

**Appendix-7-3: Rehabilitation and Recovery Plan (RRP)
in Sindhupalchowk District**



Government of Nepal
Ministry of Federal Affairs and Local Development
District Development committee
Sindhupalchowk

Sindhupalchowk District BBB Rehabilitation and Recovery Plan (2073/74-2082/83)



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APPENDIX

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List of Acronyms

Acronyms	Official Name (English)
ADB	Asian Development Bank
ADDP	Annual District Development Plan
AEPC	Alternative Energy Promotion Center
BBB	Build Back Better
CAAN	Civil Aviation Authority of Nepal
CBDRM	Community Based Disaster Risk Management
CBS	Central Bureau of Statistics
CDO	Chief District Officer
CDMC	Community Disaster Management Committee
CEO	Chief Executive Officer
CNDRC	Central Natural Disaster Relief Committee
CSIDC	Cottage and Small Industry Development Committee
CTEVT	Center for Technical Education and Vocational Training
DAO	District Administration Office
DADO	District Agriculture Development Office
DDC	District Development Committee
DDRC	District Disaster Relief Committee
DEO	District Education Office
DEOC	District Emergency Operation Center
DFO	District Forest Office
DHO	District Health Office
DLCO	District Land Conservation Office
DLRO	District Land Revenue Office
DL-PIU	District Level Project Implementation Unit
DLSA	District Leading Support Agency
DLSO	District Livestock Service Office
DOLIDAR	Department of Local Infrastructure Development and Agricultural Road
DOR	Department of Road
DPs	Development Partners
DPRP	Disaster Preparedness and Response Plan
DRR	Disaster Risk Reduction
DRM	Disaster Risk Management
DSO	District Survey Office
DTMP	District Transport Master Plan
DTO	District Technical Office
DUDBC	Department of Urban Development and Building Construction
DWCO	District Women and Children Office
EPI	Expanded Program on Immunization
EQ	Earthquake
FGD	Focus Group Discussion

Acronyms	Official Name (English)
FNCCI	Federation of Nepalese Chamber of Commerce and Industry
GDP	Gross Domestic Product
GIS	Geographic Information System
GPS	Global Positioning System
HDI	Human Development Index
HRD	Human Resource Development
IDDO	Irrigation Development Division Office
INGO	International Non-Governmental Organization
IMF	International Monetary Fund
JICA	Japan International Cooperation Agency
LDO	Local Development Officer
LDMC	Local Disaster Management Committee
LDRC	Local Disaster Relief Committee
LDRMP	Local Disaster Risk Management Plan
MLIT	Ministry of Land, Infrastructure, Transportation and Tourism, Japan
MOAD	Ministry of Agriculture Development
MOCTCA	Ministry of Culture, Tourism and Civil Aviation
MOE	Ministry of Education
MOEN	Ministry of Energy
MOENV	Ministry of Environment
MOF	Ministry of Finance
MOFALD	Ministry of Federal Affairs and Local Development
MOH	Ministry of Health
MOHA	Ministry of Home Affairs
MOI	Ministry of Industry
MOIC	Ministry of Information and Communication
MOLD	Ministry of Livestock Development
MOUD	Ministry of Urban Development
MOWCSW	Ministry of Women, Children and Social Welfare
NBC	National Building Code
NCDM	National Council for Disaster Management
NDRF	National Disaster Response Framework
NEA	Nepal Electricity Authority
NGO	Non-Governmental Organization
NPR	Nepalese Rupee
NPC	National Planning Commission
NRA	National Reconstruction Authority
NRA-DCC	National Reconstruction Authority- District Coordination Committee
NRRC	Nepal Risk Reduction Consortium
NSDRM	National Strategy for Disaster Risk Management
NST	Nepal Standard Time

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Acronyms	Official Name (English)
NTB	Nepal Tourism Board
NTNC	Nepal Trust for Nature Conservation
ORC	Out Reach Clinic
PDDP	Periodic District Development Plan
PDNA	Post Disaster Needs Assessment
PDRF	Post Disaster Recovery Framework
PGA	Peak Ground Acceleration
PHC	Primary Health Center
PWD	Person with Disability
QIPs	Quick Impact Projects
RAP	Rural Access Programme
RDRC	Regional Disaster Relief Committee
ROW	Right of Way
RRP	Rehabilitation and Recovery Plan
RSLUP	Risk Sensitive Land Use Plan
SAR	Search and Rescue
SCCI	Sindhupalchowk Chamber of Commerce and Industry
SIP	School Improvement Plan
SOP	Standard Operating Procedure
STDC	Sindhupalchowk Tourism Development Committee
TOT	Training of Trainer
UN	United Nations
UNDP	United Nations Development Programme
UNISDR	United Nations International Strategy for Disaster Reduction
UNOCHA	United Nations Office for the Coordination of Humanitarian Affairs
USD	United States Dollar
USGS	United States Geological Survey
VDCs	Village Development Committees
WFP	World Food Programme
WSSDO	Water Supply and Sanitation Division Office

CHAPTER 1 INTRODUCTION

1.1 Background

On 25th April 2015, a magnitude 7.8 earthquake hit Kathmandu Valley and various districts. While its epicentre was around Barpak in the Gorkha District, which is approximately 77 km northwest of Kathmandu, the capital city of Nepal, devastating damage was recorded due to several aftershocks even in Kathmandu Valley (hereinafter, referred to as the earthquake). The earthquake brought heavy damage in a wide range of area. 8,790 people were killed, 22,300 people were injured, approximately 500,000 buildings were totally destroyed, and around 250,000 buildings were partially damaged (PDNA).

JICA conducted a project formulation study as a part of the existing technical cooperation project and commenced “The Project on Rehabilitation and Recovery from Nepal Earthquake” from July 2015. The project includes the formulation of a rehabilitation and recovery plan in the Sindhupalchowk District. In cooperation with the JICA Expert Team, the Sindhupalchowk DDC formulated the Sindhupalchowk District Rehabilitation and Recovery Plan, which reflects the concept of Build Back Better (BBB). This plan was formulated through the formulation process of the Periodic District Development Plan (PDDP) with cooperation among various stakeholders and the JICA Project. With this, Sindhupalchowk DDC and JICA believe that the Sindhupalchowk District would be able to recover people’s daily life step-by-step and develop a more resilient society than the pre-disaster phase and reduce the risk of damage from disasters in the future.

1.2 Planning Framework

1.2.1 Objectives

The objective of the Plan is to clarify the goals, direction and actions of rehabilitation and recovery. In order to smoothly promote more effective recovery actions step-by-step, it is essential to share the vision among all stakeholders including the government, private sector and residents. The Plan will be a milestone which indicates the future direction for the recovery of a safer society and regional sustainable development based on lessons learned from the earthquake and key principles such as “Build Back Better”, and “Resilience” which are explained in Chapter 2.

1.2.2 Planning Period

In consideration of the rehabilitation and recovery in the district, basically, it is important to implement the necessary policies and projects step-by-step in the long-term. Therefore, the duration of this rehabilitation and recovery plan is set for ten years, from 2017 to 2026. The target period of the Rehabilitation and Recovery Plan is divided into three phases, namely the recovery period (0-3 years), revitalization period (3-6 years) and development period (7-10 years).

The recovery period is the phase which targets the recovery from earthquake damage such as the removal of debris, reconstruction of damaged housing, and the rehabilitation of infrastructures such as roads, bridges, and water supply. This period also considers the recovery of the livelihood of affected

populations through financial support and training for setting up alternative livelihoods, and improving health conditions.

The revitalization period is the phase which targets the reconstruction of the society after the recovery phase. For the infrastructure development, this period focuses on developing disaster resilient infrastructure such as seismic resistant public facilities, transportation and power supply. This period also aims at the physical and institutional development for disaster management such as the establishment of an efficient/redundant information transmission system in case of disaster, and updating district disaster management plans learning from the past experience of disasters.

The development period is the phase which aims at the future growth of the region such as attracting investment for the regional economy, the development of new industry and so on. For pursuing the future development of the region, enhancement of the capacity of disaster management on the government level and community level is essential.

The long term development vision of Sindhupalchowk was set out as “Safer, Prosperous and Beautiful Sindhupalchowk” in PDDP. Persistent efforts will be necessary to realize this vision and the concept of the vision and the duration of both PDDP and RRP is as shown in the following figure.

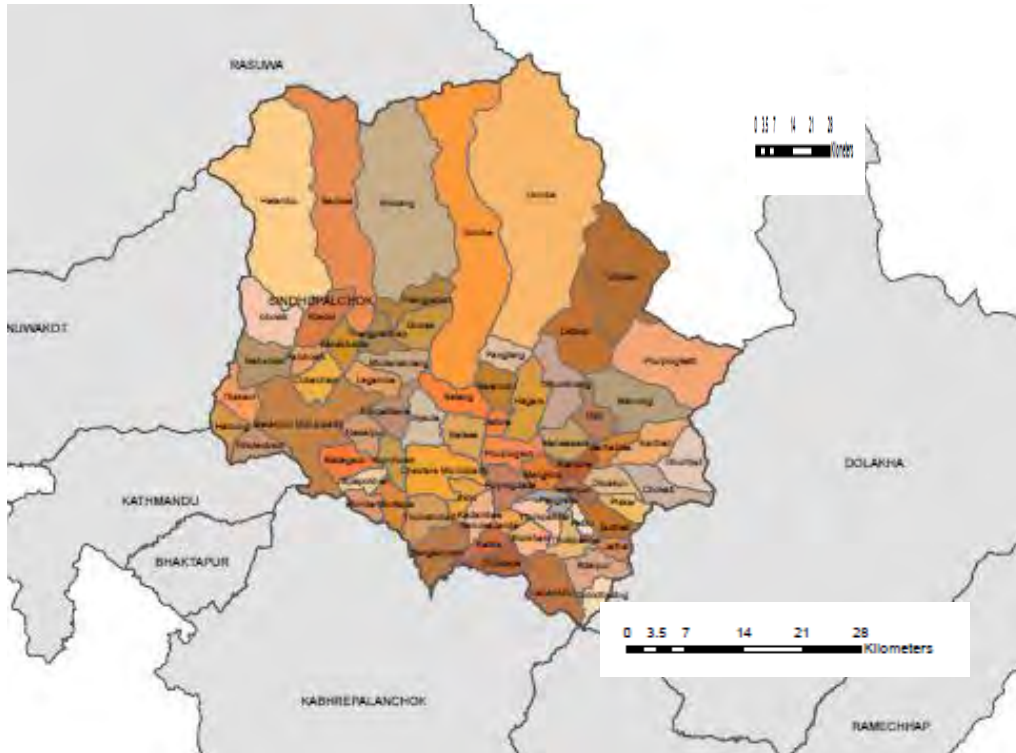


Source: JICA Project Team

Figure 1.1 Three Phases of RRP

1.2.3 Target Area

The target area is the entire Sindhupalchowk District.



Source: JICA Project Team

Figure 1.2 Map of Sindhupalchowk District

1.2.4 Institutional Arrangement

The Nepali Government, together with the international community, carried out a Post Disaster Needs Assessment just after the earthquake to identify the damage cost estimation. The report pointed out that the estimation value of the disaster effects (damages and losses) caused by the earthquake is NPR 706 billion or its equivalent US\$ 7 billion and 76% of the total effects represents the value of destroyed physical assets. The Nepali Government initiated the concept of Build Back Better towards the resilience of the society with emphasis on the improvement of the Disaster Risk Reduction system in Nepal.

The government of Nepal proposed the bill to establish the National Reconstruction Authority (NRA) as the leading agency of the reconstruction from the earthquake. The bill prescribes the establishment of the National Reconstruction Committee (NRC) and Steering Committee, both of which are chaired by the Prime Minister. The bill was approved by the parliament in December, 2015. In parallel, the National Planning Commission (NPC) drafted the Post-Earthquake Recovery and Reconstruction Policy to envisage a guideline for the reconstruction and recovery. The rehabilitation and recovery plan on the district level is expected to fulfil important roles as the basis for reflecting the national reconstruction policies to local community people appropriately.

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The Sindhupalchowk District BBB Rehabilitation and Recovery Plan is a master plan which indicates necessary measures and actions for smooth and step-by-step implementation of reconstruction efforts. It is a comprehensive, medium and long term plan for improving the lives of affected people, industry and economy, as well as for promoting a safer district. The necessity and roles of the Rehabilitation and Recovery Plan in the Sindhupalchowk District is shown below.

(1) National Level

a) NRA

The Act Relating to Reconstruction of the Earthquake Affected Structures, 2015 (2072) prescribes the establishment of NRA as a leading agency regarding the reconstruction from the earthquake. The major roles of the NRA are formulation and management of the reconstruction projects, financial management of the funds related to the reconstruction and technical surveys related to housing reconstruction and resettlement. For the detailed roles of the NRA, please refer to Appendix 1.

b) MOFALD

In relation to the formulation of RRP, MOFALD is the agency to be responsible for the management of formulating and financing PDDP in each district. On July 19th 2016, MOFALD issued a letter to fourteen affected districts regarding to integration of RRP into their PDDP planning process. The letter indicated that the districts which were already in the process of formulating the PDDP should develop RRP as an annex. At the time of issuing the letter, the Sindhupalchowk District was already in the process of the PDDP formulation process, so this RRP was developed as an annex of the PDDP.

(2) District Level

a) DDC

Local Self Governance Act prescribes that DDC is the administrative body to formulate the PDDP in cooperation with line agencies at the district level. LDO, representative of the DDC is the member of the District Coordination Committee which was established as the district level coordination body prescribed by the Act of Relating to Reconstruction of the Earthquake Affected Structures, 2015 (2072).

b) Line agencies

Reconstruction projects are implemented through line agencies, NRA and development partners. Each line agency in coordination with NRA implements the projects.

1.2.5 Planning Process

The RRP is formulated through the PDDP planning process in order to legitimatise the RRP to ensure its implementation¹. Local Self-governance Act prescribes that each district shall formulate annual and periodic development plans for the development of its district. The items to be included in the PDDP are as follows:

- 1) Geographical, economic and natural heritages of the District and present uses.
- 2) Possibilities of production in various sectors on account of comparative cost benefit.
- 3) Areas comprising backward castes, tribes and poorer people and various development works

¹ Record of RRP formulation is attached in Appendix 5.

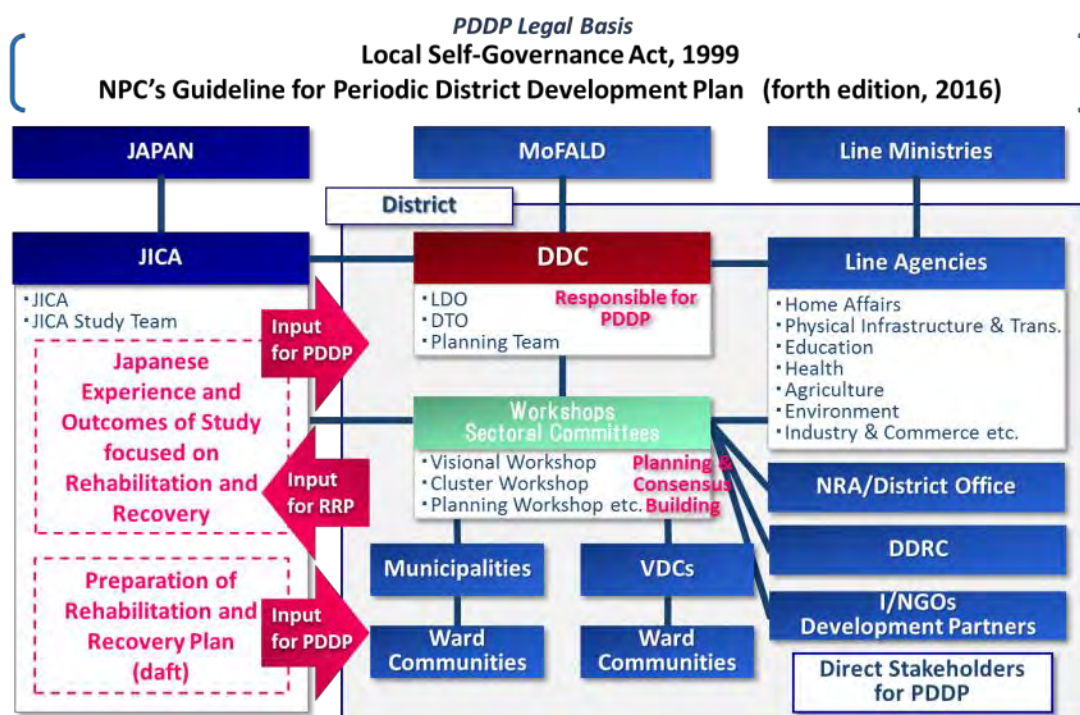
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done or required to be done in such areas.

- 4) Income-generating and skills-oriented development works for the women and children.
- 5) Description of the completed projects under various sectors and provision for the operation and maintenance of them.
- 6) Various sectoral short-term and long-term developments works on the basis of development possibility.
- 7) Plans on human resource development in various sectors to be formulated by the local people themselves.

Covering these components, PDDP covers the items below;

- 1) Profile Analysis
Trend Analysis/SWOT Analysis/Bottleneck Analysis/Spatial Analysis/Cross-cutting issue Analysis/Resource Mapping and financial Analysis
- 2) Periodic District Development Plan
 - (1) District Vision
 - (2) Goals, objectives, strategies, outcomes and outputs
 - (3) Physical Development Plan
 - (4) Environment Management Plan
 - (5) Social Development Plan
 - (6) Economic Development Plan
 - (7) Resource Mobilization Plan
 - (8) Institutional Development Plan
 - (9) Disaster Management Plan
 - (10) Multi-Sectoral Investment Plan



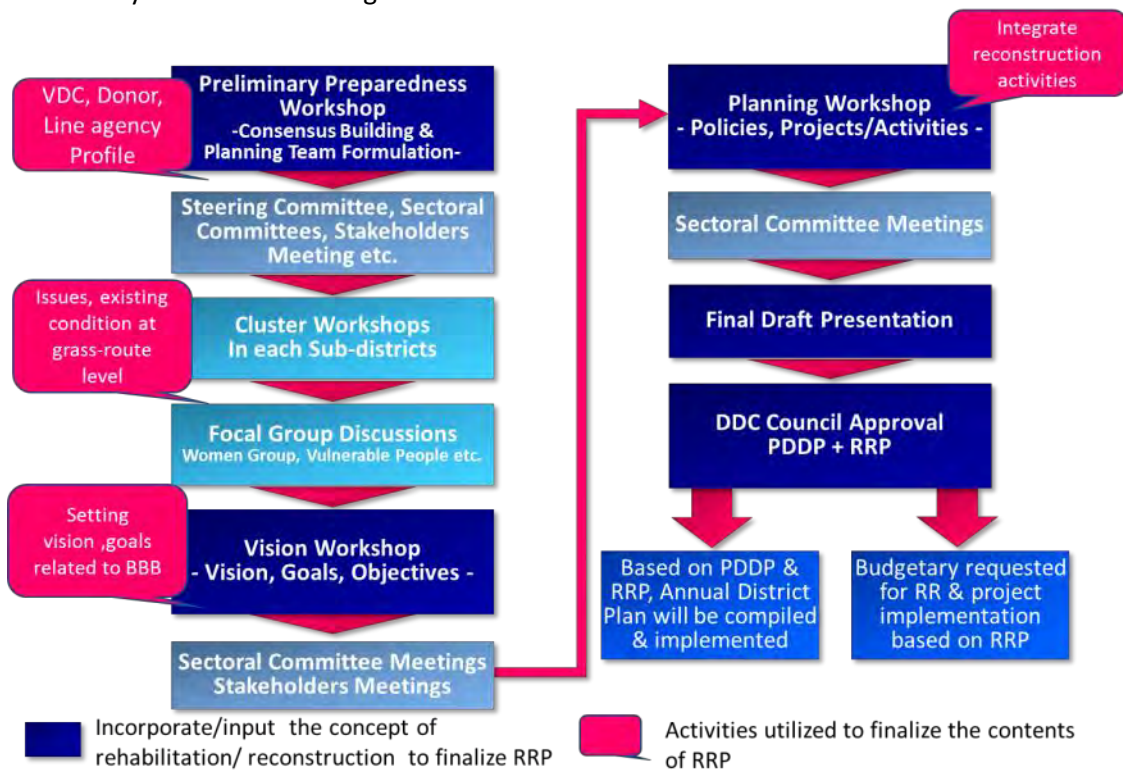
Source: Local Self-governance Act compiled by JICA Project Team

Figure 1.3 Planning Formation of PDDP and RRP

The RRP’s information collection process was in line with PDDP and the JICA Expert Team prepared additional forms such as VDC profile, line agency profile, and INGO/Donor profile. The formats used for RRP, please refer to Appendix 86.

The JICA Expert Team also conducted surveys and activities to formulate RRP. Detailed information is summarized in Appendix 7.

JICA Expert Team made the presentations in each PDDP workshop regarding the ideas of RRP, examples of Japan and the findings by the activities such as the preparation of a hazard map, social survey and community’s awareness raising activities about landslides.

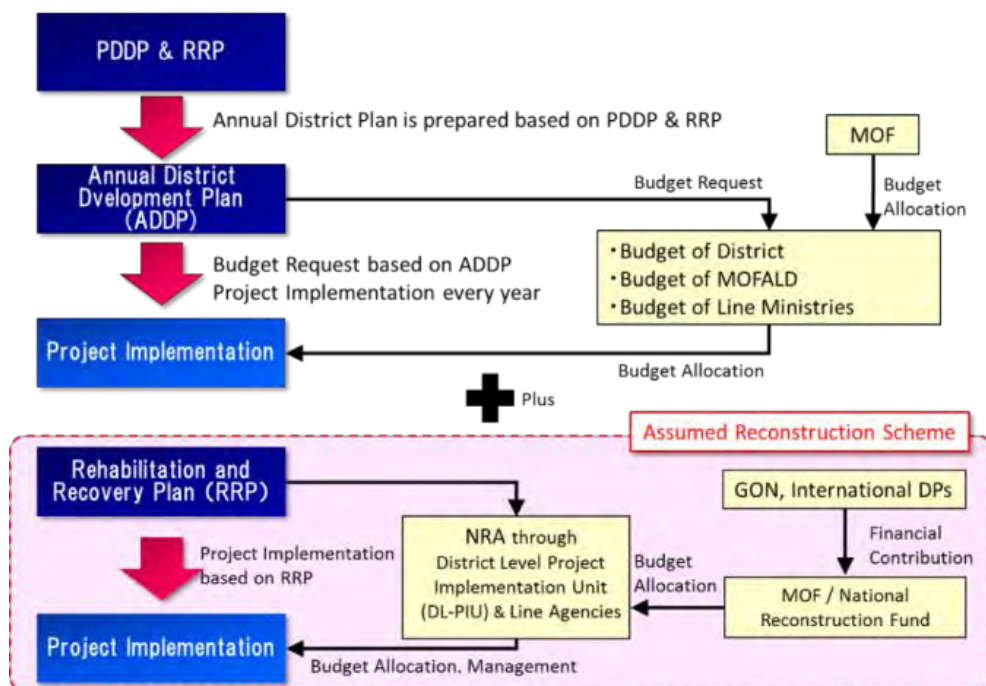


Source: Compiled by JICA Project Team based on Guideline for PDDP formulation

Figure 1.4 Planning Flow of PDDP and RRP

1.2.6 Financial Arrangement

The following figure indicates the project implementation flow. Based on the formulated plans, an annual development plan will be created to implement identified projects. In addition, the Rehabilitation and Recovery Plan is the master plan indicating the role and responsibilities of all sections of DDC, agencies and institutions related to the implementation of rehabilitation and recovery from the earthquake. It will be the basis to consider necessary budget and strategic implementation of rehabilitation and recovery actions among various stakeholders.



Source: JICA Project Team based on the interview by the government of Nepal

Figure 1.5 Project Implementation based on PDDP and RRP

In order to promote rehabilitation and recovery actions, the cooperative framework with communities, inhabitants, I/NGO and government agencies are indispensable. Due to the limitation of the financial and human resources of the public sector, the cooperation of the people of the community and considering reconstruction activities based on the sufficient opinions of communities will be the key for effective recovery. Furthermore, the enhancement of collaboration with I/NGOs, wide-range cooperation and partnership with private sector will enable the realization of better recovery and a more resilient region.

1.3 Summary of the Damage of the Earthquake

According to the assessments by the United Nations (UN) and the Nepali government, 20% of the total population of Nepal resides in the fourteen districts which were designated as heavily affected areas. Meanwhile, the same fourteen districts accounted for more than 90% of the deceased and injured persons as well as heavily affected public facilities and individual housing. Moreover, approximately more than 3,300 landslides occurred including those on the Tibet side, and the landslides damaged a large number of roads and bridges, which is a hindrance to rehabilitation and recovery.

In particular, Sindhupalchowk District was one of the most seriously affected districts by the earthquake. 3,573 people lost their lives, including 1,230 children, and 1,435 people were injured. For the building damage, around 95,767 houses and animal sheds collapsed totally and 945 houses and animal sheds were partially damaged. In addition, around 200 public buildings are fully damaged. 3,607 classrooms collapsed fully and 1,166 classrooms were major damaged. The per capita disaster effect on the Sindhupalchowk District is around NPR 233,000 (PDNA).

Key Figure of the earthquake damage

- ✓ 3573 persons were killed and, 1,435 persons were injured by the earthquake and landslide.
- ✓ 95,767 houses were totally collapsed, 1,848 houses were partially collapsed and 988 houses were slightly damaged.
- ✓ 90 % of schools were totally damaged or heavily damaged which affected more than 70,000 students.
- ✓ 195 km of the road were blocked

For the detailed damage of the earthquake, please refer to Appendix 2.

1.4 Issues for Rehabilitation and Recovery

1.4.1 Introduction

Almost two years have passed since the occurrence of the devastating earthquake and the Sindhupalchowk District is in the process of recovering from the earthquake. The recovery process posed three major challenges 1) Recovery of Daily Life, 2) Building the Resilient District and 3) Recovery and Development of Regional Economy. Throughout the PDDP formulation process, the JICA Expert Team collected the information regarding the issues of reconstruction through the VDC profiles and the result of the cluster workshops. Since the vulnerable population was adversely affected by the earthquake, consideration and empowerment of the vulnerable population should be included in each component of rehabilitation and recovery. In addition, landslides affected the various aspects of rehabilitation and recovery such as loss of human life, blockage of transport networks, resettlement of affected areas and damage of agriculture. Therefore, countermeasures against landslides is a major cross-cutting issue.

A long process of housing reconstruction is the major hindrance for the recovery of daily life for the people in disaster stricken areas. The result of the focus group discussions which is a part of the social survey conducted by the JICA RRNE Project and PDNA indicated that the earthquake adversely affected the especially vulnerable population in the district. For instance, housing damage was severe in poor households which consisted of improper construction against earthquakes². A large number of people lost their livelihood such as seeds of rice and vegetables, and equipment for agriculture.

Economic challenges for the recovery of the housing sectors are mainly due to the high cost of construction material because of the poor transportation and logistics network and the hiring of construction workers. Because of underdeveloped industry in the disaster-stricken areas, a part of the housing reconstruction is implemented by the residents themselves. Households headed by women and the aged suffer from the shortage of a labour force, and their housing reconstruction tends to be delayed. Prolonged living in temporary shelter causes gender-based violence³ and human trafficking which risks the safety of women.

For daily life and economic activities, severe damage to water resources and water supply causes multi-sector problems. Depletion of water resources and the severe damage of irrigation facilities were reported and both Sindhupalchowk District officials and the residents recognized that securing the water

² According to PDNA Vol. A p29,

³ Based on FGD in the women group in the social survey implemented by the project.

is one of the major challenges. Shortage or lack of drinking water from the usual water sources often caused women and children to walk a long distance to fetch water from alternative water sources. Damage to water supply facilities also caused the reduction of agricultural productions, which hinders the economic activities.

As for the regional economy, the major industries of the Sindhupalchowk District is agriculture, tourism and small-medium enterprises. The agricultural sector was damaged due to the destruction of irrigation facilities, damage or loss of agricultural land caused by the earthquake or landslides, and loss of livestock as well as damage to farmers' housings and livestock sheds. As a short term, recovery of damaged infrastructure will be the first priority. For the medium to long term, revitalization of the regional economy is one of the key challenges since the agriculture and livestock in the Sindhupalchowk District is practiced on a small scale and the Sindhupalchowk District has economic and geographic disadvantages for industrialization. Even though approximately 80% of the population in the Sindhupalchowk District engages in agriculture, farmers obtain additional income as seasonal labourers of tourism and small and medium enterprises. Revitalizing these sectors will contribute to stabilizing the livelihood of the population in the Sindhupalchowk District.

1.4.2 Social Development

According to the result of PDRF prepared by the NRA, reports from governments and donors, site surveys and social surveys conducted by the JICA RRNE Project Team, the issues of Rehabilitation and Recovery Plan targets to address the vulnerable populations which are adversely affected by the earthquake. The following issues are identified to benefit the population in the Sindhupalchowk District.

(1) Housing Reconstruction

The earthquake adversely affected the poor and marginalized households in two ways. Most of their houses were heavily or totally collapsed as their houses were in most cases poorly built with locally available stones or sun baked bricks with mud mortar. Secondly, many of them cannot afford to rebuild earthquake resistant housing due to the lack of resources. For example, 95% of fully collapsed buildings and 67.7% of partially collapsed housing were low-strength masonry housing⁴. People living in the partially collapsed housing have a high risk of injury and further damage due to heavy rains and storms as well as future earthquakes.

Due to the high demand of reconstruction and fuel deficiency, the cost of materials has been increasing and that makes the reconstruction difficult for poor households⁵. Some construction materials are not easily available at local markets and have to be sent from Kathmandu, Bhaktapur or Banepa.

A poor transportation network and its mountainous geographical location makes the construction cost more expensive.

According to the result of the social survey conducted from late January to early February 2016 by the JICA Study Team, a large number of villagers were living in hurriedly built temporarily sheds made of CGI and other materials salvaged from the debris or under tents, and waiting for

⁴ PDNA Vol. B Sector Report P12

⁵ Refer to QIPs (Under Survey)

information and the governmental guidelines for housing reconstruction in order to receive a subsidy from the government. However, the issuing of government guidelines and the setting up of a first enrolment camp has started one year after the earthquake and it is expected to take a long time for the reconstruction of the houses to be completed. As a short term issue, securing the living environment for those who are waiting to be enrolled as beneficiaries and cannot afford to construct a house due to economic reasons is indispensable.

From the social survey, it was found that there are households who are likely to be unable to rebuild their houses even with the government subsidy. According to the questionnaire survey conducted by the Project, out of 351 sample households in Sindhupalchowk, 118 households (34%) responded that they would not be able to rebuild their houses with their own resources. In the same survey 27% of the sample households said that they do not have any money to spend for housing reconstruction other than the subsidy they hope to receive from the government.

Securing the living environment for those who cannot afford to spend extra money on top of the subsidies should be considered. There are also people who are not eligible to the government subsidies due to lack of land ownership or other issues. For example, according to the social survey there were some landless households (called “sukumbasi”) in Talamarang in Chautara Municipality and they expressed their fears on whether the government would help them reconstruct houses.

In addition, a number of populations need to be relocated because of landslides. Relocation projects for those who do not own land in disaster safe areas need to be considered as a major issue of housing reconstruction. According to the focus group discussions of the social survey, for example, about 30% of households in Barabise VDCs need to be relocated due to landslides and land cracks caused by the earthquake. In order to carry out an equitable recovery and reconstruction process, special measures are needed to support extremely resource poor people as well as marginalized communities.

(2) Water Resources

Water resource scarcity prevents the people in the Sindhupalchowk District from recovering the daily life in various perspectives. The result of the social survey pointed out that the earthquake changed the stream of underground water sources or dried up the water sources in many VDCs. Not only water sources but also water supply infrastructure, such as irrigation facilities and tube wells, were severely damaged. Residents in the affected areas still suffer from the reduction of agricultural production. Fetching the water from further places prevents mainly women from engaging in other economic activities and children from schooling. Securing water sources should be prioritized as a major issue to recover the daily life of affected populations.

(3) Access to Public Services

In the Sindhupalchowk District, a large number of public buildings were destroyed by the earthquake. It is reported that damage to the buildings stagnates public service delivery to the people living in the earthquake affected areas.

Damage to hospitals and health posts endangers the conditions of reproductive health and early child care. The result of the social survey indicated that some women in target areas experienced

unsafe child delivery due to the unavailability of health care facilities. Not only physical care, but also mental care for the affected people should be targeted. It is reported that especially women living in rural areas have mental issues such as traumatization from the earthquake or gender based violence.

School buildings were severely damaged all over the Sindhupalchowk District since most of the buildings were made from low masonry structures. Currently, school children are studying at temporary school buildings, some of which are half-outside. A poor environment distracts children from studying and cause health problems during the winter. Safer school building reconstruction should be prioritized.

Moreover, public buildings such as VDC buildings, Agriculture Centres, and community halls were damaged. At the VDC level, social welfare activities and self-help activities are organized and these groups usually gather at such buildings. Due to the destruction of the buildings, District and VDC offices lost the documents and working equipment, which has caused the public services to become inefficient. Also the unavailability of community buildings deactivated the self-help women's activities which support social welfare at the VDC level. Early recovery of such buildings will contribute to activate social welfare in the district.

The damage of the public buildings also stagnated the administrative services for the residents due to the collapse of the buildings and loss of the documents. Participants of the cluster workshops reported residents have to travel long distance to process the administrative services because the nearest offices were damaged. Administrative process such as housing reconstructions slowed down because a large number of offices are temporary buildings without proper facilities and government officials become busy with additional workloads related to the reconstruction activities.

1.4.3 Infrastructure Development

Building a more disaster resilient society than pre-earthquake time is the overall concept of BBB. Since the future occurrence of earthquakes is inevitable, reconstruction projects should take DRR into consideration in terms of physical infrastructure and institutional development.

(1) Transport and Logistics Network

It is reported that a large number of the infrastructure such as roads, bridges, irrigation facilities, hydropower facilities, and government buildings were damaged by the earthquake and landslides. Recovery of road transportation is the priority of all rehabilitation activities since the recovery of the road network will accelerate the process of other rehabilitation projects and recovery. While international donors initiated the reconstruction projects of major road and bridges, most of the reconstruction of district level roads and trails which is directly beneficial for the local population has not been initiated.

In the Sindhupalchowk District, there are a lot of seasonal roads among the settlements and furthermore, landslides often hit the Araniko highway and main roads especially during the rainy season. Due to the delay of housing reconstruction projects, most of the housing reconstruction activities cannot be commenced during the dry season in 2016. These transportation networks delay the construction activities and lead to higher construction prices than in urban areas which

adversely affect the people living in remote areas. Improving the transport network facilitates the logistics of agricultural products and facilitates the transportation for tourism which can be the potential economic growth for the remote areas. A robust transportation and logistics network will contribute to develop a disaster resilient district by realizing an earlier recovery from the damage.

(2) Building Stronger Facilities for Public Service Delivery

The earthquake devastated public facilities such as medical facilities, VDC buildings, Agriculture Service Centres, and schools, which posed the necessity of increasing seismic resistance of the public buildings as well as individual housing.

The Reconstruction Policy requires that each district should construct at least one emergency community building as shelters during the disaster and for other various community purposes during normal times.

During the short-term recovery phase, restoration of the government buildings for continuous support of the disaster affected population is essential. For the medium to long term recovery phase, reconstruction of the damaged buildings and reinforcement of the existing buildings with robust structures should be considered. Robust public buildings will prevent the local government from paralysing the public support functions and serve residents as safer shelters in case of disaster.

1.4.4 Development Regional Economy

Currently a large number of the productive population, especially young men, migrate to urban areas in Nepal and outside the country, such as India and Middle Eastern countries, seeking better employment opportunities⁶. Remittance of these migrants is the major source of income in many households in the Sindhupalchowk District, and at the same time the condition slows down the industrialization and economic growth within the district.

The result of the focus group discussion of the social survey points out the existence of a certain number of vulnerable people such as single women in poor economic conditions, households consisted of only elderly people, Dalit and highly marginalized ethnic groups. Highly marginalized ethnic groups residing in Sindhupalchowk include Danuwar, Majhi and Thami. At the same time, an insufficient number of the male population marginalizes households headed by women and elderly people and weakens the resilience of the community in terms of disaster response. A long-term blueprint for sustaining the skilled and productive labour force in the district is the key challenge for the economic sector.

(1) Diversification of Incomes from Agriculture and Livestock Industry

Agriculture and livestock is the major industry of the Sindhupalchowk District. Major damage to the agriculture and livestock sector was 1) Damage to tools and equipment for agriculture and cattle rearing; 2) Loss of livestock due to collapsed animal housing and selling of animals in need of cash for emergency needs; 3) Damage to agricultural infrastructure such as irrigation facilities

⁶ FGD of residents in Sindhupalchowk conducted by JICA RRNE Project

and community buildings for farmers; and 4) Decrease of milk production and miscarriage of cattle due to the shock of earthquake. The damage to the agriculture and livestock sector deprived majority of the population of their income source. Cash transfers such as to purchase the livestock and agricultural equipment, subsidies for farmers, improvement of cultivation, diversification of crops and vegetation, and creating additional income sources during the agricultural off-season are the key issues to be investigated in the short term.

In the Sindhupalchowk District, women are mainly engaged in agriculture and livestock for self or local consumption only. Female-headed households are often economically and socially disadvantaged compared to male-headed households. Economic development measures targeting economically challenged populations are regarded as social welfare of the affected populations. A value added scheme of the current industry, and the development of an efficient supply chain are long-term issues for the development of the region. Industrialization of the region can be the deterrent for the migration of skilled labourers and educated citizens which currently leave the district to seeking employment opportunities elsewhere.

(2) Revitalization of Tourism

In general, it takes a few years to recover the number of tourists after a natural disaster. In case the tourism resources are completely destroyed, the demand for tourists will not be fully recovered compared to the pre-earthquake period. Even though it is not officially registered, a large number of the population in the Sindhupalchowk District obtains income directly or indirectly from the tourism sector; farmers engage in seasonal labour during the high-season of tourism which is often during the off-season of cultivation. A decline in the number of tourists causes the lay-off of temporary workers in hotels and restaurants who are economically unstable.

Revenue of the tourist industry will stagnate and this causes the delay of reconstruction and the rehabilitation of tourism infrastructure. The tourism sector has currently fallen into a vicious cycle. In addition to the recovery of damaged infrastructure, developing new tourism resources such as eco-tourism and promotion to the public to accelerate the recovery of number of tourists are the key issues for the reconstruction.

According to the project lists compiled by the PDRF, current reconstruction projects are the rehabilitation of trekking routes and rehabilitation of lodges. Economic development oriented reconstruction projects have not been developed.

In order to vitalize the tourism industry, it is essential to propose multiple-destination tour projects and tourism infrastructure development which is attractive for foreign tourists such as clean and sufficient accommodations and toilets. This will contribute to the increase in the demand of accommodations and related services such as restaurants and souvenirs. In addition, community based tourism projects should be included as a priority of reconstruction to be in line with the current policy of the Sindhupalchowk District.

(3) Trade and Other Industries

An underdeveloped logistic network is a hindrance of developing medium and large scale industry in the Sindhupalchowk District. Unfortunately, the damage due to the earthquake

deteriorated the conditions. Recovery of the overall physical infrastructure such as the transport network, water supply, electricity, and communication is the primal solution for revitalization of the industrial sector. Additionally, capacity building for sustaining the skilled and productive labour force in the district is the key challenge for the industrial sector.

1.4.5 Institutional Development

(1) Institutional Arrangements and Human Resource Development

In result of the earthquake, National Reconstruction Authority (NRA) has been established and NRA opened sub-regional offices to lead reconstruction activities. In addition to NRA sub-regional office, the Reconstruction Policy requires to establish District Coordination Committee to coordinate the recovery works. As for disaster risk management, District Emergency Operation Center (DEOC) was established in Sindhupalchowk District in 2015. Therefore, district level needs to handle several newly established agencies to accelerate reconstruction works.

