

TAMANGS' HOUSING DESIGN AND EVERYDAY LIFE:
A STUDY OF POST-EARTHQUAKE GIRANCHOUR INTEGRATED
SETTLEMENT FROM SINDUPALCHOK DISTRICT

BY

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A DISSERTATION

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TRIBHUVAN UNIVERSITY
FACULTY OF HUMANITIES AND SOCIAL SCIENCES
CENTRAL DEPARTMENT OF SOCIOLOGY
KIRTIPUR, KATHMANDU

LETTER OF RECOMMENDATION

I am pleased to state that the dissertation entitled “Tamangs’ Housing Design and Everyday Life: A Study of Post-earthquake Giranchaur Integrated Settlement from Sindupalchok District” has been successfully completed under my supervision by Bijaya Rai in the partial fulfillment of the requirements for the Degree of Master of Arts in Sociology. I would like to recommend this dissertation to be examined by the dissertation evaluation committee.

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LETTER OF APPROVAL

The dissertation entitled “Tamangs’ Housing Design and Everyday Life: A Study of Post-earthquake Giranchaur Integrated Settlement from Sindupalchok District” submitted by Bijaya Rai has been approved by the dissertation evaluation committee in the partial fulfillment of the requirements for the Degree of Master of Arts in Sociology.

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LIST OF ACRONYMS

ADR	–	Agency Driven Reconstruction
APF	–	Armed Police Force
BS	–	Bikram Sambad
CBS	–	Central Bureau of Statistics
CDR	–	Community Driven Reconstruction
CGOs	–	Coffee Grower Organizations
CGI	–	Corrugated Galvanized Iron
CL-PIU	–	Central Level Project Implementation Unit
CRS	–	Concentrated Rural Settlement
DDC	–	District Development Committee
DDRC	–	District Disaster Relief Committee
DL-PIU	–	District Level Project Implementation Unit
DSF	–	Dharmus-Suntali Foundation
GoN	–	Government of Nepal
ICRN	–	International Conference on Nepal’s Reconstruction
INGO	–	International Non-government Organization
LDRMP-	–	Local Disaster Risk Management Plan
LPG	–	Liquefied Petroleum Gas
MoE	–	Ministry of Education
MoCTCA	–	Ministry of Culture, Tourism, and Civil Aviation
MoFALD	–	Minister of Federal Affairs and Local Development
MoUD	–	Ministry of Urban Development

NA	–	Nepalese Army
NGO	–	Non-government Organization
NP	–	Nepal Police
NPC	–	National Planning Commission
NPHC	–	National Population and Housing Census
NRA	–	National Reconstruction Authority
NRAC	–	National Reconstruction Advisory Council
NRF	–	National Reconstruction Fund
NRN	–	Non Resident Nepali
NRs.	–	Nepalese Rupees
NSC	–	Nepal’s Seismological Centre
ODR	–	Owner Driven Reconstruction
PDNA	–	Post Disaster Needs Assessment
PDRF	–	Post Disaster Reconstruction Framework
PM	–	Prime Minister
RC	–	Resource Centre
RM	–	Rural Municipality
VDC	–	Village Development Committee
VMC	–	Village Management Committee

CHAPTER - I

INTRODUCTION

1.1 Background

Disaster turns into casualties as well as disturbs the normality when it transcends the human control. As cited in Frimpong (2011), Center for Research into the Epidemiology of Disaster (CRED, 2006) defines “Disaster as a situation or event, which overwhelms local capacity, necessitating a request to national or international level for assistance; an unforeseen and often sudden that causes great damage, destruction and human suffering.” The consequences of disasters put less resilient communities into an adverse condition and intensify long-run pre-disaster problems and issues (Dyson 2006; Iuchi 2010; Nguyen and Salvesen 2015).

Disaster does not merely push the communities into crisis, but it also opens an opportunity of rebuilding housings, infrastructure, and revising the existing policies and mechanisms of government in scientific manner. So, the community feels safe and eager to continue their life after the disaster. Iuchi (2010) cited Olshansky and Chang (2009) that the pre-dominated existing unfavorable physical condition and social orders before disasters provide less opportunity to bring about changes even the plans and actions are mapped out properly.

Communities are dislocated as a result of destruction of their houses either temporarily or permanently. After disasters, several of the problems and crisis can be seen in communities. Among them rescuing the victims, providing temporary shelter and food are the immediate and basic necessities which can be faced in the aftermath of disaster. Support given during the emergency stage makes the situation become slightly normal and the community enters into restoration and building of housing as next stage of recovery. Frimpong (2011) cited Smith and Wenger (2006) that “restoring, rebuilding, and reshaping of physical, social, economical, and environmental conditions of post-disaster are the process of recovery phase which can be achieved via pre-event planning and post-disaster actions.”

Disaster affects huge range of both rural and urban communities although rural communities might be adversely affected by the consequences of disaster. The improper and poor mechanism of government in rehabilitation of victims after the disaster might turn the situation into more catastrophic. Recovering from the disaster and reconstructing private housing and public infrastructure have particular reconstruction approach that is adopted by the government and NGOs/INGOs. The adopted reconstruction approach allows the households, NGOs/INGOs, philanthropies, and private organization to rebuild the private housing. Reconstructing private housing of rural area based on ADR approach might creates dramatically modification in terms of layout of house, settlement pattern, livelihood, and socio-cultural aspects of community.

1.2 The Study Context

This study has seen the housing design and settlement pattern impact on the household everyday life of Tamangs of Giranchaur in post-earthquake 2015 led by ADR approach. Nepal is listed as the eleventh most risk of earthquake in the World (UNDP/BCPR 2004). Magnitude of 7.6 rector scale earthquake struck in Barpark, Gorkha about 76 km the north-west of Kathmandu as recorded by the NSC on Saturday, 25 April 2015 at a local time 11:56 am which brought massive destruction of infrastructures and human loss.

Additionally, 300 aftershocks greater than 4.0, four aftershocks greater than 6.0 and 6.8 rector scaled of aftershock with epicenter nearby the Mount Everest were felt after the 17 days of 25 April. 8,702 people died and 22,303 were injured as a consequence of earthquake. 498,852 private houses collapsed and 256,697 partially damaged. Assessment showed, 31 of 75 districts were affected; out of which 14 were 'crisis-hit' (PDNA 2015).

As a result of earthquake, residential houses, heritage sites, government buildings, community centers, health posts, bridges, rural roads, schools, agricultural land, water supply system, trekking routes, hydropower plants, and sports facilities were severely damaged. The massive destruction made the people homeless, lose the family members, lose the livestock, properties, grain store (with stored grain) and utensils which compelled them to be displaced from their own land. In family and individual level, they don't have sufficient capacities and resources to cope with consequence of disaster which made them to go under the refuge of government and private sectors. Even

community and its neighboring network too lacked the capacity in reconstruction as entire district was affected by the April 2015 earthquake. The destruction made government to request international community for assistance in emergency rescue and reconstruction process. Whereas Shumsher ([1935] 2015) stated that Prime Minister Juddha Shumsher had denied the assistance of International community during great earthquake of 1934 in Nepal.

It was estimated that NRs. 669 billion equivalents to US\$ 6.7 billion was needed for the entire recovery which included costs of reconstruction, better specification, equipment, improved governance and risk reduction for April 2015 earthquake in Nepal (PDNA 2015). PM Juddha Shumsher had announced NRs. 5 million as 'earthquake victim assistance grant' for reconstruction (Shumsher [1935] 2015).

After the struck of 25 April earthquake, Government of Nepal has asked private sectors as well as dispatched it's authorize bodies included NP, NA and APF for emergency rescue and relief distribution in affected districts. Completing the first phase of rescue and relief distribution, GoN has entered into the next phase of recovery process in which PDNA and PDRF reports, formation of NRA, organizing ICNR 2015 and passing of national reconstruction and resettlement policy 2015(2072) were carried out.

The post-disaster reconstruction process has been going on since the inception of NRA and NRF in December, 2015 to coordinate among the donors and GoN. Aftermath of April 2015 earthquake, GoN has passed reconstruction and rehabilitation policy 2015 (2072) which allows the policy instrument for steering reconstruction and rehabilitation. Furthermore, the council of ministers has approved guidelines includes housing grant distribution, environment impact assessment, land acquisition and registration, public procurement, reconstruction regulation and land registration. NPC has produced the PDNA which clearly indicates the guidelines of reconstruction of private housing and cultural monuments in ‘owner driven reconstruction’ (ODR) approach. Besides this, under the leadership of NRA, PDRF was prepared in consultation with the key stakeholders aiming to provide a systematic, structured, and prioritized for implementing recovery and reconstruction (PDRF 2016-2020).

However, various approaches are applied for reconstruction in response to disaster recovery by the government and non-government sectors. While talking about the reconstruction process in rural areas after the April earthquake 2015, private housings have been rebuilt in financial assistance of GoN in partnership with the private agencies. GoN, international donors, private sectors, NGOs, INGOs, NRN, philanthropies, and artists have been playing vital role in reconstruction process.

1.3 Statement of the Problem

In developing countries, the natural disasters on disadvantaged rural areas have led to the post-disaster rural reconstruction of private housing in different models. Disaster puts the community under risk, relocating the whole settlement to the new location where the livelihood and social-cultural aspects might alter. This might create diversification and problems to the displaced and dislocated community's regular life with the new challenges in terms of socio-cultural, economical, and environmental setting of the community.

Reconstruction approach adopted by the government may be beneficial for the local community if it addresses their livelihood, environmental and socio-cultural aspects of life. Housing design and settlement pattern play crucial role in order to run the rural household's everyday life. Private housing design and settlement pattern without proper assessment might lead the household's life problematic even the reconstruction is accomplished within the targeted time framework.

Earthquake-prone and developing countries like Nepal where huge dispersed settlement lies in rural parts and fewer facilities are accessed as compare to the urban areas provided by the state are more likely to suffer in reconstruction process. Responsible agencies can improve the lives of disaster affected community in post-disaster reconstruction phase adopting the suitable reconstruction approach. So, turning the dispersed settlement into integrated settlement is a new phenomenon as well as complex process which is mixed

up of socio-cultural and economical sentiment of the disaster affected community and legal process adopted by the state in the process of reconstruction.

In the earthquake of 2015 in Nepal, numbers of private housing has collapsed and people became homeless. Government has appealed the international community for relief and reconstruction of both private housing and cultural monuments. Private housings have been reconstructed with the financial and technical assistance of government and donor agencies. The reconstruction progress of private housing is not satisfactory though. The reconstruction policy 2015 (2072) of Nepal doesn't allow the NGOs/INGOs for construction of private housing. However, few NGOs/INGOs proposals have been approved by the National Reconstruction Authority (NRA) in construction of physical close integrated settlement in rural areas.

In 2016, Dhurmus-Suntali Foundation, an NGO proposal was approved by the NRA to construct integrated settlement of entire 64 Tamangs household of Giranchaur based on 'ADR approach in situ' which falls in Ward No. 12 of Melamchi Municipality, Sindupalchok district. These entire 64 households of Tamang community were rehabilitated along the construction of private housing led by the DSF. Among the 64 Tamang households, mainly *Blon*, *Syantana* and *Moktan* clan were rehabilitated by the DSF in post-earthquake integrated settlement. After one and half-year of the April earthquake 2015, these 64 households shifted to the post-earthquake permanent housings which

are different from the pre-earthquake housing in terms of design and settlement pattern. These people had lived for centuries in traditionally designed housings which were built by them. They had different lifestyle there. Now, the 64 households are living in post-earthquake integrated settlement and it has been one and half-year long staying in physical close settlement.

The Tamang's household has been facing difficulties in post-earthquake integrated settlement in terms of everyday life mainly absence of cattle shed, restriction of burning firewood, limited space of courtyard, quality crops storage and engineering of housing. Consequently, family members are found the entire day in temporary shelter and cattle shed engaging in everyday life includes cooking food and raising livestock. They are found in permanent house during the late evening. The average yearly expenditure of Tamang's household has been sharply increased in post-earthquake house due to new housing design. Their economic life is threatened as the households have to spend for new topics.

Similarly, the post-earthquake integrated settlement also brings better physical infrastructure included community hall, access to road, separated individual room, and indoor toilet. The new added infrastructure has made their everyday life comfortable than previous. They have no problem which they faced previous and the added physical infrastructure has solved this hardship. The opportunity of home stay program has come up with the access to road and

separated individual room. Definitely, Tamang household are benefiting from the new physical structure which is added in post-earthquake settlement.

To sum up, these rehabilitated Tamangs of Giranchaur have undergone through pros and cons of integrated settlement in everyday life. The purpose of this research is to figure out both aspects of integrated settlement in context of rural Tamangs' everyday life.

1.4 Research Questions

- a) How has Tamangs' everyday life been influenced (by) in post-earthquake integrated settlement at Giranchaur?
- b) What is the inter-linkage of housing design with the Tamangs' everyday life in Giranchaur integrated settlement?

1.5 Justification of the Study

The devastating April 2015 earthquake of Nepal attracted, suddenly, specially the research scholars to do research on the post-earthquake recovery process in wider aspects of their disciplines and methodology at national and international level. The present study on post-earthquake and integrated settlement with the special reference to reconstruction can be justified on several bases. These can be broadly classified into two levels: theoretical and empirical justifications.

The 31 worst districts affected from earthquake are going under reconstruction based on the PDRF and National Reconstruction and Resettlement Act, 2015

(2072). 31 of the earthquake-hit districts reconstruction is guided by ‘ODR approach’ and ‘ADR approach in situ (situated in original place) and relocated sites’ with the financial and technical assistance of governmental and donor agencies (NGOs/INGOs). NGOs/INGOs have reconstructed integrated settlement based on ADR approach following the guidelines of PDRF and NRA.

Constructing integrated settlement in rural area is a set of multiple activities including legal, technical, and participation of people. Thus, the present study by stressing on constructed integrated settlement in rural area might be able to shade some light on the broader process of reconstruction while turning dispersed settlement into integrated settlement pattern. Although literature dealing with the urban reconstruction after the disasters is ample, there is a scarcity of literature dealing with the rural integrated settlement process in Nepal. Therefore, by focusing on the construction of integrated settlement in rural areas, it is hoped, although in small quantity, few steps will be added in ushering on the path of literature regarding on integrated settlement of rural areas.

Ironically, Nepal being the country whose most of part is rural, literature on the post-disaster rural reconstruction is not in abundance. The present study hopes to define how integrated settlement of rural areas and its entire process influences the community, terminating some of dearth of literature in this area and thereby contributing in existing concept and theory.

Finally, this research can be justified in empirical grounds. Firstly, the present study focuses on a community which has undergone in reconstruction process in a short period of time due to the devastated earthquake. The construction of physical close integrated settlement with the new housing design led by NGO and experiences of beneficiaries residing in it are not much excavated in context of Nepal. This will also definitely speak the flip side of reconstruction process.

Secondly, the disaster management and building resilience community fall within the domain of sociology. Thus, it is assumed that information gathered by the present study will be relevant not only for those communities like earthquake affected people, but also for forcefully displaced community.

1.6 Limitation of the Study

It has been three years after the April 2015 earthquake. The affected people are still in trauma of earthquake. So, the detail information about the psychological, social, and geographical status of affected communities which researcher wanted to deal with might have been technically not well reached part of this thesis.

The minimum availability of literature on physical close integrated settlement and its impact on household everyday life particularly referring rural Nepal was the big obscurity to make the study go well researched. Anyway, an

attempt has been made neglecting all the barriers to find out how people's life goes in new integrated settlement.

