

POST OCCUPATIONAL ANALYSIS OF A MODEL VILLAGE IN MUZAFFARGARH: REVIEWING POST DISASTER REHABILITATION EFFORTS BY THE GOVERNMENT IN PUNJAB

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Abstract

Pakistan is a country that often faces the problem of severe floods during the monsoon season. The floods of 2010 in the rivers Indus and Chenab brought a lot of destruction, with thousands of villages destroyed, along with millions of people displaced in Punjab. Providing temporary and permanent shelter to affected communities is a daunting task for any state; therefore, various approaches were used to handle this situation. The Government of Pakistan established a system of model villages under the umbrella of the Government of Punjab, within the flood affected areas in Punjab. The main objective to achieve through this exercise was to provide permanent shelter to the displaced families in the form of well-organized villages equipped with basic amenities, fostering an environment conducive to improving their overall living conditions either at the original location or alternative sites. The model village Rakh Jalwala in district Muzaffargarh was selected to understand and analyze these efforts in terms of post disaster rehabilitation in Pakistan. This model village is the largest village out of the 22 model villages in terms of size and facilities provided which was constructed completely under the government intervention on a new location as a part of post flood rehabilitation scheme. The purpose of this study was to delve into the present conditions and assess the impact on inhabitant's lives, ultimately providing recommendations for further positive change. This was done by a detailed survey and application of data analysis via questionnaires and interviews of resettled flood affectees to vouch for the practicality and use of the basic and sophisticated amenities provided in these villages. The study concludes that, overall, the flood-affected residents express general satisfaction with the design and facilities of the Model Village. This supports the notion that the Model Village approach is a reasonable and effective strategy for rehabilitation efforts. However, the report emphasizes the need for continuous efforts and a need of proper check and balance of provided services by concerned departments. It is necessary to ensure the regular maintenance of public facilities within the model villages. In the future, it is imperative to incorporate the preferences and feedback of residents regarding house size and design for post flood building back better initiatives for affected communities. To enhance safety and emergency preparedness, it is advisable to include staircases in house

designs to facilitate rooftop access. Moreover, increasing the height of structures is recommended to improve safety and enable efficient rescue operations during adverse conditions.

1. INTRODUCTION

Natural disasters are a problem that the whole world is facing quite regularly due to climatic changes. Flooding is one of these natural disasters that create havoc and displaces millions of people every year. All climatic change studies have made it clear that flooding is going to be a part of our lives from now on and we need to be prepared to face this challenge.



Fig 1: Floods in Pakistan (Source: Google Images)

The 2010 flood in River Indus and River Chenab brought a lot of destruction with thousands of villages destroyed along with millions of people displaced in Punjab. Housing and resettlement of affected people by providing permanent shelter is a major challenge in the process of Post Flood Rehabilitation. For this purpose, different housing and resettlement approaches have been adopted worldwide and one of these approaches is the establishment of Model Villages. The Model Village approach was also adopted in Pakistan after the 2010 flood for the provision of housing units to the flood-affected people. Through these Model Village projects a large part of flood affectees were rehabilitated either in the same location which was flooded or in some other safer locations away from flood-prone areas. After the flooding in 2010 PDMA with the help of Government

Pakistan is a country that often faces the problem of severe floods every year, mostly during the monsoon season. The reoccurrence of these floods is increasing every year along with economic and human loss. This pattern indicates that we need to have a plan not just to deal with disaster prevention but also for recovery of the damages it causes afterward [1].

and Non-government Agencies introduced the concept of Model Village. Under these guidelines 22 Model Villages were constructed in Punjab. Some of these were constructed on the same site while others were constructed on new sites [2].

2. Objectives of Research

Primarily, the objective of the research is to analyze the significance of post disaster rehabilitation efforts by the Government in terms of post occupation evaluation of a Model Village constructed after the 2010 floods in Pakistan. We must learn from the past actions and re identify the criteria for post disaster rehabilitation projects since all climatic change studies have made it clear that flooding is going to be a part of our lives from now on and we need to be prepared to face this challenge.