Currently, due to its complex administrative structures at district level and a large number of stakeholders engaging in recovery activities, coordination among agencies has been inefficient. By reflecting the current conditions of recovery activities, District Disaster Management Plan need to be updated especially roles and responsibilities of each agency. The RRNE project conducted Community-based Disaster Risk Management activities at Kerabari, Syaule VDC and turned out no early warning information dissemination system is designated in Disaster Management Plan, so lessons learned from the CBDRM activities needed to be incorporated into Disaster Management Plan.

During emergency response period and recovery period, information transmission to remote areas was the major challenge. Vulnerable population living in remote area tend to be excluded from the relief distribution, public service delivery and other valuable information due to limited capacity of regional government and limited access of public media.

Capacity building of community people for disaster management is a big challenge in Sindhupalchowk District. Because of its geographic condition, mountainous communities have high risk of isolation in case of disaster. Rescue activities and relief distribution cannot be reached to such communities when earthquake and landslide devastates the road transport network. In these cases, community people should be self-sustained for certain amount of time by themselves. VDC Office is often understaffed and managed by VDC Secretary with one or two office assistants. Frequent meetings and work away from the VDC makes VDC Secretary unavailable to the local community. Strengthening of the local body such as VDC Office is important to expedite the recovery and reconstruction measures.

1.4.6 DRR and Forest Management

Human and property loss were caused by the earthquake and landslides in Sindhupalchowk. In order to avoid future damage of the disaster, improvement of the DRR system at the district level is essential. In addition, the earthquake increased the risk of large-scale landslides in the entire district. Improvement of DRR system at district level and countermeasure to landslide is the issue of the DRR sector.

Sindhupalchowk District BBB Rehabilitation and Recovery Plan 2073/74–2082/2083

Currently, due to its complex administrative structures at district level and a large number of stakeholders engaging in recovery activities, coordination among agencies has been inefficient. As for DRR, MOHA is in charge of District level DDRP, and MOFALD is in charge of LDMP. In addition, DWIDP is in charge of water induced disaster and sediment disaster. By reflecting the current conditions of recovery activities, District Disaster Management Plan need to be updated especially roles and responsibilities of each agency and based on the emerging risks of the landslide caused by the earthquake. RRNE project conducted Community-based Disaster Risk Management activities at Kerabari, Syaule VDC and turned out no early warning information dissemination system is designated in Disaster Management Plan and villagers were not aware of who to contact in case of landslide. Therefore, there is a risk that important information is not shared with the related agencies and information transmission takes time.

During emergency response period and recovery period, information transmission to remote areas was the major challenge. Vulnerable population living in remote area tend to be excluded from the relief distribution, public service delivery and other valuable information due to limited capacity of regional government and limited access of public media.

Insufficient capacity of community people for disaster management is a big issue in Sindhupalchowk District. Because of its geographic condition, mountainous communities have high risk of isolation in case of disaster. Rescue activities and relief distribution cannot be reached to such communities when earthquake and landslide blocks the road transport network. In these cases, community people should be self-sustained for certain amount of time by themselves. However, the communities at risk are heavily damaged by the earthquake and impoverished. In such communities, community people often cannot afford to think about and spend time for disaster management activities because they have to survive hand-to-mouth especially in the post disaster phase.

As for the forest management, deforestation caused by rapid increase of demand for construction material and fuel is the challenges. Landslide also caused the damage of forest and its recovery is challenging because the landslide uprooted the forest and loosen the soil which makes forestation activities difficult. Moreover, due to economic challenge, forest encroachment prevails in the district. Recovery and protection of the forest resources are the issues regarding to forest sector.

CHAPTER 2 Basic Policy

2.1 Vision

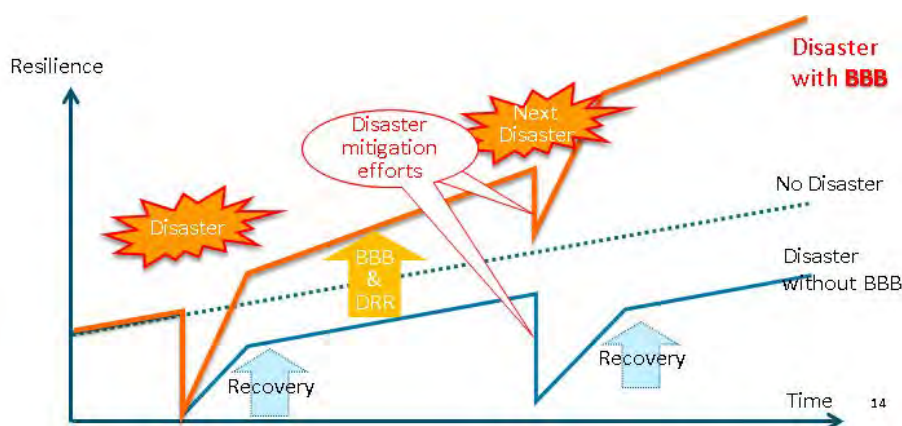
During the Vision workshop in the Sindhupalchowk District, participants set the vision as “Safe, Prosperous and Beautiful Sindhupalchowk”. In order to achieve the vision while achieving the reconstruction from the earthquake, the three major components of Rehabilitation and Recovery vision “Recovery of Daily Life”, “Building Resilient District Structure” and “Recovery and Development of Regional Economy” are indispensable.

2.2 Approach (Build Back Better)

In order to pursue the prosperous, disaster resilient society as a set vision, the RRP applied the approach called “Build Back Better (BBB)”.

BBB is one of the four priority actions of “Sendai Framework for Disaster Risk Reduction (2015-2030)”, adapted in Sendai, Japan 2015, and designed to enhance disaster preparedness for an effective response and to rebuild better in the recovery and rehabilitation phase. To put it differently, learning from past disaster experiences, this concept designs the reconstruction which targets the future onset of disasters by designing and implementing recovery projects which include the viewpoint of disaster management.

The concrete image of the concept of BBB is not only to recover damaged housing and roads to the same standard as before the earthquake, but also to rebuild the district stronger than before the earthquake. In the case of Nepal, a large number of houses were made of stone masonry in mud mortar; if residents rebuild their houses in the same structure, it is reasonable to expect those houses to be heavily damaged in future earthquakes. Therefore, it is recommended to improve the structure to be more seismic-resistant. The concept of BBB implies DRR as an investment for the future development of the country/region. By implementing preventive measures such as building strong housing, roads, public facilities and disaster resilient land use planning, damage from future disasters will be mitigated. This will contribute to future sustainable growth of the economy in the long run.



Source: JICA Project Team

Figure 2.1 Time-Sequence Concept Diagram of “Build Back Better”

2.2.1 Hazard Map Utilization

The concept of BBB is to introduce and utilize scientific approaches to mitigate the damage of disaster. As a part of JICA RRNE project, the JICA Expert Team created a landslide hazard map for the entire Sindhupalchowk District and provided the TOT training sessions to the officers in the disaster affected districts.

These are the major programmes which are introduced in the RRP.

1. Landslide Hazard Assessment and Identification of Hazard Area Evaluation of Land Use and Settlement Area
2. Consideration of Countermeasures and DRR Activities such as Landslide Prevention Infrastructures, Improvement of Lands, and Layout Study of Shelters for Disaster Preparedness etc.
3. Promoting Community Understanding of Landslide Prone Area
4. Detailed Regional Planning, Resettlement Planning of Affected / Landslide Prone Area
5. Consideration of Land Use Restriction / Plan and Building Regulation

Case Study of Kerabari, Syaule VDC

Ward No. 8 in Syaule VDC called “Kerabari” experienced involuntary relocation after the earthquake. Part of the Ward No.8 was heavily damaged by the landslide which killed four people and damaged agricultural land.

JICA Expert Team conducted awareness raising activities in Kerabari and instructed them to monitor the cracks generated by the earthquake to foresee the future landslides.

Approximately 2 years after the earthquake, deep cracks were observed which were less visible soon after the earthquake. The JICA Expert Team and villagers identified the cracks which were marked as “high risk” in the hazard map and conducted site surveys including the areas under the cracks.

Even though all of the people had already relocated by recognizing the risk of the landslide, a number of people are still grazing the cattle and farming in the area insisting that there is no other source of income.

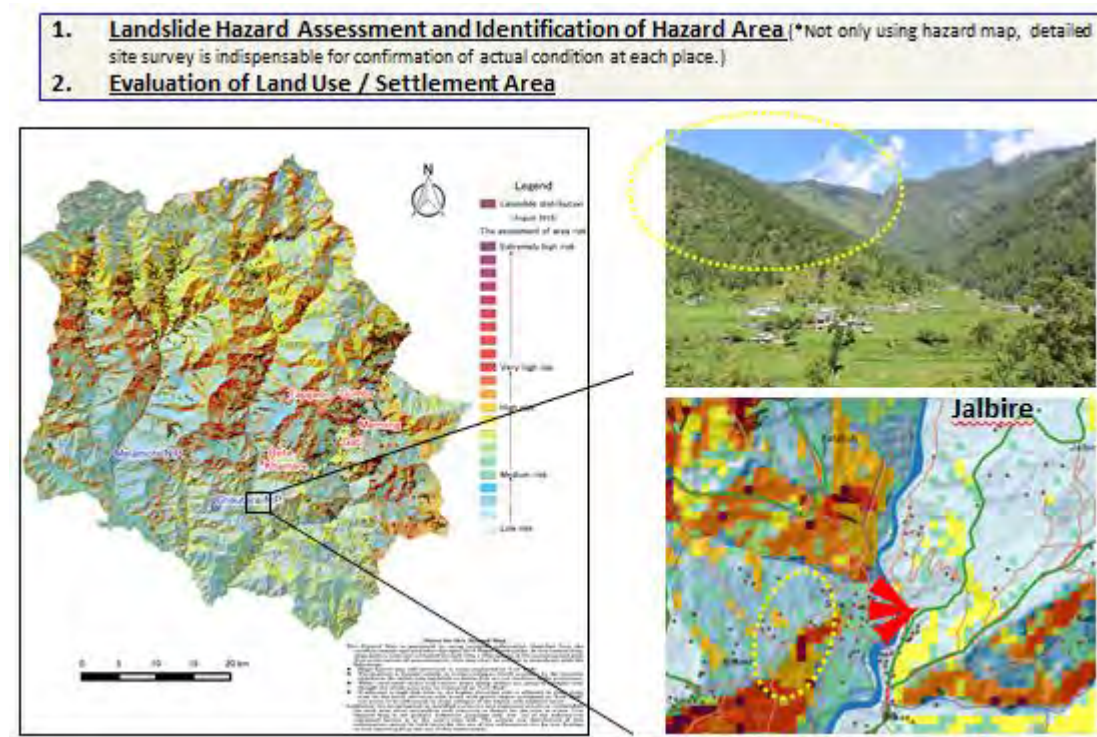
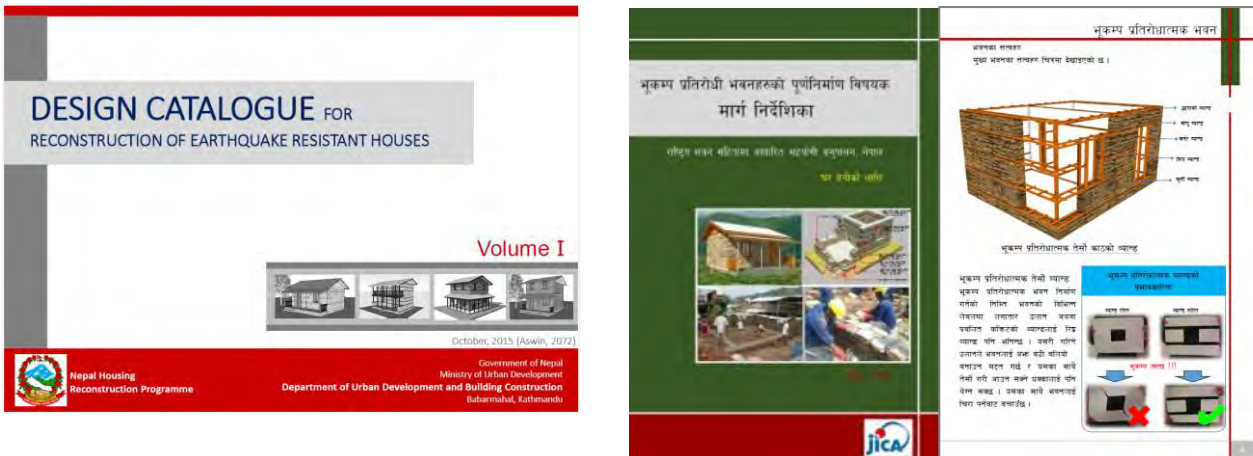


Figure. 2.1 Example of actual conditions described in the hazard map

2.2.2 Minimum Requirement for Housing Reconstruction

The result of PDNA indicated that the housing with weak masonry were severely damaged and caused a large number of human loss. Due to lack of a skilled labour force and budget to construct seismic resistant housing, safe housing construction is one of the challenges for rebuilding a resilient society. JICA RRNE Project in cooperation with DUDBC developed the minimum requirement for the housing reconstruction. JICA TPIS-ERP Project provided training to masons in the affected areas and conducted awareness raising activities to the residents about the importance of safe housing reconstruction.

Continuous governmental financial and institutional support is inevitable for the reconstruction of housing in the Sindhupalchowk District, especially for those who are living in the remote areas.



Source: Design Catalogue for Reconstruction of Earthquake Resistant Houses: DUDBC, Guidelines for Housing Reconstruction: JICA Project for the Transitional Project Implementation Support for Emergency Reconstruction Projects
Figure. 2.2 Design Catalogue for Reconstruction of Earthquake Resistant Houses(Left) and Guidelines for Housing Reconstruction(Right)



Source: JICA Project for the Transitional Project Implementation Support for Emergency Reconstruction Projects
Picture 2.1 House Reconstruction Training for Masons

2.3 Framework of Basic Policy

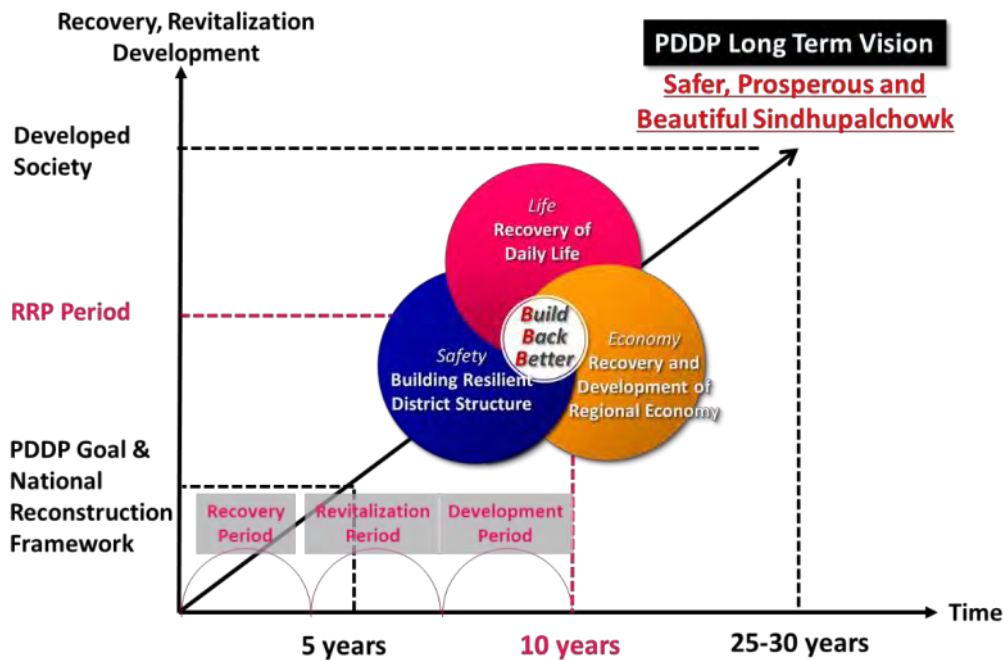
2.3.1 Basic Policy

The three major policies of the vision are set for the basis of reconstruction for envisaging the vision of restoration. These policies are inter-related as shown in the following figure. In other words, progress of rehabilitation and recovery of one policy.



Source: JICA Project Team

Figure 2.2 Three Components of the Policies and “Build Back Better”



Source: JICA Project Team

Figure 2.3 Duration and Vision of RRP and PDDP

2.3.2 Recovery of Daily Life

The “Recovery of Daily Life” focuses on getting people’s daily lives back to normal and developing a more resilient environment of their lives. As a large number of people lost their houses, the environment of daily life in which people can live in peace should be recovered on a priority basis including housing reconstruction. At the same time, it is essential in the rehabilitation and recovery process to consider the concept of BBB and aim for a more resilient society in the district. Learning from the experience of the earthquake, appropriate land use to avoid disaster-prone areas should be considered to mitigate the loss and damage of human lives.

A large number of people lost their income source because of physical damage of the earthquake and the regression of industry, such as the tourism sector. In addition to livelihood, the earthquake also affected the health and medical sector, social welfare and education because of the damage to public facilities. These facilities are essential to secure basic human needs, and so a well-designed recovery plan should be formulated. The earthquake severely affected the vulnerable populations such as households headed by women, poor people, and PWD who need support from the public sector to recover their daily lives.

2.3.3 Building Resilient District Structure

“Building Resilient District Structure” pursues safety against disasters by coping with the tangible measures and intangible measures. For tangible measures, the recovery of damaged public infrastructures such as roads, irrigation facilities and hydro power plants should be prioritized since these are the basis of establishing a disaster-resilient society. As for intangible measures, enhancement of the capacity of DRR at the governmental level and community level is indispensable. A coordination mechanism should be enhanced and the roles and responsibilities for disaster management of related agencies need to be clarified. Moreover, as the people in the community are the first responders to a disaster, it is desirable to strengthen community-based disaster risk management (CBDRM) activities based on lessons learned from the earthquake.

2.3.4 Recovery and Development of Regional Economy

The “Recovery and Development of Regional Economy” pursues the revitalization and sustainable growth of the regional economy damaged by the earthquake. In the Sindhupalchowk District, the main source of revenue is agriculture, livestock and tourism. All of these sectors take several years to recover. To pursue sustainable economic growth, it is necessary to develop a medium to long term plan in connection with other development plans such as urban planning and land use planning.

CHAPTER 3 RECOVERY OF DAILY LIFE

3.1 Introduction

As mentioned in the previous chapter, recovery of the daily life such as the source of livelihood, public services are essential for all the population in Sindhupalchowk. In order to attract a productive population who are an important component of the development, assuring the source of livelihood and public services are the key policies.

Among these components of the daily life, housing reconstruction is the priority and long-process work since this includes the relocation and resettlement for those who are living in highly landslide prone areas. Securing the alternative livelihood for those who were resettled needs to be targeted to recover the daily lives. Vulnerable populations such as women, children, PWD, and marginalized ethnic groups are adversely affected by the current damage of the earthquake, such as damage of the public service and social welfare facilities. Care for these groups is another priority in terms of the recovery of daily life. In order to assure the resumption of public services, reconstruction and restoration of the public buildings should be implemented at the early stage of the reconstruction.

Therefore, the RRP prioritizes the programmes below not only for recovery but also as a fundamental basis of the regional development and habitability for the residents.

Summary of Recovery of Daily Life

Policy	Program	Project
Recovery of Daily Life	Reconstruction of Residential Environment	<ul style="list-style-type: none"> ● Rebuilding homes of disaster victims ● Seismic-resistant measures for housing ● Municipality/VDC RRP and relocation ● Water supply restoration
	Restoration of Livelihood	<ul style="list-style-type: none"> ● Livelihood diversification ● Livelihood assistance for vulnerable population
	Recovery and Enhancement of Health and Medical Service	<ul style="list-style-type: none"> ● Medical facility recovery and vitalization ● Healthcare services improvement ● Collaboration among health, medical and social welfare ● Support for injured victims
	Recovery and Enhancement of Social Welfare Service	<ul style="list-style-type: none"> ● Care for vulnerable/marginalized earthquake victims ● Support women's groups activities ● Social welfare for elderly people
	Recovery and Revitalization of Education	<ul style="list-style-type: none"> ● Reconstruction to seismic resistant school ● Promotion of DRR education ● Care for affected students

3.2 Reconstruction of Residential Environment

A large number of houses were seriously damaged from the earthquake. There are still many people who are forced to live in evacuation spaces or temporary houses. Early reconstruction of a safer residential environment is necessary for the recovery of life and livelihood. Especially financial support for reconstruction should be prioritized since people living in disaster affected areas have pointed out financial issues as one of the hindrances for early reconstruction. In addition, the affected water supply shall be recovered and the development of water resources shall be promoted.

Since a large number of people are still living in the disaster prone areas, proper group relocation to safer areas shall be considered in order to avoid a secondary disaster. Access to the information on housing reconstruction should be deliberated considering high illiteracy rate of the elderly population and marginalized population, and the geographical difficulties of people living in mountainous areas.

3.2.1 Supporting Own Reconstruction of Housing

At the national level, NRA is supporting the housing reconstruction by providing compensation and loans for the earthquake victims who intend to reconstruct their house with one of the required design standards introduced by DUDBC. The challenges for the housing reconstruction is the high material cost due to a poor transport network in the remote areas. Also, the insufficient number of skilled masons is a hindrance for immediate housing reconstruction. In order to cope with housing reconstruction the following actions need to be implemented.

(1) Improve the Access to Information about Governmental Housing Reconstruction for Isolated and Marginalized Communities

Even though the NRA makes efforts on promoting the governmental guidelines, certain characteristics of people such as less educated people, marginalized population and people living in remote areas do not have enough access to such information. In order to reach to the necessary population, understandable booklets or brochures related to the financial support guideline of NRA should be prepared at the early stage of recovery and workshops or orientation programmes about the guideline is essential. During the process, a special orientation programme for the isolated and marginalized communities in each ward should be considered.

(2) Financial Support for Housing Reconstruction

In the Sindhupalchowk District, a large number of housing damaged by the earthquake cannot be eligible for the financial support for housing reconstruction due to the condition of the damage and other reasons. In order to be a benefit for the “grievance population”, further damage surveys can be conducted to identify the missing beneficiaries. Currently, the support for such a population has not yet been decided by NRA. In cooperation with NRA, DDC takes the lead to develop the mechanism for supporting the missing beneficiaries, such as financial support, and VDC secretaries in each affected VDC play roles for identifying the missing beneficiaries and enlisting them.

(3) Technical Support for Evaluation and Monitoring of Housing Reconstruction

After developing the financial support scheme for the beneficiaries, NRA and DUDBC are responsible for the technical support for the housing reconstruction. In order to secure the qualified engineer and technical personnel, they are also responsible for the formulation of the framework for dispatching the technical personnel at VDCs/Municipality level. District level agencies should be responsible for the selection of experts and dispatch them to the VDCs/Municipality.

Early housing reconstruction requires procurement of affordable construction material as well as proper technical personnel. Construction of the logistic hubs at the VDCs/Municipality level is the priority for the early recovery phase and remuneration of necessary technical staff should be secured for six years

(4) Establishment of Local Resource and Logistic Hubs for Housing Reconstruction

The high cost of construction material is a common challenge in the entire Sindhupalchowk District. At the early stage of the housing reconstruction, the RRP should set three logistic resource and logistic hubs as the target for smooth implementation of the housing reconstruction. By utilizing the resource maps and hazard maps prepared by the JICA RRNE Project, NRA is responsible for selecting the location and number of resource centres based on the result of the survey. Design, construction, and management of the hubs and resource centres will be implemented by the NRA district level office and DUDBC.

(5) Development of Housing Reconstruction Community

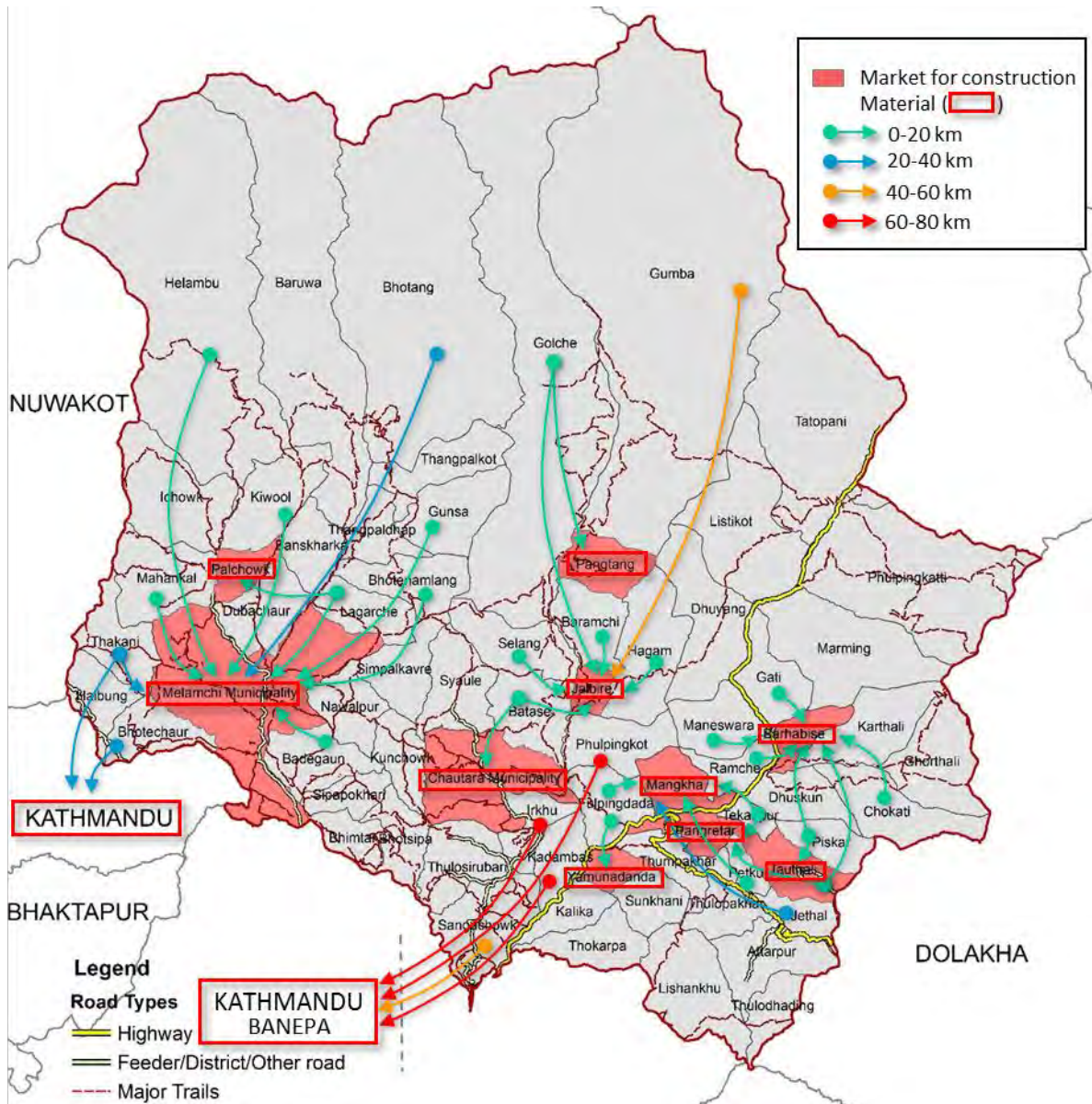
The formation of a house reconstruction group consisting of community people with local masons which is designed to develop the mutual assistance within the community is essential. The results of the social survey and result of the cluster workshops indicated that housing reconstruction is a challenge for households headed by women and elderly people due to a lack in labour force and proper skills for construction. These community groups provide employment opportunities for the trained masons within the community and facilitate the monitoring of the housing reconstruction.

(6) Support for Procuring Affordable and Good Quality Construction Material

Supply of construction materials can be addressed by supporting the private sector (in cooperation with District Chamber of Commerce and Industry) to establish a construction material supply shop/dealer with fair prices of construction material. The high cost of construction materials because of poor transportation and a logistics network is one of the key challenges for promoting rehabilitation and recovery in the district. The following figure indicates the nearest market for construction materials from each VDC based on the questionnaire survey.

According to the survey result, in the western area of the district, most of VDCs are procuring construction materials in Melamchi municipality. In the central area, Chautara, Jabire and Pangtang have markets for construction material. In the eastern area, Barhabise, Mangkha, Pangretar, Tauthali, Yamunadanda have construction material markets. In addition, a lot of VDCs in the southern area are procuring construction materials in Kathmandu. Since many VDCs are obliged to procure construction materials in remote markets by using seasonal roads, the availability of construction materials should be improved in consideration of establishing local resources and logistic hubs, and developing the road network.

In order to reduce the time and cost for the transportation, identification of material supply shops/dealer locations and facilitation for site development should be considered. The information and proper price should be open to residents and contractors (through local media etc.)



Source: Questionnaire Survey for VDCs, 2016

Figure. 3.1 The Nearest Market for Construction Material from each VDC

(7) Provision of Temporary Houses for Vulnerable People as Social Welfare

The current scheme of housing reconstruction mainly supports rebuilding the housing with financial assistance. Since this scheme utilizes loans, for those who cannot repay the loan such as households of elderly people, poor economic conditions and people with disabilities should have

temporary housing implemented as social welfare. The eligibility criteria and prioritization of the residents need to be considered and community building for the residents of temporary housings is essential to restore the daily lives of the newly moved beneficiaries.

(8) Implementation of House Reconstruction Training for Masons

In order to effectively train the skilled masons, the training design (training course, target, schedule) should be developed. Since various DPs are technically and financially supporting the training, NRA at the district level and DUDBC should coordinate among stakeholders to reach the entire district. The table below is the programme for mason training implemented by JICA TPIS-ERP in Barabise, Chautara and Meramuchi.

Table 3.1 Programme for stone masonry training implemented by JICA TPIS-ERP

	Item	Rural	Urban
Theory	Earthquake Basic and Preparedness	Common	Common
	Theory on the construction of Slab, Stonecrete and Block	Common	Common
	Site Selection	Common	Common
	Building Structures, Shapes	Common	Common
	Quality of Construction and Construction Materials	Common	Common
	Theory on Construction Technology of RCC Frame Structure	Basic consideration for Earthquake resistant RCC structure	Focused on all components of RCC frame structure including slab and staircase also in details.
	Theory on Load Bearing Masonry Construction Technology	Details on Brick and stone masonry	Not more about stone masonry
	Wooden and Bamboo Building Construction Technology	Common	Common
	Theory on Retrofitting	Common (Introduction)	Common (Introduction)
	Alternative Construction Materials and sustainable development	Common	Common
	Environment and Building Construction	Common	Common
	Video Show: Shake Table	Common	Common
	National Building Code and role of Masons	Common	Common
JICA Session (Manual for Masons and Design Catalogue)	Common	Common	
Practical	Exercise on the construction of Slab, Stone Crete and Block	Common	Common
	Layout Exercise	Focused on Stone and brick masonry	Focused on RCC Frame and Brick Masonry
	Testing of Quality of Construction Materials (Sand, Brick, Cement, Reinforcement)	Common	Common
	Exercise of Construction Technology of RCC Frame Structure	No	Yes
	Exercise on Staircase Construction Technology	No	Yes
	Exercise on Construction Technology of Slab and Projection	No	Yes
	Briefing of RCC exercise	No	Yes
	Exercise of Load Bearing Masonry Construction Technology	Both stone and brick masonry (both cement and mud mortar)	Brick masonry with cement mortar only
	Description of Load Bearing Structure and Minimum Requirements	Both stone and brick masonry (both cement and mud mortar)	Brick masonry with cement mortar only
	Exercise on connecting wall with floor and wooden truss	Yes	No
Testing of Slab, Brick and Block	Common	Common	

Source : JICA TPIS-ERP

3.2.2 Seismic Resistant and Safety of Houses and Buildings

In relation to the housing reconstruction policies, housing and building construction with seismic resistance shall be supported for the possibility of future earthquakes by implementing the following items.

(1) Development of Capacity and Public Awareness for Seismic Resistant Houses

As for understanding the importance of seismic resistant buildings, residents in the affected areas do not have enough knowledge about safer construction methods. Showing the actual seismic resistant model building is effective for better understanding the importance of safer construction. Since some parts of the housing construction is done by the residents, distribution of posters, brochures, pamphlets, books on design and construction methods and workshops to raise the awareness of the residents are necessary.

QIPs-23 Promotion of Safety measures for Housing Reconstruction engineers

(2) Application of National Building Code (NBC), Enforcement of Building Permission and Inspection System

JICA RRNE Project and DUDBC updated the NBC for reconstruction of seismic resistant housing and its application to the actual construction is a challenge for housing reconstruction. A mechanism for building permission and inspection at District, Municipality and VDC officials and adoption of E-BPS (Electronic Building Permit System) should be introduced to abide by the NBC for both public and private housing and buildings.

(3) Dissemination on Earthquake Resilient Building Knowledge and Techniques

Earthquake affected populations living in isolated and marginalized communities do not have access to the knowledge of safer construction. In order to reach the communities, NRA and DUDBC are responsible to hold workshops at each ward level to disseminate earthquake resilient building knowledge and techniques, focusing on isolated and marginalized communities.

3.2.3 Municipality/VDC Rehabilitation and Recovery Planning and Group Relocation

By referring to the district level RRP, it is essential to formulate the Municipality/VDC RRP which includes area planning such as group relocation in the disaster prone communities. NRA(DL-PIU) DUDBC Division Office in cooperation with each VDC/Municipality are responsible for formulating the plan. The district level should provide technical support to each VDC/Municipality such as providing the hazard maps. When NRA implements the group relocation, the district level plays the role to identify the damage conditions and current condition of voluntary relocation.

(1) Municipality/VDC Rehabilitation and Recovery Planning

The RRP is formulated in line with formulation of PDDP in order to assure the legitimacy of its implementation and budget arrangement as a long-term plan. The methodology is also applicable to Municipality/VDC level to formulate the RRP in line with the development plan. District level stakeholders for formulating RRP such as NRA, DDC, line agencies and development

partners should support the RRP formulation at the Municipality/VDC level. Necessary actions for the formulation are as follows:

- Establish the formation and framework for rehabilitation and recovery planning in each Municipality/VDC
- Consideration of Municipality/VDC rehabilitation and recovery planning among various stakeholder including community people, affected people and vulnerable people
- Consensus building on rehabilitation and recovery planning in each Municipality/VDC
- Implementation of formulated plan with merging the plan into Municipality/VDC development plan

(2) Consideration of Group Relocation and Integrated Settlement Development

The communities which were displaced by the earthquake have to be resettled on their own land or in areas appropriate for resettlement. The relocation sites should be deliberately investigated considering the risk of landslides, source of livelihood such as arable lands, and water sources. The process includes the identification of hazardous areas by damage conditions, field survey and analysis, landslide hazard map and current residential areas, etc. Because of the land ownership and livelihood sources, it is observed that communities are still residing and cultivating the land in the landslide areas. Before conducting a group relocation, it is desirable to consider several other countermeasures, such as preventing landslides, development of early warning system, and the identification and development of evacuation sites and routes. In case the above mentioned countermeasures are not appropriate, or group relocation is preferable, project on relocation shall be decided.



Source: JICA Project Team

Figure 3.1 Example of site investigation in the landslide prone areas of Syaule VDC Ward No.8

(3) Preparation of Group Relocation Plan and Integrated Settlement Development Plan

Once the group relocation is inevitable, socio-environmental conditions after resettlement should be considered. This includes land use management with the acquirement of residential

sites, land purchase of relocation promoting area, etc. After these arrangements, the candidate site entails site development and construction of hard infrastructures.

(4) Support for Implementation of Group Relocations in Cooperation with Central Government

Some integrated settlement development projects have been implemented with the support of partner organizations while some projects are ongoing. However, the capacity of developed settlement is not sufficient for people displaced by the earthquake and landslides and a lot of people are still living in vulnerable temporary houses. In addition, some projects are facing hindrances in both the planning and implementation stages. Therefore, when the national government decided to implement relocation, the district should assist in land acquisition for the residents and develop the residential areas.



Source: JICA Project Team

Picture 3.1 Temporary Settlement Area of Displaced People in Barabise VDC



Source: JICA Project Team

Picture 3.2 Integrated Settlement Development Supported by NGO in Melamchi Municipality

3.2.4 Recovery of Water Supply of Affected Populations

Water supply is one of the most critical issues of the damage by the earthquake. Participants of the cluster workshops, results of the social surveys, and the VDC profile mentioned that water sources are imminent challenges.

Because of the earthquake, water sources dried up, or the stream of the water changed, so the agricultural sector was severely affected and residents suffer from a lack of clean drinking water. Fetching the water from remote areas deprives the residents from engaging economic in activities, and interferes in school attendance for children.

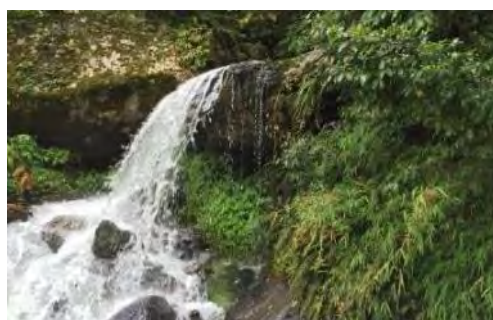
(1) Recovery of Water Supply Facilities

The Sindhupalchowk District already has plans to implement municipal water supply projects in two municipalities. In addition, the recovery of water supply facilities should be prioritized among the infrastructure since water resources is the staple for daily life.

(2) Investigate the Depletion of Water Sources and Promote Water Resource development

The depletion of water sources and change of water streams prevail all over the district. In order to redevelop water supply, site investigation for new water sources and alternative water sources should be conducted. The JICA RRNE Project formulated the rehabilitation project of the water transmission system and the project has commenced. In the long term, new water supply projects should be formulated based on the result of the survey.

QIPs-24 Majhuwa No1, No2 Water Supply Headrace Improvement Project, Selang



Source: JICA Expert Team (Base Map: Government of Nepal in cooperation with the Government of Finland)
Figure. 3.2 Rehabilitation Project of Water Transmission System in Chautara, JICA Grant Aid Project

3.2.5 Early Treatment of Disaster Waste and Debris

At the early stage of recovery, disaster waste and debris in the earthquake shall be disposed properly and immediately.

(1) Disposal of Disaster Waste and Debris Properly (implementation of collect and disposal)

Since almost two years have passed since the earthquake, most of the disaster debris has been cleared. A large number of eligible beneficiaries of housing support just started the housing reconstruction, and the amount of the debris will temporarily increase. NRA is responsible for the clearance of debris including financial support for those who cannot afford to demolish the housing. Districts and VDC should identify the collapsing houses need to be demolished but have not yet demolished due to financial constraint and formulate debris management plans in coordination with NRA.

(2) Promotion of Recycle for Utilize Reconstruction Activities

Proper recycling of the materials can save the construction cost, although misuse of the material weakens the structure of the housing/building. In order to promote the effective use of the material, brochures of reuse of materials in household or community level should be developed. Local resource centres for the construction material should include available recycle construction materials.

(3) Support of Building Demolition

The local government in collaboration with NRA is responsible for supporting the building demolition. The items for building demolition includes the establishment of community groups for the support of building demolition especially for vulnerable people such as single women, those with disabilities and the elderly. Local governments should develop schemes for supporting the above mentioned activities.

3.3 Restoration of Livelihood

Disaster affected people suffer from the loss of income due to the destruction of livelihood equipment and employment opportunities. Economic problems slow down the overall reconstruction activities. The scarcity of water resources is a hindrance of livelihood improvement in terms of lessening subsistence agricultural products and is time consuming for those fetching water. For the needs for short term recovery, support for the recovery of livelihood and generating income sources such as cash for work should be considered. For medium to long term, skill development for increasing the sources of income and production should be considered. The following policies and actions should be promoted for the restoration of livelihood.