The community under study belongs to Tamang community which is different from researcher's community. The researcher minimum knowledge is the socio-cultural and economical aspects of Tamang community might have drawn weak findings. One of the barriers was Tamang language. As most of the people speak in Tamang language, it was quite difficult for the researcher to understand them literally.

Consciously or unconsciously, researcher interest, own values and biases would have made the study aligned to particular aspect of reconstruction although researcher tried to avoid such biasness in this research. This study is not more than merely academic purpose for the partial fulfillment of master degree in sociology.

This study is merely focused on the impact of housing design and settlement pattern on everyday life of Tamang households in limited part of Ward No. 12 of Melamchi Municipality, centered at Giranchaur, Sindupalchok district. So, the study hasn't brought the answer to wider aspect of reconstruction process. The methodology of this study is focused on both qualitative and quantitative data. This study has drawn the narrative information based on ethnographic description. The researcher has gone under lots of challenges and limitations regarding on the technical and secondary sources of data for thesis.

CHAPTER - I I

RESEARCH DESIGN

2.1 Methodology

The presented study is primarily based on qualitative method. However, quantitative method also has been applied to collect basically demographic characteristics of Tamang people. The quantitative method used in this research includes household survey with a set of questionnaire in consent of 64 respondents. This tool was used to collect the numerical and statistical quantitative data which made the researcher to observe the settlement physically being there.

The qualitative method applied in this research is based on participatory observation, unstructured interviews, and series of informal tea conversations. Participatory observation was done drawing ethnographic information of studied community staying between June and July 2017 at Giranchaur (46 days). Researcher physically participated in occasions like *ghewa*, *armaparma*, marriage feast, dinner, paddy planting, raising cattle, local deity worship, *melapat* and daily scheduled works to understand the influence of housing design in their daily life.

A total of 16 participants participated in unstructured interviews in order to elicit their perceptions towards the housing design and integrated settlement pattern during the period of fieldwork (June and July 2017). These interviews

were usually done in the form of informal conversation as per respondent's interest and availability.

Series of informal tea conversations were done with different age groups; adolescent, adult, and elderly. Such conversation too played vital role in excavating minor as well as major issues and complexities being faced by the households in the past 16 months. The informal tea conversations was used to gather primary information which couldn't be collected through household survey and unstructured interviews.

The study didn't set any formal hypothesis as the study is descriptive in nature. Basically, the study attempts to elucidate the impact of housing design and settlement pattern, which is reconstructed based on ADR approach led by an NGO in the context of 2015 earthquake of Nepal, in Tamangs' everyday life. The study has compared the degree of advantages with disadvantages experienced by Tamangs of Giranchaur at two intervals of time; before and after the 2015 earthquake.

2.2 Selection of Community and Site

There are certain reasons for choosing this area. Firstly, this area experienced extensive physical damage during the April 2015 earthquake. The Sindupalchok district itself has been listed as worst-hit district (among 14 districts) out of 31 earthquake affected districts.

Secondly, the post-earthquake brings technical, cultural, ecological, and legal discussions and practices for rebuilding the traditional rural dispersed settlement into integrated settlement in order to provide the public services and develop well-managed settlement.

Thirdly, affected communities who were living in traditional pattern housing design and settlement for centuries and then turned into physical close settlement with new housing design at Giranchaur integrated settlement for 64 household is unprecedented post-disaster reconstruction approach.

Last, but not least, household's everyday life experiences in post-disaster integrated settlement are obviously something different from the pre-earthquake settlement which is why researcher chose this location. These all factors attracted in furthering a study towards building a theoretical post-earthquake integrated settlement framework. Furthermore, NGOs led post-earthquake reconstruction process creates difficult life in integrated settlement in terms of running everyday life of household. Hence, this will oblige people in taking a decision of to return in traditional way of settlement.

2.3 Census and Sampling

The data collection process has both procedures; census and sampling. As every household was studied, this certainly is census. Since respondents were of different backgrounds in terms of age, sex, clan composition and education level, sampling was applied to interview them.

The entire 64 Tamangs household has been rehabilitated in due course of April 2015 earthquake. So, census was done of all 64 rehabilitated Tamang households to gather the demographic characteristics.

Household survey respondents were selected based on random sampling. A total of 37 male and 27 female respondents participated in household survey. The respondents were selected from the lowest age range of 18-27 year and highest age range above 68 year respectively. The highest total of 17 respondents (26.55 percent) age range falls in between 38-47 year whereas the lowest total of 5 respondents (7.8 percent) age range falls above 68 year.

Table No. 1. Age and Sex Composition of Respondent

	18-27		28-37		38-47		48-57		58-67		68+		Total	
Sex	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Male	5	7.81	8	12.5	10	15.62	7	10.93	4	6.25	3	4.68	37	57.79
Female	3	4.68	5	7.81	7	10.93	4	6.25	6	9.37	2	3.12	27	42.16
Total	8	12.49	13	20.31	17	26.55	11	17.18	10	15.62	5	7.8	64	100.0

Source: Field Survey, 2017.

Likewise, the respondents were selected from illiterate to higher secondary level on their attainment education background. The largest number of 23 respondents (35.93 percent) is literate whereas the least number of 2 respondents (3.12 percent) have attained higher secondary level of education.

Table No. 2. Respondent Education Attainment

	Illiterate		Literate		Primary Level		Lower Secondary Level		Secondary Level		Higher Secondary Level		Total	
Sex	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Male	1	1.56	14	21.87	11	17.18	7	10.93	4	6.25	2	3.12	39	60.91
Female	2	3.12	9	14.06	8	12.5	4	6.25	2	3.12	-	-	25	39.05
Total	3	4.68	23	35.93	19	29.68	11	17.18	6	9.37	2	3.12	64	100.0

Source: Field Survey, 2017.

A total of 16 respondents were selected for unstructured interviews based on random sampling. Among them 10 interviewees were female whereas 6 interviewees were male. The lowest age of interviewee was 20 year whereas the highest age of interviewee was 66 year.

It has been seriously represented the diversity of clan, age and sex composition of households from the settlement while selecting sample and incorporated each cluster (Block A, B, C) respondents in unstructured interviews.

2.4 Data Collection

The primary and secondary sources of data were the main source of this research. The primary data was collected via different data collection tools referred to above.

The secondary data was collected through available produced data by the researchers and institutions. The primary data was the major source of information for analysis and interpretation. The secondary data whereas was taken as a reference to develop the theoretical foundation of this research.

2.5 Method of Data Analysis

The researcher reviewed contextual published articles, journals, books, dissertations, reports, census report, district profile, VDC profile, and LDRMP based on available secondary sources.

After the fieldwork, primary rough data was reviewed, edited, coded, decoded, and tabulated before analyzing and interpreting it. The quantitative data was analyzed and interpreted with the help of simple statistical tools such as percentage, ratio, and displayed in simple tabular forms.

The qualitative data is presented and analyzed in a narrative form based on ethnographic description. Findings are analyzed using theorizations in rehabilitation and resettlement led by ‘ADR approach’ for the disaster affected communities from the different counties of the world.

2.6 Conceptual Framework

In this thesis, the researcher has unraveled the impact of housing design¹ on everyday life² in post-earthquake Giranchaur integrated settlement from three conceptual dimensions.

Firstly, the researcher has examined how the NGO led built housing design impact on everyday life of each household in post-earthquake integrated settlement. Secondly, the researcher has scrutinized how the settlement pattern³ differ household's everyday life. Thirdly, the researcher has delineated the frequency of beneficiary's participation in terms of engineering of housing in construction process.

Hence, these three aforementioned dimensions of theoretical concepts have studied the impact of housing design on each household's everyday life in post-earthquake integrated settlement representing perceptions of beneficiaries towards the post-earthquake housing design and physical close integrated settlement at Girachaur. In interpreting these three concepts, the researcher has applied the theory of ADR approach forwarded by Jha et al. (2010).

Footnote

1. Here housing design means the pre-earthquake and post-earthquake engineering of housing belongs to Tamangs at Giranchaur includes number of storey, the main entrance door faced direction, number of rest rooms, balcony, distant of toilet from the house, floor capacity to store crops, placement of stove and ancestral deity worship spot, courtyard (*aangan*) space to thresh and sieve seasonable crops as well.
2. Here the everyday life refers to Tamangs household daily scheduled works throughout the year included raising livestock, cooking food, fetching water, paddy planting, harvesting of crops, transporting goods from home to market and market to home, *armaparma*, performing *ghewa*, marriage ceremony and supporting each other as residing in same cluster.
3. Here settlement pattern refers the pre and post-earthquake settlement pattern of Tamang's at Giranchaur. The 'pre-earthquake settlement pattern' means physical scatter settlement whereas 'post-earthquake settlement pattern' means physical close integrated settlement.

CHAPTER – I I I

LITERATURE REVIEW AND THEORETICAL ORIENTATION

3.1 Natural Disaster and Post-disaster Reconstruction

Riberrio (2015) says, “The most current concepts usually identify two major types of disasters according to their origin or genesis: natural disasters and technological disasters. Natural disasters are usually linked to phenomena derived from nature-produced events. Technological disasters have a human origin and usually include phenomena which are caused by failure, disruption or conscious or unconscious misuse of technological and industrial developments.”

Natural disasters are well-known events including powerful as well as sudden climatic and metrological assaults such as blizzards, floods, hurricanes, tornados, avalanches, earthquakes, landslides, tsunamis, and volcanic eruptions. It has common features which include suddenness, powerful destructiveness, predictability, and low point (Baum 1983).

Riberrio (2015) cited Drabek (1989) and Gidden (1992) disasters as social problems linked up with the social system, built environment, and modern development which contributed series of new risk though it brought comfort. The combination of social system and built environment enhances the new risk with the already existing risks.

Riberio (2015) cites Giddens (1992) 'risk' as the possibility of occurrence of disaster with the technological or natural origin. Risk can be sociologically conceptualized as threat of possible occurrence of disaster perceived by social system of combining factors includes physical, economical, and cultural distribution. Social vulnerability of disaster is linked up with the social system likely to suffer damage. "Vulnerability refers to insecurity and fragility in the presence of danger and must be conceptualized as a notion of explanatory nature of its own social context."

Quarantelli (1982) states that the post-disaster reconstruction period includes "Emergency and temporary sheltering, and temporary and permanent housing. Emergency sheltering refers to actual or potential disaster victims seeking quarters outside of their own permanent homes for short periods: hours in many cases, overnight at most. Temporary sheltering, on the other hand involves more than taking shelter elsewhere during the emergency; it refers to peoples' displacement into other quarters, with an expected short or temporary stay. Temporary housing means resumption of responsibilities and activities in the new quarters. The evacuees know that the living arrangement exceeds a mere emergency or temporary basis, and may extend for months, if not years. Permanent housing refers to disaster victims either to their rebuilt homes or moving into new quarters."

Resettlement opens an opportunity through access of public services and better livelihood for the victims, on the one hand and it also brings disadvantages

such as poor living condition, environmental degradation and disrupting social networks without considering suitability of concentration of rural settlement, on the other hand (Badri et al. 2006; Peng et al. 2014).

Several researches have shown that reconstruction after the disaster is complex processes in which one should go under the technical, legal, participation, inclusion, gender sensitivity, cultural sentiment, social networks, and environmental management as well. Relatively the post-disaster reconstruction is complex, chaotic, and dynamic when compare to a project construction under normal condition (Berke, Kartez, and Wenger 1993; Brikland 2006; Davidson et al. 2006).

Reconstruction after disaster is a set of multiple activities incorporating legal, social, and economical activities among the disasters affected communities, government, and private sectors who will be engaged in reconstruction process (Nagawa and Shawa 2004). Building consensus among the affected communities, government, and NGOs/INGOs in planning and implementing is the most difficult task which might lengthen the reconstruction period. Nagawa and Shawa (2004) outlines that complex mixture of religious, social, economical, and political issues are major ones. Those issues were faced in the reconstruction of Kobe in Japan and Gujarat in India.

3.2 History of Earthquake in Nepal

The official authentic data included loss of life, damage of private housing and public monuments referred to the past centuries can't be found so far. The first record of earthquake history goes back to the death of King Abhaya Malla in 1310 B.S. "Since then Nepal has encountered 16 major earthquakes, including the recent devastating Gorkha Earthquake of 25 April 2015 (Nepal Disaster Report 2015)."

An assumption was made that of lost lives as well as damages including private housing and public monuments. It was estimated 18, 000 private housings were collapsed in the 1890 B.S earthquake throughout the Nepal. 4214 private housings were damaged in Kathmandu valley out of 18000 private housings. Since the great earthquake of 'Nepal-Bihar1934', the casualties were recorded officially by the government of Nepal. 8,519 people had lost their life and 207, 740 structures including private housings and cultural monuments were damaged ([Shumsher 1935] 2015). 870 people lost their life in the earthquake from 1972-1999, whereas 7 people died from 2000-2014 (Nepal Disaster Report 2015).

3.3 Nepal Post-disaster Reconstruction Approaches 2015

Post-disaster reconstruction can be done through applying various approaches which relies on household's degree of control over the reconstruction process. Post-disaster reconstruction approaches entail (1) cash approach (2) ODR

approach (3) CDR approach (4) ADR approach in situ, and (5) ADR approach in relocated sites (Jha et al. 2010).

Among the various approaches, two approaches – ADR approach in situ and ADR approach in relocated sites is commonly applied for rebuilding of the housings in rural areas (Peng et al. 2013).

In the context of Nepal's post-earthquake reconstruction, an ODR approach has been forwarded by NRA in which house owner should build their hazard resilience housings in cash assistance, being accompanied by the government with the technical, material, supervisory, training and social facilitation support in existing mechanism (PDNA 2015).

3.3.1 Owner Driven Reconstruction (ODR) Approach

Post-disaster reconstruction goes through various approach which rely on three key social actors; specifically household, donor and government whose degree of control over the reconstruction is mattered.

Jha et al. (1990) states that the ODR approach as the householder who lost the shelter builds or rebuilds the housings in combination of cash, vouchers, and technical assistance of government. ODR approach may undertake by combining efforts of family labor, employing local labors, and employing contractors in reconstruction. Technical and financial

assistance provided by the government or aid agencies should not hamper the decision of the owner.

Simpson (2013) illustrates that ODR approach emphasis on the importance of 'choice' and adverse impacts of disaster is reduced through the several coping strategy adapted by the house owner.

The government of Nepal has adopted ODR approach in housing sector based on the principles of equity, inclusion, and community participation. Cash assistance includes technical guidance, social mobilization, and skill upgrading which are the sectors being looked after by the GoN for those earthquake affected families to reconstruct, retrofits, and repair house. (PDNA 2015).

3.3.2 Agency Driven Reconstruction (ADR) Approach

In ADR approach, governmental or non-governmental organization hires one or more contractors to design and build housings. Similarly, materials, engineer, and expertise are possibly imported from outside of the community. Donors hold the authority to construct the housings according to their plan where communities are less likely to participate in reconstruction (Jha et al. 1990). In other words, communities are not active part of reconstruction process.

However, the house owner has the least chances to participate in construction of his/her house, but can suggest for improvement of the housing design. Furthermore, ADR approach stresses on relocating of the affecting communities in new location where they are provided legal rights to new housing ensuring consent of national, international or government agencies. This approach undergoes fully with the technical and financial assistance of donor agencies or NGOs/INGOs (Jha et al. 1990).

