



## Ex Post Analysis of Disaster Recovery (Earthquake – 2005) in the Red Zones Region of Balakot, Pakistan

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**Abstract** *The Balakot town and its surroundings were almost totally destroyed by Earthquake – 2005. The government has abandoned this town for residential purposes and declared as Red Zones Region. However, the government fully supported post disaster relief and restoration phases. The rehabilitation and reconstruction phases were carried out through community self-help-based system and partially supported by line agencies. This recovery is neither claimed by government nor desired by the community. It is the product of government's policy, interventions, local economic opportunities, and community self-help-based system. The present study will analyse each step of the recovery through study of the role of different stakeholders and its impacts on recovery process. All data sets are normalized and generalized with regression analysis. This study will generalize the complex process of recovery to reduce the risk of disasters.*

**Key Words:** Earthquake – 2005, Red Zone Region, Disaster Recovery, Restoration, Rehabilitation, Reconstruction

### Introduction

The number and frequency of devastating disasters are at rise in the 21st century. The nature of earthquake hazard is rapid onset disaster due to which it provides least lead time for early warning and evacuation. Consequently, the physical damages, human loss and casualties are much higher than other disaster. However, on other side, it provides opportunity for development particularly of physical infrastructure (Collins, 2009, 2018; Moatty et al., 2017). The process of recovery would be a base for long-term earthquake mitigation and ultimately sustainable development. Among disaster risk reduction (DRR) measures, the most difficult and complex is the change of residents' location. Resettlement as a DRR measure has a fate of unsuccessful story. Its policy always covers legal ground while the phenomena is too much compound and complex. The land and capital ownership are always addressed in these policies but social and economic issues are always challengeable to address. Recent research shows that understanding of man environment interaction and dynamic recovery measures has positive impacts on this issue (Berke et al., 1993; Phillips, 2015; Smith & Wenger, 2007).

On October 8, 2005, the devastating Earthquake –2005 has totally destroyed the Balakot town and its surrounds. The historical records show that out of tehsil total population, more than 200,000 people were adversely affected by this earthquake. Almost 90 per cent of the physical infrastructure of this region was destroyed. The destruction of physical infrastructure caused disruption in housing, economic activities as well as social instability (Durrani et al., 2005; Hussain & Yeats, 2009; Kaleem et al., 2016). After Earthquake – 2005, the government conducted micro seismic risk assessment. Based on the conclusion that the existing active fault lines has very probability for future earthquakes. Consequently, the government declared the Balakot and its surroundings as red zones, which are unsuitable for residence. This region was called Red Zones of Balakot. The Red Zones Region (RZR) of Balakot included the areas of Balakot, Garlat, Ghoonal, Sathbani and Kewai union councils (UCs). In the RZR of Balakot, three UCs had almost 99% share of by area and population. These three