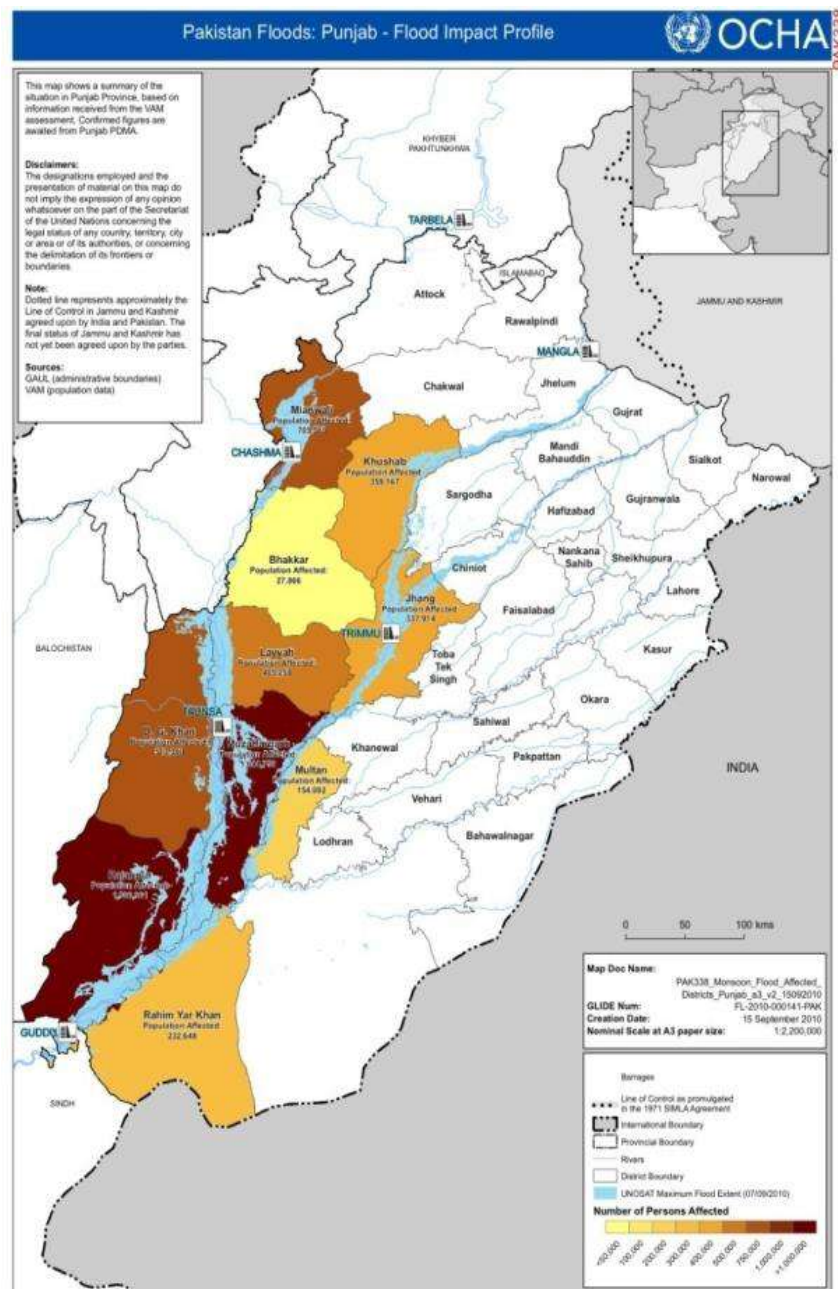


Fig 2: Pakistan Flood Profile 2010 [3].

3. Description of the Case Study Area

In district Muzaffargarh where the selected case study model village Rakh Jalwala is located, the flood caused serious damage to housing structures with 81.2 percent of housing destroyed as the roof structure collapsed or house flooded up to 4-8 feet, 15.6 percent were partially damaged and only 3.2 percent were registered as not damaged at all. The affected

displaced people were either living in IDP camps, temporary refugees, or under the open sky [3].

The Following figure encapsulates a comprehensive examination of the evolution of the site from its inception in 2012 to its current state. The images provided offer a vivid portrayal of the site's transformation, highlighting significant features and

developments over time. Beginning with the observation that the site is newly constructed and not situated on the former village location, the narrative progresses to note the minimal changes after its completion, encompassing aspects such as infrastructure, boundaries, and greenery. Moreover, the presence of numerous fish farms surrounding the

village underscores a burgeoning interest in aquaculture within the community. Notably, the absence of flooding since the site's establishment indicates its resilience and safety, a commendable achievement for land development projects but this point needs to be verified through detailed surveys.