3.3.1 Diversification of Source of Livelihood

Populations affected by the earthquake lost their livelihoods because of the collapse of housing, water depletion, landslides, physical injuries and various reasons. Considering the economic development strategy, increasing the sources of livelihood for the affected population strengthens the resilience of the society.

The following items are suggested income diversification measures.

(1) Promotion of Cash-for-work on Reconstruction Projects

In order to generate income for the affected population who lost their livelihood by the earthquake, cash-for-work is a desirable measure. In order to promote the implementation of cash-for-work, a policy for the construction of public/community infrastructures for both government and non-government organizations should be established.



Source: JICA Project Team

Picture 3.3 Image of Cash for Work (Rehabilitation of Road)

(2) Expanding Livelihood Opportunities for Farmers

In the Sindhupalchowk District, a majority of the population are engaged in agricultural activities and farmers are affected by the earthquake such as water source deficiency and landslides. Farmers also lost livestock due to the collapse of livestock sheds and were force to sell the livestock in order to meet the urgent needs of repairing houses/obtain foods. Therefore, at the early stage of recovery, the following activities are proposed to expand the livelihood opportunities to affected farmers.

- Seed and Fertilizer distribution to poor and vulnerable communities
- Support for the recovery of livestock (Incentive support and livestock distribution)
- Recovery and development of base facilities such as agro-collection centre
- Construction and operation of seed collection centre
- Promotion of commercial farming (for selling)
- Establishment of nursery for improved horticulture and farming



Source: JICA RRNE Project QIPs

Picture 3.1 Hand over and goat rearing training in Barpak

QIPs-20 Vegetable Cultivation Technique (targeting Local Women Group), Irukhu Talarang, Bansbari, Mangkha, Maneshwara, Thokarpa

QIPs-21 Improvement of maize farming practices, Irukhu Talarang, Bansbari, Mangkha, Maneshwara, Thokarpa

QIPs-22 Improvement of the Production of quality seed, Ichok, Kwaool, Irkhu, Phulpingdanda

(3) Vocational Training to Expand Employment Opportunities for Reconstruction Work

In order to diversify the source of income, additional vocational training sessions are required. Construction/improvement of the training facilities and ToT for the lecturers of the vocational training courses should be implemented. The course of the training will be investigated based on the needs of local industries and needs for reconstruction such as electricity, plumbing and so on.

(4) Human Resource Development for Expansion of Livelihood Opportunities

After construction of the training facilities and training of trainers, livelihood training programmes should be implemented by prioritizing the marginalized population. Suggested topics of the training sessions are as follows:

- Technological transfer (implementing farmers exchange programmes/farm visits etc.)
- Agriculture cultivation technique improvement training for farmers
- Technique for animal husbandry (cattle, goat, sheep, chicken rearing)
- Training for local tourism industry (hotel, lodge, restaurant, visitor centre)
- Support for branding and marketing of local products.

(5) Enhancement of Farmers' Accessibility to the Market and Distribution System

Even though the southern part of the Sindhupalchowk District is located several hours from Kathmandu, limited access for farmers to the markets and an underdeveloped logistic system keeps the price of agricultural commodities higher. Some products are more expensive than importing from India. In order to secure the access to the market, in addition to road transport, a farmers' chain in cooperative model (Formulation of framework) should be formed. Conducting an expo for local products on the municipal level regularly is also effective.

(6) Promotion of Traditional Craftsmanship and Use of Biodiversity

Due to the food aid from outside sources during the emergency response period, prevention of the extinction of local breeds, especially after the earthquake, is a challenge. The establishment of a section for local seed storage and distribution should be considered. While diversifying the

source of income by introducing new technology, the promotion and protection of traditional craftsmanship and technologies should be considered to conserve the cultural features in each area.

3.3.2 Providing Livelihood Assistance for the Vulnerable Population

The earthquake generated vulnerable populations of not only women, children and PWD but also those who were forced to resettle due to the landslides. Special assistance for those who became mentally ill and physically injured should be considered.

(1) Consideration of Employment Promoting Programme for Supporting Affected Families

The fact-finding study is necessary for the vulnerable population since these populations are isolated and their voices are weaker than other groups of population. Based on the current conditions and needs, an employment promotion programme, such as vocational training e.g., in-house work, can be considered for widows, and persons with mental illness.

(2) Expansion of Livelihood Opportunities at Relocation Areas

A large number of populations in Sindhupalchowk are either voluntarily or involuntarily relocated because of the earthquake and landslides. For those who are engaging in agriculture and cottage industries ended up losing their source of livelihood due to relocation. In the remote, mountainous areas, it is difficult to secure the sufficient land for residents and agriculture. In order to grow the staple foods, development of agriculture land (using a cash-for-work scheme) should be implemented. Formulating the development projects in the relocation sites also contributes to create jobs for those who are relocated.

3.4 Recovery and Enhancement of Health and Medical Services

Many buildings and facilities for health and medical services were damaged by the earthquake. The deterioration of the living environment worsens the health conditions of affected populations such as children, women and elderly populations. Not only should the reconstruction of existing facilities and functions be conducted, but also psychological illness arising from the earthquake be addressed. The following policies and actions should be promoted for the enhancement of health and medical services.

3.4.1 Recovery and Enhancement of Medical Service Facilities

Insufficient medical service facilities were pointed out during the Cluster workshops. People often have to go to Dhulikhel for better medical services. Medical service is essential as a basis of the lives of the people, and a long-term strategy for enhancing the medical services should be considered.

(1) Recovery of Hospital, Health Centre and Health Post

During the recovery phase, reconstruction of the District Health Office, Health Posts and PHCs considering seismic measures should be implemented to restore the basic services immediately. For improving the public health, reconstruction and recovery of the Out Reach Clinic and EPI (Expanded Programme on Immunization) Clinics should be prioritized.

- (2) **Seismic Diagnosis and Seismic Resistant Measures of Hospital, Health Centre and Health Post**
Maintenance and repair of hospitals, health posts/ PHCs with seismic retrofitting are essential in order to avoid damage of the buildings in case of aftershocks during the recovery phase and revitalization phase. In order to be one of the hubs during the disaster response, seismic diagnosis and retrofitting of intact health posts should be conducted.

3.4.2 Enhancement of Health Care Services

Residents in the Sindhupalchowk District point out the insufficient medical services especially in rural areas. Not only rebuilding the medical facilities is needed, but the improvement of the medical services is essential in the short and medium term development in order to retain the productive population in the district.

- (1) **Provision of Health Care Services to the Pregnant Women, Child Delivery and New-Born Babies**
Among the healthcare services, reproductive health service is a priority in the early to medium phase of the recovery because pregnant women and children are susceptible to various diseases. The following items are the actions to be taken regarding to the improvement of reproductive health.

- Enhancement of birthing centres
- Special support programme for safe maternity
- Provision of home health service to newly delivered mothers and new borne babies
- Distribution of warm cloth/bag for new borne children
- Reconstruction and recovery of existing Birthing Centres (BCs)
- Expansion and development of new Birthing Centres

- (2) **Enhancement of ORC and EPI Clinics**

MoH is currently implementing the programme for the construction and operation of ORC/ EPI Clinics ensuring seismic resistance. 251 clinics are targeted in the entire Sindhupalchowk District.

- (3) **Establishment of Mental Health Care Help Desk for Victims**

In order to care for the traumatized victims of the earthquake, MoH is implementing a project for the improvement of the Mental Health care section in district hospitals and three Primal Health Centres (PHCs). Along with improving the function of these hospitals, procurement of medicine and specialists in mental healthcare should be secured.

- (4) **Provision of Health Care Service for Vulnerable People and Deprived/Marginalized People**

Even though records of injured people are 1,435 people, participants of the sectoral committee pointed out the actual number of the injured persons are more than on the record because people living in marginalized/remote areas could not go to a hospital. A special outreach to that population is necessary, such as a mobile health clinic.

3.4.3 Collaboration of Health, Medical and Social Welfare Services

Health, medical and social welfare shall be cooperated within order to proceed with effective activities at the time of disaster. This collaboration is also effective in terms of the treatment of the victims of gender-based violence because the hospital accepts the injured women and became a hub for further social protection services.

(1) Establishment of Health, Medical and Social Welfare Network (development of database etc.)

The lack of medical records is a huge hindrance in understanding the condition and formulating a future health development plan. Development of a medical database (Medical stock, health care services, disease record, patient record etc.) should be prioritized for future development planning.

3.4.4 Support for Victims Who were Seriously Injured by the Earthquake

Support for the seriously injured victims by the earthquake should be promoted since these populations suffer from medical expenses and loss of income sources (in the case of an adult).

(1) Medical and Health Support to the Seriously Injured Victims by the Earthquake

DHO recognized that approximately 140 people were seriously injured by the earthquake and need continuous support. Medical and health support to seriously injured victims by the earthquake for regular check-ups should be planned in the short to medium term.

(2) Rehabilitation Support for Needy Victims

For the physically impaired victims, rehabilitation support for those needy victims such as providing the necessary equipment and training to regain mobility. (Wheelchair/ Equipment).

3.5 Recovery and Enhancement of Social Welfare Services

Social welfare services are stagnated due to the destruction of related government facilities. The earthquake severely affected vulnerable people and deprived/marginalized people. Countermeasures for coping with the issues should be considered. The following policies should be promoted for the enhancement of social welfare services.

QIPs-1 Construction of Community Training Centre in Irkhu VDC

QIP-5 Recovery of Social Services and Development Activities through Reconstruction of Village Development Committee building at Thokarpa VDC

QIPs- 17 Recovery of social service and development activities through reconstruction of Village Development Committee building at Maneshwara VDC

3.5.1 Recovery and Enhancement of Social Welfare Services for Affected Vulnerable People

Social welfare services for vulnerable people and deprived/marginalized people shall be promoted by implementing the following items.

(1) Access to Information Regarding to Social Welfare for Vulnerable People

Special attention should be paid to the vulnerable population who do not have access to social welfare due to their educational level, location and poor telecommunications available to them. Methodology to inform the available services should be investigated such as pamphlets mainly composed of pictures and outreaching at the ward level. The target groups of these activities are single women, orphaned children, elderly citizens, people with disabilities and deprived/marginalized people.

(2) Recovery and Development of Livelihood Supporting Function for Vulnerable People

A one stop service for various social welfare services is beneficial for the vulnerable population who has multiple challenges. Establishment of the livelihood supporting desk, supporting facilities and base with which the affected population can consult with are necessary. The table below is the example of help desk established in Japan during Great East Japan Earthquake.

Table 3.1 Example of Various Help Desk

(Example of Fukushima Prefecture, Damaged Area of the Great East Japan Earthquake, Japan)

Help Desk (Consultation Service) for;	
1. Housing	6. Management of Labour
2. Nuclear Radiation	7. Health, Child Rearing and Mother’s Milk
3. Nuclear Damage Compensation	8. Volunteer
4. Living Expenses	9. Missing
5. Agricultural Forestry Industries and Fishers	10. Prefectural Administration

Source: Website on Fukushima prefecture,

<http://www.pref.fukushima.lg.jp/sec/01010d/shinsai-sodanmadoguchi.html#08> (Edited by JICA Project for Assessment of Earthquake Disaster Risk for the Kathmandu Valley)

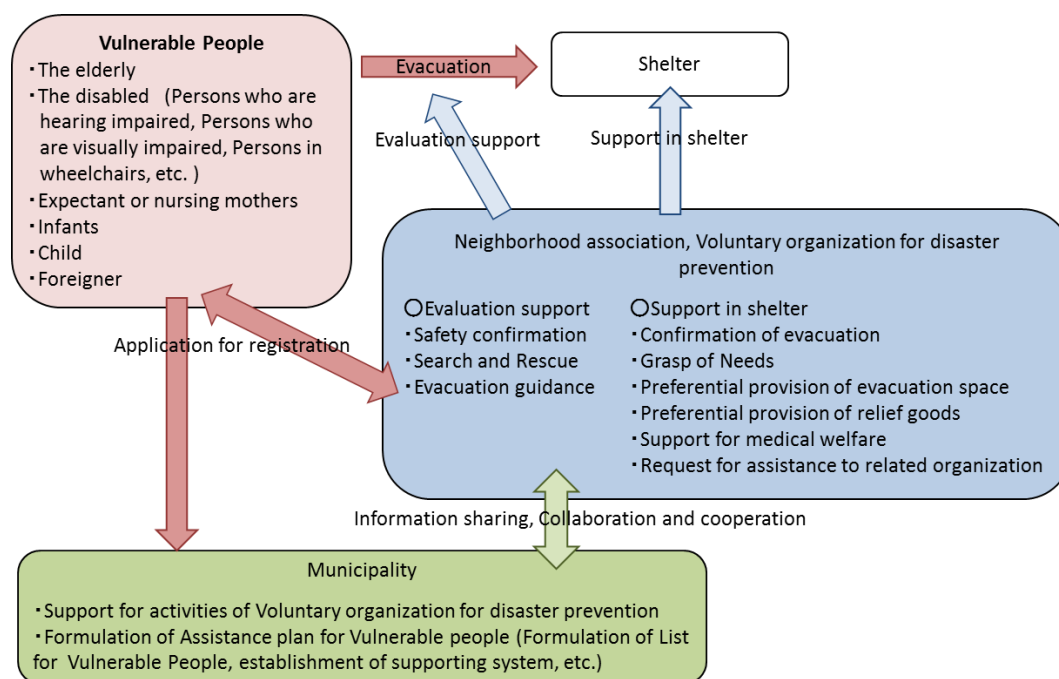


Figure. 3.3 Image of Support for Vulnerable People (Example of Japan)

Source: General Plan of Evacuation Support for Vulnerable People in Ogori City, Japan (Edited by JICA Project for Assessment of Earthquake Disaster Risk for the Kathmandu Valley)

QIPs-2 Recovery of social service for women, children and social welfare through construction of Women and Children Office Facility in Chautara Municipality, Chautara

(3) Supporting Job Training for Expanding Job Opportunities for Vulnerable People

A help desk for livelihood and help desk supporting facilities should be established considering the situation of the vulnerable people. Connecting to the help desk for the social welfare is desirable to be a one-stop for the affected population.

(4) Promoting Participation of Vulnerable People for Policy Making

Vulnerable people are the most needy population who needs the social welfare from the government. In order to assure the proper social welfare services, ensuring the participation of all levels of people in policy making is essential. For example, while formulating the VDC RRP, ensuring bottom-up approach in local policy making should be pursued.

3.5.2 Support Activities of Women's Groups

Because a large number of young male population migrated to foreign countries or Kathmandu, women in the communities are actually supporting the household. Activities of women's groups shall be supported for secure livelihood.

(1) Recovery and Development of Facilities for Supporting Livelihood of Women's Groups

The earthquake devastated public buildings and community buildings which women's groups previously utilized. The condition makes women's group inactive and undesirable for empowering the women in the community. Reconstruction of such community building in combination with activation of women groups is beneficial for women in the communities.

(2) Support Activities of Women's Groups

Women in the Sindhupalchowk District mainly engage in subsistence agriculture, small-scale livestock and cottage industry. These sectors were affected by the earthquake due to the collapse of the house which was the workplace, and damage by landslide and water deficiency, and damage of livestock cottages. In order to regain the source of livelihood for women, the following activities should be implemented in parallel to the reconstruction of the facilities for women's groups.

- Understanding of the situation and issues of the women's group for the employment opportunity
- Strengthening and establishment of women's group in ward level (Each VDC and Municipalities)
- Establishment of network of Women's Group (Formation of District Level Network)
- Employment promoting programmes for women groups
- Financial support for women's group activities(micro finance)



Source: JICA Project Team, QIPs (Ongoing)

Figure. 3.4 Recovery of Social Service for Women, Children and Social Welfare through Construction of Women and Children Facility in Chautara Municipality

3.5.3 Enhancement of Social Welfare Services for Elder People

Elderly people are especially vulnerable in the post-disaster phase because of insufficient healthcare facilities and financial support to reconstruct their daily lives, such as a low interest loan. The following items should be implemented for the benefit of the elderly population.

(1) Support Livelihood of Elderly People

Consideration of special support for elderly people such as providing vocational training of non-labour skill improvement training, and enhancement of Job-matching should be considered as well as cash transfers for those who cannot work as an intensive labourer. Housing arrangement should be also considered because households headed by an elderly person do not have access to loans for housing reconstruction.

3.6 Recovery and Revitalization of Education

As for educational services, most of schools were damaged in the earthquake. It is necessary to recover damaged schools, improve study environments and implement disaster management education for students. Early recovery and the strengthening of disaster management functions for schools shall be promoted. Disaster management education shall be enhanced. Following policies should be promoted for revitalization of education.

3.6.1 Recovery and Seismic Resistance for Schools

In order to recover the school environment for children, immediate recovery and retrofitting of schools should be promoted. A seismic resistant school can function as a temporary evacuation site in the case of earthquakes and other disasters.

(1) Recovery and Reconstruction of Schools

Currently, children who went to the damaged schools are studying in an undesirable environment; small and temporary shed in which they cannot concentrate on studying. The temporary schools cannot protect the children from the severe weather, and this condition affect the health condition of the children if this condition is not improved. Therefore, the recovery of the school should be prioritized by taking the following steps.

1. Damage Investigation (technical) of Schools (nature of damage / preparation of record).
2. Prioritization of school reconstruction.
3. Temporary school building construction (short term measure).
4. Reconstruction of school buildings considering seismic measures and learning conditions (long term measures).

(2) Seismic Diagnosis and Seismic Resistant Measures of Schools

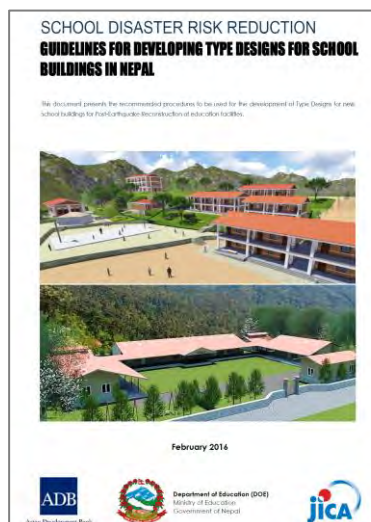
Various sources pointed out that casualties would be much larger if the earthquake occurred during a weekday when children were in school considering the damage condition of the school buildings. In order to mitigate the future damage of the earthquake, seismic diagnosis and retrofitting should be implemented. Items to be implemented are shown below.

1. Dispatch of experts or technicians for seismic diagnosis (checking) of schools
2. Seismic resistant measures, retrofitting and maintenance of partially damaged school buildings

Sindhupalchowk District BBB Rehabilitation and Recovery Plan 2073/74–2082/2083

3. Seismic resistant measures, retrofitting and reconstruction of intact school buildings
4. Establishment of a legal system in order to ensure the seismic resistance of private schools (Incentive measure to promote seismic retrofitting of private schools)
5. Technical support to all private schools for ensuring safety

JICA and ADB in cooperation with DOE developed the guidelines for school buildings and designed prototypes. When constructing the new school building it is essential that the construction follows the procedures of the guideline.



Source: Department of Education supported by ADB and JICA

Figure. 3.5 Seismic Resistant Building Guidelines of School and Design of Prototype

3.6.2 Enhancement of Disaster Management Education

Disaster management education shall be enhanced based on lessons learned from the earthquake. Some portion of the adult population with a low educational level can learn from their children if the children can obtain the proper knowledge of disasters.

(1) Enhancement of Education Based on the Experience of the Earthquake

Based on the lessons learned by the earthquake, the disaster management educational programme should be developed. DOE has been investigating the contents of DRR education with development partners.

Table 3.2 Example of School Curriculum for Disaster Management Education in Japan

	Target	Examples of school curriculum		
		1st semester	2nd semester	3rd semester
11-12 years old	<ul style="list-style-type: none"> • To be able to understand the characteristics of the disaster in area and disaster management system • To be able to estimate the risk caused by the disaster, to be able to take actions to avoid own risk in the event of a disaster • To be able to take useful action in consideration of safety of family, friends and the surrounding people in the event of a disaster 	<ul style="list-style-type: none"> ◇ Natural disasters in our region ◇ Comfortable houses and clothes ◇ What you can do ◇ Evacuation drill (Earthquake) 	<ul style="list-style-type: none"> ◇ Changes of weather ◇ Let's know about the dangers of Flood ◇ Our lives and the volcano ◇ What would you do when you feel shaking in the town? ◇ Evacuation drill (Tsunami) 	<ul style="list-style-type: none"> ◇ Relevance between information industry and people's lives ◇ Various activities in order to protect the safety of the people ◇ To be able to prevent injury and simple medical care ◇ Political effects of country ◇ Preparation for emergency ◇ Evacuation drill (Fire)
9-10 years old	<ul style="list-style-type: none"> • To be able to understand basic knowledge of disaster, to be able to think of contrivance to prevent disasters. • To be able to have an interest about the dangers caused by the disaster, to be able to consider a way to avoid own risk • To be able to avoid the risk in cooperation with family, friends and the surrounding people in the event of a disaster. 	<ul style="list-style-type: none"> ◇ Live safely and town development ◇ What would you do when heavy rain, strong wind, thunder happened? ◇ Evacuation drill (Earthquake) 	<ul style="list-style-type: none"> ◇ What would you do when the earthquake happened in the rest time? ◇ Evacuation drill (Tsunami) 	<ul style="list-style-type: none"> ◇ Let's make the original disaster management map ◇ Specific examples of our predecessors who committed to the development of the region such as traditional tools, cultural assets and annual events, ◇ Evacuation drill (Fire)
7-8 years old	<ul style="list-style-type: none"> • To be able to have an interest in disaster, to be able to think about safe behavior during disasters. • To be able to feel danger caused by the disaster, to be able to take the appropriate action by following the adult instruction • To be able to avoid the danger on own in the event of a disaster, to be able to contact with adults. 	<ul style="list-style-type: none"> ◇ What would you do when fire happened? ◇ Want to know your town more (Involvement of own, people and society) ◇ Evacuation drill (Earthquake) 	<ul style="list-style-type: none"> ◇ What to do when the earthquake happened? ◇ Let's try to be able to do by your own ◇ Let's go, let's use ◇ Evacuation drill (Tsunami) 	<ul style="list-style-type: none"> ◇ Town exploration ◇ Evacuation drill (Fire)

Source: Ministry of Education, Culture, Sports, Science and Technology (Edited by JICA Project for Assessment of Earthquake Disaster Risk for the Kathmandu Valley)

(2) Implementation of Disaster Evacuation Drill and Identification of Safe Area around School

In order to respond the disaster properly, practising evacuation actions repeatedly is essential. It is necessary to conduct an evacuation drill at least once a year for teachers and students to confirm what to do in case of a disaster. Considering the utilization of schools and their playgrounds as evacuation sites for other residents, the designation of evacuation sites and evacuation routes around the schools should be investigated.

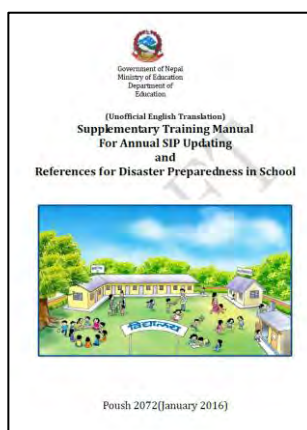
(3) Inclusion of School Safety Measures in the School Improvement Plan (SIP)

Provision of school safety measures in the School Improvement Plan (SIP) should be promoted. The following points are the contents of SIP. Refer to "Supplementary Training Manual for Annual SIP Updating and References for Disaster Preparedness in School, 2072, MoE.

Table 3.3 Disaster Related Topics Covered by Child Friendly School Framework in Nepal

Category	Minimum	Expected
Health	- First aid kit is available at school and the kit contains medicines for first aid and against parasites and vaccination	- Availability of first aid kit at school training organization from time to time, for female and male teachers and older children, on first aid treatment
Feeling of Protection	- Information disseminated to children on safety measures to be taken in the event of an earthquake	- Exercises conducted from time to time for both children and teachers on what to do in case of an earthquake
Building & Classrooms	- Earthquake resistant building	- Earthquake Resistant building made of brick and cement

Source: Supplementary Training Manual for Annual SIP Updating and References for Disaster Preparedness in School, DOE, 2016



Source: Supplementary Training Manual for Annual SIP Updating and References for Disaster Preparedness in School, DOE, 2016

Figure. 3.6 Supplementary Training Manual for Annual SIP Updating and References for Disaster Preparedness in School and Sample of Evacuation Route in School

3.6.3 Care for Students

Children studying in the temporary school buildings are susceptible to disease due to undesirable sanitary conditions. Mental health care for those who are traumatized by the earthquake and loss of family members should be considered as a part of social welfare.

(1) Training for Teachers for Care of Students

Training of trainers (TOT) targeting the school teachers should be implemented for improving healthcare and mental care.

Contents of training(example)
<ul style="list-style-type: none"> ● Workshop on the planning and practices of disaster management education ● Workshop on sharing experiences of the Gorkha Earthquake ● Training on mental health care, treatment method for injury, etc. ● School level training to teachers and students in each school ● Workshop on the planning and practices of disaster management education ● Workshop on sharing experiences of the Gorkha Earthquake

Table 3.4 Example of Training for Teachers in Japan

(1) Training in school
<ul style="list-style-type: none"> a. Workshop by researchers and experts of the region b. Workshop on sharing experiences by those who have experienced a disaster c. Workshop on planning and practices of disaster management education d. Briefing of planning and manual formulation of the school disaster management education e. Training by the school disaster management committee f. Workshop of treatment method for injury (cardiopulmonary resuscitation, AED, etc.) by the fire department, etc. g. Comprehensive disaster management drills (including the context confirmation of stockpile warehouse, and training for using the disaster prevention equipment) h. Workshop to understand the importance of life and history of disaster in Japan i. Training on mental health care
(2) Training in external institutions (Expert)
<ul style="list-style-type: none"> a. Training on school safety performed by the Ministry of Education, Culture, Sports, Science and Technology , Teacher Training Center b. Training for leader by local governments c. Training in disaster prevention experience facilities, etc. d. Holding planning committee for disaster management manual e. Training on emergency life-saving (including AED) f. Participation of comprehensive disaster management drill in region g. Training for fire protection manager h. Experience learning session on disaster volunteer
(3) Joint training with students and parents
<ul style="list-style-type: none"> a. Handing over the students b. Setting up of shelter c. Creation of disaster management maps d. Facility tours to study the history of past disasters e. Session to listen to the experiences of people who have experienced a disaster f. Training on knowing the business content of the people to protect the safety in the area such as fire department, etc.

Source: Ministry of Education, Culture, Sports, Science and Technology (Edited by JICA Project for Assessment of Earthquake Disaster Risk for the Kathmandu Valley)

(2) Establishment of Mental Care Help Room

To treat students with mental problems, it is desirable that schools have the function for mental care counselling. The DEO targets 605 schools to provide training in six years. After that training

period, continuous support for the school is necessary. DEO is responsible for dispatching health technicians to schools as well as providing the training.

(3) Supporting Learning Opportunities for Children Who are Deprived or Living in Remote Areas

Due to the collapse of the schools, it is reported that children in remote areas could not go to school or dropped out of school. The DEO is responsible for identifying the children living in remote areas who cannot benefit from schooling. Based on the result of the fact finding study; educational support for the deprived students/students from remote areas should be considered as a long term plan.

CHAPTER 4 BUILDING RESILIENT DISTRICT STRUCTURE

4.1 Introduction:

Damage to road networks affects various aspects of recovery and rehabilitation. Most of the road networks at the district level are unpaved and the condition deteriorates quickly during the emergency recovery phase due to heavy loaded traffic. Blockage of the transport network affected the price of the construction material, as well as the market price of agricultural products and daily goods. Improvement of the transport network can vitalize the economy such as agriculture and tourism, so the long term infrastructure transport planning is vital for sustainable growth.

The landslide disaster caused the loss of human lives, blocked the transportation network and damaged arable lands. Since the earthquake loosened soil and generated cracks in entire Sindhupalchowk District, the risk of large-scale landslide increased. Careful attention and countermeasures should be considered during the entire reconstruction period. Building resilience is achieved not only through structural measures but also with non-structural measures such as enhancing the capacity of DRR at the local government level and community level.

Summary: Policies for Building Resilient District Structure

Policy	Programme	Project
Building Resilient District Structure	Enhancement of Regional Recovery and Disaster Management Capacity	<ul style="list-style-type: none"> ● Institutional development for reconstruction ● Institutional development for DRR ● HRD for Reconstruction and DRR ● First-Aid and SAR training ● Public and private partnership for DRR ● Promotion of CBDRM activities ● DRR public awareness activities
	Recovery and Development of Resilient Infrastructure	<ul style="list-style-type: none"> ● Recovery and strengthen road network ● Recovery of trails ● DRR facility development ● Designate emergency roads ● Lifeline restoration
	Enhancement of Land Use Management and Area Planning	<ul style="list-style-type: none"> ● Habitation area control ● Forest conservation and management

4.2 Enhancement of Regional Recovery and Disaster Management Capacity

It is necessary to enhance the recovery and disaster management capabilities for future disasters for resilience. Information transmission to remote areas was a major challenge. Capacity building of community people for disaster management is a big challenge, because mountainous communities have a high risk of isolation in the case of a disaster. Rescue activities and relief distribution cannot be reached within such communities when earthquakes and landslides devastate the road transport network. A recovery and disaster management system and governance for future disasters based on the experiences and lessons learned from the

earthquake shall be enhanced. Following the policies and actions should be promoted for the enhancement of regional recovery and disaster management capacity, and human resource development.

4.2.1 Enhancement of Rehabilitation and Reconstruction Framework

NRA was established after the earthquake to coordinate the reconstruction activities. In order to implement the reconstruction activity smoothly, well-coordinated institutional arrangement at the district level is essential.

(1) Establishment of Reconstruction Framework with Management of Financial Resources

Implementation of the action lists mentioned in RRP utilizes the national level reconstruction budget, district budget and financial support from development partners. Line agencies in the district lead by NRA should establish the framework management the progress of reconstruction projects and financial management at an early stage of the recovery phase.

(2) Promotion of Coordinating Related Organizations

The District Coordination Committee (DCC) of NRA has been established under the Act Relating to Reconstruction of the Earthquake Affected Structures, 2015 (2072) to implement the reconstruction activities at the district level. Since DCC is newly established organization, development of the coordination mechanism should be considered. The mechanism includes the communication scheme, regular meetings and employment of administrative officers if necessary.

4.2.2 Enhancement of Administrative Formulation for Effective Disaster Management

The Disaster Management system at the district level should be enhanced to be prepared for future disasters. By learning from the past experiences, an institutional arrangement among disaster management related organizations and the construction of public facilities to be used as shelters are the priority.

(1) Reconstruction of Public and Community Buildings Based on Safer Standard

Damage of the public facilities stagnated the response activities such as the provision of public services. Reconstruction of public buildings (government office building, VDC building, community building, and cooperatives) should consider seismic resilient structures. In addition, maintenance and retrofitting of partially damaged government buildings should be implemented.

(2) Development of Vertical Connection (reporting line) and Horizontal Connection (coordination process) on Existing Organization as Disaster Preparedness

The DPRP does not include the administrative communication lines in case of disaster. The information communication network for early warning and damage report should be established. Study of the existing communication gap regarding to vertical and horizontal connection at the time of the Gorkha Earthquake should be implemented and develop the information dissemination flow among disaster management related agencies.

(3) Update of District Disaster Preparedness and Response Plan (DPRP)

The current DPRP was formulated before the earthquake and the situation about DRR has drastically changed after the earthquake. The following are the main items to update DPRP.

- Issues of DRR/Disaster Response
- Institutional arrangement (roles and responsibilities of each organization)
- Hazard risk analysis (utilization of hazard map)
- Information dissemination flow

(4) Formulation of Disaster Risk Management Plan in Municipalities and VDCs

In Sindhupalchowk District, not all VDC/Municipalities have formulated LDRMP and due to the earthquake, existing LDRMPs need to be updated. With the support of the Flagship 4 member organization, districts should support the formulation/update of LDRMP such as providing hazard maps for formulating evacuation plan.

(5) Preparing Hazard Maps in VDCs Level (with location of evacuation sites, logistics centres etc.)

The JICA RRNE Project provided hazard map and its GIS data covering the entire area of Sindhupalchowk. The JICA RRNE Project also provided TOT training to NRA DL-PIU officers in Sindhupalchowk about the utilization of hazard maps and the creation of hazard map. Hazard map preparation at the VDC level requires field surveys (identifying zones of landslide, flood, lightening, drought, fire etc.). The hazard map includes the mapping of local logistic centres, evacuation sites, Heli pads, temporary shelters/camp sites, etc., with community consultation.

(6) Establishment of Administrative Network with DRR Related Organizations

In addition to DDC, the function of DDRC should strengthen to enhance the district DRR capacities. The following items should be implemented regarding institutional capacity building.

- Strengthening the role of DDRC through regular meetings (Update Recovery activities by DDC)
- Regular meetings of Working Groups (District Clusters) in coordination with DDC (facilitation by DLSA)
- Consideration and establishment of administrative cooperative partnerships among neighbouring districts which can be utilized during/after a disaster for reconstruction and disaster risk reduction and management
- Share the progress of reconstruction work to outside organizations and update bi-annually

(7) Development of Interactive Information Communication Framework at District Level

As a part of reconstruction activities, PDRF set the policy to establish DEOC in fourteen affected districts and strengthen its function. The activities include development of information collection and a dissemination system from/to the VDCs, municipalities, wards and on the community level and provision of a toll-free telephonic system at DEOC.

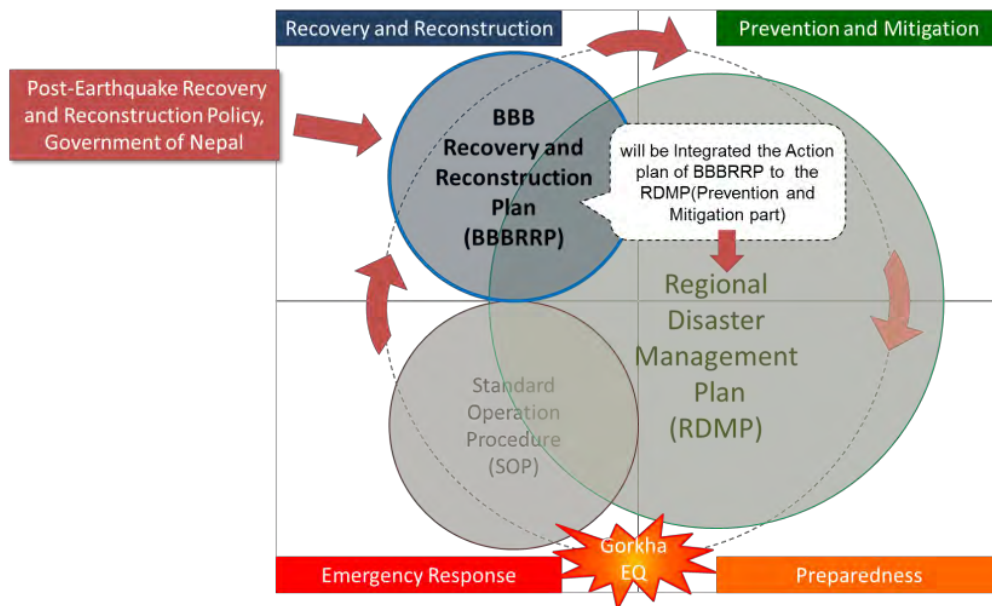
(8) Establishment of Decision Making Network for Recovery and Disaster Management

A Local Disaster Management Committee has been established in line with the formulation of the Disaster Response Plan. It is reported that DM committees are not active; for example there is no regular meeting. Therefore, the capacity development of the DM committees is essential and the following measures should be taken.

- Consideration of District Disaster Risk Management Actions with clear decision making and implementation framework
- Regular coordination meetings between DDRC and Local Disaster Management Committees (LDMCs)



Figure. 4.1 Recovery of Social Services and Development Activities through the Reconstruction of VDC Building in Thokarpa VDC (Left) and Maneshwara VDC (Right: Ongoing)



Source: JICA Project for Assessment of Earthquake Disaster Risk for the Kathmandu Valley

Figure. 4.2 Position of Disaster Management Plan

4.2.3 Improvement of Access to DRR Information for Community and Vulnerable People

The JICA RRNE Project conducted the CBDRM activities and found out the disaster information dissemination system though the administrative lines were not fully understood by the villagers. Since the premonitory phenomenon of landslides are identified by the community people, awareness raising for bottom-up reporting line is indispensable.

(1) Identification of Means of Information Communication for Community and Vulnerable People

Assuring the access to information to people living in remote areas is the challenge for information transmission. It is necessary to identify the issues on information distribution and accessibility for community people and vulnerable people remote areas. In collaboration with VDC, information communication flow should be developed including the utilization of mass media. (radio, television, telecommunications etc.)

(2) Improvement of DRR and Recovery Information System for Community and Vulnerable People

In connection with the activities above, DRR/DRM information sharing methodology should be developed paying careful attention to vulnerable populations.

- Special assistance to vulnerable people (Support system) for information and communication.
- Awareness and orientation programme at community level about information dissemination
- Carry out DRR street drama and community drills at the community level through school activities

(3) Establishment of Reconstruction Information Dissemination System with School-based DRR

In addition to DRR education, school-based DRR activities should be implemented targeting school teachers and students. School-based DRR activities include the establishment of school DM committees, disaster related information collection systems, designation of hub schools for information collection, and strengthening the collaboration among schools.

4.2.4 HRD for Enhancement of Reconstruction and Disaster Management Capability

Human resource development for the enhancement of regional reconstruction and disaster management capability includes the capacity enhancement of government officers and community people.

(1) Establishment of DRR and Reconstruction Organization by Utilizing Existing Groups

In order to effectively reach to large number of beneficiaries, human resource development for the trainers is prerequisite. Development partners have been conducting DRR activities to the district, VDC and community levels. Therefore, the utilization and brush up of former trainees of DRR activities should be implemented. Not only in the public sectors but also provide training to the private sector such as contractors, masons, and carpenters etc., is essential to build a disaster resilient infrastructure.

(2) Human Resource Development for Local Government Officers

Disaster management related government officers are expected to provide trainees to the VDC level and communities in collaboration with development partners. DDRC and DDC will organize the training sessions to line agencies and VDC secretaries targeting DRR/DRM in the short and medium term.

(3) Capacity Building of Local Disaster Management Committees (LDMCs)

DDRC is responsible for the training of local government officers. Two types of training sessions, training for district level and for VDC level, should be designed. The suggested contents of the training are shown the table below.

Table 4.1 Example of training programmes for LDMCs

Training for government officers	
GIS based mapping and analysis training at district level Capacity development for LDMC	ToT for VDC and community Support to establish LDMCs in VDC and ward level
Training for implementation of CBDRM activities	
Basic knowledge of DRR Basic knowledge about hazard in the district Methodology of Hazard/Risk assessment Vulnerability and Capacity Assessment (VCA)	Field survey Creation of Risk Mapping Formulation of community DM Planning

Source: JICA Expert Team

(4) Formulation of Disaster Management volunteer at VDC level

DM volunteer training at VDC levels will be organized by DDRC, LDMC and each VDC to train the volunteers such as food distribution, evacuation support for elderly person and PWDs, and basic first aid. Developing partners such as NRCS and international NGOs has extensive expertise to train the DM volunteers, so collaboration with them is effective.

(5) Human Resource Development of Private Sector

The training for private sector workers should include the necessary actions to be taken during the disaster including clarification of roles and responsibilities of private sector for preparedness, during and post disaster phases. Collaboration of emergency stockpiling should be promoted in the medium to long term for related industries such as the food industry.