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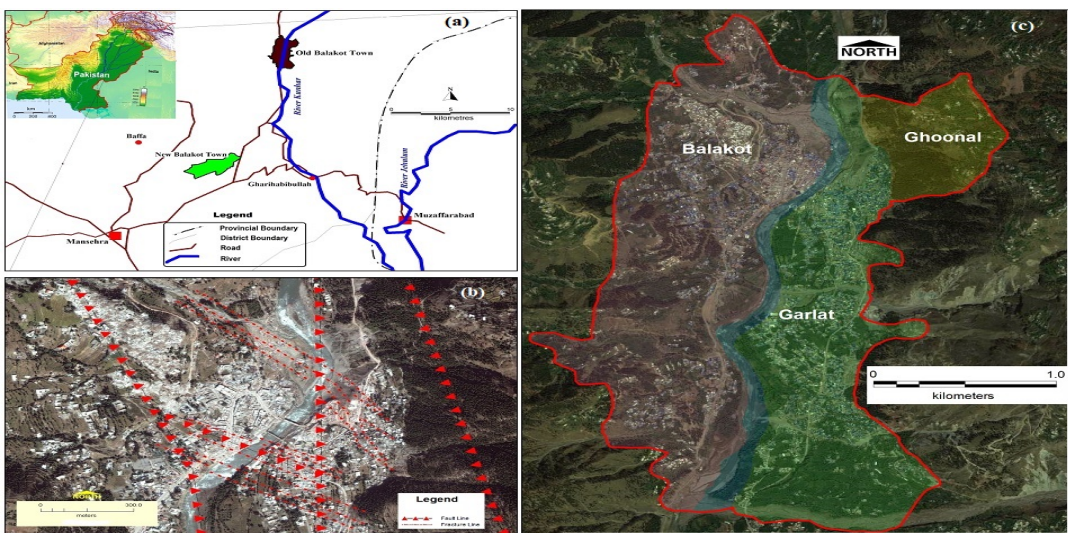
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UCs are Balakot, Garlat and Ghoonal (Government of Pakistan [GOP], 2006; 2007; Platt, 2017; Shafique & Warren, 2015). The RZR of Balakot is located on the merge of two major fault lines which make as wedge. This region has scenic beauty of the river Kunhar which is the part of Lesser Himalaya (Figure 01). It is a historic and a tourist attraction site. Balakot is the tehsil headquarter and served the entire Kunhar valley. It is a nodal point for the River Kunhar valley and work as tourist hub for the entire region. The residents of this RZR of Balakot were enjoying well off economic status and social status in the region (Ali, 2013; GOP, 2000; 2006; Kaleem et al., 2016).

**Figure 01: (a) Study Area; (b) Fault Lines Map (c) RZR of the Balakot; and Source: Modified after GOP, 2006**

After Earthquake – 2005, the relief and restoration phases of recovery were practiced on the same sites in this region. In rehabilitation phase of a disaster recovery, most of the activities were carried out by Nongovernment Organizations (NGOs) and community self-help-based system. The business activities as well as tehsil headquarter functions were started in the declared RZR of Balakot. With the passage of time, the recovery of the Earthquake – 2005 is muddling. More than a decade time, the residents are still waiting for the allotment in the new Balakot town. People have adopted themselves with the new environment. The reconstruction of businesses and housing has been started on community self-help-based system. The Earthquake - 2005 management authority of Earthquake Reconstruction and Rehabilitation Authority (ERRA) of Pakistan has carried out the recovery programme with “build back better” vision which is internationally recognized. However, the recovery of the RZR of Balakot town is still far away from the all standards of the ERRA’s recovery policy. Certainly, change of location due to risk of disasters is one of the most difficult measures for earthquake DRR. The present study will provide insight of all those measures and outcomes which will enhance the knowledge regarding disaster recovery phase (Ali, 2013; GOP, 2007; Kaleem et al., 2016; Shafique & Warren, 2015).



## Conceptual Framework

Recovery of a disaster started after disaster response phase i.e. search and rescue, medical first aid, security and hospital services. Recovery consisted of relief, restoration, rehabilitation and reconstruction phases as well as disaster preparedness. The aim of disaster’s recovery and/or all these sub-phases is to achieve the conditions of prior to disaster. The relief and restoration phases of disaster management are focused on provision of basic amenities of life i.e. food, shelter, civic utilities and services and security. Relief activities are carried out at temporary residence while restoration on permanent one. The living standards of human beings are good

indicators of relief and restoration activities. In present study, the conditions of housing and their inside facilities; access to health and education facilities; utilities and transportation facilities are considered as indicators for living standards. In rehabilitation phase of a disaster recovery, the major focus is on the revival of local economy. The local economy is mainly dependent on commercial activities in the RZR of Balakot while agriculture contribution is also conspicuous. Reconstruction is a phase of recovery in which establishment of physical infrastructure of all associated measures are encapsulated. In the RZR of Balakot, this phase of recovery is least supported by line agencies and donors due to RZR of Balakot. The last component of recovery process is disaster preparedness which focused on effective and efficient emergency management system as well as to mitigate the risk of future disasters (Ali, 2013; Collins, 2018; Mayner & Arbon, 2015; Tierney, 1993; United Nations, 2009). In present study, all these components of the recovery process are studied through comparing the pre and post disaster scenario in the RZR of Balakot (Figure 02).