Fig 3: Site Transformation with time (year 2012-2022) (Source: Google Earth)

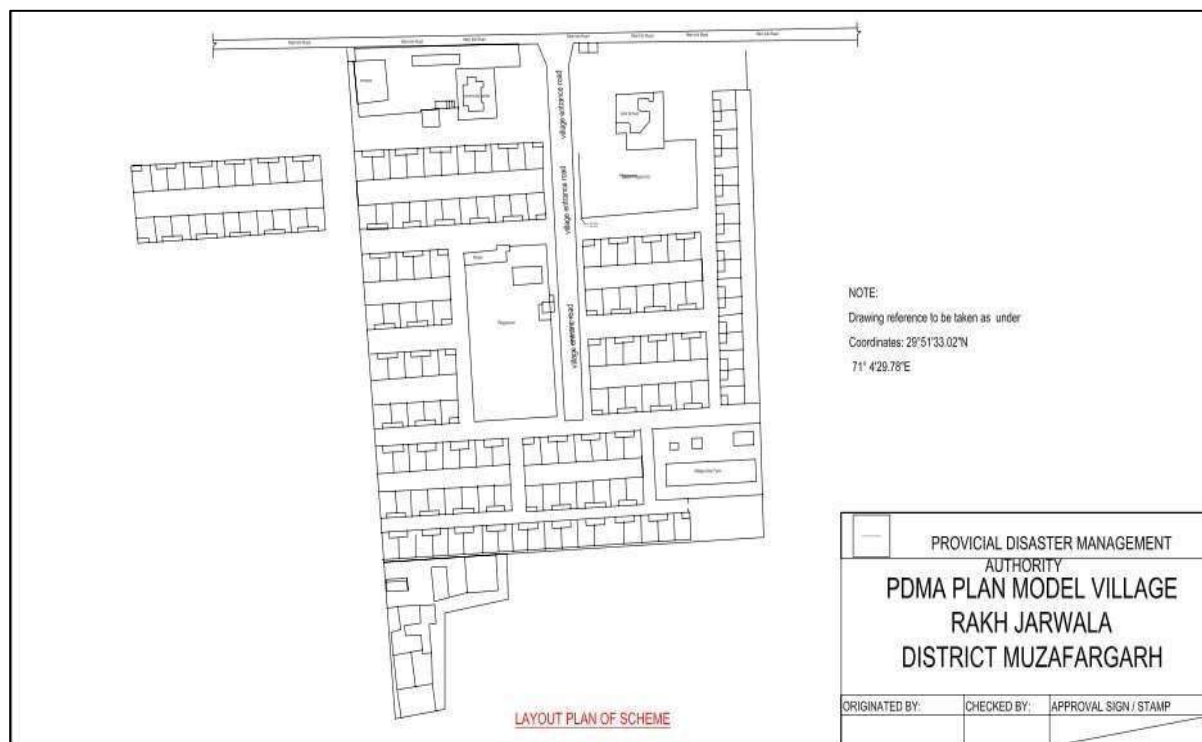


Fig 4: Masterplan of Rakh Jalwala Model Village (Source: PDMA)