(6) Implementation of District Level Disaster Response Drill

By utilizing the hazard map, information transmission flow and disaster management plan can be prepared. Regular disaster management drills should be conducted for better disaster response. The methodology and scale of the earthquake should be considered based on the lessons learned from the earthquake. The table below shows the example of the preparation and implementation of disaster management drills.

Table 4.2 Activities for the preparation and implementation of the drill

Preparation of the drill	
Determine the type of exercise (see table below) Identify the stakeholders (participants, lecturers)	Develop a scenario of the drill Procure necessary material Train the participants of the drill
Implementation of the drill	
Information transmission exercise Evacuation drill Search and rescue activities First aid activities	Food distribution and shelter management Evaluation session of the drill

Source: JICA Expert Team

Table 4.3 Types of Disaster Management Exercises

Type		Contents (Example)
Classroom learning	Seminar Lecture	Basic knowledge of disaster, Hazard Mapping, Disaster management plan, Lessons learned from past disasters, etc.
	Self Learning	Basic learning from documents/books, e-learning, game etc.
Table Top Exercise (TTX)	Non-discussion style	Self Learning of story simulation, computer game, Training of situation estimated by Instructor-led (Image training)
	Discussion style	DIG, Workshop/Group work ,Discussion, Case method, etc.
CPX(Command Post Exercise)		Simulation of Emergency Response
Field Training Exercise (FTX)		Actual Exercise for emergency response in field such as Fire extinguish, Emergency medical, Traffic Control, Evacuation, Gathering to HQ, Establishment of Emergency Response HQ
Comprehensive Exercise		Full scale exercise (combined TTX & FTX), etc.

Source: JICA Project for Assessment of Earthquake Disaster Risk for the Kathmandu Valley

4.2.5 Capacity Building of First-Aid and Search and Rescue Activities

In order to rapidly execute the rescue activities in the event of a disaster, cooperation with each institution shall be strengthened. Emergency search and rescue is directly connected to damage mitigation in the event of a disaster. Human development for enhancement of disaster management capability is necessary.

(1) Formulation of Standard Operating Procedure (SOP) Which Includes First Aid and SAR Activities

SOP which includes first aid and SAR activities at the district level is formulated for the following contents:

Contents (example)

- Flow chart of standard procedure which indicates who, what, when, how should be done during and after disasters.
- Check list of each stakeholder and each response activity such as search and rescue, medical, food provision, etc.
- Several formats for information collection, etc.
- Formulation of SOP in each municipality and VDC
- First aid training at the VDC and ward level (all municipalities and VDCs)
- Search and rescue training at VDC and Ward level (all municipalities and VDCs).
- Disaster awareness and education to community/schools etc., including first aid training (Implemented by Nepal Army/Armed Police Force)

(2) Development of Damage Information Sharing System among Relevant Stakeholders

Lacking in damage data derives from an immature coordination system among stakeholders and no mechanism to accumulate the plan. Data collection and accumulation is essential for future DRR planning such as the construction of health facilities, evacuation shelter and so on. Standardized damage data development should be developed in collaboration with disaster management related agencies. Then, the data accumulation and utilization system should be considered with the lead of DDRC.

(3) Establishment of Emergency Medical and First Aid Stockpiles

During the emergency response phase, people in the affected areas suffered from a deficiency of medical supplies because the transport network was paralysed. Each medical facility should secure the certain number of medical and first aid stock piles. DHO is planning to procure stockpiles in 79 medical facilities with the following procedures:

- Estimation of the necessary amount of stockpiles (For both local residents and non-residents at the time of disaster)
- Construction of stockpile warehouses/containers and installation. (at the sub regional level: three major stock piles and at the district level: one major stock piles)
- Allocation of stockpiles at the health post level (increment of necessary first aid kits at health posts)
- Listing up the necessary emergency goods.
- Procure the items of the stockpile

(4) Designation of Disaster Base Hospital, Medical Centre

Among the major hospitals in the district, it is essential to designate disaster base hospitals and medical centres for effectively handling the disaster victims. These designated hospitals are prioritized to improve their function such as seismic resistant measures, stockpiles, communication facilities, etc.

(5) Enhancement of Medical Information System

In the medium to long term, a district medical information system should be developed by utilizing the network of the hospital and unified medical data. DOH is leading the activities for the enhancement of a medical and health care network and information system in the district in cooperation with I/NGOs and private sectors.

(6) Promotion of Inter-Hospital Cooperation during Disasters and Disaster Base Hospitals

In Japan, municipalities make agreements regarding disaster assistance with other municipalities in order to respond efficiently. For the medical and health sectors, urgent injury care, provision of medical equipment and transport of hospitalized persons are carried out with mutual cooperation in the case of a disaster. In the long-term, it is desirable to make agreements with adjacent districts and national level medical facilities.

Contents of Manual (example)

- Mutual collaboration between district hospital and private hospitals (through the medical and health care network).
- Mutual collaboration between DHO and medical clinics/poly clinics/medical institutions etc.
- Mutual collaboration between DHO and I/NGOs working in the health sector.

4.2.6 Promoting Partnership between Relevant Public Sector and Private Sector for DRM

Partnership between the relevant public sector and private sector for DRM shall be promoted for efficient resource utilization.

(1) Clarification of Sharing Roles between the Relevant Public Sector and Private Sector

(2) Enhancement of Cooperation System between the Relevant Public Sector and Private Sector

In Japan, local governments make agreements with the private sector about providing assistance during a disaster such as providing food and drink from the warehouse of the food company during the emergency response without a purchasing order and local government reimburses

the cost after distributing the material. In Nepal, it is also desirable to study the possibility of cooperation between the public and private sectors during and after disasters and its demarcation.

(3) Enhancement of Capability of Collaboration with the Public Sector and Private Sector

Sharing knowledge between the public and private sectors is the next step of the cooperation. If the collaboration functions effectively, it is desirable to conduct the drills together.

4.2.7 Enhancement of Community Based Disaster Risk Management (CBDRM)

Throughout the implementation of the CBDRM activities in Syaule VDC, the JICA Expert Team observed that the awareness and knowledge of disaster and community-based information dissemination as the challenge for mitigating the damage of disaster. Therefore, CBDRM activities shall be promoted for strengthening DRR/DRM capabilities of community.

(1) Formulation of "Community Disaster Management Committees (CDMCs)"

(2) Formulation of Community DRR/DRM Plans

(3) Formulation of "Community Carte"(Summarized DRR Related Information at Community Level)

(4) Implementation of Community Disaster Management Exercises

CBDRM activities are designed to train the community people to organize "Community Disaster Management Committees (CDMCs)" to prepare and respond to the disaster and train them how to respond in each stage of a disaster. It is desirable to conduct the CBDRM activities in the community of participants since some of the important activities such as making community hazard maps should be developed through the town watching at the community level.

Table 4.4 Example of the contents of CBDRM activities

Content of the CBDRM activities
Basic information about disaster (earthquake and landslide) <ul style="list-style-type: none"> • Methodology to socializing Community - Vulnerability Assessment - Community Resource Mapping - Seasonal Calendar • Participatory Community Risk Assessment (Town watching to identify the risk/Creation of community hazard map) • Participatory Disaster Risk Management Planning <ul style="list-style-type: none"> -Action plan such as evacuation plan, and management of shelter • Practical training for community (Training of first aid and SAR) • Methodology for community evacuation exercise -Community early warning -Evacuation -SAR/First Aid -Relief material/distribution -Shelter Management <ul style="list-style-type: none"> • Implementation and evaluation of the drill

Source: JICA Expert Team



Source: Flagship 4 Handbook, NRRC

Figure 4.1 Minimum Characteristics for a Disaster Resilient Community in Nepal

4.2.8 Enhancement of Public Awareness of DRR/DRM

Nepal is a landslide prone country even before the earthquake and it is observed that people are so-called “Living with landslide”. Throughout the CBDRM activities and interviews with the villagers living in landslide affected areas, it was observed that villagers often underestimate the risk of landslide. It is mainly due to the lack of knowledge of the mechanism of disasters such as landslide and earthquake. Therefore, the enhancement of public awareness about disaster risk reduction/management shall be promoted.

(1) Construction of Monuments to Enhance the Culture of Disaster Prevention Awareness

National Reconstruction and Rehabilitation Policy, 2072 prescribes that each district should construct an earthquake park so as to not forget the tragedy of the disaster for future generations. The contents of the park can be the record of damage, preserved collapsed housing, and other visually attractive items.

13.1.2.

In memory of the district residents, those who deceased and those who were injured during the earthquake, **an earthquake park shall be constructed at a district headquarters or any appropriated place**, in each of the most earthquake affected districts.

Source: National Reconstruction and Rehabilitation Policy, 2072

(2) Development of Handbook of DRR/DRM for Households

(3) Implementation of Awareness-Raising Programmes on DRR/DRM

(4) Promotion of Preparation of Emergency Stockpiles by Household Level

In addition to CBDRM activities, awareness raising activities at the household level should be implemented so that individuals can obtain the proper knowledge of disaster. Awareness raising throughout the media such as radio and TV should also be promoted.

Contents for handbook of DRR/DRM for households

- Learning about disasters (earthquake mechanisms, history, disaster risks, etc.)
- To do/Not to do in case of disaster
- Preparedness at household level (Making earthquake resilient houses, preparing emergency stockpiles)



Source: The JICA Project for Assessment of Earthquake Disaster Risk for the Kathmandu Valley
Figure 4.2 Example of Pamphlet for DRR Awareness Raising at Household



Source: JICA Expert Team
Picture 4.1 Disaster Risk Awareness-Raising Activity at Landslide At-Risk Community (Syaule, Sindhupalchowk)

4.3 Recovery and Development of Resilient Infrastructure

A large number of the infrastructure such as roads, bridges, irrigation facilities, hydropower facilities, and government buildings were damaged by the earthquake and landslides. In addition, there are a lot of seasonal roads, including among settlements where landslides often hit Araniko highway and main roads especially in rainy season, which were affected. A robust transportation

and logistics network contributes to build safer and more resilient districts. Early recovery and seismic resistance of the infrastructure shall be promoted for the development of safer infrastructure and lifelines. The following policies and actions should be promoted for the development of resilient infrastructure.

4.3.1 Recovery and Development of Seismic Resistance and Safer Road Networks

As shown in the concept of BBB, the recovery and reconstruction of the roads and bridges shall be stronger than before the earthquake. Pavement, slope protection measures and seismic resistant structures should be considered.

(1) Recovery of Roads and Bridges (road network of national, district, municipality and VDC level)

In the early recovery stage, it is essential to prioritize the urgent restoration of the transportation to facilitate the urgent recovery projects. After carrying out investigation on earthquake damaged roads, temporary recovery measures for nationally and regionally important roads (minimum recovery, including debris removal, side protection, etc. to secure people's mobility) should be carried out.

(2) Development of Resilient Road Network

In order to develop the road transport networks, the following items should be implemented.

- Identification of emergency road networks at the district level and municipality/VDC level
- Seismic diagnosis and retrofitting/reconstruction of bridges along the emergency road network
- Upgrade and maintenance of identified road networks (Eg. Road widening, install side drain, side protection, construct retaining walls, road turning management, road mirror installation, etc.)
- Seismic resistance of buildings along designated evacuation routes/emergency roads
- Strict Implementation of RoW along the district core road network
- Regular inspection and maintenance of Emergency Road Network

QIPs-09 Recovery of transportation and irrigation facilities improvement of Road facilities at Bhotechaur VDC and a part of Melamchi Municipality, Bhotechaur



Source: JICA Project Team, QIPs

Figure. 4.3 Recovery of Road Facilities with Retaining Wall, Side Drains and Cross Drains in Bhotechaur (Melamchi Municipality), Sindhupalchowk

4.3.2 Recovery and Development of Seismic Resistant and Safer Trails

In the Sindhupalchowk District, the majority of the transport networks are categorized as trails and their recovery shall be prioritized in the early stage of recovery to promote housing reconstruction.

(1) Recovery of Trails Including Trail Bridges to Secure Local Transportation

As well as the recovery of the road transportation, the recovery of the trails and bridges need to be prioritized by implementing the following items:

- Implementing surveys on damaged trails and trail bridges
- Repair and maintenance of foot trails
- Reconstruction of trail bridges
- Repair and maintenance of trail bridges
- Construction of temporary crossings
- Recovery of damaged facilities along foot trails. (rest places, shelters etc.)

(2) Developing Trails Network and Securing Alternative Access Routes to Settlement Areas

After implementing the urgent recovery of trails, it is essential to secure alternative access routes in case a landslide has blocked the main route. The route should be considered in the convenience of residents and interconnect with other roads to secure the redundancy of transportation.

4.3.3 Development of Disaster Management Facilities and Designate Emergency Roads

A disaster management base, emergency road network shall be developed for smooth emergency rescue, evacuation and recovery activities for the emergency response phase of the disaster.

(1) Consideration of Emergency Transportation and Logistics Plan

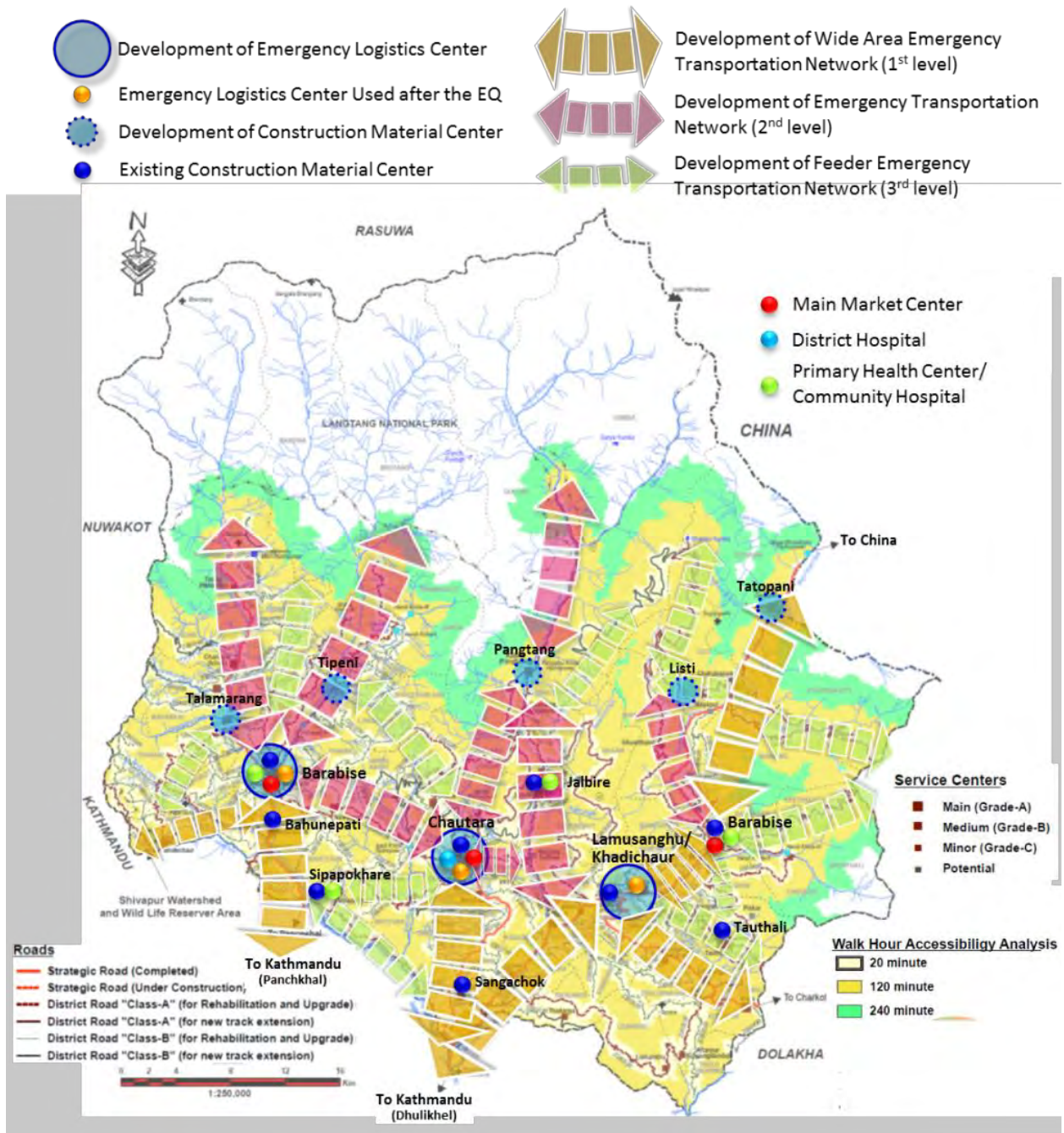
(2) Development of Disaster Management Base Facilities and Network of Base Facilities

As shown in the figure on the next page, consideration of emergency transport networks and disaster management base facilities are essential to facilitate the early recovery from the disaster.

The map is developed by identifying the important roads and facilities in the area based on damage status, lessons learned from the earthquake and District Transport Master Plan(DTMP) etc., and designate those roads as roads for emergency transportation.

In parallel to developing the transport network, the planning and designation of disaster management base facilities should be implemented. The current facility should be improved by procuring emergency stockpiles and equipment for opening roads to function as the disaster management base. Then the facilities should be connected as a part of network for base facilities from municipalities/VDCs and neighbouring districts.

Sindhupalchowk District BBB Rehabilitation and Recovery Plan 2073/74–2082/2083



Source: JICA Project Team, Base Map: DTMP of Sindhupalchowk, 2013

Figure. 4.4 Image of Emergency Logistics Centre and Emergency Transportation Network Development (Base Map: District Transport Prospective Plan in DTMP of Sindhupalchowk, 2013)

(3) Enhancement of Disaster Management Functions of Schools (seismic resistant measures, stockpile, communication facilities etc.)

In parallel with the implementation of school-based DRR, seismic physical development of school buildings such as seismic retrofitting in all schools in the Sindhupalchowk District and procuring emergency stockpiles for the students and neighbours of the school. In order to disseminate disaster related information, communication equipment such as loud speakers and handy speakers should also be equipped.

(4) Development of Emergency Road Network Including Alternative Way

In relation to the designation of an emergency transportation road network mentioned in the previous part, emergency road networks should be developed such as the transportation network which will be used in the emergency response phase after an earthquake and improvement of such roads and bridges should be prioritized.

(5) Designation, Development and Dissemination of Evacuation Sites

In order to secure evacuation sites, it is necessary to designate the open spaces as evacuation sites based on land availability, number of residents and visitors in the areas. Once a site is designated, improvement of the site to be utilized for evacuation site entails. The improvement includes installation of sign boards and evacuation maps.

(6) Designation, Development of Temporary Heliports

When the earthquake occurred, major road networks were blocked and a lot of victims were rescued by helicopter. In preparation for future disasters, designation of a heliport site based on land availability and road accessibility from disaster management bases and hospitals/PHC is essential. Land improvement of the temporary heliports will be implemented after the designation.

(7) Development of Stockpile Warehouses, and Ensuring Disaster Stockpile

Learning from the experience that areas severely affected by the earthquake which were isolated for several days, the installation of emergency stockpiles is vital. The following measures are the actions to be taken regarding the installation of emergency stockpiles:

- Development of stockpile warehouses and their installation at the district level.
- Procuring response and rescue equipment (boots, jackets, gloves, ropes, shovels, helmets, life boats etc.)
- Provisioning a fire brigade at all warehouses (sub-district level)/ managed by municipalities and LDMCs
- Ensuring full time operation
- Development of stockpile warehouses and their installation at the VDC level
- Development of stockpile warehouses and their installation at the community level
- Ensuring timely checks and maintenance of stockpiles at all levels

(8) Recovery of Resilient Lifeline

The earthquake devastated lifelines such as water supply, sewage and electric power plants. The recovery of such facilities should also be considered disaster resilience.

(9) Seismic Resistant Measures for Water Pipe Lines and Facilities

In order to strengthen the seismic resistance of the facilities, site investigation of existing water supply facilities will be implemented and the preparation of seismic resistant retrofitting plans will be carried out based on the results. Seismic resistance measures for existing (important projects on priority basis) water supply projects are also prioritized.

(10) Recovery of Seismic Resistant Sewage Facilities

The priority for the sewage facilities development is recovery and seismic resistance of sewer pipe lines, facilities (drainage, sewage, and sanitation system) at the municipal and town areas. Restoration and seismic resistant retrofitting of sewage facilities in rural areas entails urban areas. Based on the needs of the beneficiaries, the new construction of sewerage treatment systems at the municipal level (feasibility study and necessary development) should be considered. At the household level, the installation of septic tanks with soak pit should be promoted.

(11) Recovery and Strengthening of Electricity Supply System

Since power houses were severely damaged by the earthquake, site investigation to identify the damage of the facilities and the fundamental future amount is necessary. When reconstructing the facilities, seismic resistant building methods should be applied or seismic retrofitting should be applied if the damage was minor.

At the household level, repairing electric meters and the utilization of solar power as a backup of electric supply should be promoted in public facilities. Renewable energy sources such as wind energy should also be considered in the long term plan.



Source: JICAProject Team

Picture 4.2 Hydropower Station in the Sindhupalchowk District

4.4 Enhancement of Land Use Management and Area Planning

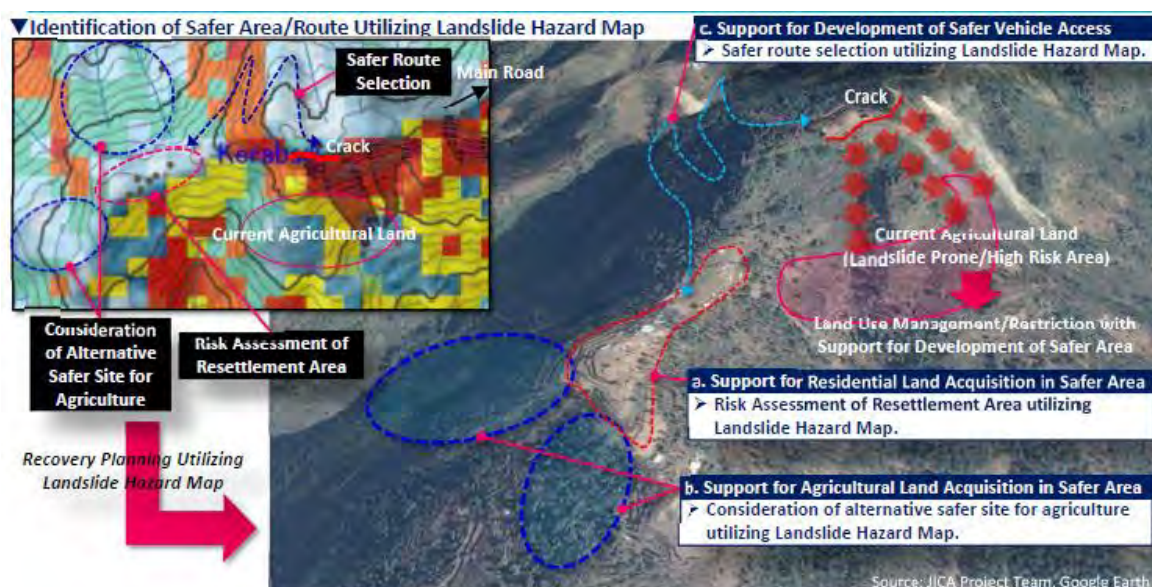
There are still many people who are forced to live in temporary houses or landslide prone areas because of the earthquake. Appropriate land use planning and management based on the disaster risk shall be promoted with building regulations and landslide prevention infrastructures. The following policies should be promoted for the enhancement of land use management and area planning.

4.4.1 Designation of land Use Management such as Restricted Habitation Area

In order to reduce the risk of landslides, land use restriction, in consideration of the disaster prone areas based on hazard assessment referring to hazard maps is the priority in the terms of land use management.

(1) Landslide Hazard Assessment and Identification of Hazard Area

By utilizing the hazard map prepared by the JICA RRNE Project, it is essential to prepare landslide hazard maps in landslide prone areas. Participants of the TOT training carried out by the JICA RRNE Project should instruct district level engineers about the use of Landslide Hazard Maps. Before selecting the site, implementation of field surveys, analysis and identification of hazard areas based on actual conditions should be carried out. The figure below is the example of Syaule VDC identified as a high risk area of landslides.



Source: JICA Expert Team

Figure 4.3 Example of Ward No.8 Syaule VDC

(2) Risk Assessment of Existing Land Use Based on Disaster Risk

Based on the hazard assessment, the district shall prepare the land use map of the district, municipalities and VDCs. Then, preparation of Risk Sensitive Land Use Plan(RSLUP) of municipalities based on the above mentioned analysis shall be done. (Comparing the hazardous areas and current land use.) This is utilized for the identification of disaster prone areas which is threatening to settlements and human life.

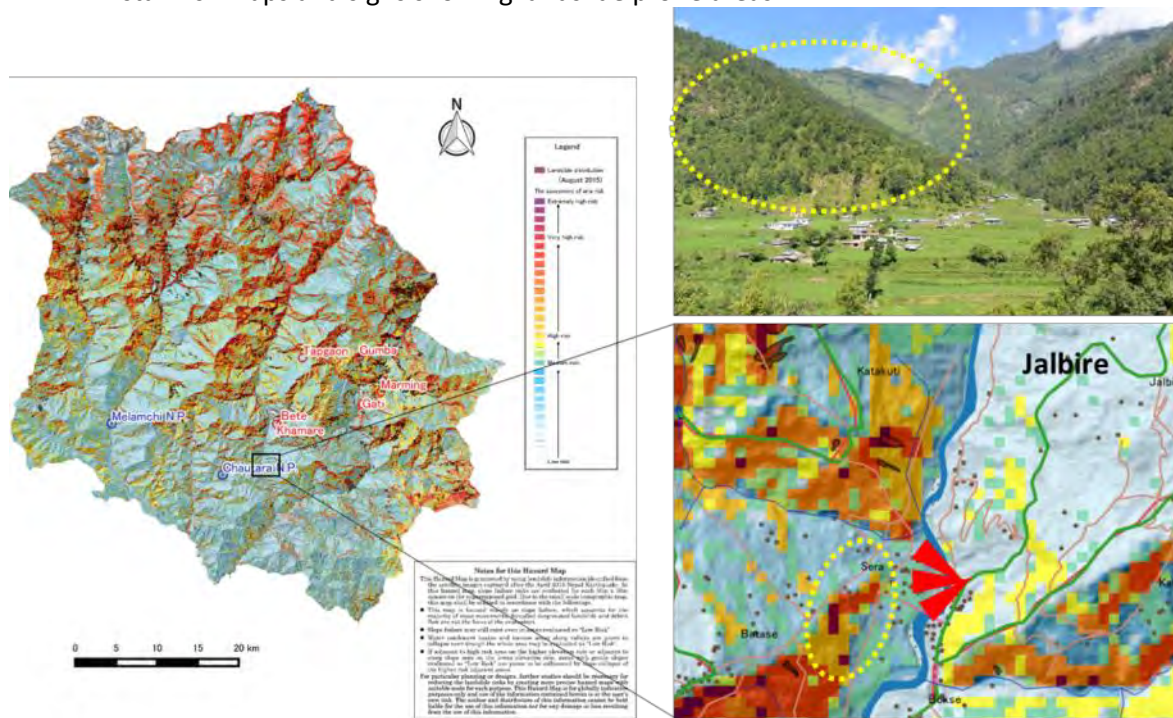
(3) Consideration of Countermeasures of Landslides at Disaster Prone Residential Areas

The hazard map should be utilized to identify landslide hazard areas for the preparation of LDRMP. This is also useful in considering countermeasures for landslide protection on priority

basis such as setting a gabion wall, construction of landslide prevention infrastructure and soil improvement, etc.

(4) Promoting Understanding of Landslide Prone Areas

Hazard maps are maps to easily identify the landslide risk areas. In this sense, careful interpretation of the hazard map is essential. For example, even though the residential areas are marked as less risky, if a hill over the residential areas is marked as high risk, the residential areas are more likely to be damaged by an earthquake (Please refer to the figure below). NRA officers who are trained in landslide hazard map utilization should be the lecturers to engineers and planners on how to understand the contents of the hazard map. The result will be utilized to install risk maps and signs showing landslide prone areas.



Source: JICA Expert Team

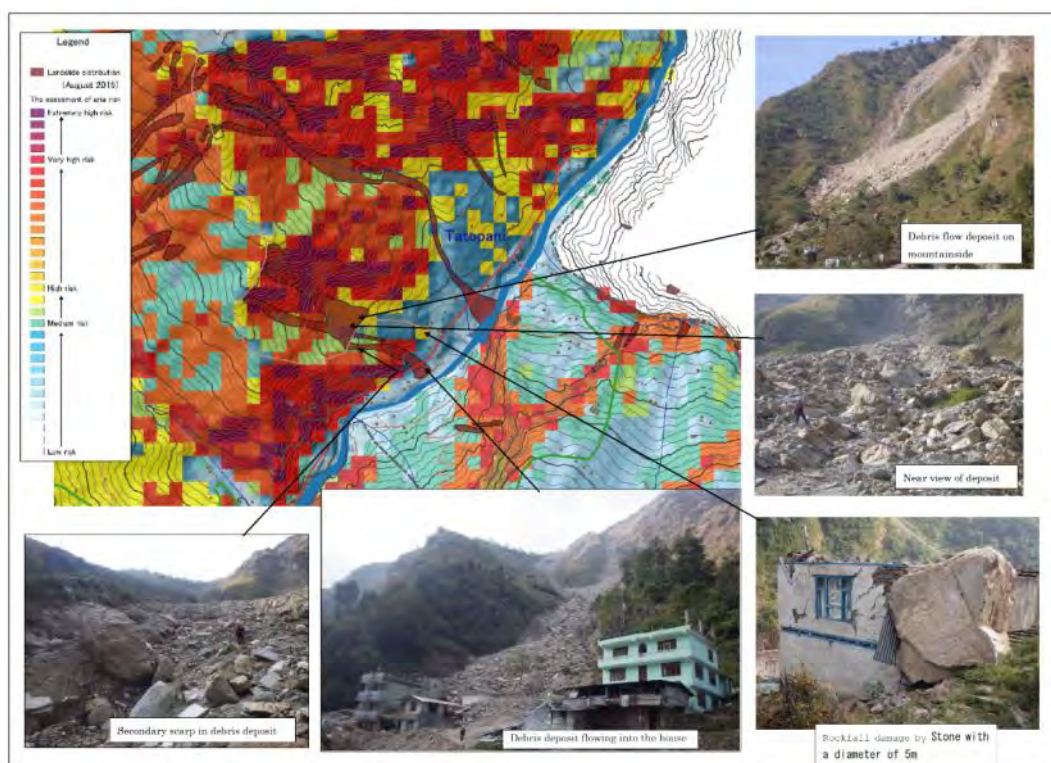
Figure 4.4 Images of Landslide Hazard Assessment

(5) Consideration of Land Use Restriction and Building Regulation

When considering the revision of land use and building regulations (on the basis of analysis and comparison of geomorphological maps, hazard analysis and actual damage) construction of the public buildings in high risk areas should be restricted.

(6) Designation of the Areas Necessary to Integrated Settlement Development

Recovery and development planning for landslide high risk areas should consider the above mentioned revised guidelines/regulations. Reconstruction of the settlement buildings should be implemented on the basis of the revised guidelines/ regulations (policy implementation).



Source: JICA Expert Team

Figure 4.5 Enlarged Landslide Hazard Map and Field Status at Tatopani VDC

4.4.2 Consideration of Forest Preservation and Management

Due to the increasing need of fire wood and construction materials in the affected areas and landslides, deforestation is an issue in disaster affected areas. Protection against landslides and awareness of forest encroachment shall be considered.

(1) Protection from Landslides Induced by an Earthquake

In order to prevent future landslides, measures such as setting a gabion wall, construction of landslide prevention infrastructure and soil improvement should be implemented.

(2) Plantation at the Landslide Affected Areas

The District Forest office is planning to plant approx. 10 sq. m of deforestation land for the purpose of forest preservation as a long term project.

(3) Awareness Programme to Manage Forest Encroachment

Deforestation caused by encroachment is a challenge for forest conservation. Community monitoring systems and awareness raising events for the proper use of forest resources should be planned.

(4) Forest preservation and management through sub-watershed level planning (Implementing SABHIAA Model)

As a part of forest protection activities, implementation of landslide protection, forest preservation, land protection, participatory watershed preservation/conservation of water sources/drinking water sources should be introduced by applying the SABHIAA model.



Source:JICA Project Team

Figure 4.6 Images of Landslide Protection (Right: Example in Japan)

CHAPTER 5 RECOVERY AND DEVELOPMENT OF REGIONAL ECONOMY

5.1 Introduction

Recovery of the agricultural sector is mainly composed of the reconstruction of agriculture related facilities such as warehouses and food processing facilities, and the improvement of farming such as improved seed and vegetable growing . The livestock industry was also damaged due to the collapse of sheds because of the earthquake and landslides. Since livestock is a major asset for farmers in the district, compensation of the loss of assets is also a priority of the economic development sector.

The Sindhupalchowk District has various tourism sources such as river front resorts and trekking routes with beautiful views. Transportation to these sites were damaged by landslides especially near Barabise Municipality. After the urgent recovery, integrated tourism planning is essential for future economic growth.

People engaging in cottage the industry lost their source of livelihood because their workplaces were at their homes which were built using low masonry structures. Providing new employment opportunities to the affected population should be prioritized.

Summary: Policies for Recovery and Development of Regional Economy

Recovery and Development of Regional Economy	Recovery and Promotion of Agriculture	<ul style="list-style-type: none"> ● Agricultural buildings and infrastructure recovery ● Revitalization of agricultural activities ● Agricultural training for farmers ● Agricultural logistics and supply chain development
	Recovery and Promotion of Tourism	<ul style="list-style-type: none"> ● Tourism infrastructure rehabilitation and development ● Revitalize Community Based Tourism ● Tourism resources development ● HRD for tourism sector
	Recovery of Trade and Other Industry	<ul style="list-style-type: none"> ● Recovery and Promotion of Small industry ● HRD and job creation on small and cottage Industry

5.2 Recovery and Promotion of Agriculture

The damage to agriculture deprived a majority of the population of an income source. Women mainly engage in agriculture, and female headed households are socially disadvantaged compared to male headed households. Recovering agricultural buildings, facilities and infrastructures, supporting agricultural activities, developing productivity, and improving agricultural distribution system and supply chain shall be promoted. The following policies and actions should be promoted for the recovery and promotion of agriculture.

5.2.1 Recovery of Agricultural Buildings, Facilities and Infrastructures

Agricultural buildings, facilities and infrastructures shall be recovered at the early stage of the recovery period to function as supporting facilities for farmers, a majority of the population.

(1) Implementation of Surveys on the Damage by the Earthquake in Each Affected Area

Field surveys and workshops with farmers for identifying the issues of the affected areas should be implemented to prioritize the facility rehabilitation. The report should be prepared from the collected information for further planning purposes.

(2) Rehabilitation and Reconstruction of Agricultural Buildings and Facilities

Based on the fact finding survey, the following work items are identified as the urgent projects for rehabilitation and reconstruction:

- Damage investigation of agricultural and forestry services (agriculture, livestock and forestry service offices).
- Reconstruction of the damaged buildings and facilities (agriculture, livestock and forestry service offices)
- Maintenance and retrofitting of partially damaged agriculture, livestock and forestry services building facilities
- Retrofitting and strengthening of partially damaged agriculture, livestock and forestry services building facilities
- Rehabilitation and reconstruction support for collection centres (agriculture and milk).

QIPs-06 Recovery of agricultural activities through reconstruction of District Agriculture Development Office Building, Chautara

QIPs-07 Recovery of agriculture activities through reconstruction of small farmer Agriculture Product Collection Centre, Bhotechaur



Source: JICA Expert Team, QIPs

Figure. 5.1 Recovery of Agricultural Activities through Reconstruction of District Agriculture Development Office (DADO) Building in Chautara Municipality



Source: JICA Project Team, QIPs

Figure. 5.2 Recovery of Agricultural Activities through Reconstruction of Small Farmer Agriculture Product Collection Centre in Bhotechaur (Melamchi Municipality), Sindhupalchowk

(3) Recovery of Damaged Irrigation Facilities

Since the earthquake caused the damage of irrigation facilities and thus water resource deficiency, the immediate recovery of irrigation facilities is essential. The maintenance, retrofitting and improvement of irrigation facilities should also be implemented in the early stage of recovery.

(4) Recovery of Damaged Community Buildings of Farmers

DADO recognized 146 buildings as the target for recovery and rehabilitation. First, damage investigation of farmers' damaged community buildings should be implemented and support for damaged buildings (agriculture cooperatives/community forest buildings, etc.) is related to the recovery.

(5) Support to Developing New Agricultural Sites for Farmers Affected by Landslides

Farmers living in landslide prone areas either voluntarily or involuntarily relocated to avoid the damage caused by landslides. Since the farmers lost their source of income, it is essential to secure arable lands in the new settlement and to give material and financial support to resume their agriculture practice is required. If the agricultural land damaged by the landslides is regarded as low risk by the hazard map, recovery of the agricultural land should be considered.

(6) Development of Farmers' Awareness for Landslide Hazardous Areas

Community workshop for learning about landslide hazards (in the leadership of DDRC, each LDRMC shall initiate awareness on the VDC/ward and community level) should be implemented to keep farmers away from the high risk areas.

5.2.2 Supporting Revitalization of Agricultural Activities

Revitalization activities of agriculture shall be supported by introducing the high productivity products for the benefit of farmers.

(1) Establishment of a Support Scheme for Affected Farmers

Arrangement and provision of the seeds, fertilizers and other agricultural inputs to farmers at a cheaper price is the priority financial support for the farmers to recover their production.

(2) Financial Support to Revitalize Agriculture Activities

(3) Financial Support to Purchase Agricultural Equipment

Cash transfer to purchase the livestock, seeds, fertilizers and agricultural equipment should be implemented for the farmers who lost their assets because of the earthquake.

5.2.3 Capacity Development for Farmers to Improve Agricultural Technique and Productivity

Agricultural techniques and improvement of productivity shall be developed, and capacity building of farmers regarding agricultural techniques shall be promoted.

(1) Development and Capacity Building of Farmers for Cultivation Technique

Participants of the cluster workshop raised the issue that farmers are engaging in agriculture using primitive methods with low productivity. In order to increase the income of the farmers, DADO recognized the following measures are effective and should be implemented:

- Investigating the current cultivation techniques and breeding practices
- Training for improved vegetable/horticulture farming including potatoes, tomatoes, green vegetables, etc. and commercial farming techniques
- Introducing new techniques and devices
- Training for improved cereal crop farming including rice, maize, wheat, millet etc.
- Introducing the new techniques and devices
- Training for improved animal husbandry (including poultry, fish farming, goat/sheep, cows/buffalo rearing etc.)
- Training for advance horticulture including fruit farming (mango, pomegranate, plums, pears, guava, etc.)
- Training and technology transfer on improved/quality seed production

(2) Introduction of Value Added Agricultural techniques

In order to promote agriculture as the major source of economic development, new products which meet the needs of the market should be introduced. In order to introduce the new products the following steps are necessary:

- Soil survey/cultivation survey for identifying suitable crops for specific areas.
- Exhibitions and expos focusing on the best agricultural practices.
- Support in shifting cropping practices (traditional practices to value adding new crops).
- Introduction of post-harvesting techniques (grading, processing, packaging and labelling).
- Training and technology transfer.
- Establishment of a Custom Hiring Centre (as envisioned by Prime Ministers Agriculture Modernization Programme)



Source: JICA Project Team, QIPs

Picture 5.1 Training on Quality Seed Production in Sindhupalchowk District



Source: JICA Project Team, QIPs

Picture 5.2 Training on Vegetable Farming Practices for Women in Sindhupalchowk District



Source: JICA Project Team, QIPs

Picture 5.3 Training on Maize Farming Practices in the Sindhupalchowk District



Figure. 5.3 Examples of Agricultural Training Procedures for Farmers

5.2.4 Improvement of Agricultural Distribution System and Supply Chain

One of the bottlenecks of the agricultural development in the Sindhupalchowk District is an immature agricultural distribution system and supply chain which should be improved in order to be price competitive.