Figure 02: Conceptual Framework of the Study

## Research Methodology

The basic purpose of the study is to provide a generalized mechanism for the study of disaster recovery processes. The disaster recovery process is divided into three major phases i.e. response, rehabilitation and reconstruction with fourth supplementary phase of disasters' preparedness. Each phase has sub sectional activities. In first stage of generalization, equal weightage of 30% is assigned to all major phases while 10% weightage is assigned to disaster' preparedness phase. In the response phase, the basic amenities of life are measured by quality and access to food, space and other living facilities. The shelters consisted of houses and shops while the provision of water, electricity, fuel, health and education were the major ingredients of civic utilities and services. In addition to these three components, security situation was also considered. Same weightage procedure (basic amenities of life, shelters and civic utilities & services with 30% each and security situation with 10%) is adopted for this phase of the recovery, also. The local economy was studied in rehabilitation phase through basic and non-basic activities with their type and proportion role in the centrality and growth of the town with 50 & 50 % weightage. In the reconstruction phase, the type and vulnerability of the physical infrastructure share the equal weightage. Based on the population number of each category, the houses, shops and civic utilities and services were given 40, 30 and 30 % weightages, respectively. The disasters' preparedness indicators of knowledge, perception, attitude, training and skills, emergency organizations and equipment were considered in equal weightage in this study (Ali, 2013).

In the RZR of Balakot, the UCs of Balakot, Garlat, and Ghoonal are contiguous and covered the total area of 1450 acres. The UCs of Sathbani and Kewai are isolated from the main region of Balakot with least problem of relocation of their houses. In this study, these three major shareholders UCs were focused for ex post analysis of disaster recovery (Earthquake – 2005) in the RZR of Balakot, Pakistan. Almost 95 % (4244) of the total residential units in the RZR were in these two UCs of Balakot and Garlat (GOP, 2000, 2017). In the RZR of Balakot, there were 4244 household reside in the 42 neighbourhoods (*Mohallas*). With the 25.3 % of sample size

from each neighbourhood, the total of 1050 households were surveyed. In the RZR of Balakot, there were 1500 commercial units in which 1445 shops were located in the Balakot UC. In the field survey, 21 different commercial activities were identified. With stratified random sampling method 300 commercial units were surveyed. The sample size was  $\pm 23\%$  from each category. 100 customers and visitors were surveyed through random sampling method.

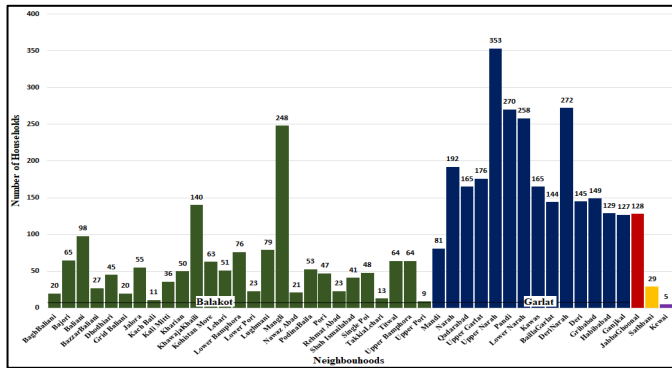


Figure 03: Number of Households in Neighbourhoods of RZR of Balakot; and Source: GOP, 2006