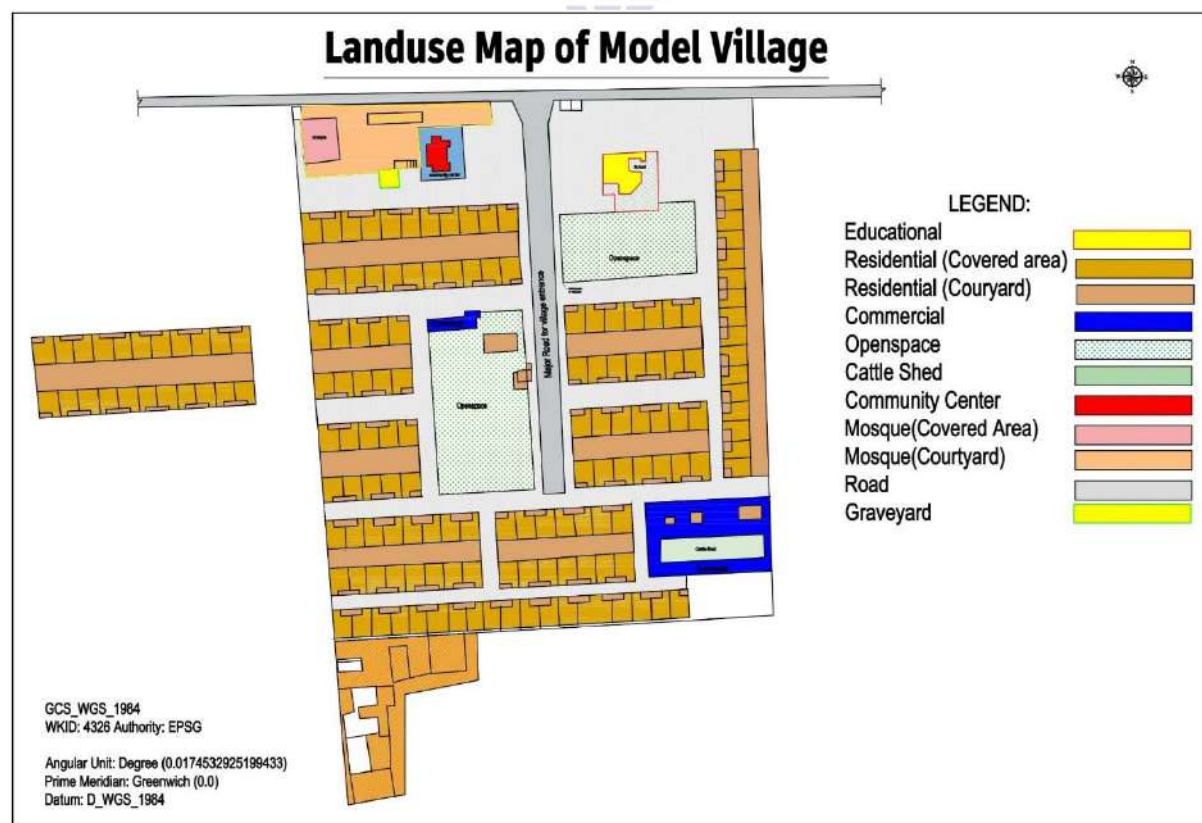


Fig 5: Landuse Map of Rakh Jalwala Model Village (Source: Author)

Total number of constructed houses in Model Village Rakh Jalwala are 136. Basic facilities are Dispensary, Cattle Shed, Livestock Dispensary, Market, School, Community Park, Brick Paved

Streets. Meanwhile average distance to reach services like good health care is 20 km approximately, Higher Education Institute is 12km approx. and nearest police station is 5 km approx. [2].



Mosque and Dispensary



School



Community Park and School



Row of Houses



Cattle Shed



Streets

Fig 6: Images of the Model Village Rakh Jalwala (Source: Field Survey)

4. Results and Discussions

Socio Economic Profile of the affected families

In our culture, in rural areas most of the family members are staying jointly in a very small house but the situation is changing in these present times. Presently 86% families are living as single family which is surprising. As per survey, the primary source of earning in our selected case study area is working as a labor in brick kiln (Bhatta)i.e., 71% where the labor

is deprived of their due rights due to less political as well as govt. support. Other than that, some of the people are having their own business i.e., pick & drop service, shops etc. Also, inhabitants indicated that there are lot of fish farms in this area; but they have not caused any employment opportunity. A combined social effort or political system is needed to explore and facilitate such uplift.