(1) Promotion of Expanding Sales Channel by Partnership with Public Sector and Private Sector

(2) Improvement of Supply Chain of Agricultural Products

Improvement of sales channel can be achieved by logistic network improvement and demand-oriented production. In order to expand the market, the following measures should be taken:

- Investigating current issues of the agricultural distribution system and studying the supply and demand of agricultural products
- Investigating needs and cost for opening new sales channels
- Studying possible markets for the agricultural products
- Expansion of weekly market (Haat Bazars) with the provision of processing and packaging of local production
- Support to establish gifts shops, souvenir shops, product shops, etc., prepared from local materials/products
- Promoting manufacturing of agro-based goods by partnership with public sector and private sector (from local products)
- Promoting supply and distribution system by partnership with public sector and private sector (sales channel)



Source: JICA Project Team, QIPs

Picture 5.4 Exhibition of Local Vegetables and Foods in Sindhupalchowk District

5.3 Recovery and Promotion of Tourism

Revenue of the tourist industry will be stagnated and this causes the delay of the reconstruction of the tourism infrastructure. The tourism sector currently falls into vicious cycle. Early recovery and reconstruction of tourism facilities and trails damaged in the earthquake shall be promoted in order to attract tourists. Also, new tourism resources, such as community based tourism, shall

be developed in order to vitalize the grass root level. Additionally, regional tourism shall be promoted for increasing the number of tourists.

5.3.1 Rehabilitation and Development of Tourism Related Infrastructure

Early recovery and reconstruction of tourism facilities and trails damaged in the earthquake shall be promoted in order to attract tourists.

(1) Rehabilitation and Improvement of Trekking Routes

(2) Improvement of Tourist Facilities Along Trekking Routes

(3) Support for Damaged Hotels, Guest Houses and Lodges

(4) Procurement of Equipment to Recover Damaged Tourist Facilities

Damage of the tourism infrastructure is prerequisite for tourism development in the Sindhupalchowk District. Items to be recovered include trekking routes and tourism facilities alongside the trekking routes such as toilets, restaurants, hotels, guest houses and lodges. It is necessary to support the recovery or reconstruction of hotels, guest houses and lodges such as providing low interest loans.

(5) Recovery of Cultural Heritages and Tourist Sites

The target of the reconstruction and improvement of tourist sites are forts, hot water springs, etc. and reconstruction and recovery of the cultural heritage sites such as temples, monasteries, Stupas, etc., should also be targeted.

(6) Institutional Strengthening of Local Tourism Organization

In order to build from the bottom up in the tourism industry, local tourism organizations that are in charge of coordinating small-scale tourism enterprises and design the tourism programme which is unique to the region should be considered. After the capacity assessment, training sessions for tourism entrepreneurs (hospitality, hotel management trainings etc.), and those who work in the tourism sector (cook, waiter, housekeeping etc.) should be implemented.

(7) Improvement of Services and Facilities for Home-stay and Accommodation

In the rural areas, home-stay facilities were available to tourists as a part of community tourism. The home-stay experience is popular among tourists because they can experience traditional living styles. The earthquake damaged the houses which were used for home-stay lodging. Reconstruction of these houses should be prioritized and support to upgrade the services and facilities should be strategically considered. The contents include the training to formulate the group or home-stay owners, marketing of home-stay and facility improvement, such as hot showers.

(8) Development of Tourism Routes and Trekking Routes

Trekking routes were heavily damaged by the earthquake and the recovery of the routes is prioritized because trekking tourist are a benefit to the local economy, for businesses such as restaurants, accommodation and souvenirs. Not only recovering the existing routes, new tourism

routes should be considered which links to well-known tourist sites to increase the convenience and length of stay.

(9) Development of Tourist Sites, Accommodations and Surrounding Environment

In order to attract the number of tourists, tourist infrastructure development should be promoted. Following items are suggested items to be developed:

Example of tourist site development

- Development of tourist information centre
- Development of tourist information management and tracking system for safety
- Development of camping sites (CS), sheds, rest houses (RH), etc., for providing accommodation to travellers
- Installation of notice boards, signs, maps and information boards for tourist information at major tourist sites
- Construction of public toilets in major tourist sites
- Development of tourist parks and recreational facilities

5.3.2 Revitalize Community Based Tourism to Benefit the Residents

Community based tourism shall be developed to increase the number of tourists from inside and outside of Nepal. The services to accept foreign tourists such as toilets, hot showers and signs in English can contribute to increase the unit cost per traveller.

(1) Excavation of New Tourism Resources

(2) Promotion of Excavated New Tourism Resources and Surrounding Environment

In order to vitalize the tourism industry, new tourism resources should be investigated. Considering the area development as a tourism zone, mapping for tourism resources with current trekking routes, tourism resources and facilities should be investigated. Based on the result, preparation of the tourist maps including new tourism sites/information should be developed.

Preparation of tourism packages for new tourist sites, publicity and marketing should be developed for long term development.



Source: JICA Project Team, QIPs

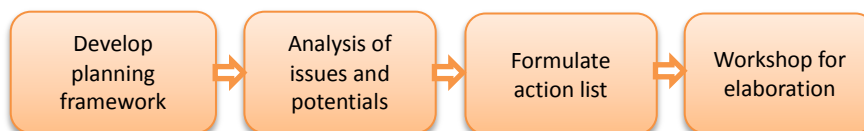
Picture 5. 5 Image of Tourism Resources in Jalbire VDC (Left) and Thulopakhar VDC (Right)

5.3.3 Recovery and Development of Regional Tourism Resources

Tourism resources shall be developed in order to increase the number of tourists.

(1) Formulation of “District Tourism Development Plan”

Currently, the Sindhupalchowk District has not formulated District Tourism Development Plan. In order to design the long term strategy for tourism development formulation is effective. An example of the District Tourism Development Plan in the Gorkha District is shown Table 5.1.



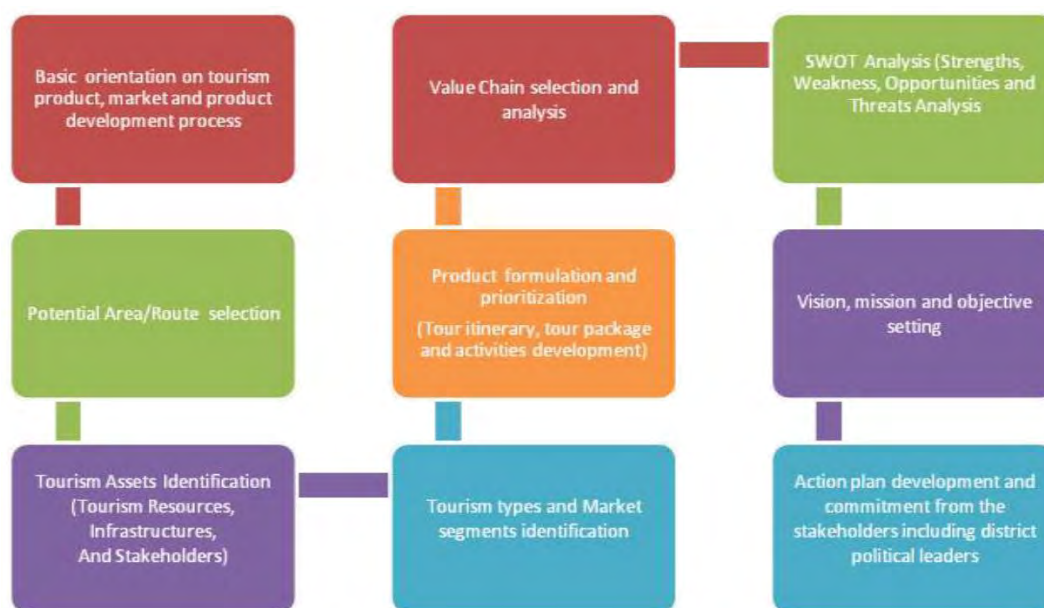
Source: JICA Project Team

Figure. 5.4 Planning process for tourism development plan

Table 5.1 Example Contents of District Tourism Development Plan

Example Contents of District Tourism Development Plan
1. Background of Plan
2. Major Tourism Properties (Heritage) of the District
3. Current Situation of District's Tourism Development
4. Selected Tourism Products
5. Strategic Tourism Action Plan
5.1. Tourism Product Development Plan
5.2. Capacity Development Plan
5.3. Tourism Infrastructure Development Plan
5.4. Promotion and Marketing Plan
5.5. Tourism Employment Generation and Entrepreneurship Development Plan
5.6. Natural, Cultural and Archaeological Monument Conservation Plan
6. Implementation, Monitoring and Evaluation

Source: Strategic Tourism Action Plan, Gorkha District, 2012 (Edited by JICA Project Team)



Source: Strategic Tourism Action Plan, Gorkha District, 2012

Figure. 5.5 Image of Planning Procedure of District Tourism Development Plan

(2) Support for Damaged Tourism Business and Tour Guide Companies

(3) Advertise and Promote New Tourism Site to Attract Tourists

In order to attract the tourists, the following actions should be implemented:

- Damage investigation of people and organizations related to tourism.
- Support for those people and organizations.
- Development and improvement of tourist information boards and tourism website with the provision with routine updates.
- Preparation of a documentary related to the tourism of the Sindhupalchowk District.
- Broadcast in national media and broadcast in online media (Facebook YouTube etc.).
- Implementation of tourism promotion activities (distribution of handbook with abundant local information made by local people, etc.)
- Preparation of tourism hand books, palm plates and brochures and their publication (distribution through NTB and district tourist information centres etc.).

5.3.4 Human Resource Development on Tourism

Human resource development on tourism shall be promoted for enhancing hospitality and increasing the number of tourists. The following items should be promoted.

(1) Hospitality Training for the Workers of Tourism Industries

Holding workshops and events for improving hospitality (specially focused on the tourism workers along tourist sites).

(2) Hospitality Training for Residents in Tourist Areas

Holding workshops and events for improving the hospitality (specially focused for inhabitants/ community around the tourist sites)

(3) Establishment and Development of Local Tourism Organizations

In order to newly establish the local tourism organizations, capacity and needs assessment of existing tourism organizations should be implemented to formulate local tourism organization at the community level focusing on specific tourist sites.



Source: JICA Project Team

Picture 5.6 Attractive Scenes in Jalbire VDC, Sindhupalchowk District

5.4 Recovery and Promotion of Trade and Other Industry

An undeveloped logistic network is a hindrance in the development medium and large scale industry. The damage of the earthquake deteriorated the commerce and trading conditions. Early recovery of trade and other industry such as small industry (garment, retailing, trading, logistics, construction, handicraft industry) shall be supported. And an economic enhancement programme shall be implemented. A long-term blue print for sustaining the skilled and productive labour force in the district is the key challenge for the industrial sector.

5.4.1 Recovery and Promotion of Small Industry

Small industries shall be supported by the economic enhancement programmes and partnership with the public sector for increasing income and developing regional economy. The target industries are garment, retail, trading, logistics, construction, handicraft and so on.

(1) Recovery of Working Environment and Trading System of Small Industry

The recovery activities of small industry include support for the revitalization of the garment, handicrafts, processing and packaging sectors. Socio-economic surveys should be implemented to identify the issues to prioritize the beneficiaries and sectors.

(2) Developing Support Programme for Initial Investment

For those who lost the source of their income by the earthquake, support for starting up new business is necessary. The following items should be implemented to support the needy population:

- Formulation of groups of entrepreneurs at the community level (cooperative model)
- Training/capacity development programmes for starting new business
- Seed money support for business start-ups

- Promotion of micro-finance support (at low interest rate) through banks and cooperatives

(3) Enhancement of Partnership with the Public Sector and Private Sector to Expand Business

(4) Enhancement of Trade and Logistics System by Public Private Partnership

(5) Expansion of Business Scales, Opportunities and Channels by Public Private Partnership

In order to vitalize the industry at the district level, support for the public sector regarding infrastructure development is essential. The business environment of industry depends on location, such as distance from the major roads, availability of water sources, and logistic support to export to other countries/regions. Both the public and private sector should recognize the priority for industry to invest and for creating a strategy for development. In order to support the marketing of local industry, the public sector should support holding local product fairs, support the establishment of a channel for marketing and financial support for starting up new businesses.

5.4.2 Human Resource Development for Small and Cottage Industry

Human resource capability and employment opportunities on small industries shall be developed to revitalize and develop regional economy and increase income.

(1) Establish and Support Job Training Programme for Developing Small Industry

(2) Support for Vocational Training Designed for Vulnerable, Deprived and Marginalized People

Not only the support for the industry, but also support for the individuals who are engaging in the small cottage industry is essential. Training to improve the quality of products and marketing and accounting skills are useful in expanding businesses. Training for vulnerable and marginalized populations should be prioritized. These populations often do not have enough capital to start a business, or financial support and making connections to medium to large scale business owners to support the business should be considered.



Source: JICA Expert Team

Picture 5.7 Market Centre in Khadichaur VDC, Sindhupalchowk District

CHAPTER 6 ACTION PLAN

6.1 Introduction

The Action Plan in the RRP is a set of reconstruction programs by sector . The format of the Action Plan is the table which indicacates the programs, stakeholders, budget and timeframe. The format unables the stakeholders of the RRP to overview the required activities in each period which is Recovery Period (0-3 years), Revitalization Period (4-6 years) and Development Period (7-10 years).

For the short term, the Action Plan facilitates to formulate the Annual District Development Plan by providing the quantitative goals in each year. VDCs and Municipalities can refer this in the planning process since some of the programs indicate the VDC/Municipality’s location. For the long term, the Action Plan will be utilized to formulate the PDDP in the next five years which assures the continuity of the long term programs for the reconstruction. The NRA and development partners can also utilize the Action Plan to formulate and finance the new projects since it is legitimate and its implementation is secured.

6.2 Formulation Process

The Action Plan is developed through the process of formulating the PDDP with involvement of the district level stakeholders and the JICA Expert Team which provides the experiences and viewpoints of reconstruction. The components of the Action Plan includes the on-going rehabilitation and recovery projects, the development projects by the line agencies which are in the PDDP, and the required reconstruction programs based on the analysis by the JICA Expert Team. The programs of the Action Plan are the results of the damage informataion collection, hazard analysis and lessons learned from the reconstructions in Japan and other countries. Esperically, the programs for the Development Period emphasize the concept of “Build Back Better” to envisage the resilient and robust society.

6.3 Framework of Action Plan

The framework of the Action Plan is shown in the following figure. The Action Plan indicates the following items by each rehabilitation and recovery action; detailed contents, responsibilities, target/beneficiaries, cost estimation, target period, relevant PDDP sectors, relevant clause of National Reconstruction and Rehabilitation Policy and relevant PDRF sectors. This plan is divided into each component of the vision.

Sindhupalchowk District BBB Rehabilitation and Recovery Plan 2073/74–2082/2083

Policy	Action	Contents	Responsibility		Identified Target Site/Facility/Beneficiary (Target / Candidate)	Target		Cost Estimation NPR (Million)	Target Period						Ongoing Action / JICA QIPs	PDDP Sector	Relevant Clause of National Reconstruction and Rehabilitation Policy (Strategy) / PDDP Sector				
			Responsible Organization	Support Organization		Target Number	Unit		Recovery												
									73/74	74/75	75/76	76/77	77/78	78/79				79/80	80/81	81/82	82/83
Vision 1. Recovery of Daily Life																					
Basic Policy 1-1 Reconstruction of Residential Environment																					
Supporting own reconstruction of housing	1-1-1	Information dissemination on government guidelines on housing reconstruction, especially to the isolated and marginalized communities	- Publication of booklets or brochures showing the information related to financial support guidelines of NRA.	NRA(DL-PIU) DDC	Municipality VDC Partner Organization	All district residents/ Households	85,762	House hold	8.6								✓	Social Sector	6.1.3 / Housing and Settlement		
			- Organize community level orientation program to inform people about the guideline. - Special orientation program for the isolated and marginalized communities in each ward.	NRA(DL-PIU) DDC	Municipality VDC Partner Organization	All district residents All municipal and VDC ward	636	Ward	15.9										✓	Social Sector	6.1.4 / Housing and Settlement
	1-1-2	Financial support for housing reconstruction and support provision for vulnerable people	- Financial support to all identified beneficiaries (identified EQ Victims) and payment through bank system (establishment and strengthening of banking system).	NRA(DL-PIU) DDC	NRA Partner Organization	All housing reconstruction beneficiaries identified by NRA	78,537	House hold	23561.1									✓	Social Sector	6.1.3/ Housing and Settlement	
			- Considering grievance handling and redressal. - Preparation of the framework for the support of non-listed houses in beneficiary list.	NRA	NRA (DL-PIU) DDC Partner Organization	All district residents who were missed as beneficiaries/ missed household surveys	14,44												✓	Social Sector	6.1.3/ Housing and Settlement
			- Damage household survey of the missed EQ victims (Addressing Grievances).	NRA (DL-PIU) DDC	NRA Partner Organization	20 % of the received grievances from missed EQ victims.	3,000	House hold	3.0										✓	Social Sector	6.1.3/ Housing and Settlement
			- Financial support to newly identified beneficiaries (identified EQ Victims) and high bank system.	NRA (DL-PIU) DDC	NRA Partner Organization	Nearly 50 % of the received grievances from missed EQ victims.	7,225	House hold	2167.5										✓	Social Sector	6.1.3/ Housing and Settlement
			- Criteria for the selection of household. - Identification of vulnerable households with the support from each VDC secretaries. - Support to vulnerable households with additional incentives.	NRA NRA(DL-PIU) DDC	Municipality VDC Partner Organization	Vulnerable households at each VDC and Municipality	3,500	House hold	150.0										✓	Social Sector	6.1.3 / Housing and Settlement
1-1-3	Technical support for evaluation and monitoring of housing reconstruction	- Formation of framework for deployment of technical manpower in VDCs/ Municipalities. - Selection of Engineers/ Architects, Overseers and Sub-Overseers.	NRA CL-PIU MoUD	NRA Partner Organization	Central Level/ District Level	1	Times										✓	Social Sector	6.1.7		
		- Deployment of technical manpower in VDCs/ Municipalities. - Establishment of office at VDC level and procurement of logistics (furniture, computer, printers etc.)	NRA CL-PIU MoUD	NRA DL-PIU DUDBC Division Office Municipality VDC	Each VDC and Municipality	70	VDC Muni.											✓	Social Sector	6.1.7	
		- Salary and Remuneration to the technical newly recruited technical staffs.	NRA(DL-PIU) DUDBC Division Office	NRA Partner Organization	All technical manpower deployed by NRA	19,850	Man months	596.7										✓	Social Sector	6.1.7 / Housing and Settlement	

Figure. 6.1 Framework of Action Plan

6.4 Action Plan

Policy	Action	Contents	Responsibility		Identified Target Site/Facility/Beneficiary (Target / Candidate)	Target		Cost Estimation NPR (Million)	Target Period								On-going Action / JICA QIPs	PDDP Sector	Relevant Clause of National Reconstruction and Rehabilitation Policy (Strategy) / PDRF Sector				
			Responsible Organization	Support Organization		Target Number	Unit		Reconstruction			Development											
									Recovery	Revitalization	Development	Development	Development										
								73/74	74/75	75/76	76/77	77/78	78/79	79/80	80/81	81/82	82/83						
Vision 1. Recovery of Daily Life																							
Basic Policy 1-1 Reconstruction of Residential Environment																							
Supporting own reconstruction of housing	1-1-1	Information dissemination on government guidelines on housing reconstruction, especially to the isolated and marginalized communities	- Publication of booklets or brochures showing the information related to financial support guidelines of NRA.	NRA(DL-PIU) DDC	Municipality VDC Partner Organization	All district residents/ Households	85,762	House hold	8.6										✓	Social Sector	6.1.3 / Housing and Settlement		
			- Organize community level orientation program to inform people about the guideline. - Special orientation program for the isolated and marginalized communities in each ward.	NRA(DL-PIU) DDC	Municipality VDC Partner Organization	All district residents All municipal and VDC ward	636	Ward	15.9												✓	Social Sector	6.1.4 / Housing and Settlement
	1-1-2	Financial support for housing reconstruction and support provision for vulnerable people	- Financial support to all identified beneficiaries (identified EQ Victims) and payment through bank system (establishment and strengthening of banking system).	NRA(DL-PIU) DDC	NRA Partner Organization	All housing reconstruction beneficiaries identified by NRA	78,537	House hold	23561.1											✓	Social Sector	6.1.3/ Housing and Settlement	
			- Considering grievance handling and redressal. - Preparation of the framework for the support of non-listed houses in beneficiary list.	NRA	NRA (DL-PIU) DDC Partner Organization	All district residents who were missed as beneficiaries/ missed household surveys	14,447	House hold	--												✓	Social Sector	6.1.3/ Housing and Settlement
			- Damage household survey of the missed EQ victims (Addressing Grievances).	NRA (DL-PIU) DDC	NRA Partner Organization	20 % of the received grievances from missed EQ victims.	3,000	House hold	3.0												✓	Social Sector	6.1.3/ Housing and Settlement
			- Financial support to newly identified beneficiaries (identified EQ Victims) and payment through bank system .	NRA (DL-PIU) DDC	NRA Partner Organization	Nearly 50 % of the received grievances from missed EQ victims.	7,225	House hold	2167.5												✓	Social Sector	6.1.3/ Housing and Settlement
			- Formation of criteria for the selection of vulnerable household. - Identification of vulnerable households with the support from each VDC secretaries. - Support to vulnerable households with additional incentives.	NRA NRA(DL-PIU) DDC	Municipality VDC Partner Organization	Vulnerable households at each VDC and Municipality	3,500	House hold	150.0													Social Sector	6.1.3 / Housing and Settlement
	1-1-3	Technical support for evaluation and monitoring of housing reconstruction	- Formation of framework for deployment of technical manpower in VDCs/ Municipalities. - Selection of Engineers/ Architects, Overseers and Sub-Overseers.	NRA CL-PIU MoUD	NRA Partner Organization	Central Level District Level	1	Times	--											✓	Social Sector	6.1.7/ Housing and Settlement	
			- Deployment of technical manpower in VDCs/ Municipalities. - Establishment of office at VDC level and procurement of logistics (furniture, computer, printers etc.).	NRA CL-PIU MoUD	NRA DL-PIU DUDBC Division Office Municipality VDC	Each VDC and Municipality	70	VDC Muni.	21.0											✓	Social Sector	6.1.7 / Housing and Settlement	
			- Salary and Remuneration to the technical newly recruited technical staffs.	NRA(DL-PIU) DUDBC Division Office	NRA Partner Organization	All technical manpower deployed by NRA	19,890	Man months	596.7											✓	Social Sector	6.1.7 / Housing and Settlement	

Policy	Action	Contents	Responsibility		Identified Target Site/Facility/Beneficiary (Target / Candidate)	Target		Cost Estimation NPR (Million)	Target Period											On-going Action / JICA QIPs	PDDP Sector	Relevant Clause of National Reconstruction and Rehabilitation Policy (Strategy) / PDRF Sector							
			Responsible Organization	Support Organization		Target Number	Unit		Reconstruction			Development																	
									Recovery	Revitalization	Development	73/74	74/75	75/76	76/77	77/78	78/79	79/80	80/81				81/82	82/83					
	1-1-4	Establishment of local resource center and logistic hubs for housing reconstruction	- Identification of locations to determine the number of resource center. - Design and construction of resource centers and logistic hubs. - Management and operation of resource centers and logistic hubs. (Allocation of staffs and engineers for consultation of building design, building permit, guidance, building materials procurement etc.)	NRA(DL-PIU) DUDBC Division Office	DDC Partner Organization	Local resource center and logistic hubs	3	Center	75.0																	Social Sector	6.1.5/ Housing and Settlement		
	1-1-5	Development of housing reconstruction community	- Formation of house reconstruction group from community people with local masons (development of mutual assistance).	Municipality VDC	NRA(DL-PIU) DDC	Each VDC and Municipal wards	636	Ward	3.2																	✓	Institution Resource Sector	6.1.1 / Housing and Settlement	
	1-1-6	Support for procuring affordable and good-quality construction material	- Support for development of road accessibility to resettlement areas, housing reconstruction areas and landslide affected areas for reconstruction material procurement and housing reconstruction.	DRO DTO DDC Municipalities	NRA Partner Organization	Each VDC and Municipalities (need basis)	50	KM	250.0																		Social Sector		
			- Encouraging Private Sector (in cooperation with District Chamber of Commerce and Industry) to establish construction material supply shop / dealer with fair prices of construction material. - Identification of material supply shop/dealer location and facilitation for site development	Private Sector	NRA DDC	At each illaka Level Residents of northern part (Jilbire, Helambu, Tipeni, Thulopakhar, Barabise etc.)	13	llaka	13.0																			Social Sector	6.1.1 / Housing and Settlement
			- Informing the availability and cost of materials to residents/ contractors (through local media etc.)	DDC Municipality VDC	NRA Partner Organization	Whole district All district residents	9,125	Times	46																			Physical Sector	6.1.4 / Housing and Settlement
			- Strict market monitoring to control artificial shortage of materials (Including black marketing control). - Provision of punishment for black marketing and artificial shortage.	DAO	DDC Municipality VDC	All construction material market (dealers/ wholesalers and Retailers) in each VDC and Municipalities	24	Times	12.0																			Social Sector	
	1-1-7	Provision of temporary houses as social welfare (provision of temporary houses separately for vulnerable people)	- Feasibility study for the construction of temporary shelter - Construction of temporary shelters to be used during reconstruction phase. - Ensure multipurpose function of the building during normal times.	NRA(DL-PIU) DUDBC Division Office	Nepal Army Municipality VDC DDC Partner Organization	Each VDC and Municipality (excluding 8 sites which already have such community shelters)	62	Muni. VDC	434.0																		Social Sector	6.1.5 / Housing and Settlement	

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			Responsible Organization	Support Organization		Target Number	Unit		Reconstruction			Development											
									Recovery	Revitalization	Development	73/74	74/75	75/76	76/77	77/78	78/79	79/80				80/81	81/82
	1-1-8	Implementation of Masons Training for housing reconstruction	- Planning for training (training course, target, schedule) and implementation. <Example of training> - Understanding the building codes, building by-laws, building regulations and their provisions. - Training on construction (construction of load bearing buildings (brick, stone, block masonry), construction of frame structure buildings (RCC Framed). - Training on the retrofitting design of existing buildings.	NRA(DL-PIU) DUDBC Division Office	DDC Municipality Partner Organization	Skilled and Semi-Skilled construction workers (Each VDC and Municipality)	6,360	Mason	159.0											✓	Social Sector	6.1.2 / Housing and Settlement	
Seismic resistant and safety of houses and buildings	1-1-9	Development of capacity and public awareness for seismic resistant houses (model house, distribution of posters, brochures, pamphlet and workshop for construction of seismic houses)	- Construction of model buildings for sharing the safe building construction technology.	NRA(DL-PIU) DUDBC Division Office	DDC Municipality VDC Partner Organization	Melamchi, Chautara and Barabise.	6	Nos.	7.2											✓	JICA QIPs	Social Sector	6.1.4/ Disaster Risk Reduction
			- Distribution of posters, brochures, pamphlets, books on design and construction methods.	NRA(DL-PIU) DUDBC Division Office	DDC Municipality VDC Partner Organization	All district households	85,762	House hold	8.6												✓	Social Sector	6.1.4 / Disaster Risk Reduction
			- Holding workshops for the construction of seismic resistant houses.	NRA(DL-PIU) DUDBC Division Office	DDC Municipality VDC Partner Organization	Each VDC and Municipality	70	VDC Muni.	3.5												✓	Social Sector	6.1.4 / Disaster Risk Reduction
	1-1-10	Application of National Building Code (NBC), enforcement of building permission and inspection system	- Capacity development of District, Municipality and VDC officials for the building permission and inspection (Engineers/ Overseers). - Adoption of Building Permit System at each VDC and Municipality.	NRA(DL-PIU) DUDBC Division Office	DDC Municipality VDC Partner Organization	All NRA and Municipal engineers, overseers and sub-overseer.	306	Engineer Overseer sub-overseer	7.7												✓	Social Sector	6.1.2 / Housing and Settlement
	1-1-11	Information dissemination on earthquake resilient building knowledge and techniques, especially to the isolated and marginalized communities	- Holding workshops at each ward level to disseminate earthquake resilient building knowledge and techniques, focusing on isolated and marginalized communities.	NRA(DL-PIU) DUDBC Division Office Municipality VDC	DDC Partner Organization	Each VDC and Municipal wards All isolated and marginalized community people.	636	Ward	15.9												✓	Social Sector	6.1.4 / Housing and Reconstruction

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			Responsible Organization	Support Organization		Target Number	Unit		Reconstruction			Development										
									73 / 74	74 / 75	75 / 76	76 / 77	77 / 78	78 / 79	79 / 80	80 / 81	81 / 82	82 / 83				
Municipality/VDC rehabilitation and recovery planning and supporting group relocation	1-1-12	Municipality/VDC rehabilitation and recovery planning	- Establish formation and framework for rehabilitation and recovery planning in each Municipality/VDC. - Consensus building on rehabilitation and recovery planning in each Municipality /VDC. - Consideration of Municipality/VDC rehabilitation and recovery planning among various stakeholder including community people, affected people and vulnerable people. - Implementation of formulated plan with merging the plan into Municipality/VDC development plan.	NRA(DL-PIU) DUDBC Division Office Municipality VDC	NRA DDC All Line Agencies Partner Organization	Each VDC and Municipality	70	VDC Muni.	35.0												Social Sector	6.1.2 / Governance
	1-1-13	Consideration of support measures and framework for implementation of group relocations and integrated settlement development based on damaged situation, condition of displaced people and disaster risks such as landslide	-Resettlement provision for the community which were displaced by the earthquake in their own land/ or in an area appropriate for resettlement. - Provisioning permanent structure for those community - Identification of landslide damaged residential areas. - Comparing the hazardous area identified by damaged conditions, field survey and analysis, landslide hazard map and current residential areas etc.	NRA(DL-PIU) DoMG(Mol)	DDC Municipality VDC	All landslide and disaster affected households Landslide examination at each VDC/ Municipality level	70	VDC Muni.	--											✓	Social Sector	6.1.1 / Housing and Settlement
			- Considering countermeasures, such as preventing land slide, development of early warning system, identification and development of evacuation site and route. - Deciding the group relocation in case where the above mentioned countermeasures are inappropriate.	NRA(DL-PIU) DUDBC Division Office District Forest Office District Land Conservation Office DDC Municipality VDC	NRA Partner Organization	All landslide affected settlements	25	Settlements	125.0													Social Sector
	1-1-14	Preparation of group relocation plan and integrated settlement development plan at each landslide affected area with consensus building	- Preparation of group relocation plan and integrated settlement development plan with participatory approach. - Building citizens consensus through extensive consultation and Workshops.	NRA(DL-PIU) DUDBC Division Office Municipality VDC	NRA All Line Agencies DDC Partner Organization	All resettlement areas (Resettlement areas proposed by DDRC)	7	Area	17.5											✓	Social Sector	6.6.2 / Housing and Settlement

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			Responsible Organization	Support Organization		Target Number	Unit		Reconstruction			Development											
									Recovery	Revitalization	Development	73/74	74/75	75/76	76/77	77/78				78/79	79/80	80/81	81/82
Recovery of water supply of affected populations	1-1-15	Support for implementation of group relocations (Residential estate acquisition and integrated settlement development, Aid housing reconstruction and land purchase, development of infrastructure, land purchase of relocation promoting area)	- Consideration of social and economic aspect and support to the relocated households. - Land use management with acquirement of residential site, land purchase of relocation promoting area etc. - Site development and installation of physical infrastructures (Water Supply, Electricity, drainage, sewerage etc.)	NRA(DL-PIU) DUDBC Division Office Municipality VDC	All Line Agencies DDC Partner Organization	All resettlement areas	56	Hect.	560.0											✓	Social Sector	6.6.1 / Housing and Settlement	
	1-1-16	Recovery of water supply facilities	- Recovery of water supply facilities of all affected VDCs and Municipalities. - Maintenance and recovery of water supply facilities along with seismic resistance.	Water Supply and Sanitation Division Office(WSSDO)	NRA_DDC Municipality VDC Partner Organization	All identified damaged projects in the district	618	Project	550.0											✓	JICA QIPs	Social Sector	7.7.d / Water and Sanitation
			- Enhancement of Water supply facilities of Chautara Municipality (Melamchi Municipality on need basis).	Water Supply and Sanitation Division Office(WSSDO)	Municipality Partner Organization	Chautara and Melamchi	1	Project	500.0												✓	Social Sector	7.7.d / Water and Sanitation
	1-1-17	Investigate the depletion of water sources and promote water resource development	- Survey for new and alternative water sources.	WSSDO	NRA MoWSS	Each VDC and Municipality	1	Time	5.0													Social Sector	7.7.d / Water and Sanitation
- Development of new water supply projects to enhance water access of district residents.			WSSDO	NRA MoWSS	Accessibility to remaining 20% of district population	15,000	House hold	750.0												✓	Social Sector	7.7.d / Water and Sanitation	
Early treatment of disaster waste and debris	1-1-18	Disposal of disaster waste and debris properly (implementation of collect and disposal)	- Formulation of disaster waste and debris management plan. - Investigation of amount and location of disaster waste and debris. - Contract with the providers for waste and debris management. - Disposal of disaster waste and debris.	DDC Municipality VDC	Partner Organization	Chautara, Melamchi and Barabise	3	Site	90.0											✓	Forest Env. DRM Sector	8.4.1 / Environment and Forestry	
	1-1-19	Promotion of recycle for utilize reconstruction activities	- Promotion of reuse of materials in household or community level. - Preparation of guidelines and brochure related to reuse of materials.	NRA(DL-PIU) DUDBC Division Office	DDC Municipality VDC	All district residents/ Households	85,762	Booklets	17.2											✓	Forest Env. DRM Sector	7.2.d / Environment and Forestry	
			- Development of areal material center in which recycle construction materials are available. - Support to establish market center (incentives, providing area, developing market place etc).	Municipality VDC	NRA DUDBC Division Office	Dedicated market centers	6	Center	6.0													Forest Env. DRM Sector	

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			Responsible Organization	Support Organization		Target Number	Unit		Reconstruction			Development													
									73/74	74/75	75/76	76/77	77/78	78/79	79/80	80/81	81/82				82/83				
	1-1-20	Support of building demolition	- Establishment of community groups for the support of building demolition especially for vulnerable people such as single women, those with disabilities and the elderly. - Support for above mentioned group by the local government. - Demolition machineries and equipment support.	NRA(DL-PIU) DDC Municipality VDC	DWCO Partner Organization	Each VDC and Municipality	3,500	House hold	87.5												✓	Forest Env. DRM Sector	7.1.b / Housing and Settlement		
Basic Policy 1-2 Restoration of Livelihood																									
Diversification of source of livelihood	1-2-1	Promotion of Cash-for-work on Reconstruction project (Promoting employment of community people for reconstruction work)	- Promotion of cash-for-work in reconstruction activities. - Implementation of cash for work policy for the construction of public/ community infrastructures for both government and non-government organizations (policy).	NRA(DL-PIU) DDC Municipality VDC	NRA Partner Organization	All district residents	6	Meeting	0.6												✓	Economic Sector	7.14.a/ Employment and Livelihoods		
	1-2-2	Expanding livelihood opportunities for farmers (Seeds distribution, support for recovery of livestock, recovery and development of base facilities such as sheep collection center)	- Seed and Fertilizer distribution to poor and vulnerable community.	DADO	NRA, Municipality VDC Partner Organization	Vulnerable and Marginalized Community/ households	3,500	House hold	105.0													✓	Economic Sector	7.15.c / Livelihoods	
			- Incentive in purchasing fertilizers.	DADO	MoA, Partner Organization	All district residents/ All farming community	3,860	Ton	27.0														✓	Economic Sector	7.15. c / Livelihoods
			- Support for recovery of livestock (Incentive support and livestock distribution).	DLSO	MoLD Partner Organization	Vulnerable and Marginalized Community/ households	3,500	HHs	1500.0														✓	Economic Sector	7.15.e / Livelihoods
			- Recovery and development of base facilities such as agro-collection center/ Market Place etc.	DADO DLSO	MoA, MoLD Municipality VDC Partner Organization	Strengthening collection center of Chautara and development in one more location based on the need	2	Center	12.0														✓	Economic Sector	7.15.d / Livelihoods
			- Construction and operation of seed collection center.	DADO (JICA)	Municipality VDC Partner Organization	Ichok, Kiwol, Fulpingdanda and Irkhu	4	Center	26.0														✓	Economic Sector	7.15. d / Livelihoods
			- Promotion of commercial farming (for selling).	DADO DLSO	MoA MoLD Municipality VDC Partner Organization	All agriculture pocket areas	120	Farmer	6.0														✓	Economic Sector	7.15.e / Livelihoods
			- Establishment of nursery for the improved horticulture and farming.	DADO	MoA	All agriculture service offices including DADO	5	Center	10.0														✓	Economic Sector	6.4.4 / Livelihoods

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			Responsible Organization	Support Organization		Target Number	Unit		Reconstruction			Development												
									73 / 74	74 / 75	75 / 76	76 / 77	77 / 78	78 / 79	79 / 80	80 / 81	81 / 82	82 / 83						
	1-2-3	Human resource development for the reconstruction, and arrangement of employment opportunities for reconstruction works	- Establishment of a training center (Establishment and operation of technical training institute focusing on vocational training).	Center for Technical Education and Vocational Training (CTEVT) Private Sector	NRA DDC	One training center in district HQ or in Melamchi	1	Center	65.0													Economic Sector	6.4.4 / Employment and Livelihoods	
			- Implementation of skill training programmes for employment and execute trainings for carpenters/ Electrification/ Sanitary fittings etc.	NRA(DL-PIU) DUDBC Division Office Cottage and Small Industry Development Board (CSIDB)	NRA CTEVT Partner Organization	Skilled and semi-skilled workers of the district	108	Times	5.4														✓	Economic Sector
	1-2-4	Human resource development for expansion of livelihood opportunities (Improvement of technique of agriculture, animal husbandry, tourism industry, technology etc.)	- Technological transfer (implementing farmers exchange programs/farm visits etc.).	DADO DLSO	CSIDB DDC Partner Organization	Commercial and cooperative farmers	600	Farmer	6.0														Economic Sector	7.14.b / Employment and Livelihoods
			- Agriculture cultivation technique improvement trainings to farmers (priority to vulnerable groups).	DADO DLSO	"	Each VDC and Municipality	240	Training	24.0													✓	Economic Sector	7.14.b / Employment and Livelihoods
			- Support for branding and marketing of local products.	DADO DLSO CSIDB	Municipality VDC DDC Partner Organization	Agriculture cooperative groups/ Farmers groups	120	Package	60.0													✓	Economic Sector	7.14.b / Employment and Livelihoods
	1-2-5	Enhancement of farmers' accessibility to the market and distribution system	- Formation of farmers chain in cooperative model (Formulation of framework) - Conduct expo for local products in Municipal Level (e.g. Twice a year)	DADO DLSO	Municipality VDC DDC CSIDB/ADCCI Partner Organization	All district farmers Expo at Melamchi and Chautara	12	Expo	6.0													✓	Economic Sector	7.15.a / Transport, Access and communication
	1-2-6	Promotion of traditional craftsmanship and use of biodiversity and climate change adaptation	- Prevention of local breed from extinction, especially after EQ - Establishment of section for local seed storage and distribution.	DADO	MoA	District headquarter and other seed-collection center	4	Center	--													✓	Economic Sector	7.14.b / Employment and Livelihoods
			- Promotion and protection of traditional craftsmanship and technologies (training and support).	CSIDB	DDC Partner Organization	Traditional craftsmen	6	Package	6.0													✓	Economic Sector	7.14.b / Employment and Livelihoods