Detail land use and livelihoods assessment surveys were carried out. The United States Geological Survey (USGS) free available Quick Bird image of the region, Google Earth images and National Engineering Services Pakistan (NESPAK) surveys data & maps were used in these surveys. All the recordings at maps, cameras, notebook etc were aligned with the indicators of recovery. The data nature was mostly in the form of ratio and nominal. The data collected from primary and secondary sources regarding relief and restoration, rehabilitation, reconstruction as well as preparedness phases of recovery along with their sub phases were converted into averages forms. The conditions of these variables were summarized and different forms of was normalized by Norms and Vector method (Eq. 01). All variables data are ranged from 1 to 9 through normalization process. All the four phases of recovery along with their detail variables were converted to average status table of recovery (Eq. 02). It is very important to note that the median value “5” is assigned to pre disaster conditions. Rest of the responses and/or assigned values of each variable is the existing or post disaster conditions in the recovery process. The association of pre and post disaster recovery is analysed through statistical regression model (Eq. 03). The equation may be simplified for simple linear regression analysis (Eq. 03a). Scattered graph method is used to further verify the results of regression analysis.

$$\tilde{y} = \frac{y}{\|y\|} \quad \dots \text{(Eq. 01)}$$

Whereas  $\tilde{y}$  is the normalized value, while  $y = 1, 2, 3 \dots n^{\text{th}}$  value, and

$$\|y\| = \sqrt{y_a^2 + y_b^2 + y_c^2 + \dots y_n^2}$$

$$\text{Post Disaster Recovery} = \left[ \sum_{j=1}^n (\text{Average Variable})^\alpha \right]^{1/\alpha} / n \dots \text{(Eq. 02)}$$

In the average index of the variables,  $\alpha$  is the variable and  $n$  represent the total no. of variables  $j = \text{Number of indicators in each category}$  (in the present case  $n = \alpha = 7$ )

$$y = \alpha + \beta x \quad \dots \text{(Eq. 03)}$$

Whereas:  $y$  is a dependent and  $x$  is independent variable which describes a line with slope  $\beta$  and  $y$  intercept  $\alpha$ .

$$r_{xy} = \frac{\overline{xy} - \bar{x} \bar{y}}{\sqrt{(\overline{x^2} - \bar{x}^2)(\overline{y^2} - \bar{y}^2)}} \dots \text{(Eq. 03a)}$$

Whereas:  $r_{xy}$  is the slope of the regression line of the standardized data points.

### Relief and Restoration

The government established relief camps on the same hazardous site after response phase. The threat of upcoming cold winter season and lack of proper policy guidelines, the authorities started restoration process on the same site. This decision of restoration not only encourages the donors’ agencies to start their recovery projects but also the local community to establish their businesses on the old site. Fabricated shelters were used for residence, offices, shops and public buildings & services. The civic services and utilities were immediately restored on the same site. In this phase of recovery, most of the activities were supported by donors’ agencies.

The population of Balakot and Garlat were 11,351 and 11,956 in 1998 with 7.0 and 7.2 households’ sizes, respectively. The predominant trend of plot sizes was 10 *Marlas* in most of the red zone area. In 2017 census, their population are 14,681 and 19,513 with 5.59 and 5.58 households’ sizes. The annual percentage growth rate in these two major areas of red zone of Balakot are 1.35 and 2.58. The household size is deceased while annual growth rate is increased from the rest of tehsil averages of 6.1 and 1.27, respectively. The status of the RZR of Balakot was well known to everybody in the region. The economic constraints and nature of RZR discourage the residents from permanent shelters and/or buildings. The available fabricated shelters were occupied by the residents with ±90% of the proportion. These fabricated shelters have typical structure of one kitchen, two rooms and two washrooms. Most of the residents has the view that these are unsuitable for family’s livings (Table 01). Most of the commercial units’ structures are also fabricated and they have the same complain.

**Table 1.** House Vulnerability - Pre and Post Earthquake - 2005

House Type	Lesser	Equal	Greater	Total
Fabricated	25	63	932	1020
RCC	0	4	16	20
Semi RCC	0	1	7	8
Adobe	0	0	1	1
Other	0	0	1	1
Total	25	68	957	1050

