, 2011

Fig. 11 Health Clinic in Noor Ghazi
Source: Photograph by the Authors, 2011

Fig. 8 Water filtration plant in Noor Ghazi
Source: Photograph by the Authors, 2011

Fig. 12 Solar Cells outside houses in Noor Ghazi
Source: Photograph by the Authors, 2011

Fig. 9 Primary school in Noor Ghazi
Source: Photograph by the Authors, 2011

Fig. 13 Vocational training centre in Noor Ghazi
Source: Photograph by the Authors, 2011

Appendix A (Continued...) Photographs of Houses and Public Facilities in Case Study Settlements

Fig. 14 Two room house in Miani Mallah
Source: Photograph by the Authors, 2011

Fig. 15 Dispensary in Miani Mallah
Source: Photograph by the Authors, 2011

Fig. 16 Park/Playground in Miani Mallah
Source: Photograph by the Authors, 2011

Fig. 17 Primary School in Miani Mallah
Source: Photograph by the Authors, 2011

Fig. 18 Water filtration plant in Miani Mallah
Source: Photograph by the Authors, 2011

Fig. 19 Brick paved street in Miani Mallah
Source: Photograph by the Authors, 2011

Fig. 20 Biogas plant in Miani Mallah
Source: Photograph by the Authors, 2011

Fig. 21 Vocational training institute in Miani Mallah
Source: Photograph by the Authors, 2011