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			Responsible Organization	Support Organization		Target Number	Unit		Reconstruction			Development									
									73 / 74	74 / 75	75 / 76	76 / 77	77 / 78	78 / 79	79 / 80	80 / 81				81 / 82	82 / 83
Providing livelihood assistance for the vulnerable population	1-2-7	Consideration of employment promoting program for supporting affected families	- Understanding of the situation and issued of affected families (Through Socio-Economic Survey).	District Statistics Office Municipality VDC	DDC Partner Organization	All district residents / Households	1	Times	5.6										✓	Economic Sector	6.5.3 / Gender and Social Inclusion
			- Development of the employment promoting program based on issues. - Holding trainings and skill development programs. - Provide/ Promote land in lease with minimum rental fees, necessary for agriculture/ cottage industry etc.	CSIDB	DADO DLSO Partner Organization	Identified areas over the district	3,000	House hold	90.0											✓	Economic Sector
	1-2-8	Expansion of livelihood opportunities at relocation areas (Promoting employment of relocation people for development project of relocation site, Support for agriculture land development and starting agriculture, irrigation etc.)	- Preparation of framework for livelihood promotion.	NRA(DL-PIU) DUDBC Division Office Municipality VDC	NRA DADO/DLSO DDC Partner Organization	All relocation sites (Single framework for all sites)	1	Times	0.5											Economic Sector	6.4.4 / Employment and Livelihoods
			- Development of agriculture land (using cash-for-work scheme).	DADO NRA(DL-PIU) DUDBC Division Office	NRA, District Land Survey Office DFO Municipality VDC	For all relocation sites	700	Hect.	140.0											Economic Sector	7.14.a / Employment and Livelihoods
			- Support for promoting employment of relocated people for development project of relocation sites.	CSIDB Municipality VDC	NRA(DL-PIU) DUDBC Division Office DADO/DLSO Partner Organization	People living in relocation areas	1,400	House hold	28.0											Economic Sector	6.4.4 / Employment and Livelihoods
	Basic Policy 1-3 Recovery and Enhancement of Health and Medical Services																				
Recovery and enhancement of medical service facilities	1-3-1	Recovery of hospital, health center and health post	- Reconstruction of District Health Office, Ayurveda Health Centers/ Clinics, PHCs and Health Posts.	DHO MoH	NRA(DL-PIU) DUDBC Division Office Partner Organization	All fully damaged PHCs, Ayurveda Health Center, Health Posts	54	Building	1350.0									✓	Social Sector	7.7.h / Health	
			- Recovery and Maintenance of ORC (Out Reach Clinic) and EPI (Expanded Program on Immunization) Clinics. - Resume the function of ORC and EPI Clinics.	DHO MoH	NRA Partner Organization	All damaged ORC and EPI Clinic	251	Clinics	12.6										✓	Social Sector	7.7.h / Health

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			Responsible Organization	Support Organization		Target Number	Unit		Reconstruction			Development										
									Recovery	Revitalization	Development	73/74	74/75	75/76	76/77	77/78				78/79	79/80	80/81
Enhancement of health care services	1-3-2	Seismic diagnosis and seismic resistant measures of hospital, health center and health post	- Maintenance and repair of hospital (with seismic retrofitting).	DHO MoH	NRA(DL-PIU) DUDBC Division Office Partner Organization	District Hospital and Health office	1	Building	50.0										✓	Social Sector	7.7.h / Health	
			- Maintenance and repair of health posts/ PHCs (with seismic retrofitting).	DHO MoH	"	All damaged Health post	19	Building	57.0											✓	Social Sector	7.7.h / Health
			- Seismic diagnosis and retrofitting of intact health posts.	DHO MoH	"	All intact Health posts	6	Building	12.0											✓	Social Sector	7.7.h / Health
	1-3-3	Enhancement of health care services to the pregnant women, child delivery and new born babies	- Enhancement of birthing centers. - Special support program for safe maternity. - Provision of home health service to newly delivered mother and new borne babies. - Distribution of warm cloth/ bag for newly borne child.	DHO	NRA Partner Organization	All VDCs and Municipalities	70	VDC Muni.	--											✓	Social Sector	7.7.h / Health
			- Reconstruction and recovery of existing Birthing Centers (BCs).	DHO	NRA(DL-PIU),DUDBC Division Office,Partner Organization	All existing birthing centers	22	BC	550.0											✓	Social Sector	7.7.h / Health
			- Expansion and development of new Birthing Centers.	DHO	MoH, Partner Organization	Additional Birthing Centers at necessary area	10	BC	250.0											✓	Social Sector	7.7.h / Health
	1-3-4	Enhancement of ORC and EPI Clinics	- Construction and operation of ORC/ EPI Clinics ensuring seismic measures (MoH program).	DHO	MoH	All existing EPI Clinics	251	Clinics	251.0										✓	Social Sector	7.7.h / Health	
	1-3-5	Establishment of mental health care help desk for victims	- Establishment of Mental Health care section in district hospital and Primal Health Centers (PHCs). - Provision of medicines and specialist.	DHO MoH	NRA WCO/MoWCSW Partner Organization	District Hospital(1) and PHCs(3)	4	Hospital PHC	30.0										✓	Social Sector	7.7.h / Health	
	1-3-6	Provision of health care service for vulnerable people and deprived/ marginalized people	- Establish help desk in hospital and Health centers to support vulnerable and marginalized people. - Health care assistance to vulnerable people.	DHO MoH	NRA WCO/MoWCSW Partner Organization	All over the district	3,000	People	30.0										✓	Social Sector	6.3.1 / Health	

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			Responsible Organization	Support Organization		Target Number	Unit		Reconstruction			Development									
									Recovery	Revitalization	Development	73/74	74/75	75/76	76/77	77/78				78/79	79/80
Collaboration of health, medical and social welfare services	1-3-7	Establishment of health, medical and social welfare network (Development of database etc.)	DHO	MoH, Women and Children Office(WCO) NRA Partner Organization	District Hospital	1	Time	5.0											✓	Social Sector	7.7.h / Health
	1-3-8	Medical and health support to the seriously injured victims by the earthquake for regular checkup	DHO	MoH NRA DDC Municipality/VDC	All over the district/ All seriously injured people.	140	People	14												Social Sector	7.11.b / Health
	1-3-9	Rehabilitation support for the needy victims	DHO	MoH NRA DDC Municipality/VDC	Needy injured people from EQ	140	People	7												Social Sector	7.11.b / Health
Basic Policy 1-4 Recovery and Enhancement of Social Welfare Services																					
Recovery and enhancement of social welfare services for suffered vulnerable people and deprived/marginalized people in the earthquake	1-4-1	Enhancement of information distribution regarding to social welfare and accessibility for vulnerable people	DDC Municipality VDC	NRA(DL-PIU) Nepal Police WCO Partner Organization	All over the district	1	Time	7.4												Social Sector	6.5.2 / Social protection
	1-4-2	Recovery and development of livelihood help desk, livelihood supporting facilities and base for vulnerable people	NRA(DL-PIU) DDC Municipality VDC	NRA DADO DLSD CSIDC Partner Organization	Each VDC and Municipality	70	Muni. VDC	504.0												Social Sector	7.13.a / Livelihood
	1-4-3	Supporting job training for expanding job opportunities for vulnerable people	CSIDC WCO	NRA MoI Partner Organization	Vulnerable and Marginalized Community/ households	1,000	People	10.0											✓	Social Sector	7.14 b / Employment and Livelihoods

Policy	Action	Contents	Responsibility		Identified Target Site/Facility/Beneficiary (Target / Candidate)	Target		Cost Estimation NPR (Million)	Target Period											On-going Action / JICA QIPs	PDDP Sector	Relevant Clause of National Reconstruction and Rehabilitation Policy (Strategy) / PDRF Sector				
			Responsible Organization	Support Organization		Target Number	Unit		Reconstruction			Development														
									Recovery	Revitalization	Development	73 / 74	74 / 75	75 / 76	76 / 77	77 / 78	78 / 79	79 / 80	80 / 81				81 / 82	82 / 83		
Support activities of women's groups	1-4-4	Promoting participation of vulnerable people for policy making	- Ensuring participation of all level of people in policy making. - Ensuring bottom-up approach in local policy making.	DDC Municipality VDC	All Line Agencies	All local level (DDC, Municipalities and VDCs)	--	--	--															✓	Social Sector	8.3.6 / Gender and Social Inclusion
	1-4-5	Recovery and development of base facilities for supporting livelihood of women's groups	- Promoting utilization and enhancing function of community buildings for regular action meeting and other activities of women's groups.	WCO	NRA DDC Municipality VDC Partner Organization	Existing women's groups. Community buildings, relevant facilities.	--	--	--															✓	Social Sector	7.7.j / Gender and Social Inclusion
	1-4-6	Support activities of women's groups (micro finance, development of women's network, creation of employment opportunities)	- Understanding of the situation and issues of the women's group for the employment opportunity. - Strengthening and establishment of women's group in ward level (Each VDC and Municipalities). - Strengthening of Gender Based Violence (GBV) watch group	WCO	NRA DDC Municipality VDC Partner Organization	All women's group Each VDC and Municipal wards	636	Ward	19.1															✓	Social Sector	7.15.a / Gender and Social Inclusion
			- Establishment of network of Women's Group (Formation of District Level Network). - Establishment of women's cooperative groups in each VDC and Municipality (provision of loan support without collateral)	WCO DDC	NRA Municipality VDC Partner Organization	District Level (covering all women's group)	1	Network	0.3																✓	Social Sector
		- Employment promoting programs (Skill development support) for women groups. - Financial support for women's group activities. - Ensuring meaningful participation of women in each level	WCO	NRA DDC Municipality VDC Line Agencies Partner Organization	Women's Group Training at district level	12	Program	6.3																✓	Social Sector	6.4.5 / Employment and Livelihoods
Enhancement of social welfare services for elder people	1-4-7	Support livelihood of elderly people (consideration of special support for elderly people, promoting use human resources of elderly)	- Consideration of special support for elderly people (Increment of social security in every sector/ services) - Promoting use human resources of elderly (Home based non-labor skill improvement trainings, enhancement of Job-matching).	DDC Municipality VDC	NRA MoWCSW CSIDC DADO DLDO Partner Organization	All elderly people in each VDC and Municipality	70	Muni. VDC	7.0																Social Sector	6.4.1 / Social Protection
			- Establishment of elderly home (with recreational facilities) - Rehabilitation support to single elder citizen (specially to those who lost everyone in earthquake)	DDC NRA (DL-PIU) DUDBC Division Office	NRA Partner Organization	Elderly citizen looking for rehabilitation support/ Construction of Elderly Home at Chaurata or Melamchi	1	Building	50.0																	

Policy	Action	Contents	Responsibility		Identified Target Site/Facility/Beneficiary (Target / Candidate)	Target		Cost Estimation NPR (Million)	Target Period											On-going Action / JICA QIPs	PDDP Sector	Relevant Clause of National Reconstruction and Rehabilitation Policy (Strategy) / FDRF Sector
			Responsible Organization	Support Organization		Target Number	Unit		Reconstruction													
									Recovery	Revitalization	Development	73/74	74/75	75/76	76/77	77/78	78/79	79/80	80/81			
Basic Policy 1-5 Recovery and Enhancement of Education																						
Recovery and seismic resistant for schools	1-5-1	Recovery and reconstruction of schools	- Damage Investigation (technical) of Schools (nature of damage / preparation of record). - Prioritization of school reconstruction.	NRA(DL-PIU) DEO	DEO Partner Organization	All schools and colleges/ campuses	1	Times	6.0										✓	Social Sector	7.7.j / Education	
			- Temporary school building construction (short term measure).	NRA(DL-PIU) DEO	"	All affected school buildings	4,773	Classroom	477.3											✓	Social Sector	7.7.j / Education
			- Reconstruction of school buildings considering seismic measures and learning conditions (long term measures).	NRA(DL-PIU) DEO	"	All damaged schools.	4,773	Classroom	11932.5											✓	Social Sector	7.7.j / Education
	1-5-2	Seismic diagnosis and seismic resistant measures of schools	- Dispatch of experts or technicians for seismic diagnosis (checking) of schools.	NRA(DL-PIU) DEO	"	All partially damaged and intact classrooms / school buildings	574	Schools	11.5												Social Sector	7.7.j / Education
			- Seismic resistant measures, retrofitting and maintenance of partially damaged school buildings.	NRA(DL-PIU) DEO	"	All partially damaged classrooms/ school buildings	377	Classroom	377.0											✓	Social Sector	7.7.j / Education
			- Seismic resistant measures, retrofitting and reconstruction of intact school buildings.	NRA(DL-PIU) DEO	DEO Partner Organization	All intact classrooms/ school buildings	197	Classroom	137.9											✓	Social Sector	7.7.j / Education
			- Establishment of a legal system in order to ensure the seismic resistance of private schools. (Incentive measure to promote seismic retrofitting of private schools). - Technical support to all private schools for ensuring safety	DEO Private Schools	NRA DDC DUDBC Division Office Municipality/VDC	All private schools	35	Schools	17.5													Social Sector
Enhancement of disaster management education	1-5-3	Enhancement of education based on the experience of the earthquake(e.g. earthquake experience book, record book and introduction of the disaster management education in school curriculum)	- Consideration of school curriculum for the disaster management. <Example contents of curriculum> - Learning about the disaster, history, mechanisms, hazard and risk, disaster management. - Learning about ensuring safety when a disaster happens. - Sharing the experience of the Gorkha Earthquake.	NRA(DL-PIU) DEO	MoE MoHA Partner Organization	District level curriculum development	1	Course book	2.0										✓	Social Sector	7.4.d / Education	
	1-5-4	Implementation of disaster evacuation drill and Identification of safe area around school	- Allocation of safe areas around schools. - Development and management of the identified area. - Implementation of disaster evacuation drill among the students.	NRA(DL-PIU) DEO	MoE DDRC NRA Partner Organization	All schools	605	Schools	60.5											Social Sector	7.4.e / Social Protection	
	1-5-5	Inclusion of school safety measures in the School Improvement Plan (SIP)	- Provision of school safety measures in School Improvement Plan (SIP). (Refer to "Supplementary Training Manual for Annual SIP Updating and References for Disaster Preparedness in School, 2072, MoE)	Schools	DOE(MoE) MoHA	All schools	605	Schools	--										✓	Social Sector	6.1.4 / Disaster Risk Reduction	

Policy	Action	Contents	Responsibility		Identified Target Site/Facility/Beneficiary (Target / Candidate)	Target		Cost Estimation NPR (Million)	Target Period										On-going Action / JICA QIPs	PDDP Sector	Relevant Clause of National Reconstruction and Rehabilitation Policy (Strategy) / PDRF Sector				
			Responsible Organization	Support Organization		Target Number	Unit		Reconstruction			Development													
									Recovery	Revitalization	Development	80/81	81/82	82/83											
Care for Students	1-5-6 Training for teachers for care of students	- Consideration of training of trainers (TOT) focusing on teachers. <Example contents of training> - Workshop on the planning and practices of disaster management education. - Workshop on sharing experiences of the Gorkha EQ.	DEO	MoE MoHA Partner Organization	Designated school teachers from each schools	60	Training	180.0														✓	Social Sector	6.4.5 / Disaster Risk Reduction	
		- Training on psychological counselling, treatment method for injury, etc.	DEO	NRA DHO partner Organization	School teachers from all schools (specially for first AID trained teachers)	1,210	Teacher	6.1															✓	Social Sector	6.4.5 / Disaster Risk Reduction
		- School level training to teachers and students in each school. <Example contents of training> - Workshop on the planning and practices of disaster management education. - Workshop on sharing experiences of the Gorkha EQ.	DEO Schools	MoE MoHA Partner Organization	All school teachers	605	Schools	30.3															✓	Social Sector	6.4.5 / Disaster Risk Reduction
	1-5-7 Establishment of mental care help room	- Establishment of a mental care counselling function in the health room in schools. - Training for school health care taker - Dispatch of health technicians to schools.	DEO Schools	MoE MoHA Partner Organization	All School teachers and students	605	Schools	30.3															✓	Social Sector	7.7.h / Health
	1-5-8 Supporting learning opportunities for children who are deprived or living in remote area	- Identification of the children deprived or living in remote area. - Education support to the deprived students/ Students from remote areas. - Build-up case management system form needy child including financial support	DEO Schools	MoE WCO Municipality VDC DDC Partner Organization	Remote Schools as identified by DHO	5,700	Students	285.0																Social Sector	7.7.i / Education
Vision 2. Building Resilient District Structure																									
Basic Policy 2-1 Enhancement of Regional Recovery and Disaster Management Capacity																									
Enhancement of rehabilitation and reconstruction framework	2-1-1 Establishment of BBB reconstruction framework with management of financial resources	- Development of BBB reconstruction framework of each line agencies following RRP. - Ensuring budgeting for BBB rehabilitation and recovery projects.	NRA (DL-PIU) Line Agencies	NRA DDRC	Each line agencies and DL-PIUs	20	Office	--														Institution Resource Sector	8.1.1 a / Disaster Risk Reduction		
	2-1-2 Promotion of coordinating related organizations	- Establishment and promotion of coordinating formation for rehabilitation and recovery projects in the district. (Enhancement of District Coordination Committee etc.)	DDC (NRA District Coordination Committee Office)	NRA DDRC	Office located at District Headquarter for coordination	1	Office	3.0														✓	Institution Resource Sector	8.1.1 d / Disaster Risk Reduction	
		- Regular meeting of District Coordination Committee (DCC).	"	NRA DDRC	District Headquarter	20	Times	1.0															Institution Resource Sector	8.1.1. d / Disaster Risk Reduction	

Policy	Action	Contents	Responsibility		Identified Target Site/Facility/Beneficiary (Target / Candidate)	Target		Cost Estimation NPR (Million)	Target Period								On-going Action / JICA QIPs	PDDP Sector	Relevant Clause of National Reconstruction and Rehabilitation Policy (Strategy) / PDRF Sector				
			Responsible Organization	Support Organization		Target Number	Unit		Reconstruction			Development											
									73/74	74/75	75/76	76/77	77/78	78/79	79/80	80/81				81/82	82/83		
Enhancement of administrative formulation for disaster management	2-1-3	Reconstruction of public and community buildings based on safer standard	- Reconstruction of Government Office Buildings.	NRA(DL-PIU) DUDBC Division Office	NRA Partner Organization	All damaged government buildings. (excluding agriculture, livestock and forest service/ Illaka offices)	7	Office	420.0										✓	JICA QIPs	Physical Sector	7.7.j / Government Building	
			- Maintenance and retrofitting of partially damaged government buildings.	NRA(DL-PIU) DUDBC Division Office	NRA Partner Organization	All partially damaged government buildings. (excluding agriculture, livestock and forest service/ Illaka offices)	34	Building	102.0											✓		Physical Sector	7.7.j / Government Building
			- Reconstruction of VDC buildings.	NRA(DL-PIU) MoUD DUDBC Division Office	NRA Partner Organization	All VDC buildings	79	Building	521.4											✓	JICA QIPs	Physical Sector	7.7.j / Government Building
			- Reconstruction support to community buildings.	NRA(DL-PIU) DDC Municipality VDC	NRA Partner Organization	Community Organizations at each VDC and Municipal wards	146	Building	219.0													Physical Sector	7.7.j / Government Building
			- Reconstruction support to cooperative buildings.	Division Cooperative Office Municipality,VDC,DC	NRA MoCPA Partner Organization	Cooperatives at each VDC and Municipal wards	146	Building	73.0													Physical Sector	7.7.j / Government Building
	2-1-4	Development of vertical connection (reporting line) and horizontal connection (coordination process) on existing organization as disaster preparedness	- Summarizing the issue of vertical and horizontal connection at the time of the Gorkha Earthquake. - Preparing the connection system/chart of organizations.	DDC	DDRC Partner Organization	DDRC meeting shall prepare based on the experience from Gorkha Earthquake	1	Report	0.5												Institution Resource Sector	8.2.1 / Transport, Access and Communication	
	2-1-5	Update of District Disaster Preparedness and Response Plan (DPRP)	- Summarizing the issues of response after the earthquake in 2015. - Formulation and update of "District Disaster Preparedness and Response Plan" with clarify on roles and responsibilities of agencies.	DDRC DDC	MoHA All Line Agencies Partner Organization	All line agencies and Organizations	1	Times	2.5												Forest Env. DRM Sector	8.1.2.f / Disaster Risk Reduction	
	2-1-6	Formulation of Disaster Risk Management Plan in Municipalities and VDCs	- Support for Formulation of VDC and Ward DRM Plans (LDRMP). - Establishment of planning committee.	Municipality VDC (LDMCs)	DDRC Partner Organization	Each VDC and Municipality	70	VDCs Muni.	36.0										✓		Forest Env. DRM Sector	8.1.2.f / Disaster Risk Reduction	
	2-1-7	Preparing hazard maps in VDCs level (with location of evacuation sites and logistics centers etc.)	- Preparation of hazard map of VDC level based on district level map and field survey. (indicating zones of landslide, flood, lightening, drought, fire etc.) - Mapping of local logistic centers, evacuation sites, heli pads, temporary shelters/ camp sites etc. with community consultation.	Municipality VDC (LDMCs)	DDRC NRA-DLPIU DUDBC Division Office Partner Organization	Each VDC and Municipal wards	636	Ward	12.7												Forest Env. DRM Sector	8.1.2.a / Disaster Risk Reduction	

Policy	Action	Contents	Responsibility		Identified Target Site/Facility/Beneficiary (Target / Candidate)	Target		Cost Estimation NPR (Million)	Target Period										On-going Action / JICA QIPs	PDDP Sector	Relevant Clause of National Reconstruction and Rehabilitation Policy (Strategy) / PDRF Sector			
			Responsible Organization	Support Organization		Target Number	Unit		Reconstruction			Development												
									73/74	74/75	75/76	76/77	77/78	78/79	79/80	80/81	81/82	82/83						
	2-1-8	Establishment and development of administrative network with outside organizations for recovery and disaster management	- Strengthening the role of DDRC through regular meeting. (Update Recovery activities by DDC)	DDRC	DDC District Lead Support Agency (DLSA) Partner Organization	DDRC	72	Times	0.7											✓	Forest Env. DRM Sector	6.5.4 / Disaster Risk Reduction		
			- Regular meeting of Working Groups. (District Clusters) in coordination with DDC (facilitation by DLSA).	DDC (Respective Working Group)	DLSA Partner Organization	Respective working groups/ meeting at district level	216	Meeting	2.2												✓	Forest Env. DRM Sector	6.5.4 / Disaster Risk Reduction	
			- Consideration and establishment of administrative cooperative partnerships among neighbor districts which can be utilized during/after disaster for reconstruction and disaster risk reduction and management.	DDC DDRC Municipality VDC	Line Agencies Partner Organization Neighbor Districts	Neighbor Districts	24	Meeting	1.2														Forest Env. DRM Sector	6.5.4 / Transport, Access and Communication
			- Summarizing the current work of outside organizations and update bi-annually.	DDC DDRC	DLSA Partner Organization	Report preparation at district level through DLSA	12	Reports	1.2													✓	Forest Env. DRM Sector	6.5.4 / Disaster Risk Reduction
	2-1-9	Development of interactive information communication framework with DEOC and district level organizations	- Development of information collection and dissemination system from/ to the VDCs, Municipalities, Wards and Community level.	DEOC DDRC	NRA MoHA Municipality/VDC Partner Organization	All line agencies, partner organizations, DEOC and DDRC	1	Times	1.0												✓	Forest Env. DRM Sector	6.1.4 / Transport, Access and Communication	
			- Provision of Toll-Free Telephonic system at DEOC.	DEOC DDRC	Nepal Telecom MoHA MoIC	All district residents/ Households	1	Line	1.0														Forest Env. DRM Sector	6.1.4 / Transport, Access and Communication
	2-1-10	Establishment of decision making network for recovery and disaster management	- Consideration of District Disaster Risk Management Actions with clear decision making and implementation framework.	DDC	DDRC Partner Organization	All line agencies and partner organizations	1	Times	1.0												✓	Forest Env. DRM Sector	6.1.4 / Disaster Risk Reduction	
			- Regular coordination meeting of DDRC and Local Disaster Management Committees (LDMCs).	DDRC	DDC Partner Organization	At district level through DDRC	20	Meetings	2.0														Forest Env. DRM Sector	6.1.4 / Disaster Risk Reduction
	2-1-11	Clarification of information communication mechanism for community people and vulnerable people	- Identification of issues on information distribution and accessibility for community people and vulnerable people. - Formulation of information flow mechanism including the role of mass media. (radio, television, telecommunications etc.)	DDRC DEOC	NRA MoHA DDC Municipality/VDC District Journalist Federation Partner Organization	Vulnerable and Marginalized Community/ households	1	Times	0.5													Forest Env. DRM Sector	6.1.4 / Transport, Access and Communication	

Policy	Action	Contents	Responsibility		Identified Target Site/Facility/Beneficiary (Target / Candidate)	Target		Cost Estimation NPR (Million)	Target Period									On-going Action / JICA QIPs	PDDP Sector	Relevant Clause of National Reconstruction and Rehabilitation Policy (Strategy) / PDRF Sector			
			Responsible Organization	Support Organization		Target Number	Unit		Reconstruction			Development											
									73 / 74	74 / 75	75 / 76	76 / 77	77 / 78	78 / 79	79 / 80	80 / 81	81 / 82				82 / 83		
Enhancement of information distribution system and accessibility for community people and vulnerable people	2-1-12	Establishment of methodology to access recovery and DRR/DRM information for community people and vulnerable people	- Special assistance to vulnerable people (Support system) for information and communication.	DDRC DEOC	"	Vulnerable and Marginalized Community/ households	3,500	House hold	35.0											Forest Env. DRM Sector	6.4.5 / Transport, Access and Communication		
			- Awareness and orientation program at community level about information sharing.	DDRC DDC Municipality/VDC	"	Each VDC and Municipality	210	Program	10.5												Forest Env. DRM Sector	6.4.5 / Transport, Access and Communication	
			- Carry out DRR street drama and community drill at community level through school and campuses.	DDRC Municipality/VDC Local Disaster Management Committees (LDMCs)	DEO Schools NRA MoHA Partner Organization	Each VDC and Municipal Wards	1,923	Times	38.5												✓	Forest Env. DRM Sector	6.1.4 / Disaster Risk Reduction
	2-1-13	Establishment of information distribution system based on schools and students (Oral communication) for reconstruction and disaster management	- Establishment of a school disaster management committee. (Both among teachers and students, including colleges).	DEO Schools	MoE MoHA DDRC Municipality/VDC LDMCs Partner Organization	All schools, special focus on teachers and secondary school students.	617	Schools	--												Social Sector	6.1.4 / Education	
			- Investigating the area and type of people who can get the information by schools / Colleges. - Development of the information distribution hub in schools.	DEO Schools	MoE ,NRA,MoHA,DDRC Municipality/VDC LDMCs,Partner Organization	All Schools and Colleges	617	Schools	61.7													Social Sector	6.1.4 / Disaster Risk Reduction
			- Collaboration among schools and other facilities or agencies for supplementing the area/people for information distribution.	DEO Schools	MoE,NRA,MoHA DDRC,All Line Agencies Municipality/VDC LDMCs ,Partner Organization	Policy Measure / in ownership of DEO	--	--	--													Social Sector	6.1.4 8.1.2.c / Disaster Risk Reduction
2-1-14	Promoting use of existing organization, groups and human resources for reconstruction and disaster management	- Investigation of existing organizations, groups and human resources.	NRA NRA(DL-PIU) All Line Agencies	DDC,DDRC Municipality,VDC Partner Organization	All line agencies and partner organizations	1	Times	0.5												Institution Resource Sector	8.1.2.c / Disaster Risk Reduction		
		- Training of Trainers(TOT) regarding BBB framework for contractors, masons, carpenters etc.	NRA(DL-PIU) DUDBC Division Office	Partner Organization	District level contractors, skilled construction workers	18	Training	5.4												✓	Institution Resource Sector	8.5.18.1.1.c / Disaster Risk Reduction	

Policy	Action	Contents	Responsibility		Identified Target Site/Facility/Beneficiary (Target / Candidate)	Target		Cost Estimation NPR (Million)	Target Period											On-going Action / JICA QIPs	PDDP Sector	Relevant Clause of National Reconstruction and Rehabilitation Policy (Strategy) / PDRF Sector
			Responsible Organization	Support Organization		Target Number	Unit		Reconstruction			Development										
									73/74	74/75	75/76	76/77	77/78	78/79	79/80	80/81	81/82	82/83				
HRD for enhancement of reconstruction and disaster management capability	2-1-15	Human resource development for local government officers	DDRC NRA(DL-PIU)	NRA MoHA DDC/MoFALD All Line Agencies Partner Organization	All officials of line agencies/ district level and Illaka level government offices	146	Training	3.3											Institution Resource Sector	8.5.1 / Disaster Risk Reduction		
			DDRC DDC	"	Officers of all line agencies and government offices	60	Training	9.0											Institution Resource Sector	8.5.1 / Disaster Risk Reduction		
			DDRC DDC	"	All Municipality and VDC secretaries	70	Person	10.5												Institution Resource Sector	8.5.1 / Disaster Risk Reduction	
	2-1-16	Capacity building of Local Disaster Management Committees(LDMCs)	- Enhancement of capacity of members of Local Disaster Management Committees. - Enhancement of formation of LDMCs based on lessons learned from the earthquake.	DDRC DDC	MoHA NRA MoFALD partner organization	District level LDMC	--	--	--										✓	Forest Env. DRM Sector	8.5.1 / Disaster Risk Reduction	
			- Implementation of training for the officials (e.g. GIS based mapping and analysis training at district level).	DDRC DDC	NRA Partner Organization	District level LDMC	1	Training	0.2											Forest Env. DRM Sector	8.5.1 / Disaster Risk Reduction	
			- Formulation of LDMCs at all VDCs, Municipalities and Ward Level.	DDC Municipality VDC	DDRC Partner Organization	Each VDC and Municipality, Each VDC and Municipal Wards	706	Committee	--											Forest Env. DRM Sector	9.1 / Disaster Risk Reduction	
			- Determination and implementation of DRR/ DRM capacity development programmes under guidance of DDRC. <Examples of programmes> - To grasp hazard, risk, vulnerability and capacity of own community (Hazard/Risk assessment, Vulnerability and Capacity Assessment(VCA), Field survey, Risk Mapping) - To consider Disaster preparedness of community. (Disaster Risk Management planning, Making action plans, etc.)	DDRC LDMCs	MoHA DDC Municipality VDC partner organization	Members of LDMCs/ CMDCs	706	Program	35.6											Forest Env. DRM Sector	6.1.4 / Disaster Risk Reduction	

Policy	Action	Contents	Responsibility		Identified Target Site/Facility/Beneficiary (Target / Candidate)	Target		Cost Estimation NPR (Million)	Target Period									On-going Action / JICA QIPs	PDDP Sector	Relevant Clause of National Reconstruction and Rehabilitation Policy (Strategy) / PDRF Sector	
			Responsible Organization	Support Organization		Target Number	Unit		Reconstruction			Development									
									73/74	74/75	75/76	76/77	77/78	78/79	79/80	80/81	81/82				82/83
	2-1-17	Create locally owned voluntary bodies for recovery and disaster management	- Formation of voluntary body under leadership of VDC secretary, ensuring inclusive composition. -Determination and allocation of roles and responsibilities of the voluntary bodies. - Financial Arrangement for the voluntary body to ensure regular activities/ meetings etc.	DDRC LDMCs Municipality VDC	NRA(DL-PIU) DDC	Each VDC and Municipality	70	Committees	7.0											Forest Env. DRM Sector	8.2.1 / Disaster Risk Reduction
	2-1-18	Human resource development of private sector	-Strengthening DRM/ DRR capacity of private sector through trainings.	NRA DDRC	DDC Municipality/VDC ADCCI FNCCI	Market centers (Barabise, Tatopani, Khadichour, Melamchi, Mude etc.) and District Headquarter	12	Trainings	6.6											Forest Env. DRM Sector	8.5.1 / Disaster Risk Reduction
			- Clarification of roles and responsibilities of private sector for preparedness, during and post disaster phases (in coordination with ADCCI).	NRA DDRC	DDC Municipality/VDC ADCCI	All private companies, business communities, entrepreneurs etc.	7	Times	0.1												Forest Env. DRM Sector
2-1-19	Implementation of disaster response drill based on lessons learned from the earthquake at the district level	-Implementation of disaster response drill in District level. <Examples of contents> - Workshop for collecting information of stakeholders. - Preparedness of drill plan and drill. - Evacuation exercise. - Rescue and first aid exercise. - Information collection and distribution exercise. - Evaluation of results of disaster response drill and improvement of identified issues.	DDC DDRC All Line Agencies	MoHA NRA Police / Military Municipality VDC Partner Organization	All district level organizations/ officials	7	Times	7.0												Forest Env. DRM Sector	7.4.e / Disaster Risk Reduction
Capacity building of first-aid and search and rescue activities	2-1-20	Formulation of SOP which includes first aid and SAR activities	- Formulation of SOP which includes first aid and SAR activities in district level. <Examples of contents> - Flow chart of standard procedure which indicates who, what, when, how should do during and after disasters. - Check list of each stakeholder and each response activity such as search and rescue, medical, food provision, etc. - Several formats for information collection, etc. (In detail, refer to SOP in three municipalities in Kathmandu Valley which will be formulated by support of JICA project in 2017)	DDRC	MoHA Municipality VDC Partner Organization	All line agencies, partner organizations, DEOC and DDRC	1	Plan	2.0											Forest Env. DRM Sector	8.1.2.d / Preparedness for Disaster
			- Formulation of SOP in each Municipality and VDC.	Municipality VDC LDMCs	DDRC Partner Organization	Each VDC and Municipality	70	Plan	70.0												

Policy	Action	Contents	Responsibility		Identified Target Site/Facility/Beneficiary (Target / Candidate)	Target		Cost Estimation NPR (Million)	Target Period										On-going Action / JICA QIPs	PDDP Sector	Relevant Clause of National Reconstruction and Rehabilitation Policy (Strategy) / PDRF Sector		
			Responsible Organization	Support Organization		Target Number	Unit		Reconstruction			Development											
									Recovery	Revitalization	Development	73/74	74/75	75/76	76/77	77/78	78/79	79/80				80/81	81/82
	2-1-21	Implementation of first aid and SAR trainings/ activities	Assessment of First Aid and SAR Capacity at each VDC and Municipality level.	"	DDRC Partner Organization	Each VDC and Municipality	70	Assessment	0.7											Forest Env. DRM Sector			
			- First aid training at VDC and ward Level (all municipalities and VDCs). - Search and rescue training at VDC and Ward level (all municipalities and VDCs).	Municipality VDC LDMCs CDMCs	MoHA DDRC Police Partner Organization	All LDMC 's and CDMC's members Community People	3,180	Person	32.1												Forest Env. DRM Sector	8.1.1.c / Disaster Risk Reduction	
			- Disaster awareness and education to community/ schools etc. including first AID trainings (Implemented by Nepal Army/ Armed Police Force).	Nepal Army Armed Police Force	DDRC MoHA Defence Ministry	All VDCs and Municipalities, not-structured. Per month 8-10 trainings	1,200	Events	--													Forest Env. DRM Sector	8.1.1.c / Disaster Risk Reduction
	2-1-22	Development of damage information sharing system between the rescue, medical institutions, local government and relevant stakeholders	- Formation of standardized format to collect damage information. - Involvement of each sectoral line agencies during damage information collection. (Radio communication and messaging system/ manual of hand written record system etc.)	DDRC DDC	District Statistics Office Line Agencies Police/Military Municipality VDC Partner Organization	Formation of standard format for data collection under the leadership of DDRC	1	Plan	0.2												Forest Env. DRM Sector	8.1.1.b / Transport, Access and Communication	
			- Establishment and strengthening of centralized information collection mechanism through DDRC.	DDRC DDC	Line Agencies Municipality VDC ,Partner Organization	Formation of district level information collection hub and update annually	7	Times	--													Forest Env. DRM Sector	8.5.2 / Transport, Access and Communication
	2-1-23	Establishment of emergency medical and first aid stockpiles	- Estimation of the necessary amount of stockpiles. (For both local residents and non-residents at the time of disaster)	DHO	MoH,MoHA / DDRC LDMCs Private Health Institutions,Partner Organization	District health offices, health posts, hospitals	1	Time	--												Forest Env. DRM Sector	6.3.3 / Health	
			- Development of stockpile warehouses/ container and installation. (at sub regional level :3 major stock piles and at district level: 1 major stock piles) - Allocation of stockpiles at Health post level. (increment of necessary first Aid kits at Health posts)	DHO	MoH MoHA/ DDRC LDMCs Partner Organization	District Level/ PHC Level/ Health post Level	79	Wareh use	39.5													Forest Env. DRM Sector	7.7.h / Health
			- Listing of necessary emergency goods. - Procurement of stockpiles.	DHO	MoH MoHA/ DDRC LDMCs,Private Health Institutions Partner Organization	District Level/ PHC Level/ Health post Level	79	Procurement	50.0													Forest Env. DRM Sector	6.3.3 / Health
	2-1-24	Designation of disaster base hospital, medical center	- Designation of disaster base hospitals, medical centers. - Improvement and enhancement of facilities as the disaster base hospital. (Seismic resistant measures, stockpiles, communication facilities, etc.)	DHO	MoH NRA MoHA/ DDRC LDMCs Partner Organization	Developing District Level Hospitals and All PHCs as disaster base hospital	4	Hospital PHC	10.0												Forest Env. DRM Sector	7.7.h / Health	

Policy	Action	Contents	Responsibility		Identified Target Site/Facility/Beneficiary (Target / Candidate)	Target		Cost Estimation NPR (Million)	Target Period									On-going Action / JICA QIPs	PDDP Sector	Relevant Clause of National Reconstruction and Rehabilitation Policy (Strategy) / PDRF Sector		
			Responsible Organization	Support Organization		Target Number	Unit		Reconstruction			Development										
									73/74	74/75	75/76	76/77	77/78	78/79	79/80	80/81	81/82				82/83	
	2-1-25	Enhancement of medical information system (strengthening of cooperation with medical institutions)	- Enhancement of medical and health care network and information system in the district in cooperation with I/NGOs and private sectors. - Investigating the issues of collecting and distributing medical information.	DHO	MoH MoHA / DDRC LDMCs Private Health Institutions Partner Organization	District level medical and health care network (District Health Office, hospitals, health posts, DDRC, Municipality, VDC(LDMC) etc.)	7	Meeting	0.7											✓	Forest Env. DRM Sector	6.3.3 / Health
			- Collection and sharing of medical information with medical institutions (lead by DHO).	DHO	MoH MoHA / DDRC LDMCs Partner Organization	From local level to district level/ Preparation of updated information yearly	7	Time	0.4												✓	Forest Env. DRM Sector
	2-1-26	Promotion of inter-hospital cooperation in disasters (District or National level) and disaster base hospitals (e.g. hospital mutual cooperation, wide-area disaster medical information network, development of manuals)	- Development of manual for inter-cooperation and regular interactions among stakeholders. <Contents of Manual addressing> - Intercooperation between district hospital and Private Hospitals (through medical and health care network). - Intercooperation between DHO and medical clinics/ Poly Clinics/ Medicals etc. - Intercooperation between DHO and I/NGOs working in health sector. - Ensuring all time (24/7) availability of ambulance at each hospitals (both private and public sector).	DHO	MoH MoHA / DDRC LDMCs Private Health Institutions Partner Organization	All health institutions within the district and outside the district.	14	Time	0.7												Forest Env. DRM Sector	6.3.3 / Health
Promoting partnership between relevant public sector and private sector	2-1-27	Clarification of sharing roles between relevant public sector and private sector	- Study on the possibility of cooperation between public and private sectors during and after disasters. - Clarification of sharing roles between relevant public sector and private sector.	DDRC LDMCs ADCCI	MoHA / MoI Line Agencies Municipality VDC Partner Organization	Relevant public sectors and private sectors	--	--	--												Forest Env. DRM Sector	6.3.2 / Health
	2-1-28	Enhancement of cooperation system between relevant public sector and private sector	-Formulation of partnership between public and private sectors. (e.g. agreement on emergency support from a private company to public sector during disaster)	DDRC LDMCs ADCCI	"	Relevant public sectors and private sectors	--	--	--											✓	Forest Env. DRM Sector	6.3.2 / Transport, Access and Communication
	2-1-29	Enhancement of capability of each shared role in public sector and private sector	- Sharing knowledge between public and private sectors. - Holding drill for capacity building.	DDRC LDMCs ADCCI	"	Relevant public sectors and private sectors	--	--	--												Forest Env. DRM Sector	6.3.2 / Transport, Access and Communication
	2-1-30	Establishment of "Community Disaster Management Committees (CDMCs)"	- Establishment of "Community Disaster Management Committees (CDMCs)" as organizations for disaster preparedness, response, and rehabilitation at community level.	Municipality VDC (LDMCs)	DDRC Partner Organization	Each VDC and Municipal wards	636	Ward	6.4												Forest Env. DRM Sector	8.1.2.c / Disaster Risk Reduction