Source: Field Data, 2016

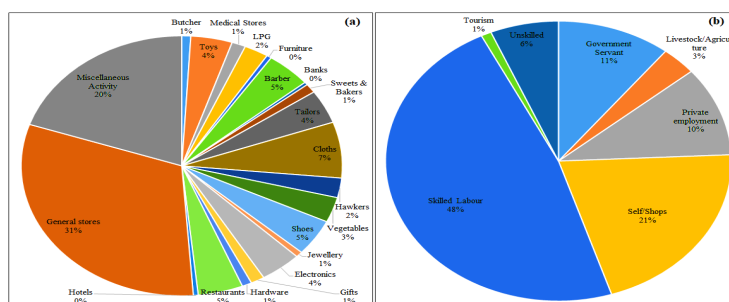
Before Earthquake – 2005, the residents of RZR of Balakot were enjoying the quality of civic utilities. The basic utilities of water, electricity, telecommunication, liquid petroleum gas (LPG) cylinder, wood, waste disposal system, sewerage, sanitation and maintenance of neighbourhood’s streets etc. were up to the mark in the pre earthquake time. The Earthquake – 2005 destroyed the infrastructure as well as their services of all these civic utilities. In relief and response phase of Earthquake – 2005, the basic infrastructure of these civic utilities was restored. However, with the passage of time and RZR limitations, this system become absolute due to non-maintenance and fabricated shelters. The residents’ response was more critical than commercial sector regarding civic utilities. The civic services of health, education, government offices, transportation, and security etc. were functionalized immediately after Earthquake - 2005. Most of these civic services particularly of government sector are in the fabricated shelters. In most cases, the quality of services is improved after Earthquake - 2005 like health, government offices, telecommunication and education. The mix response was observed regarding the civic services in the RZR of Balakot. The response and observations regarding recreation and security was satisfactory and almost no change was observed before and after Earthquake - 2005.

### Rehabilitation

Rehabilitation is the most difficult phase of recovery in which the local economy needs to start their functioning. The infrastructure of the local economy was totally destroyed by Earthquake – 2005. The rehabilitation in Balakot

town is unique one, it was immediately started during early recovery phase due to commercial function of the Balakot town. Interestingly, it was started by self-help-based system of the local community and boomed with the immediate demand of their central functionality and central location of the Balakot town in the river Kunhar valley. The commercial hoteling and tourism are slowly and gradually re-established in the region. The Government’s line agencies support for the civics’ physical infrastructure is very limited in the RZR of Balakot, which inversely affected the businesses in the region. The municipality services are almost abandoned. However, the main road, bridges and embankments along river side are reconstructed.

The RZR of Balakot is comprised rural and urban areas. The UCs of Garlat and Ghanool were rural areas where agriculture is the major livelihood. The UC of Balakot was urban area and the residents were engaged in the commercial activities. The livelihood structure was composed of agriculture, commercial activities, and services with very few manufacturing activities. The agriculture has the share of 50%, commercial activities of 40 and rest of sectors share 10%. The detail livelihood structure is described in Figure 03a and b (Ali, 2013; GOP, 2006; 2007). The Balakot town and its surroundings were of prime importance for the whole valley of river Kunhar, which was reflected in the responses of customers and visitors. The central location of this region not only attract customers and tourists but also provide basic support to the local economy in the form of business in the bazaar of Balakot town. The nature of these business and support to the growth of the region particularly of the Balakot was assessed through assessing the share of basic and non-basic economic activities. Business were the sole contributor to the local economy. The nature and function of business as a basic or no basic was assessed from customer response and comparing with population it served. Most of the business performed in mixed nature but the proportion of basic economic activities were much higher than non-basic economic activities (Table 02).



**Figure 04:** (a) Commercial Structure of the Balakot Town; (b) Livelihoods Structure in the RZR; and Sources: Field Data, 2016 & GOP, 2006, respectively.