Table 1 Socio Economic Profile, (Source: Field Survey, 2020)

Socio-economic Characteristics	Type	Number	%age
<i>out of total 132 households</i>			
Type of Family	Single	113	85.61
	Nucleus	16	12.12
	Joint	3	2.27
Predominant Occupation in Each Family	Labor	94	71.21
	Factory	1	0.76
	Agriculture	3	2.27
	Business	1	0.76
	Other	33	25.00
Monthly Income per Family	<5000	5	3.79
	5001 - 9999	2	1.52
	10000 - 20000	104	78.79
	>20000	21	15.91
Ownership of Previous House	Owned	31	23.48
	Rented	101	76.52
<i>out of a population of 902</i>			
Household Size	Male	417	46.23
	Female	485	53.77
Earning Members	Total	211	23.39
<i>out of total 182 literate people</i>			
Literacy Rate	Male	105	25.18
	Female	77	15.88

In rural areas, due to a poor education system, only one or two people can work, although most families are residing on single-family basis. 77 % families are supported by 1-2 working persons. We only have some references available of similar data for 2014 survey (post-flood) and we see little change [4].

House building characteristics before and after flood

According to the field survey out of 132 households, most of the families belonged to villages nearby i.e.,

Table 2 Occupants Previous House Location, (Source: Field Survey, 2020)

Top 5 Previous Locations	Rank	Households
<i>out of total 132 households</i>		
Jal Wala	1	42
Rakh Jal Wala	2	34
Patti Syed Wala	3	11
Darbar Jal Wala	4	6
Khan Garh	5	4

Data suggests that before flood 82% of the constructed houses were made of mud, 17% of houses were semi Pacca and only 1.5% of people were living in Pacca houses. These pacca houses have greatly impacted the social life of inhabitants especially women because kacha houses had to be maintained yearly by mud plastering (lipai) by women and they

Jal wala, Rakh Jal Wala, Patti Syed Wala, Darbar Jal Wala, Khan Garh etc therefore, only a small percentage of people shared their reluctance to live in a different location even though that location is within their previous vicinity. Relevant literature suggests that people prefer to rebuild in the same location and are very reluctant to move to a different place [5].

would be easily damaged when monsoon season used to come. However, the data also suggests that the poor earning conditions are compromising the maintenance of the pacca houses and their hygiene outlook [6].

Table 3 House Building Characteristics before Flood, (Source: Field Survey, 2020)

House Building Characteristics	Type	Number	%age
<i>out of total 132 households</i>			
Type of Previous House	Kacha	108	81.82
	Pacca	2	1.52
	Semi Pacca	22	16.67
No. of Rooms in Previous House	1 room	69	52.27
	2 rooms	60	45.45
	3 rooms	3	2.27

One housing unit consists of two bedrooms with a veranda in the front, one kitchen, one toilet and a courtyard in the middle, as shown in Fig 7. This design is replicated into 136 housing units in this village. A small percentage of the residents of the case

study model village highlighted the issue faced while living in new houses is that their houses are smaller as compared to the earlier houses even though it has two rooms, but the size is not convenient.

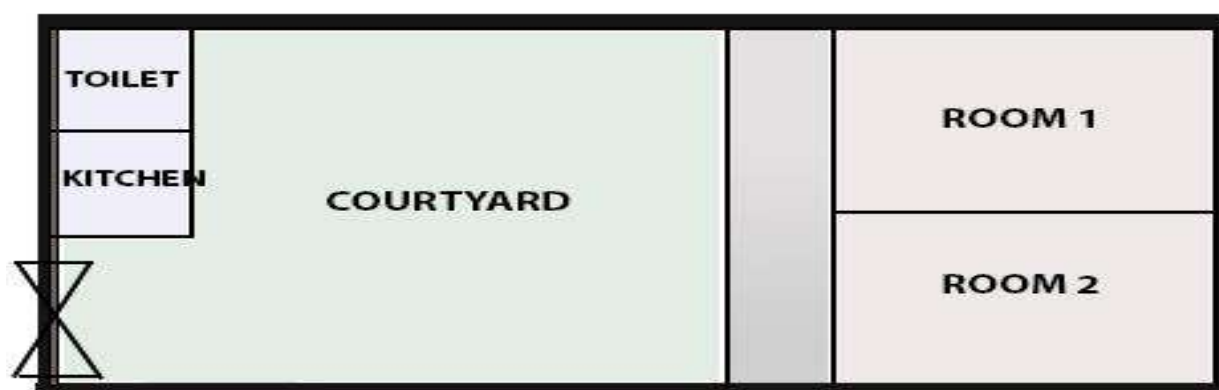


Fig 7: House Layout in Model Village Rakh Jalwala, (Source: Field Survey 2020)

Design and Construction of New Houses

The construction of these houses consists of bricks, cement, and sand mortar. The roof of these houses has been made with precast fabricated concrete slabs. The overall design and construction of the houses in the case study model village follows the design guidelines provided by National Disaster Management Authority (NDMA) of Pakistan. Relevant studies suggest that structures having reinforced concrete roof slabs and brick walls connected along with the foundation of the structure can withstand the impact of flood with little to no damage to its structure [7].