3.4 Community Participation in Reconstruction

Cernea (1990) in his article *Poverty Risks from Population Displacement in Water Resources Development* noted that several countries included Brazil, Ethiopia, India, Indonesia, Malaysia, Nepal, and Sri Lanka have identified key barrier in reconstruction after the disasters at national level of resettlement policies and implementation is a lack of good communication between victim and aid supporter. The resettled members are obliged to return to their original settlement as a result of deterioration in their quality of life. In addition to this, several aspects contribute to the failure of resettlement policies; inadequate planning and management play often a major role.

Abramson and Qi (2011) in their article *Urban-Rural Integration in the Earthquake Zone: Sichuan's Post-Disaster Reconstruction and the Expansion of the Chengdu Metropole* mentioned that "The state council ratified a three years of reconstruction after Sichuan earthquake plan focused on preserving

the arable land and specified that villages rebuild should take place with existing facilities as their foundation and respect local villager's methods and customs of production, the plan section on land policy emphasized restructuring land use for greater for efficiency and concentrating villages where condition allows." In addition to this, the plan also emphasized on cultural tourism adapting to present Qiang ethnic culture soon became the model for restructuring the village along the upper Ming River after the earthquake.

Simpson (2013) in his book *The Political Biography of an Earthquake: Aftermath and Amnesia in Gujarat, India* stated that in the process of reconstruction led by contractors and agencies in Gujarat, technical as well as practical issues of houses were seen after the resettlement. Technical issues included houses stored heat, use of poor-quality materials and shoddy construction methods. Whereas, practical issues included inadequate elevation led to monsoon inundations and contractors disappearing with advance payments leaving work incomplete. In some cases, the housings built during reconstruction phase were "perceived to be inappropriate for rural or agricultural lifestyles, lacking suitable storage spaces for livestock, fodder, grain, tools, and so forth."

Davidson et al. (2007) in their article *Truths and Myths About Community Participation in Post-Disaster Housing Projects* states that an idea of community participation in post-disaster reconstruction from the case studies

mainly of three different countries (Colombia, EI Salvador, and Turkey) in two ways, (1) it takes on number of forms, and (2) it doesn't reach reconstruction in field. Therefore, there was big gap between theory and practice of community participation in field. Moreover, it suggests applying several model of community participation instead of single.

The first case study on beneficiary participation of reconstruction in rural Colombia by the Coffee Grower Organizations (CGOs) shows that community participation in project initiation (leading role in starting the project), project financing, design and construction of post-disaster affected infrastructures is more prominent. The CGOs got full responsibility on their own choices as they required which increased their satisfaction. This case study shows that when receiving humanitarian aid beneficiaries were not passive 'victims' rather CGOs became the one responsible for own projects.

The next case study on participatory reconstruction in post-disaster EI Salvador of LA Hermandad shows that the project management is strictly followed by the top down approach. It means the entire duration of process remained hierarchical in terms of line command. As a result, it could not sustain communitarian ideal which is publicized in public discourse. Additionally, as a paradox between discourse and practice made people less understanding towards motivation in participation in this project. Indeed, it made the form of community weaker and enhances the direction towards individualization. Furthermore, the community were declined in social

organized activities as well as limited in participation process even the users perception were positive towards the physical qualities of housings.

The third case study on private housing in Marnara Region, Turkey shows that overall lack of user participation in this project has produced both negative and positive impacts. The housings were built within a few months sole decision of highly centralized management without participation of users which enabled the responsible authority to take quick decision without delay, on one hand and on other hand, the users were dissatisfied with the design and location of housings complaining on the suitability of design and low-quality finishing. The top down approach focused less on foster of any methods about seismically safe building.

The fourth case study on housing reconstruction in the villages of the Cankiri region, Turkey which depicts the outlines of user participation in reconstruction project that is based on the form of (1) choosing one of the three designs offered having new design custom made (2) choosing the contractor/builder (3) assuming responsibility for managing the finance (4) management of construction phase, and (5) settling the terms of contract. Though beneficiaries were participated in decision making process at last stages of reconstruction, the result became satisfactory. The late decision making process raised the dissatisfaction with the design of post-disaster housing and denied to move into new settlement showing that new location was inaccessible. On one hand, the beneficiaries had chance to make decision

about the choice of construction, financing and construction management and they had to do so with little guidance from the government, on other hand.

Shah (1991) in his dissertation *Changes and Continuity in an Uprooted Community: A Study of the Rarals from Mugu District* concluded that the forced displacement of the Rarals of Mugu (mid-western Nepal) encountered several challenging diversifications of life-style and social organization in a new environment which is completely different than their ancestral land. The confrontation with different socio-cultural and ecological set up led to rapid changes in their socio-cultural and economical spheres. Due to this, some transformations can be seen in their socio-cultural patterns, behavior, and perspective.

Mitchell (1976) in his article *Reconstruction after Disaster: The Gediz Earthquake of 1970* notes the success and problems of the Gediz post-earthquake reconstruction of 1970 in Turkey. The reconstruction of old Gediz turns the new Gediz into well planned city sewage lines, wide streets, and electricity. The planner focused on the technical aspect of housings and apartments with good engineering. Apart from this, public facilities were built includes a high school, outdoor toilets, a police station, a mosque, a library, a hospital, a weaving plant, truck terminals, a truck garage, a municipal building, a grain market building, a slaughter house, a bakery and a popular outdoor movie theatre. Moreover, several problems arose in rural reconstruction when outside agencies endeavored to restore communities after

the disaster. Technicality, size of housing, lack of water and quality of construction materials were often complained by the affected communities. The disagreements were on location, quality construction, size of the housings and glass window. Structural cracks, fallen plaster, and broken tile roofing were seen in hundreds of built housings. Another frequent complaint about the built housings was “cold in the winter and hot in the summer.”

Barenstein (2015) in her article *Continuity and change in housing and settlement patterns in post-earthquake Gujarat, India* underlines that undermining the local community capacity regarding on building the housing and settlement without considering the inherent functionality of local housing and building culture often may leads in some cases, rising their vulnerability missing the chances to strengthen resilience of community based on a micro level case study of a village in Gujarat. The post-disaster reconstruction of total 272 villages reconstructed in relocated site by 72 NGOs based on ‘contractor-driven reconstruction approach’ has drastically modified the settlement pattern, housing design and building technologies. Meanwhile, “over 78 percent NGOs housings were some degree transformed by the owner’s considerable efforts and investment by the end of 2012 to adapt the specific requirements of them even the majority of families decided to stay in relocated site.”

3.5 An Overview of Post-disaster on Concentrated Rural Settlement

(CRS)

Peng et al. (2013) highlight in their article *A generic decision for developing concentrated rural settlement in post-disaster reconstruction: A China study* about the generic decision model in developing CRS. Developing CRS within a village is feasible approach that helps in raising village resilience and gaining sustainable development after the disaster. Relatively CRS of China after the disaster is taken as more sustainable and resilient than dispersed settlement pattern in developing countries. However, developing CRS lacks the specific guidelines because of generic decision model. They produced a generic decision framework after completing a case study of four villages of Dujiangyan city examining the problems and experiences where the CRS was successfully implemented. The important factor in this model is “optimizing the process of developing CRS in the post-disaster reconstruction (Sub model A); balancing reconstruction with social, environmental, and economical consideration (Sub model B); then mobilizing the participants, and financial resources (Sub model; C); and finally recycling resources in post-disaster reconstruction (Sub model D).”

CRS helps in achieving sustainable development by saving land consumption and keep urbanization in stable linking the urban with rural, deducts the rural disadvantage and balance the welfare distribution between poor and urban (Qadeer 2004; Alaci 2010).

Turnlock (1991) in his article *The planning of rural settlement in Romania* stated that the Communist strategy modernizing 13,000 Romania rural settlements into 550 urban concentrated towns spelt out both opposition and support throughout the world. The Former-President Nicolae forwarded CRS as an optional way of improving the living condition of rural area by properly utilizing the rural land, improving infrastructure and public services.

The resettlement planning strategy process of 1976 was restored in 1980s by Former-President Nicolae Ceausescu of Romania via coercive measures aiming (1) a more even distribution of towns to reduce isolation between town and country, and (2) a more complex urban geography on the major city regions to reduce pressure of migration on the larger cities. This strategy is mainly based on two ideologies; the priority for socialist agriculture and discourage individualism in Romania. After the settlement, technical problem were faced by the resettled community who came from the rural settlement especially farmers seen the built blocks were inappropriate for stables, chicken coops, difficult to keep cattle and even far. Several criticisms were made throughout the Europe on the rural resettlement plan of Romania mentioning that demolishing the villages without consent of people. One of the outspoken criticisms made with open letter signed by the number of professionals from Transylvania in August 1988 written by D. Cornea a lecturer at the University of Cluj pointed that “Ceausescu had no right, without committing a grave abuse of power, to demolish thousands of villages without the consent of the entire nation.” Moreover, the Ceausescu strategy is in favor of Soviet regime

and Asian communist which is taken as against of individualism advocates by the Europe.

Carnea (1999) in his article *Why Economic Analysis is Essential to Resettlement: A Sociologist's View* states about the necessity of economical and financial components in resettlement project. Implementing the forced relocation requires economical knowledge in order to address the financial and budgetary aspects of resettlement project. Economical, financial, and social analysis could avoid the failure of settlement project. Moreover, socio-anthropological knowledge is limited to address the economical and financial aspects of displacement and resettlement project. Economic analysis is helpful in the resettlement project which design to identify, measure, counter risk to the project and project investors. Human perception, response to risk, risk aversion, and experience in dealing with risk are essential parameters in the resettlement project which should not be taken only part of single discipline but it is part of interdisciplinary activity. Economical and socio-cultural sensitivity could minimize the specific project risk.

3.6 National Reconstruction and Resettlement Policy in Nepal

The government of Nepal has published in Nepal Gazette an act relating to reconstruction of the earthquake affected structure 2015 (2072) on 20 December 2015, based on the suggestion of NRAC, PDNA, feedback and suggestion forwarded by ICNR held in Kathmandu.

Article No. 3 of NRA Act 2015, mentions the establishment of the NRA which is established for the reconstruction of the damage caused by earthquake and the term of authority is given for five-year. Article No. 3 of this act clearly mentions the function, power, and duties of the authority.

Article No. 3 of Sub-section No. (f), (g), (h) indicates the role of NRA in reconstruction of integrated settlement, relocating and rehabilitation of earthquake affected communities. Sub-section No. (f) indicates the responsibility of NRA to acquire or assign land with anybody or official for implementation of plans or programs includes reconstruction integrated settlement and integrated housing pulling plans or program. Sub-section No. (g) allows NRA to develop norms as required for development of integrated settlement, integrated housing pulling, rehabilitation, and translocation, identify appropriate sites and framework and implement, or cause to implement plans for the same.

Sub-section (h) approves NRA to prevent any work to be done for the implementation of any project or program relating to reconstruction or integrated settlement or gives order to the concerned person to do such work only in conformity with the prescribed quality, standard or made.

Sub-section No. (g), and (h) approves the NRA to carry out reconstruction work, mobilize as required in collaboration with the governmental, private, or

non-governmental organization, private sector, community or with any foreign institution based on Nepal by selecting the appropriate model.

Sub-section (s) indicates the NRA has to bring financial resources for reconstruction with effective utilization of such resource. In addition to this, sub-section (h) approves NRA to make inspection, examination and monitor the acts and action done and taken at the direction of the authority as per necessity.

The National Reconstruction and Resettlement Act 2015 (2072) has further defined about the integrated settlement and land acquisition. According to Act No. 7.19 and its strategy No. 6.6.2 approve to develop integrated settlement with proper planning of physical infrastructure.

Sub-section No. (a), (b), (c) mentions that the earthquake affected district are allowed to develop into well-managed village with access of public services, local community will be informed about the possibilities of risk as well as relocating the villages by technical team, new settlement should be near to the previous settlement as far as possible and within the same district.

Moreover, Sub-section No. (e), (f), (h) indicates that the concern authorities shall approve developing new settlement taking consensus of local community as well as the private housing will build by local residents in support of government physical and social services, the land development program or

land unifying program will be implemented as per the necessity instructed in accordance with the existing land act and policy, and the urban destructed houses as well as settlements should persuade to reconstruct based on the concept of integrated residents.

Furthermore, Article No. 8.2.0 and its Sub-section (8.2.1), (8.2.2) indicates to encourage private sectors including NGOs, INGOs in reconstructing the damaged housings, residential housings, physical infrastructure as the approved standard, design and procedure in accordance with the concerned government agencies as well as the NGOs/INGOs should be concentrated on technical support and fund for personal residential is based on ‘one-door system.’ The improvement of settlement and access of public services are done in coordination with the NGOs/INGOs and government agencies.

Annex-1, Article No. 1 has mentioned the reconstruction of personal resident should be done by ODR approach in financial and technical assistance by the government agencies.

Sub-section (1.2), (1.3) indicates that geographical and climatic risk dispersed settlement and dense settlement shall be relocated into less likely disaster areas by providing physical infrastructures such as water supply, electricity, schools, community centers, hospitals, road, and garden etcetera. Besides this, commercial farming, animal husbandry, and poultry will be launched in order to create employment and improve the livelihood of local people.

Sub-section (1.6) indicates that implementation of reconstruction; management of rural residents and local infrastructures shall be done by the concerned VDC and Municipalities. Sub-section (1.10) mentions that the government shall provide loan Rs. 200,000 per household for reconstructing house and residential in three tranches which is transferred in bank account of householders.

The NRA holds responsibility of implementation of reconstruction at the national and local level and will coordinate with the line ministries including MoUD, MoFALD, MoE, and MoCTCA. It is clearly mentioned that a CL-PIU will set up corresponding to DL-PIU. The NRA sub-regional offices implements the reconstruction coordinating with the central and local bodies including DDC, RC, VDC, Municipalities and existing local coordination bodies.

The NRA guidelines talk about the participation of NGOs and INGOs in recovery and reconstruction program. NGOs and INGOs will be permitted to work for particular project in a location by signing tripartite agreement with the NRA and local implementing agency within the frame work of NRA plan and standard. Apart from this, earthquake-resistant housing, public building, and school infrastructures are based on the national building code which will be enforced by NRA in the entire reconstruction (PDRF, 2016).

CHAPETR - I V

THE AREA AND COMMUNITY UNDER STUDY

4.1 The Setting of the Study

The study has observed the housing design and its influence on everyday life of Tamang people in post-earthquake settlement from Ward No.12 of Melamchi Municipality, Sindhupalchok district.

The eastern boundary of the study area is bounded by the Indrawati River to the east which falls in Indrawati RM. About 500 meter west of Giranchaur lies Ward No. 1 and at the same distance to the south lies Jerke *Khola* of Ward No. 13 of Melamchi Municipality and Ward no. 2 of Shankharapur Municipality of Kathmandu district. Similarly, about 3 km north of Grianchaur lies Dunde *Khola* of Ward No. 11 of Melamchi Municipality.

The area is spread on northern part of the Mahabharata range and the altitude of the area begin in the mountain region, ranging from 800 meter south at southern extremity to the highest of 1100 meter at north. It covers an area of 14.92 sq. km which is 5.04 percent of land mass of the whole Sindupalchok district (Bansbari VDC profile 2010).