**Table 2.** Nature of Economic Activities and Growth of Balakot

S. No.	Type	> 95% local	95% local & 05% Visitors	75% local & 25% Visitors	50% local & 50% Visitors	25% local & 75% Visitors	05% local & 95% Visitors	> 95% Visitors	Total
1	Hoteling	0.00	0.00	0.00	0.00	0.00	0.00	100.00	100.00
2	Restaurant	0.00	0.00	0.00	0.00	0.00	0.00	100.00	100.00
3	Jewellery	0.00	0.00	0.00	0.00	100.00	0.00	0.00	100.00
4	Barber	0.00	0.00	0.00	100.00	0.00	0.00	0.00	100.00
5	Cloths	0.00	0.00	0.00	0.00	100.00	0.00	0.00	100.00
6	Electronics	0.00	0.00	0.00	0.00	100.00	0.00	0.00	100.00
7	General store	10.99	8.79	17.58	31.87	30.77	0.00	0.00	100.00



8	Shoes	0.00	0.00	0.00	0.00	100.00	0.00	0.00	100.00
9	Toys	0.00	0.00	0.00	0.00	0.00	100.00	0.00	100.00
10	Sweets & Bakers	0.00	0.00	0.00	100.00	0.00	0.00	0.00	100.00
11	Butchers	0.00	0.00	0.00	100.00	0.00	0.00	0.00	100.00
12	Bank	0.00	0.00	0.00	100.00	0.00	0.00	0.00	100.00
13	Tailors	0.00	0.00	0.00	0.00	100.00	0.00	0.00	100.00
14	Gifts	0.00	0.00	0.00	0.00	0.00	0.00	100.00	100.00
15	Furniture	0.00	0.00	0.00	100.00	0.00	0.00	0.00	100.00
16	Hardware	0.00	0.00	0.00	0.00	100.00	0.00	0.00	100.00
17	LPG	0.00	0.00	0.00	100.00	0.00	0.00	0.00	100.00
18	Medical Stores	0.00	0.00	0.00	100.00	0.00	0.00	0.00	100.00
19	Hawkers	0.00	0.00	77.78	0.00	22.22	0.00	0.00	100.00
20	Vegetables	0.00	0.00	92.31	0.00	7.69	0.00	0.00	100.00
21	Mis. Activity	4.00	4.00	14.00	0.00	74.00	4.00	0.00	100.00
	Total	4.00	3.33	14.00	21.67	45.00	5.33	6.67	100.00

Source: Field Data, 2016

## Reconstruction

Reconstruction is a phase in recovery which support directly the restoration and rehabilitation phases. However, reconstruction RZR of Balakot was impassable due to red zone constrains. The infrastructure of the basic civic services was functionalized in the fabricated shelters. In the RZR of Balakot, the reconstruction phase was not started. The situation was deteriorated and agitation was started in local community. In 2010, the Government allocated a budget of Rs. 229 Million for the improvement of civic infrastructure services. The housing and commercial infrastructure is developed by local community self-help-based system and recently in private capacity. With the passage of time, the conditions of overall living standards, civic utilities and services are disparaged. This complaint is quite visible in the response of business community and residents regarding living standards, civic utilities and services. Certainly, it is the business opportunities which support the reconstruction in private sector of their houses and commercial units. The residents of the RZR of Balakot were fully aware about the high seismic risk associated with this region and also well educated about the resettlement and/or compensation system from the government. The sole reason for living here was business and no proper alternative of livelihood. The commercial activities were started in the fabricated shelters. Those well-known buildings which withstand with Earthquake – 2005 i.e. *Shah Alam* and *Madina* market were hub of all commercial activities. With the passage of time and more than decade time, slowly and gradually reconstruction in the private sector for housing and commercial activities are started with full boom. The government offices and their services infrastructure as well as most of the residents are still using the fabricated shelters.

## Disaster Preparedness

Before Earthquake – 2005, there was no emergency services and/or disaster preparedness in the RZR of Balakot. The Earthquake – 2005 changed the level of knowledge, perception and their attitude regarding disasters. In the post disaster scenario, the capacity of disaster preparedness was enhanced through trainings, awareness programmes, availability of equipment and skilled personals. The disaster emergency response & services centre was established at Tehsil Municipal Officer (TMO) office, Balakot. This centre has the limited capacity like Rescue 1122 services which is sufficient for RZR of Balakot. The knowledge, perception, attitude and practices

were changed by Earthquake -2005 which enhanced the capacity for disaster preparedness. Rescue and emergency awareness programmes, trainings, drills were practiced in educational institutions as well as community level. The organization capacity at line agencies and community level were enhanced up to the mark after Earthquake – 2005.