The residents have appreciated the housing facility and concluded that these are acceptable, safe, resilient and sustainable. No formal tests were ever conducted for flood condition of water level or times these

houses may be resistant to floods. Such data has been collected in Sindh which verifies that the housing structures are resilient. It is recommended that such tests may be conducted on these construction sites to have better design in future.

Satisfaction with Services and Facilities Provided

After interviewing the residents of this case study area, majority people were of the view that they were more affiliated to their previous residence place as their land was still there. Even though they feel more attached with their previous home locations they would still prefer to stay here due to availability of better employment and lifestyle. In this case study area, people were satisfied with facility of electricity. The solar panels provided by the Government were not utilized properly. Facility of natural gas for domestic use was not there. A water pump was

installed at Wasanda Wali. It's about 2.5 KM from the society. The pump and transformer were installed. Pipeline from pump to society was laid down. An overhead tank was to be built in the society which was not done. Water supply is ensured through electric water pumps, but the points are a distance away from the case study village which makes it difficult for

everyday usage Gas pipeline is passing at 1 KM from the society. The area name is pir Jal wala. As per Initial plan, biogas plants were to be built but were not built. Drains to collect wastewater from houses have been made but they are not maintained, and the waste is also not properly disposed. [8].

Table 4 Views on Rehabilitated Site, (Source: Field Survey, 2020)

Views on Rehabilitated Site	Satisfied	Dissatisfied	%age
	<i>out of total 132 households</i>		
Flood Resilience	125	7	94.70
Location of Current House	118	14	89.39
Size of Current House	114	18	86.36
Design of Current House	121	11	91.67
Household Requirements Fulfillment	120	12	90.91

The community was never consulted before construction of new houses, most of the people highlighted that there were unaware of the design, size, and location of the new houses. Even though relevant data suggests that public consultation before the construction of houses is the key to successful rehabilitation projects but in this case the occupants are majorly satisfied and have very few design grievances [9]. Under the basic design streets were brick paved. The paved streets are in good condition. The show some signs of being worn out but are still fulfilling the purpose for locals and are of reasonably good quality construction which give pleasure to observe as they are mostly clean. The livestock dispensary is in shambles. It is not operational. The building and the walls are damaged. There are no medicines nor a veterinarian. Lack of funds is the reason for its present condition. There is a public park in the middle of the settlement. According to survey initially the park was made with proper boundary and plantation of trees and grass etc. However, due to non-availability of funds, the condition of park has deteriorated. It is not used by locals anymore as

garbage has been disposed there. The boundary grills are broken / missing, there is no greenery. A building for medical dispensary exists and is in good condition, but the dispensary is not functional since beginning. The local government should allocate funds to make it functional by providing medicines and services of a medical practitioner.

According to Table 4, the data suggests that almost 90% of the residents are satisfied with the facilities and services provided and are hopeful for a better future.

5. Conclusions

This study concluded that since most of the flood affected residents are generally satisfied with model villages therefore it is a reasonable approach for rehabilitation. Regular maintenance of public facilities should be ensured. Active role is required to be played by the Govt. functionaries as well as local body political system. NGOs may also get involved in this activity. People are still living below the poverty line, so no uplift of life is observed. No literacy significance despite middle school as well as training

endeavours. Rakh Jalwala Model village was constructed on a different location with lesser distance from necessities and employment opportunities. Regular awareness campaign is recommended to make people aware of steps Government is taking to make the area safe in case of future flooding in model village. Common Facilities like parks, dispensaries etc should be maintained by the local governing bodies. The post flood rehabilitation responsibilities should be given to local authorities as well as participatory political system for maintenance of provided services. Sewer system should be maintained to ensure it flows to the designated area as per plan and then its disposal should be properly executed.

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