Melamchi Municipality is officially restructured in 2071 B.S (December 2, 2014) incorporating the eleven VDCs viz. Bhotechaur, Haibung, Sindhukot,

Melamchi, Bansbari, Phataksilla, Talamarang, Thakani, Dubachaur, Jyamire and Shikharpur. Altogether, there has been 12 wards.

Giranchaur was part of Ward No. 6 of Bansbari VDC before restructuring of Melamchi Municipality. Melamchi *Bazaar* is the headquarter of the Melamchi Municipality and Chautara is district headquarter of Sindupalchok district.

The distance between Chautara and Melamchi Municipality is 27 km. One can reach Giranchaur by vehicle via Chautara-Nawalpur-Melamchi route, Zero Kilo-Bahunepati route leavening behind Araniko Highway and Sankhu-Phataksilla-Bahunepati route. The two transportation committee well known as Helambu and Aamma-Hyalmo Yatayat Sewa Sammittee has launched public transportation for 22 years from Kathmandu through ‘Kavre zero-kilo’ which takes 3 hour drive as well as Sankhu-Melamchi which takes 2 hour drive to reach Giranchaur. The study area has connected with muddy road. (Bansbari VDC profile 2010). The present study is only concerned with 64 household of Giranchaur, Ward No. 12 of Melamchi Municipality.

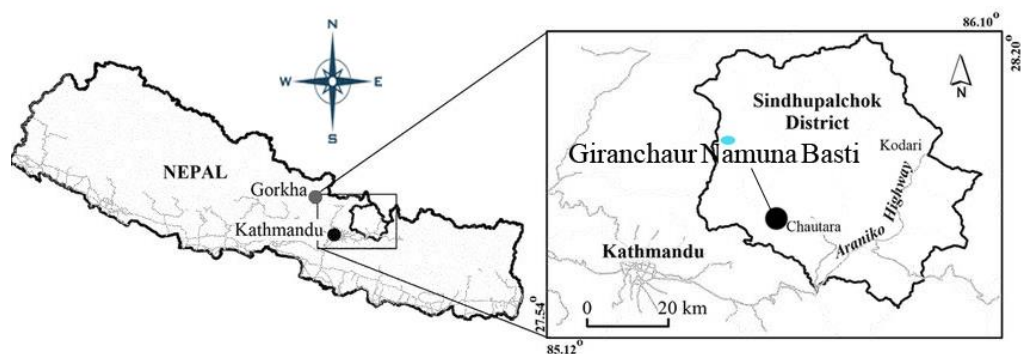


Figure No. 1. Map of Study Site

The climate feature of Giranchaur is sub-tropical which generally found in middle part of hilly region. Approximately 55 percent rainfall is measured in monsoon which helps the farmer to cultivate the crops abundantly. A red gray type of soil is found in this area. This type of soil can be found in middle hills of Mahabharata mountain range and suitable for seasonable fruits and agricultural crops as millet, corn, and potato etcetera. Giranchaur is surrounded by two streams, namely the '*Jerkhe Khola*' and '*Sindhu Khola*.' Rice is produced twice a year. '*Chaite-dhan*' is planted in March and harvested in June and '*Manishre-dhan*' is planted in June-July and harvested in November-December of the same year.

A subtropical forest can be found in the area. Trees like *Sal* (*shorea robusta*), *Uttish* (*alnus nepalensis*), *Chilaune* (*schima wallichii*), and *Pipal* (*ficus religiosa*) are found. Wild-life such as *Salak* (*manis javanica*), *Gohoro* (*varanus bengalensis*), deer, monkey, dove, green parrot and rock pigeon are found in community forest near Giranchaur. During April-May the temperature increases and becomes slightly hot and dry. From May to the last of September monsoon gives rainfall when the weather is humid and hot. After October, the temperature decreases and becomes warm and dry. It becomes cold during December-February. The settlement area is partially flat and land becomes terrace downward of the settlement.

According to the NPHC 2011, the total population of Sindupalchok district is 287,798 of which 48.07 percent (138,351) are males and 51.93 percent

(149,447) are females. Likewise, the total population of Melamchi Municipality is 45,343 of which 47.92 percent (21,729) are males and 52.08 percent (23,614) are females. At present, Ward No. 12 of Melamchi Municipality consists of total 5,056 population of which 2,395 (47.37 percent) are males and 2,661 (52.63 percent) are females. The literacy rate of Ward No. 12 of Melamchi Municipality area is 62.19 percent which is slightly higher than the Sindupalchok district literacy rate of 59.59 percent and slightly lower than national literacy rate of 65.9 percent.¹

Ward No. 12 of Melamchi Municipality is heterogeneous ethnic settlement of *Tamang, Brahmin, Chhetri, Majhi, Newar* and *Dalit*. Migration towards city isn't high in Giranchaur although it is close to Kathmandu. Giranchaur is just about 4.5 km away from blacktopped road. Being rural area, electricity is available and running pipe drinking water lacks due to settlement being resided on the top of the hill.

Most of the people are involved in agriculture as their main source of livelihood. Handful of people are engaged other than agriculture. There is 1 higher secondary school, 2 secondary schools and 7 primary schools in Ward No. 12 of Melamchi Municipality.

After shifting in integrated settlement about 16 months ago, the Tamangs of Giranchaur have felt both relief and hardship. Households cook food in temporary shelter or maintained pre-earthquake house as the post-earthquake

house lacks firewood-stove. Households cook food in temporary shelter or maintained pre-earthquake house even after being shifted to post-earthquake house due to lack of firewood-stove. Relief part of new settlement is that they can perform death ritual in community hall. Despite lack of specific requirements, none of the households has left the post-earthquake settlement.

Paying guests have started to visit Giranchaur to spend night. This has greatly supported income generation activities. VMC which looks after the settlement has organized two of the tours to famous integrated settlement of country to make people of Giranchaur to learn how to manage and set up home stay program systematically. To support income generation of household, VMC is working with district based NGOs and government offices.

The post-earthquake settlement has brought awareness in people about health hazard caused by miss-use of excessive alcohol during death ritual and marriage ceremony. The activity of keeping the house well sanitized has grown up as they have indoor toilet. Before they used to speak only in mother tongue, now they can speak in Nepali as well.

People have been facing different difficulties in post-earthquake settlement. They have found difficulty in raising cattle because there is no barn at proper distance from the house. They cannot prepare meal to large number of people at a time when they have *armaparma*.

4.2 The Ethnographic Background of Tamangs at Giranchaur

The Tamangs of Giranchaur belongs to ethnic group in Nepal² and speak Tamang language³ in everyday life. However, they speak in Nepali with Non-Tamangs population as lingua franca and Nepali is official language of Nepal. Most of the ethnic group's languages who resided in northern part of Nepal are also regarded as members of Tibeto-Burman speaking family.

The Tamang language is spoken in the west of Trishuli River regarded as western dialect and the east of Trishuli River regarded as eastern dialect.⁴ Based on this point, Tamangs of Giranchaur speak eastern dialect. It can be known from the Tamang speakers of two different areas about the differences. The Tamangs of Giranchaur is composed of mainly three different clans namely *Blon*, *Syantana* and *Moktan*. It is believed that *Blon* migrated to Giranchaur from Haibung, Sindpalchok. *Syantana* migrated from Timal, Kavre and *Moktan* from Sankhu, Kathmandu. But it is not confirmed how long they have been migrated here from the mentioned area.

They observe endogamy and address each other by in-laws kinship terms, although these three groups are living in close proximity in same village for centuries. The Tamangs of Giranchaur seldom observe exogamy marriage although few household members married beyond the endogamy. Similarly, the cross-cousin marriage was existed among Tamangs of Giranchaur which is not preferred these days. This fact was elaborated more clearly by Holmberg ([1989]1996), who writes about the Tamang of Tamdunga to the north of the

Salankhu River and between the Trisuli and Ankhu River; “Tamang society is formed on the basis of cross-cousin marriage which results for the most part not in extensive alliances across a large population but in intensive alliances among a small set of patrilines residing in neighboring villages.” Almost marriage alliances of Tamangs in Giranchaur are found usually within next wards of same Municipality and neighboring villages; Bhotechaur, Haibung, Pipur, Thakle, Talamarang, Jaharsinghpauwa and Patap at a distance of one to two hours.

Politically speaking, the Tamangs of Giranchaur don't have considerable influence in bureaucracy and political domain in country. However, one of the leaders belongs to Tamangs community is recently elected as ward leader of Ward No. 12 of Melamchi Municipality. Homberg ([1989]1996) cited Haimendorf (1966), Meserschmidt and Gurung (1974) that “Tamangs were rarely allowed influential economic or administrative dominion beyond the village level as were sectors of other Tibeto-Burman population.” This might be the political domination of ruling groups on being politically marginalized. Yonjan (2006) has shown the doubt on the royal regime oppression over the Tamangs history cited Sharma (1995) in which military works of Tamangs turn into menial works; constructing road, loader and wood collectors due to two times of rebellion by Tamangs military recruiters against the royal regime.⁵ Therefore, Tamangs didn't gain higher social status for long years in political administrative function of the state. More or less this historical background has affected today's adult Tamangs. They are largely found in

other than administration of the state. Among the 64 Tamang households of Giranchaur, only 1 has turned as community school teacher. 2 people were retired pensioner of Nepal army and other 1 of Nepal police.

The Tamang household's livelihood depends upon agriculture which is only for subsistence. Rice and millet are produced as main crops by almost Tamangs household of Giranchaur. They rarely buy rice from market for consumption. Alcohol is distilled from the millet which is consumed by Tamangs especially in *aramparma*. Corn is consumed as *chayamba* and feed for livestock. Apart from this, they raise livestock; buffalo goat and bull. They generate cash through selling goats for meat purpose and produced milk from buffalo. Bull is used to plough the field by households. Few households prefer hand tractor to plough the paddy field. They consume meat of buffalo and goat raised by them as well as buying from Non-Tamang households. There is no good system of irrigation. They have to depend on monsoon rainfall. Land becomes barren from November to May after harvesting maize and millet due to dryness. However, settlement down to the Giranchaur produces rice twice a year as there is great access to irrigation.

They usually cultivate the agricultural crops via the *aramaparma* system rather than wage labor. Only few households ask support for agricultural activities adjacent to their settlement. During the paddy planting, they arrange the date in chronological order of all households. The adult men plough and prepare the field to be cultivated and females plant paddy. The roles of both

male and female are equally important in planting and harvesting. However, the females have major role to play in domestic works; cooking, taking care of children and feeding livestock. They also help each other in wedding and death ritual.

Surprisingly, there is less communication with Non-Tamang groups about 300 meter from their settlement in terms of *armaparama*, wedding, and death ritual. Only few households invite the *Brahmin* and *Chhetri* households next to their settlement in wedding ceremony. Those households who have political affiliation and professional relationship invite the Non-Tamangs household in wedding and rice feeding ceremonies by the host.

Attending death ritual can't be seen in between Tamangs and Non-Tamang groups of Giranchaur. The Tamangs graveyard is close to the settlement of Brahmin settlement. Non-Tamang person doesn't attend the funeral of Tamangs. It seems that there is clear distinction between the cultural differentiations between Tamang and Non-Tamangs of Giranchaur.

Bahunepati *bazaar*, Melamchi *bazaar*, and Kathmandu are the main destination to purchase the daily necessities of them. For major medical emergencies, they run to Kathmandu and Dulikhel. They visit Chautara, headquarter of Sindupalchok district only for government official work purposes. Householders send their kids to nearby school for secondary level of study which is about 300 meter away from the settlement and Bahunepati or

Kathmandu for higher studies. Some households send their kids to pursue lama studies in Bangalore, India.

Adult members of Giranchaur return to their home especially in monsoon season, *Daishain* and *Tihar* festivals. They come to home to assist in paddy planting.

The Tamangs of Giranhaur follow Buddhism⁶ which is widely observed in Northern part of Himalayas. The '*Lama*'⁷ has major role to perform death feast, '*Bonbo*'⁸ has role in curing anyone who gets ill and '*Lambu*'⁹ perform ancestral deity worship once a year.

Similarly, they also observe especial worship nearby of settlement in '*Mahakali*' mythical spot twice a year in July and December by the headman belongs to '*Syantana*' clan. They registered '*Guthi*' land for this '*Mahakali Jatra*' which is regulated by nearby '*Thapa Chhetri*' caste as the '*Guthi*' land is believed to be less prosperous for them. Both Tamangs and Non-Tamangs gather in December to observe the '*Mahakali Jatra*' by sacrificing hundreds of goats and chickens. This kind of innumerable animal sacrificing was also observed by the Tamangs of Tamdungsa especially led by '*Lambus*' based on calendar and agriculture cycle.¹⁰

Basically marriage and *ghewa* are performed compulsorily by them. The unique striking feature of them decides which of the clans are inter-

marriageable. It is noted that Tamangs of Giranchur marriage takes place between *Blon* and *Syantana* clan. Similarly, *Syantana* and *Moktan* are not allowed for marriage. *Blon* clan regards *Syangbo* as single such a clan with whom marriage are not permissible. *Syantana* and *Moktan* regard *Thokar* and *Pakhrin* unmarriageable clans. In the past, arranged marriage dominated the Tamangs marriage which is based on endogamy practice. In the present, practice of arranged marriage is replaced by the culture of elopement. Monogamy is still in practice.

The proper marriage of Tamangs of Giranchur is arranged by the parents of prospective couples and it is done in reciprocity and negotiation. The arranged marriage feast is celebrated in participation of both relatives of groom and bride. All the relatives, friends, and neighbors attend the marriage ceremony. There is also another flexibility of marriage in Tamangs of Giranchur as the marriage can be done after the birth of baby of the couple. Feast is not observed in this kind of marriage and it is symbolic kind of marriage. Such parent's marriage should be compulsory observed before their kid's hair cutting ceremony or marriage feast. During the fieldwork, all the marriage that occurred in Giranchur was elopement. Arranged and mock capture marriages were also observed by the Tamang of Tamdungsa sometime back.¹¹

Each household of Giranchur compulsory observe death feast as another very important rite in their cultural life. Death feast of Tamangs at Giranchur begins from the first to last day with several rites which include dance of

Lamas, offerings, lighting of butter lamps, effigy cremation, mourning by the close kin and blessings. Death feast reveals the basic kin structure of Tamangs.¹² The *Lamas* plays crucial role to perform *ghewa* of household. Without the presence of *Lama* in funeral house, the corpse is not allowed for cremation. *Ghewa* is observed in different in not consecutive order. They usually observe the *ghewa* up to 3 days from the 1st day consecutively. On the 49th day of mourning, the final *ghewa* is performed in the presence of *Lamas* and networks of relatives of deceased household. Death feast of Tamang in Giranchaur doesn't follow as per Tibetan orthodox declaration¹³ of fixed time period of 49th day. The death feast time period is reducible seeing the situation. Mourning family has to bear extra economic burden in death ritual. Well-to-do family builds *Stupa* in memory of deceased person.

4.3 Settlement Pattern as well as Housing Design: Then and Now

Houses weren't built physically close the pre-earthquake settlement at Giranchaur. Houses were scattered to downward of the settlement. Households had built house in their registered and suitable location. Clan household's houses were built physical close to each than other clan houses. Cattle shed were existed in next to the house.



Figure No. 2. Map of Pre-earthquake settlement

The main entrance door of the house was directed towards south and gable end wall of houses were directed towards the east and west direction of entire houses of settlement before. Cattle shed were built just next to the house where they raised goats, buffalo, and bulls. They possess land which is downward to the settlement.