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			Responsible Organization	Support Organization		Target Number	Unit		Reconstruction			Development									
									73/74	74/75	75/76	76/77	77/78	78/79	79/80	80/81	81/82				82/83
Enhancement of Community Based Disaster Risk Management	2-1-31	Formulation of community DRR/DRM plans	CDMCs Municipality VDC, (LDMCs)	DDRC Partner Organization	Each VDC and Municipal ward	636	Plan	31.8											Forest Env. DRM Sector	6.5.4 / Disaster Risk Reduction	
	2-1-32	Formulation of "community carte" for summarized information of current condition on disaster management at the community level	Municipality/VDC (LDMCs)	DDRC CDMCs partner organization	Each VDC and Municipal ward	70	Muni. VDC	35.0											Forest Env. DRM Sector	8.1.1.c Disaster Risk Reduction	
	2-1-33	Carrying out of community disaster management exercises	- Enhancement of communication between administrative agency and community. (Promoting dialogues, information sharing) - Community discussion forums and regular interaction programs (CDMC-LDMC-DDRC). - Public hearing and information dissemination programs	Municipality VDC (LDMCs)	DDRC Partner Organization	Each VDC and Municipal ward	636	Ward	--											Forest Env. DRM Sector	8.1.1.d Disaster Risk Reduction
			- Implementation of DRR/ DRM capacity development programs for community leaders. <Examples of programmes> - To grasp hazard, risk, vulnerability and capacity of own community. (hazard, risk, vulnerability and capacity assessment, field survey, risk mapping) - To consider disaster preparedness of community (Disaster management planning, action plans, etc.)	Municipality VDC (LDMCs)	DDRC partner organization.	Each VDC and Municipal ward	636	Ward	--												Forest Env. DRM Sector
		- Carrying out of disaster management exercises. <Examples of exercise> - Check of the area and disaster response actions. - Disaster evacuation drill. - Fire-fighting exercise. - SAR, first-aid exercise. - Evaluation of exercise and meeting.	Municipality VDC (LDMCs)	DDRC DHO Nepal Red Cross Nepal Police Partner Organization	Each VDC and Municipal Wards (at least one time in 7 years)	636	Ward	31.8											Forest Env. DRM Sector	8.1.1.d Disaster Risk Reduction	

Policy	Action	Contents	Responsibility		Identified Target Site/Facility/Beneficiary (Target / Candidate)	Target		Cost Estimation NPR (Million)	Target Period									On-going Action / JICA QIPs	PDDP Sector	Relevant Clause of National Reconstruction and Rehabilitation Policy (Strategy) / PDRF Sector		
			Responsible Organization	Support Organization		Target Number	Unit		Reconstruction			Development										
									Recovery	Revitalization	Development	73/74	74/75	75/76	76/77	77/78	78/79				79/80	80/81
Enhancement of public awareness of disaster risk reduction/disaster risk management	2-1-34	Development of base for culture of disaster prevention awareness (e.g. construction of reconstruction park, monuments, etc.)	- Construction of Disaster Memorial Park at District Headquarter (considering children, women and elderly friendly provisions).	NRA(DL-PIU) DUDBC Division Office	NRA DDC Partner Organization	District Headquarter (Chautara)	1	Place	50.0											✓	Forest Env. DRM Sector	Cultural Heritage
			- Construction of monuments, memorial parks etc. at VDC level (as a remembrance of EQ/ as a base for culture of disaster prevention awareness) (e.g. Preservation of damaged and remaining heritage sites such as temples/ community building etc.)	NRA(DL-PIU) DUDBC Division Office DDC Municipality/VDC	NRA Partner Organization	Each VDC and Municipalities (need basis)	69	Muni. VDC	34.5													
	2-1-35	Development of handbook of DRR/DRM for households	- Development and distribution of handbook of DRR/DRM for households. <Examples of contents> - Learning about disasters (earthquake mechanisms, history, disaster risks etc.) - What to do in the event of disaster. - Preparedness (Making earthquake resilient houses, preparing emergency stockpiles).	DDRC DDC	MoHA LDMCs/CDMCs Partner Organization	All district residents/ Households	85,762	House hold	1.7											✓	Forest Env. DRM Sector	8.1.1.c Disaster Risk Reduction
	2-1-36	Implementation of awareness-raising programs on DRR/DRM	- Awareness raising program in communities. <contents of the program> - Community workshop for learning DRR/DRM. - Development of educational tools. - TV/Radio awareness programme. - Organizing regular interaction programs with security agencies (Nepal Army and Armed Police Forces).	VDC (LDMC) Municipality (LDMC) CDMCs	DDRC Nepal Army Armed Police Force DDC	Each VDC and Municipal Wards (at least one time in 7 years)	636	Ward	3.2											✓	Forest Env. DRM Sector	8.1.1.d / Disaster Risk Reduction
	2-1-37	Promotion of preparation of emergency stockpiles by household level	- Promotion on preparation of Household level emergency stockpiles. (Development of brochure, leaflet for stockpiles)	VDC (LDMC) Municipality (LDMC) CDMCs	DDRC DDC	Each VDC and Municipal Wards	636	Ward	3.2												✓	Forest Env. DRM Sector
- Household level stockpile bag (Ready Go Bag) distribution (as an encouragement to vulnerable people).			VDC (LDMC) Municipality (LDMC) CDMCs	NRA DDRC DDC Partner Organization	Each VDC and Municipality (Vulnerable households)	3,500	House hold	35.0													✓	Forest Env. DRM Sector

Policy	Action	Contents	Responsibility		Identified Target Site/Facility/Beneficiary (Target / Candidate)	Target		Cost Estimation NPR (Million)	Target Period										On-going Action / JICA QIPs	PDDP Sector	Relevant Clause of National Reconstruction and Rehabilitation Policy (Strategy) / FDRF Sector
			Responsible Organization	Support Organization		Target Number	Unit		Reconstruction					Development							
									73/74	74/75	75/76	76/77	77/78	78/79	79/80	80/81	81/82	82/83			
Basic Policy 2-2 Recovery and Development of Resilient Infrastructure: Road, Bridge, Lifeline, Disaster Management Base																					
Recovery seismic resistant and safer roads and bridges and develop resilient road network	2-2-1	Recovery of roads and bridges (Road network of national, district, municipality and VDC level)	- Carry out investigation on EQ damaged roads. - Temporary recovery measures for nationally and regionally important roads. (Minimum recovery, including debris removal, side protection, etc. to secure people's mobility)	DTO DRO	NRA MoPIT Partner Organization	EQ damaged road of which 23 KM is remained to recover	23	KM	18.4									✓ JICA QIPs	Physical Sector	7.7.a / Transport, Access and Communication	
	2-2-2	Development of roads and bridges in district level for smooth emergency response, evacuation, logistics and safer transportation (development of resilient road network)	- Identification of emergency road networks at district level and Municipality/VDC level.	DTO DRO DDRC	DDC Municipality/VDC, Partner Organization	District Road Core Network (DRCN), over the district	600	KM	--										Physical Sector	7.7.a / Transport, Access and Communication	
			- Seismic diagnosis and retrofitting/reconstruction of bridges along the emergency road network.	DTO DRO Municipality/VDC	NRA,DDC Partner Organization	Identified Emergency Road network	--	--	--										Physical Sector	7.7.a / Transport, Access and Communication	
			- Upgrade and maintenance of identified road networks. (Eg. Road widening, install side drain, side protection, construct retaining walls, road turning management, road mirror installation etc.)	DTO DRO Municipality/VDC	NRA DDC Partner Organization	Identified Emergency Road network	600	KM	480.0											Physical Sector	7.7.a / Transport, Access and Communication
			- Seismic resistance of buildings along designated evacuation routes/emergency roads. - Strict Implementation of RoW along the district core road network.	DDC Municipality/VDC	NRA DUDBC DRO Partner Organization	All buildings along DRCN	--	--	--											Physical Sector	7.7.a / Transport, Access and Communication
			- Regular inspection and maintenance of Emergency Road Network.	DRO, DTO Municipalities	MoFLAD MoPIT	Identified Emergency Road network	600	KM	120.0											Physical Sector	"
Recovery and development of seismic resistant and safer trails	2-2-3	Recovery of trails including trail bridges for resilient local region	- Implementing survey on damaged trails and trail bridges.	DTO	NRA,DDC NTB/NTNC Municipality/VDC Partner Organization	All damaged trails and trail bridges over the district	1	Time	1.0										Physical Sector	7.7.a / Tourism	
			- Repair and maintenance of foot trails.	DTO	NRA,DDC,NTB/NTNC, Municipality/VDC Partner Organization	Each VDC and Municipality	--	--	--									✓	Physical Sector	7.7.a / Tourism	
			- Reconstruction of trail bridges.	DTO	NRA,DDC Municipality/VDC Partner Organization	All destroyed bridges	6	Bridge	30.0									✓	Physical Sector	7.7.a / Transport, Access and Communication	
			- Repair and maintenance of trail bridges.	DTO	"	All damaged bridges	7	Bridge	7.0									✓	Physical Sector	"	
			- Construction of temporary crossings.	DTO	"	All damaged trail bridges	13	Trail Bridge	2.6										Physical Sector	"	
			- Recovery of damaged facilities along foot trails. (rest places, shelters etc.)	DDC Municipality/VDC	NRA,NTB \ NTNC Partner Organization	Damaged facilities along foot trails	370	Facility	37.0										Physical Sector	6.2.1 / Tourism	

Policy	Action		Contents	Responsibility		Identified Target Site/Facility/Beneficiary (Target / Candidate)	Target		Cost Estimation NPR (Million)	Target Period								On-going Action / JICA QIPs	PDDP Sector	Relevant Clause of National Reconstruction and Rehabilitation Policy (Strategy) / PDRF Sector		
				Responsible Organization	Support Organization		Target Number	Unit		Reconstruction												
										Recovery		Revitalization		Development								
									73/74	74/75	75/76	76/77	77/78	78/79	79/80	80/81	81/82	82/83				
	2-2-4	Developing trails network for resilient local region and securing alternative access routes to settled areas	- Implementing survey on current trails network to study necessity of alternative access.	DTO	DoLIDAR	Trails of each VDC and Municipalities	70	Muni. VDC	3.6												Physical Sector	7.7.a / Transport, Access and Communication
			- Development of new trail routes in resettlement areas. - Development of trails linking resettled areas.	NRA(DL-PIU) DUDBC Division Office	NRADTO Municipality/VDC Partner Organization	Trails in all resettlement sites (7 sites)	7	KM	7.0												✓	Physical Sector
Development of disaster management facilities and designate emergency roads	2-2-5	Consideration of emergency transportation and logistics plan	- Mapping important road, facilities of the area based on damaged status, lessons learned from the earthquake and District Transport Master Plan(DTMP) etc. - Designation of roads for the emergency transportation.	DTO	NRA NRA(DL-PIU) DUDBC Division Office,DDC,DRO Municipality/VDC,Partner Organization	District emergency transportation and logistics plan	1	Plan	2.0										✓	Physical Sector	7.7.a / Transport, Access and Communication	
	2-2-6	Development of disaster management base facilities and network of base facilities (Municipal office, seismic resistant measures, stockpile, communication facilities etc.)	- Planning and designation of disaster management base facilities. - Improvement and enhancement of facilities as the disaster management base. (Seismic resistant measures, stockpile, communication facilities, etc.)	DDC DDRC	NRA Municipality/VDC Partner Organization	Disaster management base facilities and network of base facilities	--	--	--											Physical Sector	7.13.a / Disaster Risk Reduction	
			- Development and improvement of network for base facilities from Municipalities/VDCs and neighbor districts.	DTO DRO	NRA DDRC/DDC Municipality/VDC Partner Organization	Road network between disaster management facilities	--	--	--											Physical Sector	7.13.a / Disaster Risk Reduction	
	2-2-7	Enhancement of disaster management functions of schools(seismic resistant measures, stockpile, communication facilities etc.)	- Ensuring seismic resistant measures of all schools.	DEO Schools	MoE MoHA Partner Organizations	All Schools	605	Schools	15.1										✓	Social Sector	7.7.i. / Disaster Risk Reduction	
			- Securing stockpiles at school level. - Development of communication facilities, etc.	DEO Schools	MoE MoHA Partner Organizations	All Schools	605	Schools	605.0											Social Sector	7.13.a. / Disaster Risk Reduction	
	2-2-8	Development of emergency road network including alternative way	- Designation of emergency transportation road network. (e.g. Transportation network which was used in emergency response phase after the earthquake.) - Improvement of designated roads and bridges.	DTO DRO	NRA DDRC/DDC Municipality/VDC Partner Organization	Identified emergency transportation network	--	--	--											Physical Sector	7.7.a / Transport, Access and Communication	
	2-2-9	Designation, development and dissemination of evacuation sites	- Designation of evacuation sites based on land availability, number of residents and visitors in the area. - Development and Improvement of evacuation sites.	DDRC Municipality(LDMC) VDC(LDMC) CDMCs	MoHA DDC partner organization	Each VDC and Municipal wards (evacuation sites)	636	Ward	31.8											Forest Env. DRM Sector	7.7.j. / Disaster Risk Reduction	
			- Installation of signage and maps of evacuation sites (at all community level).	Municipality (LDMC) VDC (LDMC) CDMCs	MoHA DDRC/DDC partner organization	Each VDC and Municipal wards (evacuation sites)	636	Ward	31.8											Forest Env. DRM Sector	7.7.j. / Disaster Risk Reduction	

Policy	Action		Contents	Responsibility		Identified Target Site/Facility/Beneficiary (Target / Candidate)	Target		Cost Estimation NPR (Million)	Target Period										On-going Action / JICA QIPs	PDDP Sector	Relevant Clause of National Rehabilitation Policy (Strategy) / PDRF Sector						
				Responsible Organization	Support Organization		Target Number	Unit		Reconstruction			Development															
										Recovery	Revitalization	Development	80/81	81/82	82/83													
73/74	74/75	75/76	76/77	77/78	78/79	79/80	80/81	81/82	82/83																			
	2-2-10	Designation, development of temporary heliports	- Designation of temporary heliports based on the land availability and road accessibility from disaster management bases and hospitals/PHC. - Development and Improvement of temporary heliports.	DDRC Municipality (LDMC) VDC (LDMC) CDMCs	CAAN MoCTCA	Each VDC and Municipality (temporary heliports)	86	Place	4.3														✓	Forest Env. DRM Sector	7.7.b. / Transport, Access and Communication			
	2-2-11	Development of stockpile warehouses, and ensuring disaster stockpile	- Development of stockpile warehouses and installation at District level. - Procuring response and rescue equipment / SAR equipment (Boots, jackets, gloves, ropes, shovels, helmets, life boats etc.). - Record and inventory of each equipment at warehouse.	DDRC Municipality(LDMC)	DDC Partner Organization	Chautara, Melamchi and Lamosangu (Warehouses for DRM)	3	Place	90.0															✓	Forest Env. DRM Sector	7.7.j. / Transport, Access and Communication		
			- Provisioning fire brigade at all warehouse (sub-district level)/ managed by Municipality and LDMCs. - Ensuring full time operation.	Municipality LDMCs	DDRC MoFALD MoHA	Chautara, Melamchi and Lamosangu (Warehouses for DRM)	3	Place	60.0																	Forest Env. DRM Sector	7.7.j. / Transport, Access and Communication	
			- Development of stockpile warehouses and installation at VDC level.	VDC (LDMC)	DDC/DDRC Partner Organization	Each VDCs (Warehouses for DRM)	67	VDC	134.0																✓	Forest Env. DRM Sector	7.7.j. / Transport, Access and Communication	
			- Development of stockpile warehouses and installation at community level.	Municipality/VDC (LDMCs) CDMCs	DDC/DDRC Partner Organization	Each VDC and Municipal wards (Warehouses for DRM)	569	Ward	284.5																		Forest Env. DRM Sector	7.7.j. / Transport, Access and Communication
			- Ensuring timely check and maintenance of stockpiles at all level.	DDRC Municipality (LDMC) VDC (LDMC) CDMCs	DDC Nepal Police Nepal Army	All warehouses for DRM	639	Place	--																		Forest Env. DRM Sector	7.13.a./ Transport, Access and Communication
Recovery of resilient lifeline	2-2-12	Seismic resistant measures for water pipe line and facilities (water storage and supply facilities etc.)	- Investigation of existing water supply facilities and preparation of seismic resistance plan.	WSSDO	NRA DDC Municipality/VDC MoWSS Partner Organization	Existing water supply facilities of each VDC and Municipalities	1	Time	2.0																Physical Sector	7.7.d. / Water and Sanitation		
			- Seismic Resistance measures for existing (important projects on priority basis) water supply projects.	WSSDO	"	Existing water supply facilities of each VDC and Municipalities	--	--	--																	Physical Sector	7.7.d. / Water and Sanitation	

Policy	Action	Contents	Responsibility		Identified Target Site/Facility/Beneficiary (Target / Candidate)	Target		Cost Estimation NPR (Million)	Target Period										On-going Action / JICA QIPs	PDDP Sector	Relevant Clause of National Reconstruction and Rehabilitation Policy (Strategy) / PDRF Sector		
			Responsible Organization	Support Organization		Target Number	Unit		Reconstruction														
									Recovery			Revitalization			Development								
									73/74	74/75	75/76	76/77	77/78	78/79	79/80	80/81	81/82	82/83					
2-2-13	Recovery of seismic resistant sewage facilities	- Recovery and seismic resistant of sewer pipe lines, facilities (drainage, sewage, and sanitation system) at the municipal and town areas. - Recovery and seismic resistant of sewage facilities in rural areas.	WSSDO	NRA MoWSS Municipality/VDC Partner Organization	Damaged sewage facilities	--	--	--													Physical Sector	7.7.d. / Water and Sanitation	
		- Establishment of sewerage treatment system at municipal level (feasibility study and necessary development) .	WSSDO	MoWSS Municipality/VDC Partner Organization	Chautara and Melamchi (Sewage treatment system)	2	Place	--													Physical Sector	7.7.d. / Water and Sanitation	
		- Implementation of septic tank with soak pit at household level. (Policy measure).	VDC Municipalities	MoFALD DDC	All the beneficiaries from the NRA list, over the district.	85,762	House hold	--													✓	Physical Sector	7.7.d. / Water and Sanitation
	Recovery and strengthening of electricity supply system	- Investigation of EQ damage on electricity production and supply system. - Recovery of electricity supply system with seismic resistance measures. - Recovery and seismic resistance of electricity production system/ power houses (both public and private sector) . - Restoration of Household level electric meter.	NEA Chautara NEA Melamchi NEA Lamosangu	NRA NEA MoEN	Electricity production and supply system	70.0	VDC Muni.	350.0													✓	Physical Sector	7.7.c. / Electricity and Renewable Energy
		- Use of solar energy as a power backup in all public buildings and school buildings (installation outside the building).	DDC (AEPC)	NRA partner organization	All public buildings/ service centers/ VDCs/ HPs/ Schools	772	Building	115.8													✓	Physical Sector	7.7.g. / Electricity and Renewable Energy
		- Promotion of solar energy and wind energy at local level. (distribution of solar panel at household level)	DDC (AEPC)	MoEN partner organization	Residents/ Households of mountainous area/ VDCs	28,000	House hold	280.0													✓	Physical Sector	7.7.c. / Electricity and Renewable Energy
Basic Policy 2-3 Enhancement of Land Use Management and Area Planning																							
Designation of land use management such as restricted habitation area	Landslide hazard assessment and identification of hazard area	- Preparation of landslide hazard map	NRA	JICA DDC	District landslide hazard map)	1	Map	--												✓	Physical Sector	8.1.1.d./ Disaster Risk Reduction	
		- Training to the engineers and technicians about the use of Landslide Hazard Maps.	NRA	JICA DDC	NRA and Municipal engineers, DEOC and DDRC engineers	5	Person	--													✓	Physical Sector	8.1.1.c. / Disaster Risk Reduction
		- Implement of field survey, analysis and identification of hazard areas based on actual conditions.	DDRC/DDC Municipality/VDC (LDMCs)	NRA Partner Organization	Each Municipality and VDC	70	Muni. VDC	7.0													✓	Physical Sector	8.1.2.d./ Disaster Risk Reduction

Policy	Action	Contents	Responsibility		Identified Target Site/Facility/Beneficiary (Target / Candidate)	Target		Cost Estimation NPR (Million)	Target Period										On-going Action / JICA QIPs	PDDP Sector	Relevant Clause of National Reconstruction and Rehabilitation Policy (Strategy) / PDRF Sector				
			Responsible Organization	Support Organization		Target Number	Unit		Reconstruction			Development													
									Recovery	Revitalization	Development	73/74	74/75	75/76	76/77	77/78	78/79	79/80				80/81	81/82	82/83	
	2-3-2	Risk Assessment of existing land use based on disaster risk	- Preparation of land use map of the district, municipality and VDCs.	DDC Municipality VDC	DUDBC Division Office,NLUP,DLRO District Survey Office	Whole district and Each VDC & Municipality	70	Muni. VDC	7.0													Physical Sector	7.19.e./ Disaster Risk Reduction		
			- Preparation of Risk Sensitive Land Use Plan(RSLUP) of municipalities. (Comparing the hazardous area and current land use)	Municipality	DUDBC Division Office,NLUP DLRO,District Survey Office	Chautara and Melamchi	2	Plan	7.0															Physical Sector	7.19.e. / Disaster Risk Reduction
			- Identification of an area which is threatening to settlements and human life.	DDC Municipality/VDC (LDMCs)	NRA,DUDBC Division Office,DDRC Partner Organization	Each VDC and Municipality	70	Muni. VDC	7.0																Physical Sector
	2-3-3	Consideration of countermeasures such as landslide prevention infrastructures and improvement of lands for disaster prone and resident area	- Use of identified landslide hazard area in the preparation of LDRMP.	Municipality/VDC (LDMCs)	DDRC/DDC Partner Organization	Municipalities and VDCs (LDRMP)	70	Muni. VDC	7.0														Physical Sector	6.6.2 / Disaster Risk Reduction	
			- Consideration of countermeasures for landslide protection on priority basis. <examples> - Setting the gabion wall. - Construction of landslide prevention infrastructure. - Soil improvement etc.	DTO DRO DUDBC Division Office	NRA District Land Conservation Office District Forest Office DDC Municipality/VDC	All landslide affected residential areas	60	Settlements	300.0															Physical Sector	8.1.1.d./ Disaster Risk Reduction
	2-3-4	Promoting understanding of landslide prone area	- Holding training for understanding landslide prone areas.	DDRC/DDC,Municipality (LDMC) VDC (LDMC) CDMCs	NRA,DLCO,DFO Partner Organization	All northern VDCs of the district covering all landslide affected areas.	30	VDC	15.0														Physical Sector	6.6.2./ Transport, Access and Communication	
			- Development of maps and signage showing landslide prone areas .	"	"	Major Landslide zones towards northern region	120	Area	6.0															Physical Sector	6.6.1 / Transport, Access and Communication
	2-3-5	Consideration of land use restriction and building regulation	- Consideration of revision of land use and building regulations (on the basis of analysis and comparison of geomorphological maps, hazard analysis and actual damage).	DUDBC Division Office Municipality VDC	NRA NRA (DL-PIU) DDC partner organization	Whole District	1	Time	--														Physical Sector	6.6.1./ Disaster Risk Reduction	
	2-3-6	Designation of affected areas needed for regional planning and integrated settlement development	- Recovery and development planning for landslide high risk areas on the basis of the revised guidelines / regulations or detailed hazard risk assessment. - Reconstruction of the settlement buildings on the basis of the revised guidelines/ regulations (policy implementation) .	VDC Municipality	NRA DUDBC Division Office DDRC partner organization	Whole district	1	Time	7.8														Physical Sector	6.6.2./ Housing and Settlement	

Policy	Action	Contents	Responsibility		Identified Target Site/Facility/Beneficiary (Target / Candidate)	Target		Cost Estimation NPR (Million)	Target Period										On-going Action / JICA QIPs	PDDP Sector	Relevant Clause of National Reconstruction and Rehabilitation Policy (Strategy) / PDRF Sector				
			Responsible Organization	Support Organization		Target Number	Unit		Reconstruction			Development													
									Recovery	Revitalization	Development														
Consideration of forest preservation and management	2-3-7	Protection of landslides induced by the earthquake	DFO DLCO DTO	NRA MoENV Partner Organization	All landslide affected areas	10	Sq.Km	500.0															✓	Forest Env. DRM Sector	Environment and Forestry
	2-3-8	Plantation at the landslide affected areas	DFO DLCO DTO	NRA MoENV Partner Organization	All landslide affected areas	10	Sq.Km	10.0															✓	Forest Env. DRM Sector	Environment and Forestry
	2-3-9	Awareness program to manage forest encroachment	NRA	DFO DLCO partner organization	All encroached sites	3	Times	1.5															✓	Forest Env. DRM Sector	Environment and Forestry
	2-3-10	Forest preservation and management through sub-watershed level planning (Implementing SAIBHAA Model)	DSCO	DDC JICA	Priority watershed areas	3	Watershed	300.0															✓	Forest Env. DRM Sector	Environment and Forestry
Vision 3. Reconstruction and Development of Regional Economy																									
Basic Policy 3-1 Recovery and Promotion of Agriculture																									
Recovery of agricultural buildings, facilities and infrastructures	3-1-1	Implementation of survey of damage by the earthquake in each affected area (field survey, workshop with farmers and identify issues)	DADO	DLSO NRA Partner Organization	Each VDC and Municipality	1	Time	3.5															✓	Economic Sector	6.4.2 / Disaster Risk Reduction

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			Responsible Organization	Support Organization		Target Number	Unit		Reconstruction			Development										
									Recovery	Revitalization	Development	73/74	74/75	75/76	76/77	77/78				78/79	79/80	80/81
	3-1-2	Rehabilitation and reconstruction of agricultural buildings and facilities (Agriculture and forestry service offices, illaka offices, collection center, fish ponds etc.)	- Damage investigation of agricultural and forestry services (Agriculture, Livestock and forestry service offices).	DADO DLSO DFO	NRA Partner Organization	Each agriculture, forest and livestock service Illaka offices	33	Office	1.7										✓ JICA QIPs	Economic Sector	6.1.2 / Government Building	
			- Reconstruction of the damaged buildings and facilities (agriculture/ livestock and forest service offices/excluding district level offices).	NRA(DL-PIU) DUDBC Division Office	NRA Partner Organization	All damaged agriculture, livestock and forest buildings	18	Building	360.0											✓ JICA QIPs	Economic Sector	6.1.2 / Government Building
			- Maintenance and Retrofitting of partially damaged agriculture/ livestock and forest services/ building facilities (excluding district level offices).	NRA(DL-PIU) DUDBC Division Office	NRA Partner Organization	All partially damaged agriculture, livestock and forest buildings	5	Building	15.0											✓	Economic Sector	
			- Retrofitting and Strengthening of intact agriculture/ livestock and forest services/ building facilities (excluding district level offices).	DADO DLSO DFO	GoN Partner Organization	All intact agriculture, livestock and forest buildings	5	Building	10.0												Economic Sector	
			- Rehabilitation and reconstruction support for collection centers (agriculture and milk).	DLSO DADO	DDC NRA Partner Organization	Agriculture collection centers (specially milk collection center) at each VDC and Municipality	224	Nos	22.4											✓	Economic Sector	6.1.2 / Government Building
	3-1-3	Recovery of damaged irrigation facilities	- Damage investigation of irrigation facilities.	Irrigation Development Division Office(IDDO)	NRADADO DDC Municipality VDC Partner Organization	Development project of IDDO	142	Project	75.0										✓	Economic Sector	7.7.e./ Agriculture and Irrigation	
			- Recovery of damaged irrigation facilities.																			
	3-1-4	Recovery of damaged community buildings of farmers	- Damage investigation of damaged community buildings of farmers.	DADO DLSO	NRA Partner Organization	Damaged community buildings in each VDC and Municipality	1	Time	0.5											Economic Sector	6.1.2 / Government Building	
			- Recovery or Reconstruction support to damaged buildings (Agriculture cooperatives / community forest buildings etc.).	DADO/ DLSO DFO	NRA Partner Organization	Damaged community buildings based on investigation	146	Building	43.8											Economic Sector	6.1.2 / Government Building	
	3-1-5	Support to revitalize and develop agricultural sites for farmers affected by landslides, earthquake etc.	- Geological survey for the proposed agricultural site.	DSCO DADO	NRA,DSCO,DLRO Partner Organization	All resettlement areas	7	Place	7.0											Economic Sector	6.1.2 / Government Building	
			- Support for land acquisition of farmers in resettlement areas, landslide affected areas and landslide prone areas.	DADO DLSO	NRA	All resettlement areas on need basis	350	Hect.														
			- Land adjustment for agriculture.	DSCO DADO	NRA,DLRO Partner Organization	Identified resettlement areas and landslide prone areas (need basis)	350	Hect.	875.0											Economic Sector	6.6.2 / Agriculture and Irrigation	
			- Support to the displaced families (seed, fertilizers, machineries etc.).	DADO	NRA,DSCO DLRO,Partner Organization	Agricultural packages (seed fertilizers, machineries) on priority basis	1,400	House hold	70.0											Economic Sector	6.4.2 / Agriculture and Irrigation	
			- Recovery and rehabilitation of damaged / degraded agricultural land by earthquake/ landslide etc.	DSCO	NRA,DADO Partner Organization	All landslide/ EQ affected agriculture land and degraded /uncultivated land	60	Hect.	60.0										✓	Economic Sector	6.4.2 / Agriculture and Irrigation	

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				Responsible Organization	Support Organization		Target Number	Unit		Reconstruction																	
										Recovery	Revitalization	Development	73/74	74/75	75/76	76/77	77/78	78/79	79/80				80/81	81/82	82/83		
	3-1-6	Development of farmers' awareness for landslides hazard area	- Community workshop for learning landslide hazard (in the leadership of DDRC, each LDRMC shall initiate awareness in VDC/Ward and Community level).	DSCO DADO	DDC/DDRC Partner Organization	Each VDC and Municipal wards (all farmers)	636	Ward	6.4																Economic Sector	6.1.4 / Disaster Risk Reduction	
Supporting revitalization of agricultural activities	3-1-7	Establishment of support scheme for affected farmers	- Arrangement and provision of the seeds, fertilizers and other agricultural inputs to farmers at a cheaper price.	DLSO DADO	NRA Partner Organization	Each VDC and Municipality (affected farmers)	70	Muni. VDC	780.0																✓	Economic Sector	6.1.3 / Agriculture and Irrigation
	3-1-8	Supporting revitalization activities of agriculture (financial support to purchase the livestock, seeds etc.)	- Cash transfer to purchase the livestock, seed, fertilizers. Machineries etc.	DLSO DADO	NRA Partner Organization	Each VDC and Municipality (selection on priority basis)	20,000	House hold	400.0																✓	Economic Sector	6.1.3 / Agriculture and Irrigation
	3-1-9	Supporting agricultural equipment (financial support to purchase agricultural equipment etc.)	- Cash transfer to purchase agricultural equipment.	DLSO DADO	NRA Partner Organization	Each VDC and Municipality (selection on priority basis)	5,000	House hold	250.0																✓	Economic Sector	6.1.3 / Agriculture and Irrigation
Development of agricultural technique, improvement of productivity and capacity building of farmers	3-1-10	Development and capacity building of farmers for cultivation technique	- Investigating the current cultivation techniques, breeding practices,	DADO	NRA partner organization	Each VDC and Municipality (farmers)	1	Time	0.5															✓ JICA QIPs	Economic Sector	6.1.5 / Agriculture and Irrigation	
			- Training for improved vegetable / horticulture farming including potato, tomato, green vegetables etc. / commercial farming techniques. - Introducing new techniques and devices.	DADO	NRA,MoA Partner Organization	Each VDC and Municipality (farmers)	636	Ward	31.8																✓ JICA QIPs	Economic Sector	6.1.4 / Agriculture and Irrigation
			- Training for improved cereal crop farming including rice, maize, wheat, Millet etc. - Introducing the new techniques and devices.	DADO	NRA,MoA Partner Organization	Each VDC and Municipality (farmers)	636	Ward	31.8																✓ JICA QIPs	Economic Sector	6.1.4 / Agriculture and Irrigation
			- Training for improved animal husbandry (including poultry, fish farming, goat/ sheep, cows/ buffalo rearing etc.).	DLSO	NRA,MoA Partner Organization	Each VDC and Municipality (farmers)	636	Ward	31.8																✓	Economic Sector	6.1.4 / Agriculture and Irrigation
			- Training for advance horticulture including fruit farming (Mango, pomegranate, plums, pears, guava etc.).	DADO	NRA,MoA Partner Organization	Each VDC and Municipality (farmers)	636	Ward	31.8																✓	Economic Sector	6.1.4 / Agriculture and Irrigation
			- Training and technology transfer on improved/ quality seed production.	DADO	NRA,MoA Partner Organization	Each VDC and Municipality (farmers)	636	Ward	15.9																✓ JICA QIPs	Economic Sector	6.1.4 / Agriculture and Irrigation

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			Responsible Organization	Support Organization		Target Number	Unit		Reconstruction				Development									
									73/74	74/75	75/76	76/77	77/78	78/79	79/80	80/81				81/82	82/83	
	3-1-11	Consideration and development of agricultural techniques for cultivating/harvesting new value add vegetables, crops suitable in each area	- Soil survey / cultivation survey for identifying suitable crops for specific area.	DADO	MoA Partner Organization	All arable lands over the district	1	Time	50.0										✓ JICA QIPs	Economic Sector	6.1.4 / Agriculture and Irrigation	
			- Exhibitions and expo focusing on best agricultural practices.	DADO DLSO	DDC Local Cooperatives ADCCI, Partner Organization	Each electoral constituency (best agricultural practices)	30	Expo	15.0											✓ JICA QIPs	Economic Sector	6.1.4 / Agriculture and Irrigation
			- Support in shifting cropping practices (traditional practices to value adding new crops).	DADO DLSO	MoA MoL Partner Organization	Farmers shifting cultivation (need based)	600	HH	120.0											✓ JICA QIPs	Economic Sector	7.7.e./ Agriculture and Irrigation
			- Introduction of post-harvesting techniques (grading, processing, packaging and labeling). - Training and technology transfer. - Establishment of Custom Hiring Center (as envisioned by Prime Ministers Agriculture Modernization Program).	DADO DLSO	NRA partner organization	Focused to agriculture cooperatives and groups	132	Cooperative groups	66.0											✓ JICA QIPs	Economic Sector	7.7.e./ Agriculture and Irrigation
Improvement of agricultural distribution system and supply chain	3-1-12	Promotion of expanding sales channel by partnership with public sector and private sector (marketing promotion etc.)	- Investigating current issues of agricultural distribution system and studying supply and demand of agricultural products. - Investigating needs and cost for opening new sales channel. - Studying possible market for the agricultural products.	DADO DLSO	NRA ADCCI Partner Organization	Whole district	1	Time	1.0											Economic Sector	6.1.4 / Agriculture and Irrigation	
			- Expansion of weekly market (Haat Bazars) with the provision of processing and packaging of local production.	DADO DLSO	DDC Municipality/VDC Partner Organization	Melamchi, Barabise, Chautara and major market centers (Jalbire/ Melamchi/ Khadichour/ Mudhe etc)	7	Market center	7.0											✓	Economic Sector	6.1.4 / Agriculture and Irrigation
			- Support to establish gifts shops, souvenir shops, product shops etc. prepared from local materials/ products.	CSIDB	DDC ADCCI NTB	All major market centers (Jalbire/ Melamchi/ Khadichour/ Mudhe etc)	20	Market center	2.0												Economic Sector	6.1.4 / Agriculture and Irrigation
			- Promoting manufacturing of agro-based goods by partnership with public sector and private sector (from local products). - Promoting supply and distribution system by partnership with public sector and private sector (sales channel).	DADO DLSO CSIDB	DDC ADCCI Partner Organization	Whole district (supply chain of agricultural products)	70	Muni. VDC	--											✓	Economic Sector	6.1.4 / Agriculture and Irrigation
			Improvement of supply chain of agricultural products (mutual cooperation in local area, cooperative shipment, quality improvement and raising level of agricultural techniques)	3-1-13		- Establishment of cooperative at local level. - Development of mutual cooperation for production, shipping and export of products in local areas.	DADO DLSO CSIDB Cooperative Division Office	DDC ADCCI Partner Organization	Whole district (supply chain of agricultural products)	70	Muni. VDC	--									✓ JICA QIPs	Economic Sector

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			Responsible Organization	Support Organization		Target Number	Unit		Reconstruction			Development									
									Recovery	Revitalization	Development	73/74	74/75	75/76	76/77	77/78	78/79				79/80
Basic Policy 3-2 Recovery and Promotion of Tourism																					
Rehabilitation and development of tourism facilities and tourism route, trails, trekking routes, local tourism organization and services	3-2-1	Rehabilitation and improvement of trekking routes	- Damage investigation of trekking / trail routes.	Sindhupalchowk Tourism Development Committee(STDC) DDC	NRANTB,NTNC Municipality/VDC Partner Organization	Trekking / trail routes in Langlang, Helambu. Pachpokhari and Bhairav Kunda area	4	Trekking Routes	0.8										Economic Sector	6.4.3 / Tourism	
			- Recovery with improvement of trekking routes.	STDC DDC	"	All identified trekking routes	5	KM	5.0										✓	Economic Sector	6.4.3 / Tourism
	3-2-2	Improvement of tourist facilities along trekking routes	- Investigating damage and loss on tourism facilities and services along the tourist sites/ routes.	STDC DDC	"	All tourist sites/routes	1	Time	0.5											Economic Sector	6.4.3 / Tourism
			- Improvement and new development of the tourist facilities (rest house, rest pavilion, walkers chair, view decks etc.).	STDC DDC	"	All damaged facilities on priority basis	150	Facility	30.0												Economic Sector
	3-2-3	Support for damaged hotels, guest houses and lodges	- Damage investigation of hotels, guest houses and lodges. - Support for recovery or reconstruction of hotels, guest houses and lodges.	STDC DDC	"	Heavily suffered hotels, guest houses, and lodges	30	Hotel Lodge	15.0											Economic Sector	6.4.3 / Tourism
			- Loan support for recovery of tourism entrepreneurs at low interest.	NRA	NTB MoCTCA Bank/Financial Institutions	Affected tourism entrepreneurs	--	--	--											Economic Sector	6.4.3 / Tourism
	3-2-4	Recovery of cultural heritages and tourist sites	- Reconstruction and improvement of tourist sites (forts, hot water springs, etc.).	STDC DDC	NRA Department of Archaeology NTB Municipality/VDC Partner Organization	Tourism sites (Tatopani, Duguna Gadi)	2	Tourist Sites	100.0										✓	Economic Sector	6.4.3 / Tourism
			- Reconstruction and recovery of temples, monasteries, Stupas etc.	STDC DDC	NRA Department of Archaeology NTB Municipality/VDC Partner Organization	All damaged cultural heritages on priority basis	31	Cultural Heritage	62.0											✓	Economic Sector
	3-2-5	Procurement of equipment to recover damaged tourist facilities	- Damage investigation of tourist facilities. - Procurement of equipment. - Recovering damaged tourist facilities.	STDC DDC	NRA NTB Municipality/ VDC Partner Organization	Damaged equipment in tourist facilities	1.0	Package	20.0											Economic Sector	6.4.3 / Tourism
	3-2-6	Institutional strengthening of local tourism organization	- Capacity assessment of local tourism organizations.	STDC DDC	NTB Local Tourism Organizations	All tourist sites	1	Time	0.5											Economic Sector	6.4.4 / Tourism
			- Capacity development activities for tourism entrepreneurs (Hospitality, hotel management trainings etc.).	STDC DDC	NTB Local Tourism Organizations	Tourism entrepreneurs selected by NTB	120	Tourism Entrepreneurs	2.9											Economic Sector	6.4.4 / Tourism
			- Investigating current services and facilities of the homestay and accommodation.	STDC DDC	NTB Local Tourism Organizations	Workers from tourism sector	360	Tourism Worker	8.8											Economic Sector	6.4.5 / Tourism