### Generalization of the Recovery

The process of disaster recovery is divided into four major phases with sub phases and ultimately by 27 indicators. The weightage of each phase and sub phases of recovery is already in the methodology section. Consequently, each indicator has its own weightage value which is based on multiplication of major and sub phase weightage value with number of indicators in the sub phase of recovery. The data regarding each indicator is collected through different methods which is explained in the relevant section of the study. All data sources are converted to normalized data range with focus on their relation with the major phase of recovery. All indicators based table is computed with normalized average values, weightage and score of each indicator (Table 03). The performance of response, rehabilitation, reconstruction and preparedness are 4.62, 6.38, 2.88 and 8.30, respectively. The role of line agencies, NGOs and self-help-based system is generalized which shows that only response and preparedness phases are supported by line agencies and NGOs. The community was involved in rehabilitation phase through self-help-based system while reconstruction phase has negligible attention from all stakeholders (Table 04). This generalized post disaster scenario is perfectly matching with the data and their description in the relevant sections.

The post disaster scenario is based on the pre disaster status of the selected indicators. The median and average value of normalized values is the best indicator of pre disaster situation. Thus, the regression analysis plays a central role in the description of post disaster scenario. The average values of post disaster indicators are function of pre disaster situation. The values of Multiple R and R Square are 0.78 and 0.61 which indicates that the indicators of pre and post disaster has strong bond of association. However, the coefficients of regression show that all indicators are differently related with each other as the values of post disaster indicator intercept pre disaster with the -0.0066 of 1.0339 value. The detail residual analysis of all indicator shows that response and rehabilitation have strong interdependency while the reconstruction and preparedness are weakly interconnected. The results are further verified through scattered graph method which shows same values in the linear regression expression (Figure 04).

**Table 3.** Normalized Weightage Response of Recovery Indicators

Phases of Recovery	Sub Phase of Recovery	Indicators	Normalized Average	Weightage of Indicator	Score of Indicators
Response	Basic Amenities of Life	Food	5.50	0.03	0.17
		Living Space	4.50	0.03	0.14
		Housing Facilities	4.40	0.03	0.13
	Shelters	Houses	3.40	0.05	0.15
		Shops	3.80	0.05	0.17
		Water	4.50	0.02	0.07
	Civic Utilities	Electricity	5.00	0.02	0.08
		Miscellaneous	6.10	0.02	0.09
		Health	6.50	0.02	0.10
	Civic Services	Education	4.80	0.02	0.07
		Miscellaneous	5.50	0.02	0.08
		Security & Recreation	Security	5.00	0.02
	Rehabilitation	Basic activities	Recreation	4.50	0.02
Proportion			7.50	0.08	0.56



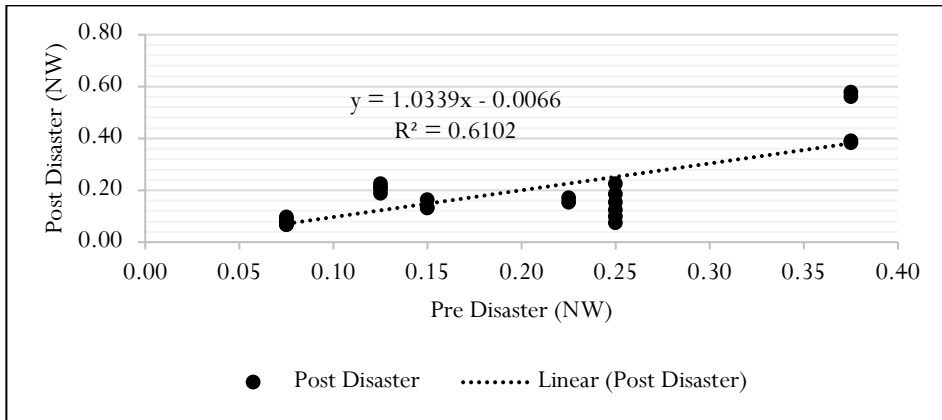
		Centrality & Growth	7.70	0.08	0.58
	Non-Basic activities	Proportion	5.10	0.08	0.38
		Centrality & Growth	5.20	0.08	0.39
Reconstruction	Houses	Type	2.50	0.05	0.13
		Vulnerability	2.00	0.05	0.10
	Shops	Type	3.70	0.05	0.19
		Vulnerability	3.10	0.05	0.16
	Infra-structure of Civic Utilities & Services	Type	1.50	0.05	0.08
		Vulnerability	4.50	0.05	0.23
Preparedness	Knowledge, Perception and Attitude		9.00	0.03	0.23
	Training & Skills		8.50	0.03	0.21
	Emergency Organizations		7.50	0.03	0.19
	Equipment & Resources		8.20	0.03	0.21
	G. Total		139.50	1.00	4.99