The pre-earthquake housings were built in 3422.5 sq.ft. (in average) included house occupied space, cattle shed and courtyard (*aangan*). The Tamang of Girnchaur had basically two-storey housing with distinct color which was based on particular clan. *Blon* clan had red color of housing whereas *Moktan* and *Syantana* had white. This clan had particular color of housing as per their ancestral deity which distinguished Tamangs clan of Giranchaur. Each floor had parallel small holes. They believed ancestral deity passes via the hole and bring prosperity in home. Ancestral deity worship spot was placed in upper

floor of the house. Each family performed ancestral deity worship in the presence of head of clan every year. The ground floor was mostly used for cooking purpose and coop for chickens. First floor was used to take rest in night. The upper floor was used to store seasonable agricultural crops and place for ancestral deity worship. Family members used to take rest in the first floor and balcony of house. Open space as courtyard (*aangan*) of house was existed in all houses which could be used to thresh and sieve seasonable agriculture crops. Road was not connected to all house of Giranchaur.

The common construction materials such as unbaked bricks, stones, baked bricks, timber, bamboo, slates, organic fiber, and limited quantity of iron are widely used in traditional built structures in the rural areas of Nepal (Maharjan et al. 2015). Traditional private housing of Tamangs in Giranchaur has built up using construction materials included stone, timber, mud, slate, and CGI sheet. The construction materials are available in their own area which is basically extracted from own registered land. None of the pre-earthquake built housings of Giranchaur were built as per the national building code of 1994 and act of 2055. Most housing was constructed before the exercise of this regulation at Grianchaur.

Meanwhile, the post-earthquake settlement has dramatically modified the location of the settlement pattern than before. Physical scatter of private housings are built in close integrated of housings with well managed plan; road, parking area, children park, resting area, community hall, water and

electricity supply. Housings are built in two rows along the construction of motor road in settlement. The settlement is divided in three cluster; block A, B and C. Clan belongs to *Blon* resides in Block A, *Moktan* resides in Block B and *Syantana* resides in Block C.

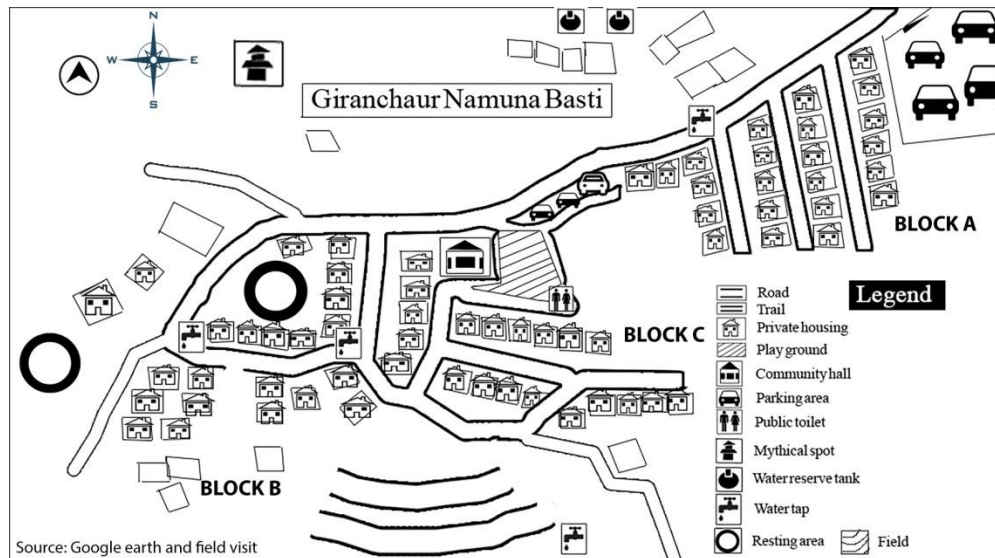


Figure No. 3. Map of Post-earthquake Settlement

The construction of 64 Tamang housings at Giranchaur led by DSF has brought dramatically modification in housing design as well as settlement pattern after the devastation of April 2015 earthquake. The traditional pattern of scatter settlement has constructed in physically close integrated settlement. The settlement is connected with road. It has community hall, play ground, and parking area. The passage between houses is quite big to allow vehicle to move. All the housings have shared housing design and coloring. Each housing is built in 1711.25 sq.ft. (in average) includes the back space kitchen garden and front space (*pidi*) with one-storey consisting of 4 separated

individual rooms and has 1 indoor toilet in house. Tap is fixed for running water in toilet. The upper floor is built of ply wood which can be used to store agricultural crops. Firewood-stove and chicken coop are not allowed in house. Gas-stove has replaced the firewood-stove in house. Similarly, ancestral deity worship spot and the parallel hole are dismissed. The ground floor is covered by plastic carpet. Cattle shed are less possible to construct next to the house.

4.4 Household Everyday Life: Then and Now

Cattle shed, field, chicken coop, firewood-stove, grains storage and threshing space (*aangan*) are the basic necessary physical assets of rural household in Nepal. This physical structure is directly related with their livelihood in which rural households have been regulating their daily life for centuries.

These things have gone under improved and modified for generations. Each household built the house and required physical structure based on the requirement of the household size and lifestyle. Cultural background of the household also reflects the housing design. The built housing design and physical structure are handed over from previous generation to the next generation. The traditional houses are built by using local available construction materials and mason/carpenter keeping focus on emphasis given to household specific requirements.

The Tamangs of Giranchaur everyday life is based on the rural life adopting agriculture and livestock. Few houses were resided in physical close

settlement and majority of households resided in scatter settlement before the April 2015 earthquake. Each household had cattle shed, chicken coop, firewood-stove, quality agricultural storage and threshing space (*aangan*). The availability of cattle shed next to the house had made quite easy in taking care of cattle.

After the April 2015 earthquake, the entire 64 private housings of Tamangs were constructed by the DSF in situ (situated in the original place), in the form of close physical integrated settlement. Physical infrastructures like road, community hall, children park, play ground, public toilet, and parking area are constructed. The post-earthquake housing design and settlement pattern have been different than before. Now, the entire 64 households are not allowed to raise cattle and chickens close to the house. This is because settlement is not friendly for cattle.

The households raise livestock either in maintained house or temporary shelter which they built after the earthquake. Some of the households don't raise especially buffalo as there is no cattle shed. Household members are found in temporary shelter raising livestock and only kids are found in post-earthquake houses. Adult members come to take rest in the evening and leave early in the morning to the temporary shelter where they raise cattle.

The post-earthquake housing is designed different from the previous housing which doesn't allow the household to cook food using firewood-stove in

house. Firewood-stove is replaced by gas-stove in post-earthquake built house. It can be seen that few household members are cooking food using gas-stove in the post-earthquake house although the majority households are cooking food outside either in zinc-stove or locally made stove. Households who find difficult to cook food in post-earthquake house cook food in temporary shelter. They feel free to cook using firewood and raise livestock in temporary shelter. During participation of large number of people in scheduled working day like *armaparma*, it is not possible to prepare meal on gas-stove.

There was no road to connect the houses before. Goods were carried on the back of human during the pre-earthquake days. People had to face difficulty when medical cases occurred. Now, the situation has changed along the construction of integrated settlement after the April 2015 earthquake. Every house is linked by the road which makes them easy to transport goods. It has become easy to get the things from market or to reach the things from settlement to market. Visitors or tourists have started to flow in settlement as it is well connected to the road.

Few households had separated individual room before the earthquake. The traditional housing design didn't have separated individual room and the household members take rest in middle floor and balcony of the house. Those households who had separated individual room in pre-earthquake house had constructed room later as per the need of household members and guest. Privacy matters between family members also one of the aspect which had

been raising voice against the absence of separated individual room. Children didn't have well-equipped separated room for doing assignment of school and self-study. Now, the entire 64 houses are constructed with separated individual room. Household members find very comfortable of having separated individual room. Elderly members, adult members, and kids have separated individual room. It can be seen that kids find easy to do assignment of school and to study. Households run home stay program as there are separated individual rooms for paying guests who arrive in village.

Not a single house had indoor toilet in pre-earthquake houses. Each household had a toilet at distant from the house. Household members had to face the difficulties when they had to go distant toilet in night. Now, the indoor toilet with running water makes the household members easy to go toilet at any time. Children and aged people are more benefited from construction of indoor toilet in the house.

The families had two-storey housings with having sufficient space for storing agricultural grains that they produced in field. They also had courtyard (*aangan*) in front of the house for threshing the agricultural crops. Rice was threshed in field and stored in upper-floor of the house. But millet, corn, and wheat were threshed in courtyard of the house. Now, the post-earthquake housings do not have all those features. They don't have courtyard in front of the house and no proper storage facility in house.

There had been difficulty in performing *ghewa* in pre-earthquake settlement. Villagers didn't have the community hall to perform *ghewa*. They used to perform *ghewa* constructing the temporary shelter in open space. There was risk of weather threat while carrying out such things. Particularly, performing *ghewa* takes more days than other cultural gathering. So, there was need of a safe place. This settlement has come up with the additional feature of community hall. The community hall has eliminated the problem faced in temporary shelter. At present, the villagers perform *ghewa*, wedding, and cultural gathering in community hall.

The community hall, access to road, separated individual room, and indoor toilet are the features admired by the people. They believe these things have improved their life standard. Whereas features like gas-stove, absence of cattle shed, absence of the proper floor to store grains and absence of the courtyard are the reasons why families find the settlement is not up to the specific requirements. This is not argument to support which one is absolutely the best settlement between pre and post-earthquake settlement. As a matter of fact, both of the settlements have lacking.

The mentioned factors are further examined in next chapter in detail and findings are drawn based on household survey, unstructured interview, and participatory observation.

Footnote

1. See District profile Sindupalchok (2014:52, 197).
2. Holmberg has drawn at least two conclusions about the identity and history of Tamang people of Nepal. The first is that “Tamang as name for an ethnic group in Nepal is directly related to the formation of the state of Nepal as it incorporated specific peoples; the second is that caste difference takes on specific meanings depending on whose perspective one adopts.” See David H. Holmberg ([1989]1996:38)
3. Yonjan reported that Tamang language belongs to the Tibeto-Burman language speaking group. See Amrit Yonjan Tamang (2010:239).
4. Yongjan has pointed about the differences of regional dialect spoken by Tamangs based on particular geography. This fact is also studied by other scholars G. Taucher 1994, W. Camp 1996. See Amrit-Yongan Tamang foot note (2006:2).
5. See Amrit Yonjan Tamang (2006:167) for historical background of ‘Tamang’ terminology.
6. In the words of Holmberg, “Tamang associate Buddhism with death and otherworldly concerns; however, they ritually pursue immortality and recognize *Lamas* as sangkkye or Buddhas because of potential worldly benefits.” In addition to this, he reports that the state formation of Nepal makes the particularly Tamang isolation from Tibetan religious polity which leads them to replicate the Buddhism in local scale. See David H. Holmberg ([1989]1996:175-176).

7. *Lama* derives authority from Buddha. See David H. Holmberg ([1989]1989: 120-121), *Lama* performs death feast and rite related to Buddhism. See Amrit Yonjan Tamang (2006:172-173).
8. “*Bonbo* derive the authority from unique power of sight, ancestral sprit, and mid-space spirit.” See David H. Holmberg (1996:120-121), *Bonbo* cures the illness of the people in village gaining the power via local deities. See Amrit Yonjan Tamang (2006:172-173).
9. “*Lambu* doesn’t have connection with the special power or being.” See David H. Holmberg ([1989]1996:120-121). *Lambu* retain the clan’s history via ancestral deity worship. See Amrit Yonjan Tamang (2006:172-173).
10. Animal sacrificing was observed by the *Lambus* of Tamdungsa on behalf of the community, each household and natal kin to the local village divinities and regional goddess as per calendar. For more description of animal sacrificing in Tamdungsa. See David H. Holmberg ([1989]1996:116-123).
11. Holmberg reported two forms of marriage existed in Tamdungsa. Parents of the prospective couple arranged the marriage in between cross-cousin which is taken as proper form of marriage. Bride and groom can secretly elope from a market which is taken as form of mock captured. Almost marriage occurred in Tamdungsa during his stay in Tamdungsa were in the form of mock captured. “A woman and man (usually with tacit consent or significant kin) arranged to return from a festival together, or the groom and his companions brought a woman down from her home village in the dark of night.” See David H. Holmberg ([1989]1996:60).

12. Holmberg reports that the distinction of whole community and significant of kin can be figure out via rites at the time of death, cremation, and feast of Tamangs. Male agnates, the principal *mha*, an *ashyang*, or *shayngpo*, and a daughter regarded as close kin. See David H. Holmberg ([1989]1996:198).

13. Holmberg also pointed that “Tamang do not subscribe to the orthodox declaration of a 49th day intermediate period; their intervention period can vary considerably in length, depending on the season of death.” See David H. Holmberg ([1989]1996:198-200).

CHAPTER - V

DATA RESENTATION AND ANALYSIS

5.1 Demographic Characteristics of Tamangs at Giranchaur

The total household of the Tamangs living at Giranchaur integrated settlement is 64 households and total population consists of 377. The table below shows the average household size and sex ratio of the Tamangs population residing at Giranchuar integrated settlement.

Table No. 3. Demographic Characteristics of Tamangs at Giranchaur

Area	Household	Population			Average Household Size	Sex Ratio
		Total	Male	Female		
Giranchaur	64	377	184	193	5.9	96.35

Source: Field Survey 2017.

The table clearly shows that there is slightly high number of female by 9 than male population, out of total population of 377. An average per household size is 5.9 while the national and Sindupalchok district average household sizes are 4.9 and 4.3 during the 2011 census.¹ Likewise, the sex ratio of Tamangs at Girnachaur integrated settlement is 96.35 while the national and Sindupalchok district sex ratios are 94.2 and 92.6 respectively.² The table below shows the age and sex composition of Tamangs population residing at Giranchaur integrated settlement.

Table No. 4. Age and Sex Composition of Tamangs at Giranchaur

Age group	0-14		15-59		60+		Total	
Sex	No.	%	No.	%	No.	%	No.	%
Male	54	14.32	116	30.76	14	3.71	184	48.79
Female	57	15.11	119	31.56	17	4.50	193	51.17
Total	111	29.43	235	62.32	31	8.21	377	100.00

Source: Field Survey 2017.

As attested by the table, the population of male and the female in percentages are 48.79 and 51.17 whereas national for male and female are 48.49 and 51.50 and Sindupalchok district for male and female are 48.07 and 52.0 according to the 2011 census.³

The age composition of the Tamang of Giranchaur varies from the national pattern. 29.43 percent of the total population is in the 0-14 age group, while the national and Sindupalchok district data for the same age group is 34.91 and 32.73 percent respectively.⁴ Similarly, the percentage of population in the 15-59 age group and 60+ age group is 62.32 and 8.21 while the national and Sindupalchok district for the same age group is 56.11 and 11.16 respectively.⁵

5.2 Occupation of Tamangs at Giranchaur

Talking about the occupation of Tamangs at Giranchaur, service sector is the secondary way after agriculture for livelihood. The male members are taken as the main source of income generator in every household as they engaged in service sector job. Female members are mostly found engaging in agricultural

activities and daily household works includes raising livestock, cooking food, taking care of kids and aged household members.

Male members of the household can't be found in home throughout the year as engaged in non-agricultural works inside or outside of the country. Household adult male members are engaged in the sector where they offer service to the public in different parts of the country. They are found driving public vehicles as this service attracts most of them. They prefer driving to different districts of the country. Adult male members arrive particularly in June and stay until the completion of paddy planting. The income generated by the male adult household members is spent to celebrate festivals, on cultural gathering and on education of their offspring's.

5.3 The Positive and Complexities Aspects of Integrated settlement in terms of Economic Well-being

5.1.1. Increased in the income generation activities of households

The post-earthquake settlement has brought up changes in the income generation of households through running of home stay program, increment of the number of adult members engaged in service sector and possessing small-scale business in post-earthquake settlement.

Running home stay⁶ program is a new way of generating income for households after shifting in post-earthquake settlement. The concept of running home stay program for the visitors in post-earthquake settlement

was forwarded by the DSF and VMC. News coverage regarding construction of Giranchaur integrated settlement was widely reported in national media which promoted possibility of internal tourism as the settlement is close to Kathmandu.

The internal tourists and visitors representing NGOs/INGOs often arrive in settlement for observation. Internal tourists arrive here intending for recreational purpose and wanting to enjoy the local delicacies. NGOs/INGOs representatives visit here for interacting with the beneficiaries and to learn about the possibility of construction of integrated settlement. The flow of those tourists, visitors, observers, and the students has influenced Tamangs of Giranchaur to run home stay program. They have also started to run small cottage industry and produce organic vegetables. One from each household member got chance to explore and observe the two of famous integrated settlements for home stay and this was the program organized by VMC. Internal tourists were found spending nights and wanted to spend on local food items.

But running home stay in further days and maintaining it as a good source of income might be challenging for households. Traditionally households are relying upon agriculture as the main source of livelihood and adopting home stay program as other option of income generation is new experience for them. Therefore, home stay program as a good source of income can be challenging in days of ahead. Households prefer peasantry

and service sector job in which they have experienced of long time rather than run home stay program. Tiwri Tamang, one of the home stay program runners who is in her mid-thirties, has her own experience about home stay program.

“The post-earthquake integrated settlement has opened the door for new opportunities. Home stay program is a good source of income although we don't have much experience about it. Now, professional people, organization, and internal tourist visit here. Movies are shot here. For that, they have to pay certain charge. I am earning cash running home stay program. I think possibility of this program is created after the construction of integrated settlement. We can earn money via running home stay, selling organic vegetables and grocery.”

The adult household members joining in driving sector in different parts of the country have increased after the disaster. Adults those who attained the secondary level school education have started to work different parts of the country as they are influenced by their family members, close-kin, and friends working at particular sector. They follow the jobs of their influencer. This is why the adults are less attracted to agriculture.

Occasionally, they take part in paddy planting as a manual help to the elder household member. Agriculture farming is simply for subsistence.

5.1.2. Increment in the average yearly household income

The NRA has forwarded PDRF 2016-2020 framework which clearly allocated the time period of five years with possibly extension of one year for recovery and reconstruction. Based on the NGO guidelines⁷, NGOs/INGOs have launched the program of livelihood improvement project and housing reconstruction technical support coordinating with the local government agencies in earthquake affected districts intending to recover the earthquake affected communities.

Usually, it is understood that the disaster brings financial burden for households as they have to lose physical assets including the housing and livestock's. However, the Tamang of Giranchaur got quick recovery from the loss within the 5 months after 1 year of the devastation. The Tamangs of Giranchaur was rehabilitated in situ (situated in original place). DSF constructed the entire 64 households.

The household survey has revealed that the Tamangs average household yearly income has been increased after shifting in post-earthquake house compare to the pre-earthquake housing as the construction of the entire 64 housing were done by the financial investment of DSF. The other reasons are each of the household members engaging in service sector job, generating cash by running home stay program and small scale commercial activities. Their yearly household income before the earthquake included individual salary, wage, pension, income from

agriculture, livestock, remittance and others. In post-earthquake phase, home stay program, service sector job, and small-scale business including poultry and grocery are the additional source of income. The given data in the table shows the average yearly household income difference between the pre and post-earthquake phases.

Table No. 5. Average Yearly Household Income of Tamangs at Giranchaur

NRs. (pre-earthquake)	NRs. (post-earthquake)
137,023.84	154,047.61

Source: Field Survey 2017.

The Tamang of Giranchaur earns 62.09 percent and 57.38 percent less than the national yearly average household income while comparing with the pre and post-disaster average yearly household income respectively. The national average yearly household income was Rs.361, 452 in the year 2014/15⁸ whereas Rs.137, 023.84 and Rs.154, 047.61 are average yearly household income in pre and post-disaster periods respectively. The post-disaster average yearly household income has increased by 11.05 percent (Rs. 17, 023.77) in comparison with the pre-earthquake period of income.

Even comparing with the average yearly rural household income Rs. 330, 132 of Nepal in the year 2014/15⁹, the pre and post-disaster period average yearly household income are 58.49 percent and 53.33 percent less respectively.

5.1.3. Increment in the average yearly household expenditure

Although 64 of the Tamangs households are rehabilitated at Giranchaur, their surrounding households are yet to be restored. Simultaneously, their income and the expenditure go side by side. As they did not have many topics to spend on, their expenditure was not high before the earthquake period. The post-earthquake house has extra numbers of topics to be spent on. They are home tax, Liquefied Petroleum Gas (LPG), bill of water and electricity, cable service bill and home furnishing.

The expense is added in regular purchasing of LPG gas cylinder from market as the post-earthquake house is designed favoring gas-stove. The extended families have to purchase more number of LPG gas cylinder than nuclear family. Furnishing equipments includes television set, kitchen utensils, carpet, and furniture have increased the average yearly household expenditure than before the earthquake. The table presented below shows how the pre-earthquake average yearly household expenditure has increased in post disaster period.

Table No. 6. Average Yearly Household Expenditure of Tamangs at Giranchaur

NRs. (pre-earthquake)	NRs. (post-earthquake)
100, 809.52	148, 214.28

Source: Field Survey 2017.

The Tamangs of Giranchaur spends 67.59 and 52.36 percent less than the national average yearly household expenditure while comparing with the pre and post-disaster average yearly household expenditure respectively. The national average yearly household expenditure was Rs. 311, 136 in the year 2014/15¹⁰ whereas Rs. 100, 809.52 and Rs. 148, 214.28 are the average yearly household expenditure in pre and post-disaster periods respectively. The post-disaster average yearly household expenditure has increased by 31.98 percent (Rs. 47, 404.76) in comparison with the pre-earthquake periods of expenditure.

Even comparing with the average yearly rural household expenditure Rs. 275, 136 of Nepal in the year 2014/15¹¹, the pre and post-disaster periods average yearly household expenditure are 63.36 percent and 46.13 percent less respectively.

While going through the average yearly household income-expenditure of pre and post-disaster periods, it is found that there was high income and low expenditure in pre-earthquake period whereas in post-earthquake period there is just balance between income and expenditure. But there is high possibility that the expenditure may overcome income in post-earthquake period in near future if economic activities are not excelled up.

The average yearly household expenditure includes both consumptive and non-consumptive groups. Consumptive groups are those goods consumed purchasing from the market. Non-consumptive expenditure includes marriage and death feast expenses, gifts, education of kids and home furnishing. Moreover, expenses in electricity, water, dish home, LPG gas cylinder, and home furnishing expenses have been added on the post-earthquake average yearly household expenditure.

The households had been using firewood-stove in pre-earthquake house and post-earthquake house doesn't allow firewood-stove. This situation has created compulsion to opt for LPG gas cylinder which is why they have increment in the expenditure. A 32 years old, Sani Maya Tamang (pseudonym), has felt depressive due to factors that have caused her to live expensive lifestyle.

“The expenses have increased by double. I am managing all these expenses since my husband works in Qatar. I don't understand why the expenses have gone up. I wish I had pre-earthquake house. I could do fire-wood burning and have cattle.”

The post-earthquake houses come up with the basic facilities like water supply for kitchen and bathroom, power supply and non fire wood burning places. These things are extra burden to Harka Bahadur Tamang (pseudonym), a 49 year old. He does not wish to have them.

“The expense is almost double as compare to pre-earthquake house. My household expenses are added in electricity, water, television, gas cylinder, house tax, and cultural gathering. My income doesn't cover all the expenses. I don't have extra source of income other than agriculture labor.”

Integrated settlement in itself is not bad. Tamangs are not used to having things carried out in new houses. Expenses have exalted. Therefore, these people find their present life style is economically threatened. They worry that they may not able to sustain their culture, tradition, festivity, and religious performance in newly built houses. Post-earthquake settlement has brought relief to the people though.

5.4 Complexities of Pre and Post-earthquake Settlement

5.4.1 Difference created by the absence of cattle shed

The whole Tamang households of Giranchaur have been raising livestock. Livestock is the other way of income generation and manure produced from livestock can be used in producing cereals, vegetables, and crops. They are also used to plough field to cultivate seasonable crops. In other words, livestock have multiple advantages.

Every household had cattle shed close to the pre-earthquake house in which they used to raise livestock like goats, buffalos, cows, and bulls. The cattle shed built adjacent to the pre-earthquake house which made

them easy to raise cattle's, to prepare fodder and secure livestock being attacked by the wild animals. Household members can feed their livestock as their desirable time and keep them safe from the wild animals during night time. The pre-earthquake settlement pattern was scattered and the households were allowed to raise livestock as their desirable spot in their own land.

Now, the construction of the new settlement has brought some changes in the location of the settlement and land structure. The entire 64 households are built in one single spot in concentrated form with the particular design. The housing design and settlement pattern don't allow the households to build cattle shed close to the post-earthquake houses. At least 10 percent of the households own no land where the settlement exists. They have to buy land from other households. As a result, the distance between the settlement and shed in their own land has discouraged them to have livestock. Some of the households who built cattle shed near to the settlement since they possess land close to the house have been benefited. Those who are having distance cattle shed have built the temporary shelter along the cattle shed where they spend their entire day. Distance between the settlement and cattle shed have obliged them to spend the whole of day in temporary shelter. They prepare fodder, do the breakfast and dinner and take rest if they get tired. But they go to sleep in new house. Tritha Bahadur Tamang (pseudonym) aged 66 is highly dissatisfied with this kind recklessness. He believes that

DSF should have thought about it. He doesn't like decision made by all the stakeholders.

“Households members who owned land close to the new house don't want to talk on the difficulties being faced by other households. They don't come out of their comfort zone to raise voice for our problem. Now, the question is who is going to solve this problem.”

Temporary shelter at the distant from settlement has been multipurpose place. People feel struggle-some while doing home to temporary shelter and shelter to home. During rainy season, it is quite difficult to stay in shelter. Chitra kumari Tamang (pseudonym) is in her mid-twenties whose daily schedule is to go shelter and do the chores and get back to the settlement. She finds it waste of time and cannot spend proper time in her house, family and other extra economic activities.

“I am facing problems mainly in rainy season doing up and down daily looking after my cattle. It consumes time doing up and down. I feel comfortable living in temporary shelter to raise livestock in day though.”

Therefore, having shed near to the house has great economical, social, and cultural impact on people's life. Since cattle shed is very important aspect of rural life, it is wise to discuss with the beneficiaries before such type of settlement is set up.

5.4.2 Restriction of firewood burning

They used firewood in pre-earthquake house for cooking meal. They also prepared livestock fodder using firewood. Fire wood burning had been long time in use. As a matter of fact, this is the first time in the history of Tamang at Giranchaur replacing firewood-stove by LPG gas-stove. Households have to prepare meal and liquor when big number of labors arrived to support them to planting paddy and harvesting it. This is not effective in LPG cylinder unlike to fire-wood burning. Firewood burning is easy to cook for numbers of people at a time. Despite LPG cylinder's convenience, it is limited.

The situation has changed after the construction of post-earthquake settlement and the new design prefers use of gas-stove instead of firewood-stove in the house. People outside of the settlement find Tamangs are upgrading their lifestyle. It is Tamangs people who know better where to scratch when they have itch. Hardly, they regard changes as transformation into new comfortable life. They still wish to have things they had once. They always look option for LPG gas cylinder. The reasons are economical and cultural. Among those households who dislike LPG cylinder, Chandra Bahadur Tamang (pseudonym) age 51 has gone contemplative how he can bring back firewood burning in his household.

“I don't have gas-stove and cylinder as well. I can't afford it. My family members are facing problem to cook food in rainy season outside in open space. Rains and wind create obstacle in burning firewood in provided small zinc-stove.”

However, their desire for burning fire wood is fulfilled in temporary shelter. They cook there everything they have to. This is the reason why they are found in shelter from dawn to the late evening. Burning fire wood is economic. Kumari Tamang (pseudonym) says who is in her mid-thirties.

“The VMC and DSF did agreement of not allowing firewood-stove in new house. Chickens coop and cattle shed are also prohibited to construct next to the house. I raise my cattle and chickens in temporary shelter where I cook food too. Cattles needs fodder which is easy to cook in temporary shelter and I past most of the day time in temporary shelter raising cattle. I love chaymba that can be cooked freely in temporary shelter which takes time to cook such food items using gas-stove in new house. I bought gas-stove and cook food in new house when guests arrives.”

Dil Kumari Tamang (pseudonym), age 35, has her story to tell. She finds shelter is far better than house in the settlement.

“I recently delivered a baby. The post-earthquake house doesn’t allow burning firewood in the house and my infant needs firewood burning for massaging with mustard oil. I should live in this temporary shelter till my child becomes 4-5 months and then I may move in post-earthquake house.”

She talks further.

“Each family doesn’t have same economic status in this settlement to hire LPG gas cylinder on regular basis. Gas-stove is suitable for those families who hold job and they fulfill the expenses from the monthly salary. The DSF has provided a zinc-stove to cook food in firewood. The provided zinc-stove is suitable for only small sized family. In fact, the zinc-stove doesn’t cook food when one has armaparma. We are farmers and our livelihood relies on farming. The gas-stove isn’t useful to cook food when big number of guest arrives in home. Half-portion of food may cook and half-portion may not in provided zinc-stove. I usually cook food in firewood-stove in temporary shelter for my family members as well as in armaparma.”

Suitable size of firewood-stove is seen necessary for most of the households in settlement to cook food. Household members were cooking food outside of post-earthquake house in open space even in rainy season

either in a small zinc-stove provided by the DSF or built locally firewood-stove. Gas-stove has been useful as well as affordable for nuclear family.

“We belong to Tamang community. In every ritual and cultural gathering, liquor is a crucial part. Besides ritual, liquor is needed even in armaparma and other daily works. Now, the post-earthquake house doesn't allow firewood-stove to make liquor,” believes Tritha Bahadur Tamang (pseudonym), age 66.

Hence, firewood-stove is very essential part of Tamang people. It plays economical, social, and cultural vital roles in the lives of people. People may stop several of things like *aarmparma*, basking the infant to burning firewood, manufacturing local liquor for rituals, or gathering.

5.4.3 Courtyard (*aangan*) and crops storing capacity of housing

Financial strong family had at least two-storey and poorer family had one-storey house in pre-earthquake period with sufficient proper agricultural storage including the courtyard for threshing crops. Storage space for agricultural products in house was water leak proof as households have to store crops throughout a year. They usually used to store agricultural products after harvesting either in upper floor or middle floor. The floor of pre-earthquake house was built up of local timber plastered by the mud. Water drenched crops could be stored in upper or

middle floor of the pre-earthquake house. Rice is mainly harvested that is grown two times in a year.