Source: Field Data, 2016

**Table 4.** Support of Stakeholders in the Recovery Indicators

Phases of Recovery	Sub Phase of Recovery	Line Agencies & NGOs	Self-help-based
Response	Basic Amenities of Life	9	1
	Shelters	7.5	2.5
	Civic Utilities	6.1	2.5
	Civic Services	6.5	2.5
	Security & Recreation	1	1
	Total	9.03	2.85
Rehabilitation	Basic activities	1	8.2
	Non-Basic activities	1	7.8
	Total	0.6	4.8
Reconstruction	Houses	1	3.5
	Shops	1	4.5
	Infrastructure of Civic Utilities and Services	5	1.5
	Total	2.1	2.85
	Knowledge, Perception and Attitude	6	1
Preparedness	Training and Skills	6.5	1
	Emergency Organizations	7.2	1
	Equipment	8.5	1
	Total	2.82	0.4
Overall Total		14.55	10.9

Source: Field Data, 2016



**Figure 04:** Scattered Graph of Pre and Post Disaster Indicators; and Source: Field Data, 2016

## Conclusion

The disaster recovery process is schematically divided into phases and sub phases with 27 indicators, which covers all aspect of the recovery. The theoretical base of the study explains the importance of each indicator and provide a base for the weightage of each indicator. The diverse nature of indicators compels the study to use different method for data collection and description. The study reveals that RZR of Balakot has two important aspects i.e. unsuitable for residence and unmatched situation for businesses. These two contrast characteristics make it attractive for local community due to businesses and least focused in development of physical infrastructure by line agencies due to red zones limitations. Consequently, the response phase and all of its indicators show tremendous progress and development. The rehabilitation is indirectly supported by line agencies and directly by local community due to their businesses. The preparedness for disasters is totally new intervention in the capacity enhancement of the community which has very positive impacts on the recovery of Earthquake – 2005. The reconstruction phase has worse scenario at all stakeholders' level. This recovery is contrast to the vision of ERRA, which claim “Built Back Better”.

The division of recovery process into phases, sub phases and indicators make it very generalized for the analysis of other disaster recovery processes which are in the focus. It is obvious that all recovery processes will follow the same path of assessment. The most important aspect of this generalization is the methodological framework for the weightage of each indicator and its calculation. In the light of stakeholder function, the performance of each indicator can be assessed through number of methodologies. The indicators represent the sub phase which contribute to major phase of recovery and ultimately the overall recovery process. This method of generalization has the strength to reflect the intra phase's diversities. On one hand, it has ability to describe the total recovery of RZR of Balakot and on other hand shows discrepancies in different phases of the recovery. The recovery of the RZR of Balakot has the value of 5, which shows mix conditions of post-Earthquake – 2005 with greater similarity of pre earthquake conditions. The regression model and individual values of major phases of disaster recovery revealed that development is totally uneven in different phases of recovery. It also indicates the areas which need future attention for development and converting opportunity of disaster recovery to resilience.

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