Local timber with plastered mud floor of pre-earthquake house is replaced by plywood storied in post-earthquake house. There is possibility of decaying the plywood as wet crops to be stored. Consequently, households are storing crops either in temporary shelter or maintained house. Suk Bahadur Tamang (pseudonym), age 33, gets furious when one talks about the storing capacity and quality of crops in post-earthquake house. He highly praises his traditional house as there was a qualitative crop storing space.

“I don’t feel safe to store crops in post-earthquake house floor. There is possibility of decaying of plywood within the couple of years of storing drenched crops.”

The houses are built controversially. Houses don’t have that are primary to the Tamang people. Where do they store their crops? How can they save their crops for the long period of time? Seasonable crops like rice, corn, millet, and wheat are produced by the households which need safe storage throughout the year for consumption.

Similarly, the open courtyard was existed in each pre-earthquake house and used to thresh, dry, and sieve crops. The post-earthquake housings

have minimized the courtyard space. Therefore, threshing, drying and sieving of crops are impossible. People go different places for these works.

“Limited outer space in front of house makes difficult to thresh and dry the seasonable crops. I am threshing seasonable agricultural crops mostly in open space in field,” Sanimaya Tamang (pseudonym) shares her story (who is in her mid thirties).

5.4.4 Engineering of housing

Housing design plays vital role in making comfortable life of each household in settlement. Before the integrated settlement, layout of the house was designed with traditional experience of ages. Technology and construction materials were used to resist the climatic temperature, rains, and storm of particular region. Local people are more familiar about the usual wind direction, approaching of sunlight and rains throughout the year than non-residents of settlement.

There was less effective implementation of building code (1994) to construct the earthquake-resistant housing before April 2015 earthquake in rural areas. Every household hold had personal freedom to build and architect the housing as per the need in rural area across the country. After the 2015 earthquake, NRA has developed seventeen (17) models of earthquake-resistant housings. Beneficiaries listed by PDNA have to

construct the housing following one of seventeen (17) models of earthquake-resistant housings in thirty one (31) earthquake affected districts. Besides this, NRA also has approved the NGOs/INGOs to construct the earthquake-resistant housing in the form of integrated settlement as per the building code of NRA.

The housing design of integrated settlement at Giranchaur was designed by private engineer hired by the DSF. The whole households had no choice to select the housing design other than DSF prefer to. They were just informed about the design of the housing which was going to be built in the settlement.

Households didn't participate while designing the post-earthquake housing. Households were in desperate need of housing as they were living in temporary shelter due to destruction of pre-earthquake housing. The situation made them to accept any layout of housing. Senior household members used to decide on the quality of timber to be used in making of housing, the height of housing, direction faced by the main entrance door of housing, numbers of floor of housing, and numbers of window of a housing need to have.

During the post-earthquake period those traditional pragmatic technique were not implied. Number of housing floor and storey was decided by the DSF. The house had to be at least two storied as the second floor is

usually a place to store grains. However, the floor is added in post-earthquake housing but built of plywood. Household's members have objected the use of plywood due to its less durability.

The main entrance door of housing of every family has faced to improper direction. As a result, the rain cannot be stopped from getting inside. One of the residents of settlement, Tirtha Bahadur Tamang (pseudonym) age 66, openly criticized why he does not like the design and sadly expressed how he has been bothered by rain.

“The DSF didn't apply the ideas of local people on designing the housing. They did not listen to who knows. Our people have long experience of doing this thing. The pre-earthquake houses were built avoiding the possible future disaster that could be caused by rain. One needs to have proper knowledge of wind direction. Wind and rain are mostly observed from the east and west direction in this geography. The pre-earthquake housings were designed as two-storey's in which the main entrance door faced south direction, the left end gable-wall faced east and right end gable-wall faced west direction. I attempted to convince particularly the DSF engineer several times but the situation became chaotic. The construction committee also didn't emphasis on this subject matter. Now, the housings is built and nothing can be done. It is useless to talk on this matter. My post-earthquake built housing was designed as the main entrance door facing towards the west, left end gable-wall faced

north and right end gable-wall faced south direction. During windy rain, the rain directly enters in my house.”

Thus, one can understand the local people participation is most essential part of construction of any physical infrastructure. Housing is built to last for long, to resist heat, wind, and rain. Housing is not only structure, it is a shelter. The direction, storey, floor, construction materials, technology, and color of the housing are those components which determine the ownership of housing.

5.5 Physical Structures Added up in Post-earthquake Settlement and Housing

5.5.1 Community hall

Death feast is compulsorily observed by the Tamangs of Giranchaur.

Reciting religious scripture by the *Lamas* including mourning by close kin and feast are the main ritual performed during the funeral. Big numbers of relatives both clan member, close relatives from maternal side and neighbors belong to next clans arrive to attend the death feast.

Normally, death ritual begins from the first day to third day and ends with big feast on 49th day where mourners gather up.

Performing death ritual is expensive for the Tamangs of Giranchaur.

Feast should be served to the kin and *Lamas* at least two times including liquor. Death ritual isn't performed in house. Death ritual has to perform

outside of the house. So, safe shelter is needed to perform the death ritual as *Lamas*, deceased family members, as well as close-kin stay together performing peculiar rituals as per the instruction of *Lamas* which begins in morning and ends in evening of the day until three days. The final feast is observed with gathering of relatives on 49th day from the actual date of death of the family member.

Neighbors support mourning family to construct the temporary shelter outside of house. Temporary shelter is built up of tarpaulin and local available constructions materials; bamboo sticks, leaves of trees and timber. Family of deceased, relatives, and neighbors faced difficulties while performing death ritual in temporary shelter during rainy and hot of summer season.

The DSF has built a community hall where they can practice community work together. They can also perform things like funeral, marriage, birth ceremony, and activities that are related to religiosity or festivity. Man Maya Tamang, age 26, feels relief from problem. She has appreciated the concept of community hall.

“We had to construct the temporary shelter. Community hall has become useful place to perform death ritual, marriage, and meeting. We don’t have to build temporary shelter now. Everything we do in community hall.”

The construction of post-earthquake settlement has brought some particular changes in physical structure of settlement. Community hall, children park, public toilet, parking area, resting area, play ground, water reserved tank, office, library, Municipality standard road and system of extracting solar energy are the major plus points of post-earthquake settlement. The community people gather in community hall to perform death ritual, wedding, rice feeding feast, visitors welcome program and community level meetings. A 26 year old, Dambar Tamang, analyzed that his community has been greatly helped to organize the things like death ritual, marriage ceremony and meeting.

“We had to face a lot problem during rainy season if we have to perform death ritual. Temporary shelter was not effective to hold such important matter. Now, the construction of community hall has given us great relief. We don't worry about the rain and sweltering sun.”

This settlement has stood as a paradigm to one who wants change for standard life. Giranchaur has inspired its surrounding. Major settlement constructions plans are under work. They have been hugely influenced by Girancahur. The trend of change in physical structure is particularly observed after the earthquake along the construction of settlement. Such trend of changes is possible after the earthquake. It did not go easy with

the people of Giranchaur to convince those changes for quality life is vital. It was gradual process.

5.5.2 Access to road

The entire houses did not have access to road. People had to carry the daily necessities on their back. They had to walk down and up-hill for 40 to 45 minute to reach the nearest market. People started to feel difficulty during medical emergency. It was quite difficult to reach medical emergency to hospital in time. Few of them died before they reached to the hospital.

All the houses are linked by road in post-earthquake settlement. Road has been constructed as per the standard of Municipality. Families now, they don't have to carry goods on their back. One can reserve the means of transportation or opt for public buses. Stuffs for kitchen, fertilizer to stimulate the soil, clothes, and other are easily transported to the village. People feel better and highly satisfied for this positive change.

Bridegroom team arrives in settlement in reserved bus or by motorcycles to attend the ceremony on time. Bride and her family should not worry whether bridegroom reaches on time or not. Internal tourist can be seen arriving by motorcycles and reserved bus to visit the post-earthquake settlement. People with ailment are taken to near-by hospitals or health-post. Villagers are taking hospitals to neighbors who get sick even in

night by ambulance or private vehicle. Phool Maya Tamang who is 34 years old is quite glad to have access to road.

'The main important factor of post-earthquake house is linked of road to all housings. Connection of road to our village has made comfortable to transport goods and agricultural products from own house.'

The connection of settlement to road has brought hope for people to persuade their livelihood. Since transportation has become easy, people have started small-scale business. Poultry, vegetable farming, and home stay program are the recently begun small-scale business to name few. In the near future, there is chance that such type business will grow in settlement. The flow of people in post-earthquake settlement has highly increased after the construction of post-earthquake settlement. The connection of road to all households has created possibility of development of village compare to the pre-earthquake settlement. Let see how a respondent named Pancha Bahadur Tamang age 32 feels about connection of road in all house:

"The road was linked to upward cluster in pre-earthquake settlement. We have to go upward cluster to transport the goods. Now, each house is connected by road which makes us easy to transport goods."

Road makes easy in transportation of goods either from market or home to market in reasonable transportation rate. It has become possible for outsider to visit this settlement. Before, in pre-earthquake, this settlement was unheard song. So, road is basic for development.

5.5.3 Separated individual room

Traditional design housings of Tamangs at Giranchaur rarely had separated individual room in pre-earthquake settlement. Housings were two-storey with the balcony on upstairs, but no separated individual room. There used to be shared room for all the family members. Family members took rest in middle floor, balcony, and first floor as per their size of family.

Adult married and senior family member had much difficulty as they had no choice. The absence of individual room was the major subject of distress in family. Although they had realized the need of individual room, nobody had built the house with individual room. They had been managing their life despite the difficulty created by the shared room.

The important aspect of post-earthquake housing is availability of separated individual room for family members in post-earthquake housing. Household members can be seen taking rest in their individual room in post-earthquake built housing. Kids who have joined school are reading and writing in individual room. Aged parents, adult members, and

children of family have managed separate individual room in post-earthquake housing. Household members have found comfortable of having separated individual room. Positive responses are drawn from the respondents regarding on the availability of separated individual room in post-earthquake housing. A respondent named Pancha Bahdur Tamang age 32 reported the benefits of separated individual room of post-earthquake housing:

“The main important aspect of post-earthquake housing is availability of separated room. Separated individual room maintains privacy among family members.”

The response indicates that the privacy matters among family members significantly, even they share same kitchen. Social mobility as well as adult family members being exposure to lifestyle of cities also educated them about maintaining the privacy matter among household members.

Separated individual room is beneficial in case arrival of guest. They are able to run home stay program after shifting in post-earthquake house because they don't have shared room. Running home stay program has created possibility of income generation for the Tamangs household in post-earthquake settlement. Sun Maya Tamang in her mid-thirties how she finds the separated individual room in post-earthquake housing:

“The previous housing did not have separated individual room for every family member. Now, the post-earthquake housing contains separated individual room which makes very comfortable in arrival of guest in home.”

Separated individual room in post-earthquake housing makes the household members maintaining the personal privacy among the family members as well as opens the opportunity of running home stay program.

5.5.4 Indoor toilet

They had to go outside for toilet and to bath. Toilets were built outside of house. It was and is unable to build the bathroom and toilet in pre-earthquake house. At some distance from, using local materials traditional toilets were built. Indoor toilet basically is of concrete structures and needs running water. Hygiene and sanitation are the most essential aspects of indoor toilet. There is possibility of spreading of communicable disease if toilet is not kept clean.

The post-earthquake housing is well-designed with the layout of separated individual room and indoor toilet. Indoor toilet is distinct designed for the Tamangs households at Giranchaur. Using indoor toilet is obviously new experience for them as several generations did not have experience of it. Household members accepted indoor toilet as a comfort

factor for them. A similar kind of opinion was put by a respondent named Usha Tamang age 20:

“Indoor toilet makes both kids and adult family members to go toilet during night and one should not face problems of rain, poisonous insects and scare of other unseen things.”

Household members are positive towards the design of post-earthquake house with indoor toilet. Indoor toilet has created awareness of sanitation among community in post-earthquake settlement.

Footnote

1. See volume 01, NPHC (2011:40, 42), CBS, Kathmandu.
2. Ibid (2011:41, 42).
3. Ibid (2011:66, 89).
4. Ibid (2011:66, 89).
5. Ibid (2011:66, 89).
6. Here home stay refers a new concept of community based internal tourism started by Tamangs after shifting in post-earthquake integrated settlement. Certain amount of charge is taken by families serving local delicacies and lodge to the guests who stay overnight in settlement. They have taken home stay program is another good option of income generating source along the construction of integrated settlement and road.
7. See Post-Disaster Recovery Framework (2016-2020:33).
8. See Fifth household budget survey, Nepal Rastra Bank (2014/15: 23).
9. Ibid (2014/15:23).
10. Ibid (2014/15:23).
11. Ibid (2014/15:23).

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CONCLUSIONS AND SUMMARY

6.1 CONCLUSION

The study has manifested the importance of involvement of beneficiaries in ADR approach to maintain the specific requirements of household and to preserve its socio-cultural and economical values of community. The other aspect of this study is to contrast the life between pre and post-earthquake settlement.

The case of Giranchaur has come up with both positive factors and complexities that are being faced by the Tamnags in their daily life. Davidson et al. (2007) has drawn similar kind of conclusion from the case studies mainly of three different countries; Colombia, EI Salvador and Turkey.¹ This must be one of the drawbacks of 'ADR approach' whom have sole decision in designing the private housing without the involvement of real beneficiaries in post-disaster reconstruction period.

This is the context which stimulated in setting of specific research questions to find out the (1) influence of post-earthquake integrated settlement on Tamangs' everyday life at Giranchaur, and (2) inter-linkage of housing design with the Tamangs' everyday life in post-earthquake integrated settlement at Giranchaur. This study has clearly shown how post-disaster

reconstruction of private housing in rural area led by NGO has influenced immensely, particularly in everyday life of people.

There has definitely been growth in income generation activities of Tamangs (in their average yearly household income). Income generation activities of households are boosted up through home stay program, increment of number of adult members engaged in service sectors and owning of small-scale business; poultry and selling organic vegetables.

The growth in income generation activities of Tamangs has resulted increment in post-earthquake average yearly household income compared to pre-earthquake. The post-disaster average yearly household income has increased by 11.05 percent (NRs. 17023.77) while comparing with the pre-earthquake period.

The average yearly household income before the earthquake was based on individual salary, pension, wage, income from agriculture, livestock, and remittance. The income from home stay program and small-scale business; poultry, organic vegetables farming and grocery are the additional source of income in post-disaster period of time.

Economical expenditure is elevated up in new house (in their average yearly household expenditure) though there has been slight growth in income generation activities. Their income and expenditure go simultaneously after

shifting in post-earthquake house. Extra expenditure in new topics; LPG gas cylinder, home furnishing, television charge bill, house tax, water and electricity bill have been added in post-earthquake house. The entire households did not have to spend on extra expenditure in new topics referred to above before the earthquake.

New topics of expenditure have been sharply grown up after shifting in post-earthquake settlement. This has led to increment in post-earthquake average yearly household expenditure of Tamangs compared to the pre-earthquake period. The post-earthquake average yearly household expenditure has been increased by 31.98 percent (NRs. 47,404.76) in comparison with the pre-earthquake period of expenditure.

The expenditure topics; marriage and death feast expenses, gifts and education of kids pre-earthquake house whereas LPG gas cylinder, home furnishing, television charge bills, water and electricity bills are the additional expenses in post-earthquake average yearly household expenditure.

It is found that there was high income and low expenditure in pre-earthquake period whereas in post-earthquake there is just balance between income and expenditure while going through the average yearly household income-expenditure of pre and post-disaster periods. If economical activities are not strongly boosted up, there is possibility that expenditure may rise to the

maximum level. This imbalance is due to newly housing design. These houses are totally different from previous ones.

This type of fact has also been reported by Badri et al. (2007) in their case study 1990 Manjil earthquake in Iran. Over 70 percent of respondents from Manjil earthquake had agreed that before the earthquake their income and expenditures were low. But after the earthquake income remained low, expenses had increased sharply. This fact of Manjil earthquake Iran is partially different from the case of Giranchaur post-earthquake integrated settlement. However, the common fact of both cases is sharply increased in expenditure in post-earthquake integrated settlement. Thus, “the integration of villages and resettlement altered the traditional economic system, replacing it with a new system based on division of labor and a greater role for market institutions. In such a system, the dependency of households on non-farm income increases since money is required to satisfy the growing need to purchase goods in market.”²

The absence of cattle shed in post-earthquake settlement has created differences to raise livestock for households. Cattle shed had played one of the vital roles in strengthening the income generation activities of people before the earthquake. The entire households had personal choice raising cattle in their desirable and comfortable spot nearby the pre-earthquake house. The post-earthquake settlement has dramatically modified the location and physical infrastructure of settlement excluding cattle shed. This has

compelled households to construct cattle shed at distant from the post-earthquake settlement. Consequently, this has led to several changes in everyday life of household; they have constructed the temporary shelter close to cattle shed, they spend entire day in temporary shelter rather than new permanent housing and they buy land from other households for different purposes. The construction of entire 64 Tamang private housing led by NGO has also limited the personal choices of households in terms of locating cattle shed.

Such observation has also been recorded by Simpson in his study of rural Kutch – Gujarat, India. The post-earthquake housings constructed in rural Kutch – Gujarat led by agency driven approach were “perceived to be inappropriate for rural or agriculture lifestyle, lacking suitable storage spaces for livestock, fodder, grain, tools and so forth.”³ A case study of the 1990 Manjil Earthquake in Iran highlighted that the livestock activity in post-earthquake integrated settlement had been significantly declined. This is due to the new housings were built without considering the adequate animal husbandry requirements.⁴

Families did not have trouble of burning firewood in pre-earthquake house. The entire household had fire-stove in pre-earthquake house and degree of freedom to cook meal, cattle fodder and liquor by burning firewood. Firewood was collected from their own private forest and community forest. They did not spent cash for collecting firewood. This had slightly maintained

the financial life of people. Households are getting financial trouble since they are restricted to burn fire wood in newly built housings. The modern housing design has replaced the firewood-stove by LPG gas-stove. This has created great socio-cultural and economical impact in entire Tamangs household. They are cooking meal, raising baby, preparing cattle fodder and liquor in temporary shelter where they can burn fire wood. Household members feel the temporary shelter is more convenient for cooking purposes than the post-earthquake permanent housing. Families are getting trouble with LPG gas-stove if they have to cook for large number of people gathered in occasions like paddy planting and harvesting, *armaparma* and arrival of guest. Despite LPG gas-stove being convenient to use, it is limited. Joint families have to buy numbers of LPG cylinders during time when people gather up for specific work. This has increased households expenditure after shifting in post-earthquake permanent housing. Regular purchasing LPG gas-cylinder is one of the main reasons of increment in the average yearly household expenditure in post-earthquake time period.

They did not have trouble of courtyard (*aangan*) to thresh and sieve seasonable agriculture crops in pre-earthquake house. Family members used to thresh and sieve seasonable agricultural crops at courtyard in front of pre-earthquake house. After shifting in post-earthquake permanent housing, they don't find open courtyard to thresh and sieve season's agriculture crops. This has compelled them to thresh and sieve agriculture crops in open field at distant from the new house.

They had quality proper agriculture crops storage in pre-earthquake house which was safe and water leak proof. The floor of pre-earthquake house was built up of local timber and plastered with mud in which water drenched crops could be stored. The modification on the housing design has unexpectedly modified the store floor. Now, plywood is used for floor which is considered not applicable for drenched crops to be stored. So, people store crops somewhere outside of new houses or they build temporary shelter. Since house does not have proper storage for grain, this issue has risen to the level of discussion. People have been raising question against the absence of proper housing design forwarded by the DSF. Families are seeking options to store crops. There is high possibility that in near future the housing design might be modified as per household's specific requirement.

This supports the findings of Barenstein who reports that people became more vulnerable to modification of housing design than accepting it for long period of time in Fadsar a rural village of Jamnagar district, Gujarat India. In her research, over “78 percent constructed houses by NGOs for beneficiaries were some degree transformed by the owner's considerable efforts and investment to adapt specific requirements.”⁵

The entire pre-earthquake houses were designed as well as constructed by local carpenter and mason in detail consultation with the concerned householders. They hadn't encountered problems of rain getting in house and

storm before the earthquake. Families are encountering the problems included rain and storm getting in house after being rehabilitated in permanent housing. Half percent of the family's house main entrance door is constructed just the way different from pre-earthquake housing design. In pre-earthquake, the main entrance door faced south direction to avoid rain. In post-earthquake house, the main entrance door faces the east-north-west direction. It certainly does not stop the rain from getting in house.

This verifies the findings of Simpson⁶ and Mitchell⁷ who report about practical, technical, and quality issues faced by the families in Kutch-Gujarat, India and Gediz, Turkey.

The construction of private housing in post-earthquake period has also brought up better additional physical structure both in housing design and settlement pattern. This fact supports partially the findings of Andrew et al. (2013) who found out "better structural improvements offered for households such as clean water facilities and general sense of safety from the ocean" relocated into settlements in Nagapattinam District of Tamil Nadu, India in 2005.⁸ However, the case of Giranchaur and Nagapattinam is slightly different in terms of settlement sites. Tamangs of Giranchaur is rehabilitated in situ (situated in original place) whereas Nagapattinams of Tamil Nadu were rehabilitated in new relocated site. The crucial factor is both integrated settlement are reconstructed based on ADR approach.

The entire 64 households had common problem of searching and constructing of temporary shelter each time for *ghewa* when a household member passed away. Funeral and death ritual are integral part of Tamang society.

Constructing temporary shelter was time consuming and needed additional labor. They used to worry for prospective worse weather condition. The worse weather badly affected the smooth carrying out of *ghewa*. The problem of locating and building temporary shelter for death ritual is no more there permanently. It is because community hall has solved this matter. All 64 households are benefited from the construction of community hall.

Additionally, marriage ceremony and community level meeting are carried out in hall. The problem of performing *ghewa* for several days in temporary shelter has been vanished in post-earthquake settlement.

Family had relied upon human labor to transport goods from bazaar to home and home to bazaar in pre-earthquake settlement. They had faced problem in medical emergencies. All 64 households did not have link to road in pre-earthquake settlement. Accessibility of road has brought new era in settlement. The problem of transportation has been solved by road in all 64 houses. Trade to bread is made easy. Medical emergencies cases are quickly sought to hospital for diagnosis and prognosis as road is linked up. No news has been heard about the misfortune caused by death of people on the way to hospital for two years. The flow of people from outside of settlement including internal tourist, NGO/INGOs representatives and professional background people has started. The road has connected outsiders with

settlement which has created opportunity for householders to run home stay program, small-scale business, and vegetable farming. Families are benefited from the road. Definitely, income generation activities have increased in post-earthquake settlement.

Families did not have separated individual room as per their household size in pre-earthquake house. This compelled household members to take rest in middle floor, balcony, and first floor. Three different age group household members (children, adult and aged) had distinct kinds of personal issues due to lack of separated individual room. The post-earthquake house is constructed with layout of separated individual room. Personal issues of household members regarding their age group have been resolved. They are very positive towards the housing design with separated individual room. An opportunity for home stay program has knocked the door of every household.

Indoor toilet has benefited especially the aged members and kids. They felt troubles going toilet in night, during rainy days and due to fear of poisonous insects in pre-earthquake period. Now, people are aware about sanitation.

This awareness was contribution of concept of indoor toilet.

The housing design is to the standard of building code of NRA. Indoor toilet separated individual room, power supply, water facility, access to road and community hall are the major positive aspects of this design and settlement pattern of post-earthquake settlement. Whereas cattle shed at distant,

restriction of firewood-stove, less suitable layout of the main entrance door and lack of quality proper storage for agricultural grains and courtyard for sieving for seasonable agricultural crops space are missing aspects in post-earthquake housing.

An economic activity like home stay program has come as an opportunity. In contrast, people have to bear extra expenses. Many households have to agree on that power supply, television bill, water supply, and the use of LPG gas cylinder are extra economic burden.

Therefore, designs of housing are not friendly to the specific requirements of people as it should be. People are happy to be rehabilitated though. They are still facing problems in their everyday life due to housing design.

6.2 Direction for Future Research

One can see the impact in everyday life of Tamang people when they are transformed from scattered settlement to integrated settlement. Along this numerous issues have appeared.

The presented study only emphasis on housing design and pattern of settlement linked up with everyday life of people. There can be more things to be studied about in depth. In this context, the present researcher would like to recommend the following topics for study in Tamang community of Giranchaur. These are (1) to make comparative study of Tamang at

Giranchaur integrated settlement with other rehabilitated communities of integrated settlement in aftermath of disaster, (2) changes in socio-cultural practices in the post-earthquake settlement, (3) sustainability of post-earthquake integrated settlement at Giranchaur, and (4) Changes in the economy, production, consumption, and distribution pattern among the Tamangs' of Giranchaur.

Footnote

1. See Colin H. Davidson et al. (2007:100-105).
2. See Ali Badri et al. (2006:460,463).
3. See Edward Simpson (2013:89).
4. See Ibid (2006:457, 458).
5. See Jennifer E. Duyne Barenstein (2015:152).
6. Ibid (2013:89).
7. Ibid see William A. Mitchell (1976: 311-313).
8. Simon A. Andrew et al. (2015:31).

GLOSSORY OF NEPALI AND TAMANG WORDS USED IN THE TEXT

- Aagan – an open space in front of rural house of Nepal, which can be used by families for various purposes especially to thresh and sieve seasonable agriculture crops.
- Armaparma – a traditional system of labor exchange in between households from physical close cluster without wage mostly observed in rural areas of Nepal.
- Bazaar – a small town in rural areas of Nepal where exchange taken place in between people from different areas including buying their daily necessity goods and selling their home products.
- Chaite-dhan – rice grows throughout Nepal that is planted in March-April and harvested in June-July.
- Chaymba – a phrase from Tamang language which means a typical kind of food that is made by corn flour.
- Dashain – a major festival in Nepal that falls in October-November especially celebrated by Hindu followers across the country.
- Ghewa – a phrase from Tamang language which refers peculiar death ritual and feast compulsory observed by Tamangs mourning families up to three days to seven days from the first day consecutively and final feast observed on 49th day.
- Guthi – a traditional trust system in Nepal regulated by local community which is not for profit making purpose.

- Jatra – a kind of festival celebrated in Nepal by gathering people in common place that is lasted for one or more days.
- Khola – Stream which generates from the Mahabharata range of mountain in Nepal.
- Mangshere-dhan – rice grows throughout Nepal that is planted in June-July and harvested in November-December.
- Melapat – Daily scheduled works in rural areas of Nepal included collecting grass, grazing cattle, collecting firewood, crops planting and harvesting, plough field and so on.
- Pidi – a small space in between courtyard and main entrance door of ground floor of rural house in Nepal which is used by household member to take rest in day time.
- Tihar – a major festival in Nepal that falls in October-November especially celebrated by Hindu followers.
- Stupa – a kind of monastery that is build by Buddhist devotee people from northern part of Himalayas in memory of deceased family member.

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APPENDIX – A

PARTICIPATION CONSENT FORM

Title and brief summary of dissertation:

Tamangs’ Housing Design and Everyday Life: A Study of Post-earthquake Giranchaur Integrated Settlement from Sindupalchok District

The thesis investigates the influence of post-earthquake Giranchaur integrated settlement on Tamangs’ everyday life in Sindupalchok district. The study focuses on two thematic areas: housing design and settlement pattern of pre and post-earthquake period. The study examines how the ‘agency driven reconstruction approach’ led reconstruction of private housing of community modified without considering their everyday life that is directly linked up with their livelihood. The study contributes an actual understanding the influence of agency driven reconstruction approach on reconstruction of private housing in rural areas adopted by NGOs and seeks for better options of reconstruction approaches.

Name of Researcher:

*If you have questions or problems associated with the practical aspects of your participation in the study, or wish to raise a concern or complaints about the project, then you can consult.

Researcher

- Name :
- Telephone:
- Contact email:

Please initial box

1. I confirm that I have read and understand the purpose of the above project and have had the opportunity to ask questions.
2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason.
3. I understand that while information gained during the study may be published, I will not be identified and my real name will not be used in publications.
4. I understand the research materials which contain my personal details will be stored and managed in the safe place and medium to prevent their loss and leakage of personal information.
5. I understand the research data which contains my personal information will be kept only until the completion of the project or no more than 2 years. All data will be erased and discarded after that.
6. I agree to take part in the above project.

_____	_____	_____
Name of Participant	Date	Signature
_____	_____	_____
Name of Person taking consent (if different from researcher)	Date	Signature
_____	_____	_____
Researcher	Date	Signature

Copies: One copy for the participant and one copy for the researcher.

Section 2: Occupation and Livelihood

1. Do you have own land?
Yes (), No ()
2. What is the **primary way** in which your household members meet their needs?
Agricultural labor (own farm), Agricultural labor (in other's farm), Service (full time/part time salaried work, etc), Business (), other ()
3. What is the **secondary way** in which your household members meet their needs?
Agricultural labor (own farm), Agricultural labor (in other's farm), Service (full time/part time salaried work, etc), Business (), other ()

Section 3: Economic Well-Being and Complexities

4. How much did you use to earn when you were in pre-earthquake house yearly?
.....
5. If household yearly income has increased in post-earthquake house, then how has it increased?
.....
6. How much did you use to spend when you were in post-earthquake house yearly?
.....
7. If household yearly expenditure has increased in post-earthquake house, then how has it increased?
.....

Section 4: Complexities of Housing and Settlement (Pre and Post-earthquake Period)

8. How has your household members taken the absence of cattle shed in post-earthquake house?
.....
.....
.....
9. How has your household members taken replacement of 'firewood-stove' by 'gas-stove' in post-earthquake house?

.....
.....
.....
.....

10. Could you tell me the features of crops storage in your pre-earthquake house and post-earthquake house?

.....
.....
.....
.....

11. Could you tell me the housing design and construction materials used in pre and post-earthquake house?

.....
.....
.....
.....

12. Who played major role while constructing the pre and post-earthquake housing and how?

.....
.....
.....
.....

Section 5: Physical Structure added in post-earthquake housing and settlement

13. How have your family members taken physical structures like community hall, road, separated individual room, and indoor toilet in post-earthquake settlement and housing?

.....
.....
.....
.....

APPENDIX – C
PHOTOS SECTION



Pre-earthquake traditional house of Tamangs at Giranchaur



Post-earthquake modern house of Tamangs at Giranchaur



Post-earthquake Giranchaur Integrated Settlement



Death Ritual in Community Hall



A Vehicle Approached in Post-earthquake Integrated Settlement



Visitors tours in settlement