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			Responsible Organization	Support Organization		Target Number	Unit		Reconstruction																		
									Recovery			Revitalization			Development												
									73/74	74/75	75/76	76/77	77/78	78/79	79/80	80/81	81/82	82/83									
	3-2-7	Improvement of services and facilities for homestay and accommodation	- Investigating current services and facilities of the homestay and accommodation.	STDC DDC	NTB Municipality/VDC partner organization	All tourist sites	1	Time	0.5															Economic Sector	6.4.3 / Tourism		
			- Support to establish/ upgrade the services and facilities of homestays. - Formation of homestay committees / groups.	STDC DDC	NTB Municipality/VDC partner organization	Identified 3-6 areas	6	Area	15.0																	Economic Sector	6.4.3 / Tourism
			- Capacity development training for the homestay operators.	STDC DDC	NTB CSIDB partner organization	Identified 3-6 areas	6	Area	3.0																	Economic Sector	6.4.4 / Tourism
			- Publicity and marketing of services offered by Homestays.	STDC DDC	NTB Municipality/VDC partner organization	Identified 3-6 areas	6	Area	1.2																	Economic Sector	6.4.4 / Tourism
	3-2-8	Development of tourism route and trekking routes	- Investigating current routes and needs of alternative routes.	STDC DDC	NTB NTNC Municipality/VDC partner organization	Affected tourism route and trekking route in Northern part of the district)	1	Time	0.5																Economic Sector	6.4.3 / Tourism	
			- Development of identified new routes to link tourist destinations.	STDC DDC	NTB Municipality/VDC partner organization	Identified new tourism routes	70	KM	70.0																	Economic Sector	6.4.3 / Tourism
	3-2-9	Development of tourist sites, accommodations and surrounding environment	- Development of tourist information center.	STDC DDC	MoCTCA,NTB Municipality VDC	Chautara, Barabise, Melamchi	3	Nos	6.0																Economic Sector	6.1.4 / Tourism	
			- Development of tourist information management and tracking system for safety.	NTB	Municipality VDC	Whole district for all travelers/ trekkers	1	Time	12.6																	Economic Sector	6.1.4 / Tourism
			- Development of camping sites (CS) / sheds/ rest houses (RH) etc. for providing accommodation to travelers.	STDC DDC	MoCTCA NTB Municipality/VDC Partner Organization	Major trekking sites (langtang/ Helabmu, Bhairav Kunda and Panch Pokhari)	50 CS 50 Sheds 20 RH	Camping Sites etc.	40.0																✓	Economic Sector	6.4.3 / Tourism
			- Installation of notice boards, signage, maps and information boards for tourist information at major tourist sites.	Local Tourism Organization STDC DDC	MoCTCA NTB Municipality/VDC Partner Organization	Major tourist sites of the district	15	Packages	7.5																✓	Economic Sector	6.1.4 / Transport, Access and Communication
			- Construction of public toilets in major tourist sites. - Provision of water supply and Drinking water facilities. - Development of tourist parks and recreational facilities (considering Children, women and elderly friendly provisions).	Local Tourism Organization STDC DDC	MoCTCA NTB Municipality/VDC Partner Organization	Major tourist sites of the district	15	Tourist Sites	15.0																✓	Economic Sector	6.4.3 / Tourism
				Local Tourism Organization STDC DDC	MoCTCA NTB Municipality/VDC Partner Organization	Melamchi, Barabise, Sukute, Tatopani, Bhotechour	5	Place	25.0															✓	Economic Sector	6.4.3 / Tourism	

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			Responsible Organization	Support Organization		Target Number	Unit		Reconstruction												
									Recovery	Revitalization	Development	73/74	74/75	75/76	76/77	77/78				78/79	79/80
Revitalize community based tourism to benefit the residents	3-2-10	Excavation of new tourism resources (distinctive culture, heritage, landscapes, eco-tourism, trekking route and trails etc.)	- Mapping tourism resources with current trekking routes, tourism resources and facilities.	Local Tourism Organization STDC DDC	"	Whole district (Tourism resources)	1	Map	0.5										Economic Sector	6.4.4 / Cultural Heritage	
			- Identification of new tourism resources.	Local Tourism Organization STDC.DDC	"	Whole district (Tourism resources)	1	Time	0.5											Economic Sector	6.4.3 / Cultural Heritage
	3-2-11	Development and promotion of excavated new tourism resources and improvement of surrounding environment	- Preparation and update of tourist maps including new tourism sites/ information etc.	NTB	STDC DDC	Featuring all tourist sites of the district/ including identified tourist sites	1	Time	0.5											Economic Sector	6.1.4 / Tourism
			- Preparation of tourism package for new tourist sites.	STDC DDC	NTB	Identified new tourist sites	15	Package	7.5											Economic Sector	6.4.3 / Tourism
			- Publicity and marketing of new tourist site.	STDC DDC	NTB	Identified new tourist sites	7	Time	0.7											Economic Sector	6.1.4 / Tourism
		- Organize tourism package for district level government and non government organizations (self paid scheme).	STDC DDC	NTB Line Agency,Partner Organization	Identified new tourist sites	7	Time	--										Economic Sector	6.4.5 / Tourism		
Recovery and development of regional tourism resources	3-2-12	Formulation of "District Tourism Development Plan"	- Establishment of planning framework and formation. - Analysis of tourism profile, issues, potentials. - Study on necessary actions for tourism development. - Workshops, meetings to formulate the plan. - Formulation of tourism development action plan.	STDC DDC	NTB Line Agency Municipality / VDC Partner Organization	District Tourism Development (Master) Plan	1	Plan	2.5										Economic Sector	6.4.3 / Tourism	
	3-2-13	Support for physically or economically damaged commerce and tour guide companies related to tourism	- Damage investigation of people and organizations related to tourism. - Support for those people and organizations.	NTB	NRA MoCTA	Those who are looking for special need.	6	Company	3.0										Economic Sector	6.4.2 / Tourism	
	3-2-14	Attracting activities of tourist such as improvement of tourist information, web site, etc.	- Development and improvement of tourist information board and tourism website / provision with routine update.	STDC DDC	NTB Partner Organization	Featuring all tourist sites of the district(tourist information)	40	Times	0.4										Economic Sector	6.1.4 / Tourism	
			- Preparation of documentary related to tourism of Sindhupalchowk district.	STDC DDC	NTB Partner Organization	Featuring all tourist sites of the district(tourist information)	15	Site	7.5										Economic Sector	6.1.4 / Tourism	
			- Broadcast in national media/ broadcast in online media (Facebook YouTube etc.).	STDC DDC	NTB Partner Organization	Featuring all tourist sites of the district(tourist information)	12	Times	1.2										Economic Sector	6.1.4 / Tourism	
3-2-15	Implementation of tourism promotion activities (distribution of handbook with abundant local information made by local people etc.)	- Preparation of tourism hand book/ palm plate/ brochure and their publication (distribution through NTB, district tourist information centers etc.).	STDC DDC	NTB MoCTCA Partner Organization	Featuring all tourist sites of the district	1	Time	25.0										✓	Economic Sector	6.1.4 / Tourism	

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			Responsible Organization	Support Organization		Target Number	Unit		Reconstruction				Development									
									73/74	74/75	75/76	76/77	77/78	78/79	79/80	80/81				81/82	82/83	
Human resource development on tourism	3-2-16	Development of hospitality to tourist on workers of tourism industry and people living along tourism routes and trekking routes	- Holding workshops and events for improving hospitality (specially focused on the tourism workers along tourist sites).	STDC DDC	NTB MoCTCA Partner Organization	All identified tourist sites (eg: Langtang, Helambu, Panch Pokhari and Tatopani etc.)	105	Tourist Sites	5.3											Economic Sector	6.4.3 / Tourism	
	3-2-17	Development of inhabitants' hospitality along tourism routes, trekking routes or surrounding area of tourist sites	- Holding workshops and events for improving the hospitality (specially focused for inhabitants/ community around the tourist sites).	STDC DDC	NTB MoCTCA Municipality/VDC Partner Organization	All identified tourist sites (eg: Langtang, Helambu, Panch Pokhari and Tatopani etc.)	105	Tourist Sites	5.3											Economic Sector	6.4.3 / Tourism	
	3-2-18	Establishment and development of local tourism organizations	- Capacity and need assessment of existing tourism organizations.	STDC,DDC Municipality/VDC	"	Major tourist sites of the district	1	Time	1.0											Economic Sector	6.4.3 / Tourism	
			- Formulation of local tourism organization at community level focusing on tourist sites.	STDC,DDC Municipality/VDC	"	Major tourist sites of the district	15	Tourist Sites	0.8											Economic Sector	6.4.4 / Tourism	
			- Capacity development activities for local tourism organizations.	STDC,DDC Municipality/VDC	"	Major tourist sites of the district	15	Time	5.3											Economic Sector	6.4.4 / Tourism	
- Interaction program with tourism organizations/ institutions outside the district (Exchange best practices).			STDC	"	Tourism entrepreneurs	7	Program	1.8											Economic Sector	6.4.4 Tourism		
Basic Policy 3-3 Recovery and Promotion of Trade and Other Industry																						
Recovery and promotion of small industry (garment, retailing, trading, logistics, construction,	3-3-1	Recovery of working environment and trading system of small industry (garment, retailing, trading, logistics, construction, handicraft)	- Investigating current issues of small industry.	CSIDB	DDC,ADCCI Partner Organization	Whole district	1	Time	1.0										Economic Sector	6.4.2 / Employment and Livelihoods		
			- Support for revitalization of small industries (garment, handicrafts, processing and packaging etc.).	CSIDB	NRA,DDC,ADCCI Partner Organization	Industries looking for special support (need based)	150	Entrepreneurs	7.5											✓	Economic Sector	6.4.1 / Employment and Livelihoods
	3-3-2	Developing support program for initial investment (Support for starting business such as microfinance)	- Formulation of group of entrepreneurs at community level (cooperative model).	CSIDB	NRA,ADCCI Municipality/VDC Partner Organization	Entrepreneurs of small industries in each VDC and Municipality	78	Muni. Committee/ VDC	0.8											✓	Economic Sector	6.4.2 / Employment and Livelihoods
			- Trainings / capacity development program for starting new business.	CSIDB	"	Entrepreneurs of small industries in each VDC and Municipality	78	Training	2.0											✓	Economic Sector	6.4.2 / Employment and Livelihoods
			- Seed money support for business start-up.	CSIDB	"	Entrepreneurs of small industries in each VDC and Municipality	78	Muni. Committee/ VDC	78.0												Economic Sector	6.4.2 / Employment and Livelihoods
		- Promotion of micro-finance support (at low interest rate) through banks and cooperatives.	CSIDB	NRA,ADCCI Bank/Financial Institutions Municipality/VDC Partner Organization	Entrepreneurs of small industries in each VDC and Municipality	3,500	Entrepreneurs	350.0												Economic Sector	6.4.2 / Employment and Livelihoods	

Policy	Action	Contents	Responsibility		Identified Target Site/Facility/Beneficiary (Target / Candidate)	Target		Cost Estimation NPR (Million)	Target Period										On-going Action / JICA QIPs	PDDP Sector	Relevant Clause of National Reconstruction and Rehabilitation Policy (Strategy) / PDRF Sector		
			Responsible Organization	Support Organization		Target Number	Unit		Reconstruction			Development											
									Recovery	Revitalization	Development	73/74	74/75	75/76	76/77	77/78	78/79	79/80				80/81	81/82
	3-3-3	Enhancement of partnership with public sector and private sector to expand business	- Studying on possibility of cooperation between public and private sectors (formation of partnership framework with public and private sector).	CSIDB	ADCCI DDC	Partnership with public sector and private sector	1	Package	0.1											Economic Sector	6.4.4 / Employment and Livelihoods		
			- Support to establish souvenir shop / local product shops etc.	CSIDB	ADCCI DDC	Tatopani, Barabise. Chautara, Melamchi etc.	8	Market Center	8.0												Economic Sector	6.4.3 / Employment and Livelihoods	
	3-3-4	Enhancement of trade and logistics system by partnership with public sector and private sector	- Understanding of trading and logistics system of both public and private sectors. - Holding discussion for better trade and logistic system.	CSIDB DDC	ADCCI Partner Organization	Trade and logistics system in district	6.0	Meetings	0.3												Economic Sector	6.4.5 / Employment and Livelihoods	
			- Investment for new trade and logistic system.	ADCCI CSIDB	DDC, Partner Organization	Trade and logistics system in district	--	--	--												Economic Sector	6.4.3 / Employment and Livelihoods	
			- Organizing district level trade fair in partnership with private sector.	ADCCI CSIDB	"	At District HQ and Melamchi	14.0	Times	7.0													Economic Sector	6.4.4 / Employment and Livelihoods
3-3-5	Expansion of business scales, opportunities and channels by partnership with public sector and private sector	- Understanding of the channels, scales and differences between public and private sectors. - Holding discussion for opportunities. - Investing in new business opportunities.	ADCCI CSIDB	"	Trade and logistics system in district	--	--	--												Economic Sector	6.4.4 / Employment and Livelihoods		
Human resource development and employment development on small and cottage industry	3-3-6	Establish and support job training programme for developing small and cottage industry	- Development of training programme for workers of small and cottage industries.	CSIDB	NRA, DDC, ADCCI Partner Organization	Training program at each electoral constituency	36	Time	12.6											✓	Economic Sector	6.4.5 / Employment and Livelihoods	
			- Field tours and technology transfer visits to observe best practices.	CSIDB	"	Workers of small and cottage industry (Field tour of best practice)	6	Time	3.0												✓	Economic Sector	6.4.4 / Employment and Livelihoods
	3-3-7	Support for occupational training in consideration of vulnerable people and deprived/marginalized people	- Investigation on current issues of vulnerable people in job market.	CSIDB	"	Vulnerable people for employment	1	Time	0.5													Economic Sector	6.4.5 / Employment and Livelihoods
			- Implementing capacity development training.	CSIDB	"	Vulnerable people for employment	420	Person	10.3												✓	Economic Sector	6.4.5 / Employment and Livelihoods
			- Development of the job opportunity in coordination with private sectors.	CSIDB	"	For needy vulnerable people	120	Person	6.0												✓	Economic Sector	6.4.4 / Employment and Livelihoods
			- Provision of seed money for business start-up to vulnerable people.	CSIDB	"	For needy vulnerable people (with pay back policy)	700	Person	70.0													Economic Sector	6.4.2 / Employment and Livelihoods

6.5 Cross-cutting Priorities

Throughout the RRP formulation process, the JICA Expert Team concluded that the priority countermeasures of the reconstruction issues are not often limited to one program but multi-sectoral approach is indispensable. For example, countermeasures against landslide composed of various programs from the Action Lists. These countermeasures require inter-agencies coordination and programs. Therefore, RRP compiles the sets of programs as the cross-cutting priorities in order to facilitate the understanding of inter-relation of the programs and stakeholders to implement coordinated manner.

6.5.1 Utilization of Landslide Hazard Map

Title	Utilization of Landslide Hazard Map	
Action	1-1-6. Support for Procuring Affordable and Good-Quality Construction Material 1-1-12. Municipality/VDC Rehabilitation and Recovery Planning 1-1-13. Consideration of Support Measures and Framework for Implementation of Group Relocation and Integrated Settlement Development based on Damaged Situation, Condition of Displaced People and Disaster Risks such as Landslide 1-1-14. Preparation of Group Relocation Plan and Integrated Settlement Development Plan at each Landslide Affected Area with Consensus Building 2-1-6. Formulation of Disaster Risk Management Plan in Municipalities and VDCs 2-1-7. Preparing Hazard Maps in VDCs Level (with evacuation sites and logistics centers etc.) 2-1-16. Capacity Building of Local Disaster Management Committees (LDMCs) 2-1-30. Formulation of Community DRR/DRM Plans 2-1-31. Formulation of "Community Carte" for Summarized Information of Current Condition on Disaster Management at the community level 2-1-34. Development of Handbook of DRR/DRM for households 2-1-35. Implementation of Awareness-Raising Programs on DRR/DRM 2-2-2. Development of Roads and Bridges in District Level for Smooth Emergency Response, Evacuation, Logistics and Safer Transportation (Development of Resilient Road Network) 2-3-1. Landslide Hazard Assessment and Identification of Hazard Area 2-3-2. Evaluation of Existing Land Use Based on Disaster Risk 2-3-3. Consideration of Countermeasures such as Landslide Prevention Infrastructures and Improvement of Lands for Disaster Prone and Resident area 2-3-4. Promoting Understanding of Landslide Prone Area 2-3-5. Consideration of Land Use Restriction and Building Regulation 2-3-6. Designation of Affected Areas for Regional Planning and Integrated Settlement Development 3-1-5. Support to Revitalize and Develop Agricultural Sites for Farmers Affected by Landslides, Earthquake etc. 3-1-6. Development of Farmer's Awareness of Landslide Hazard Area etc.	
Responsibility	Responsible Organization	NRA(DL-PIU), DUDBC Division Office, DDRRC, DDC, DLCO, DFO, Municipality / VDC (LDMCs, CDMCs)
	Support Organization	NRA,NLUP, DLRO, Line Agencies, Partner Organization
Objectives	» To promote utilization of landslide hazard map in various actions for BBB recovery & DRR/DRM. .	
Contents	» Landslide hazard assessment and identification of hazard area. » Evaluation of land use and settlement area. » Consideration of countermeasures and DRR ctivities such as landslide prevention infrastructures, Improvement of lands, and layout study of shelters for disaster preparedness etc. » Promoting community understanding of landslide prone area. » Detailed regional planning, resettlement planning of affected / landslide prone area. » Consideration of land use restriction/plan and building regulation.	
Target Period	2017- 2026	

Images/Examples of Work Flow and Output

- Landslide Hazard Assessment and Identification of Hazard Area
- Evaluation of Land Use / Settlement Area

- Consideration of Countermeasures and DRR Activities such as Landslide Prevention Infrastructures, Improvement of Lands, and Layout Study of Shelters for Disaster Preparedness etc.
- Promoting Community Understanding of Landslide Prone Area
- Detailed Regional Planning, Resettlement Planning of Affected / Landslide Prone Area
- Consideration of Land Use Restriction / Plan and Building Regulation

Build Back Better

• Landslide Countermeasures

• Safer Road Network

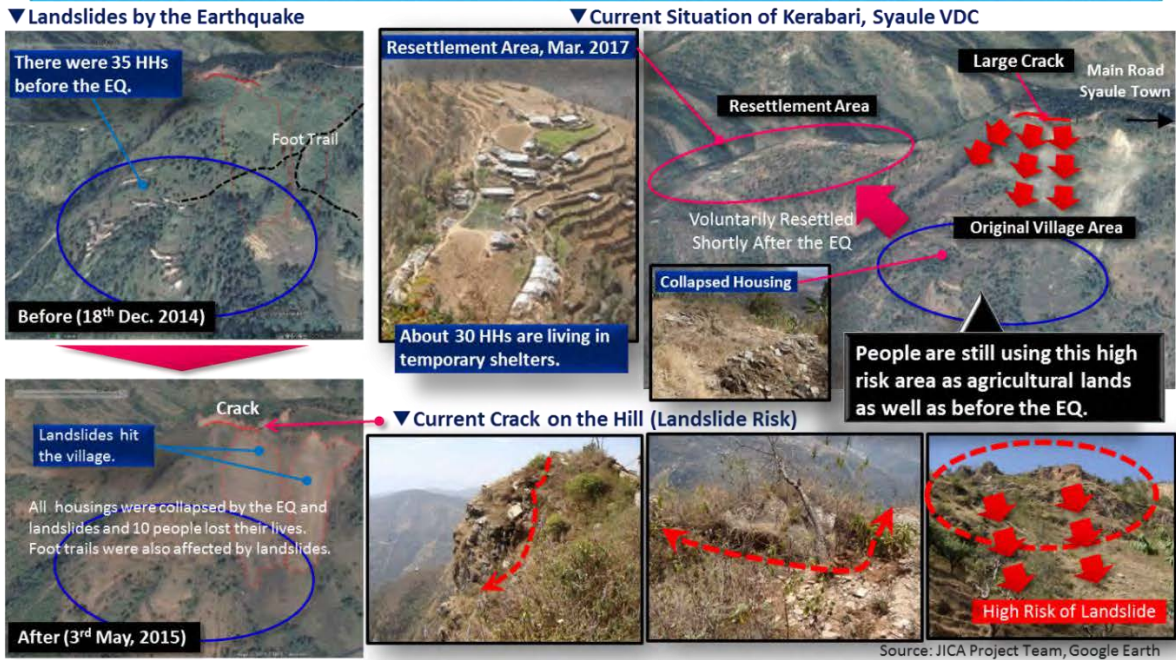
• Resettlement Plan / Detailed Regional Plan

• Awareness Training

• Disaster Preparedness

(1) Damage and Current Situation in Kerabari Area

- In Kerabari, **the EQ and landslides hit the village and 10 people died** due to collapse of houses and landslides.
- In addition, **there are large cracks on the hill which must be collapsed and affect below areas in near future.**
- **All people resettled in near flat-topped hill but they are still using affected/high risk lands as agricultural lands.**

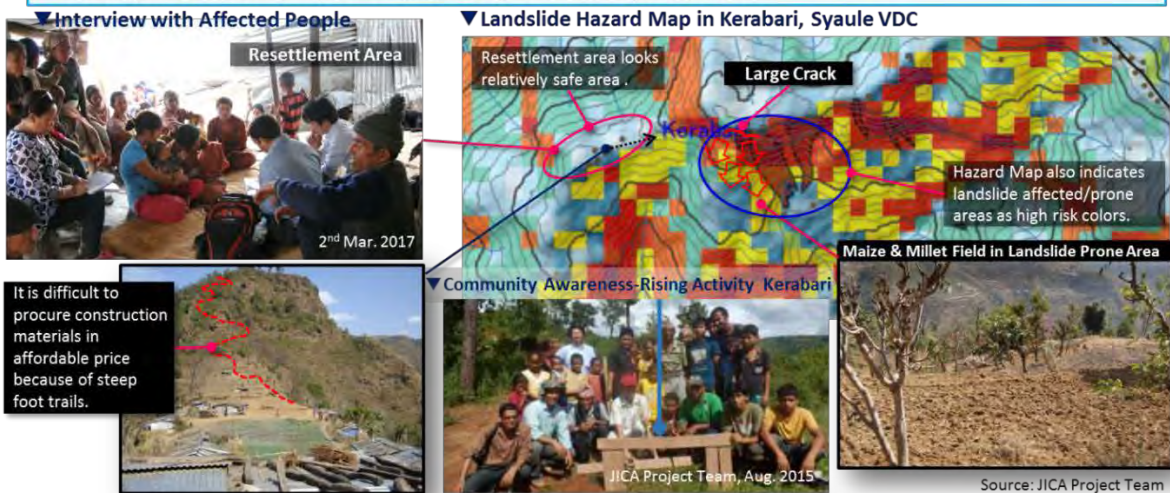


Source: JICA Expert Team

Figure. 6.2 Case Example of Municipality/VDC Recovery Planning with Landslide Hazard Map (1/3)

(2) Identified Key Issues

- ① **People are recognizing high risks of the crack** by the JICA's community awareness-rising activity in 2015. **However, they are obliged to use high risk areas as agricultural lands since there are no alternative for their livelihood. People cannot get safer lands because owners do not want to sell** lands and also due to financial problems.
- ② People who do not have lands in safe areas are borrowing the land temporarily from relatives and friends for the resettlement. **Their living condition is extremely unstable because owners are telling them to evacuate the land.**
- ③ **People cannot procure their construction materials for housing reconstruction in affordable price due to lack of vehicle access.** Their previous trails were **completely destroyed by landslides** and **most of young men migrated to Kathmandu or other places** to search job opportunities. Some people have already used their first installment on housing reconstruction, 50,000 NPR/HH, to repair their temporary shelters.

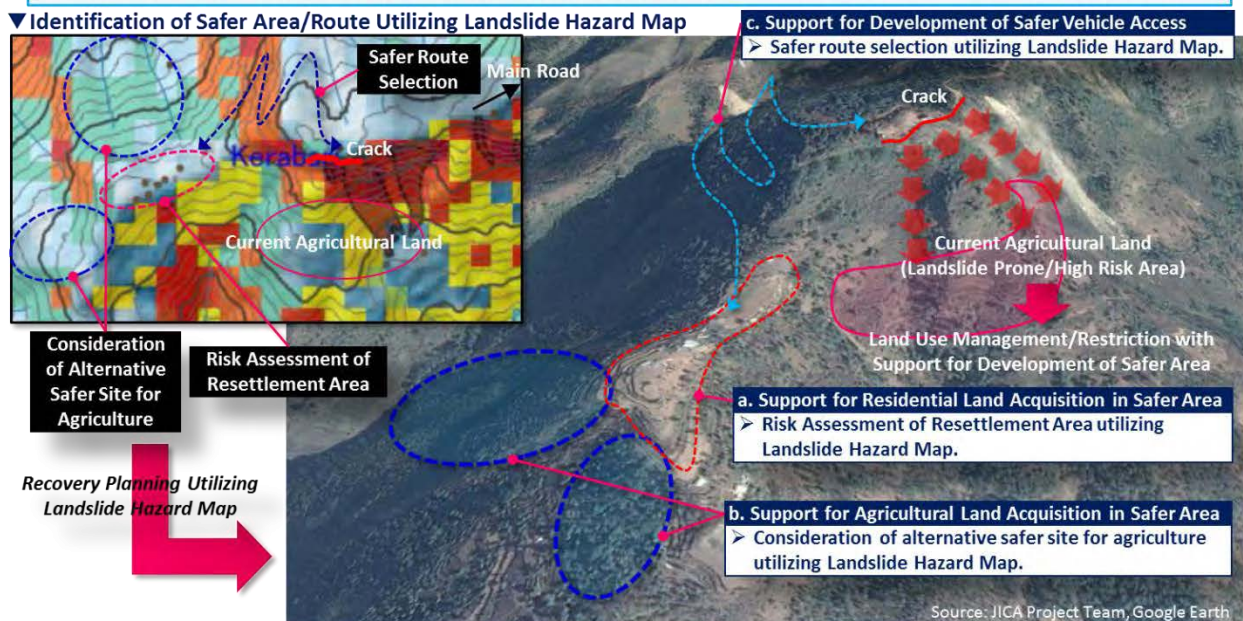


Source: JICA Expert Team

Figure. 6.3 Case Example of Municipality/VDC Recovery Planning with Landslide Hazard Map (2/3)

(3) Recovery Actions Utilizing Landslide Hazard Map

- Following actions should be promoted utilizing Landslide Hazard Map appropriately;
 - a. **Support for residential land acquisition in safer area** for the people living in temporary resettlement areas.
 - b. **Support for agricultural land acquisition in safer area** for the farmers who obliged to work in landslide prone/affected areas for their livelihood.
 - c. **Support for development of safer vehicle access** to resettlement areas/landslide affected areas **(for the procurement of reconstruction materials in affordable prices).**



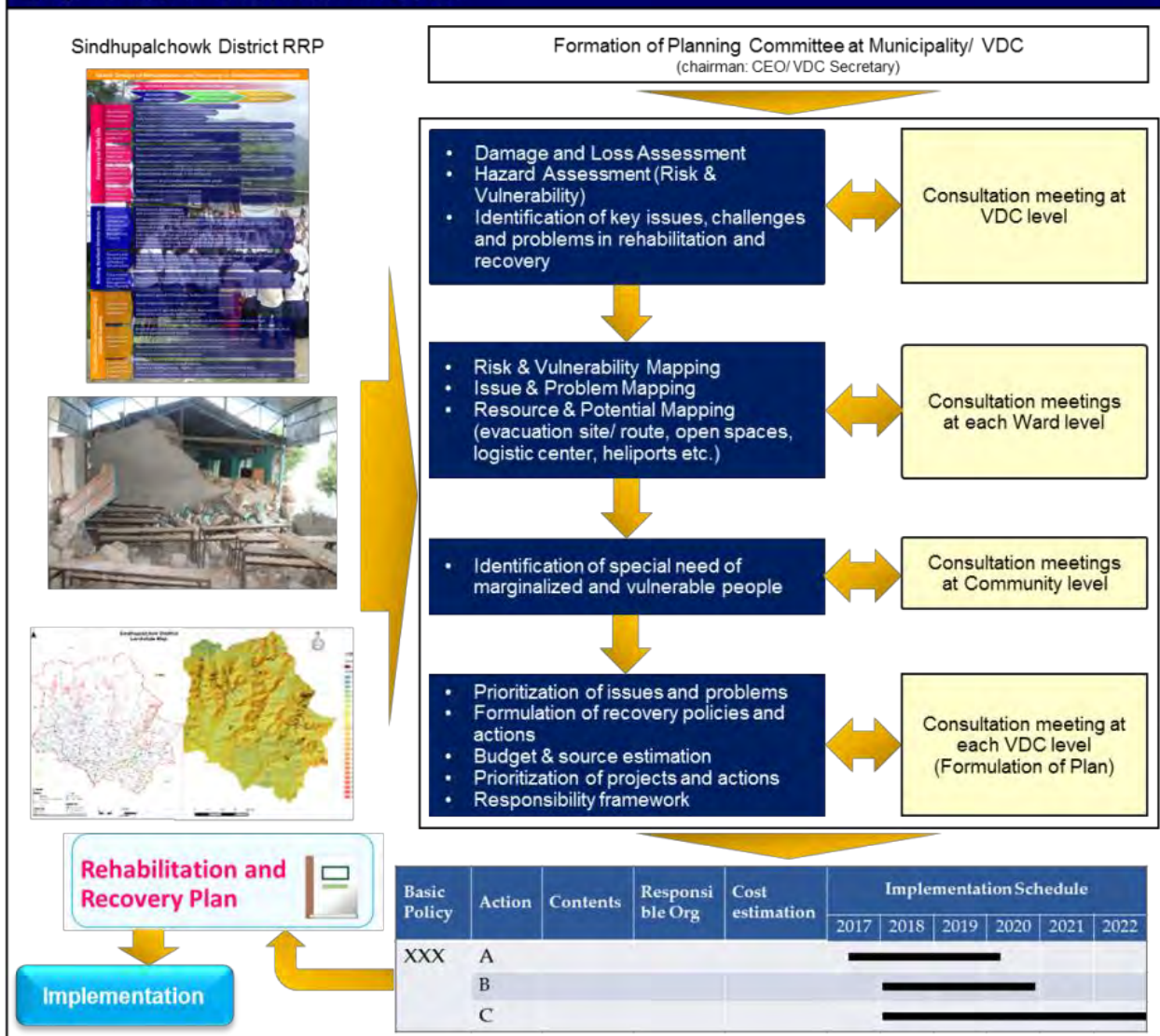
Source: JICA Expert Team

Figure. 6.4 Case Example of Municipality/VDC Recovery Planning with Landslide Hazard Map (3/3)

6.5.2 Municipality/VDC Rehabilitation and Recovery Planning

Title		Municipality/VDC Rehabilitation and Recovery Planning
Action	1-1-12. Municipality/VDC Rehabilitation and Recovery Planning	
Responsibility	Responsible Organization	Municipality / VDC, NRA(DL-PIU), DUDBC Division Office
	Support Organization	NRA, DDC, All Line Agencies, Partner Organization
Objectives	» To Prepare rehabilitation and recovery priorities based on the damage at VDC/ Municipality level. » Through the rehabilitation and recovery planning at Municipality / VDC level, setting and sharing of goals and direction for the recovery of a safer society and regional sustainable development based on damaged status and lessons learned from the earthquake. » Effective implementation of rehabilitation and recovery actions based on need of local people. » Promotion of Rehabilitation and Recovery Measures / Actions at at VDC/ Municipality level.	
Contents	» Introduction: Background, necessity and structure of plan » Existing condition of damage and loss due to earthquake » Hazard assessment at local level (in line with LDRMP, including landslide) » Identification and key issues, problems and challenges for rehabilitation and recovery » Recovery goals and objectives (basic policy for rehabilitation and recovery) » Action plans based on build back better principle, responsibility and budget allocation » Formulation of evaluation and monitoring framework	
Target Period	2017.02- 2018.01	

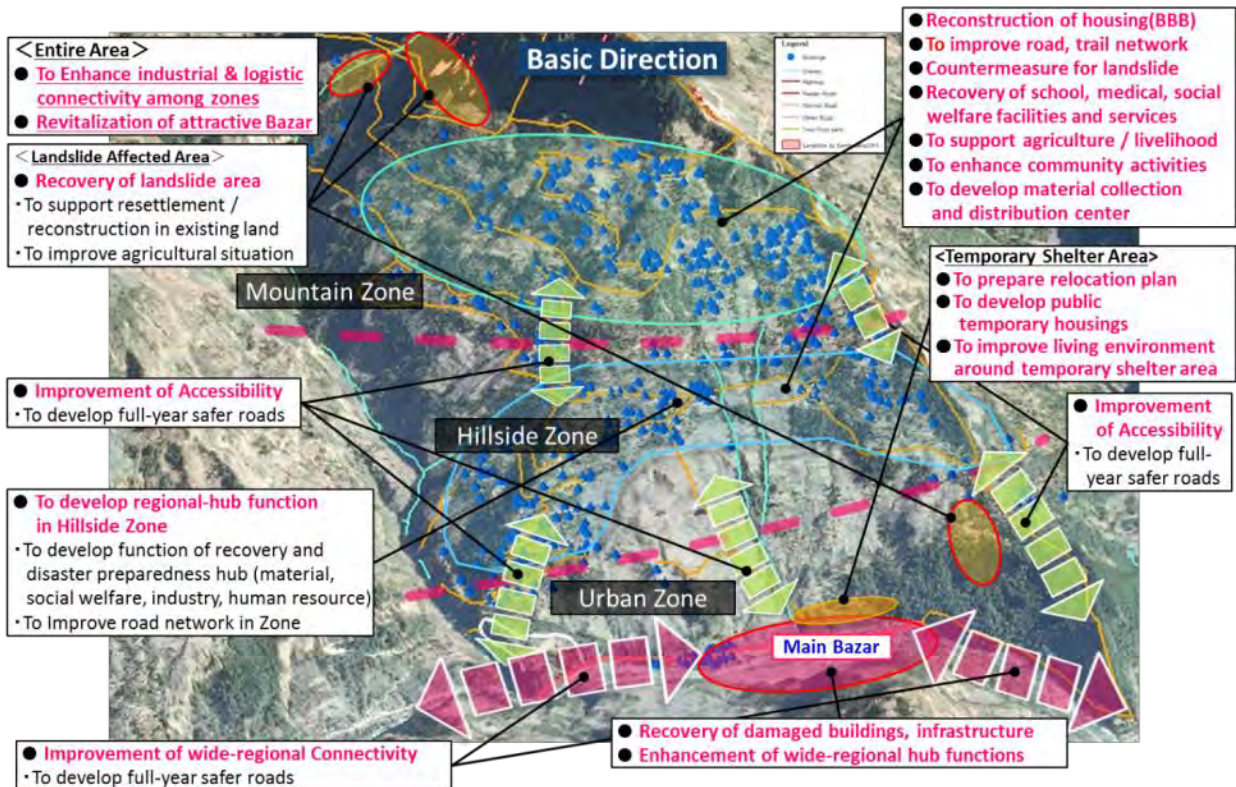
Images/Examples of Work Flow and Output





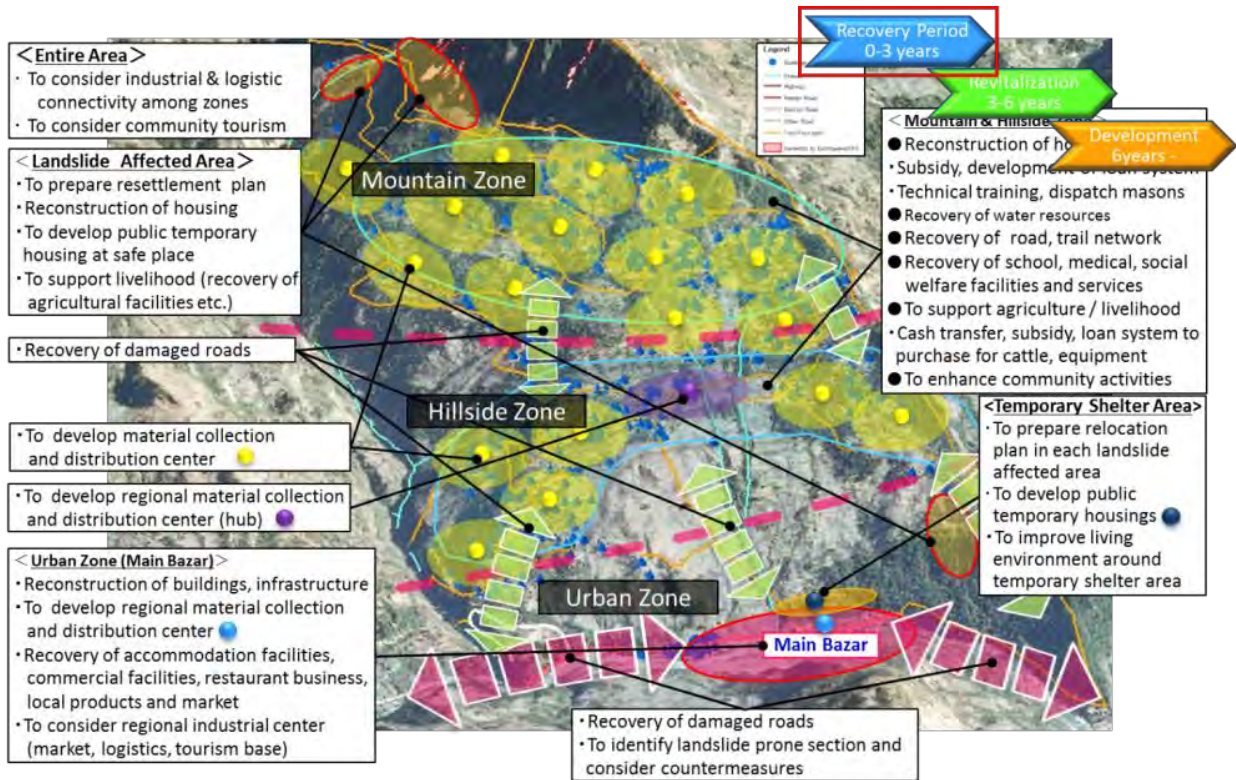
Source: JICA Expert Team

Figure. 6.5 Image of Municipality/VDC Rehabilitation and Recovery Planning (Field Survey and Community Meetings for Identification of Issues)



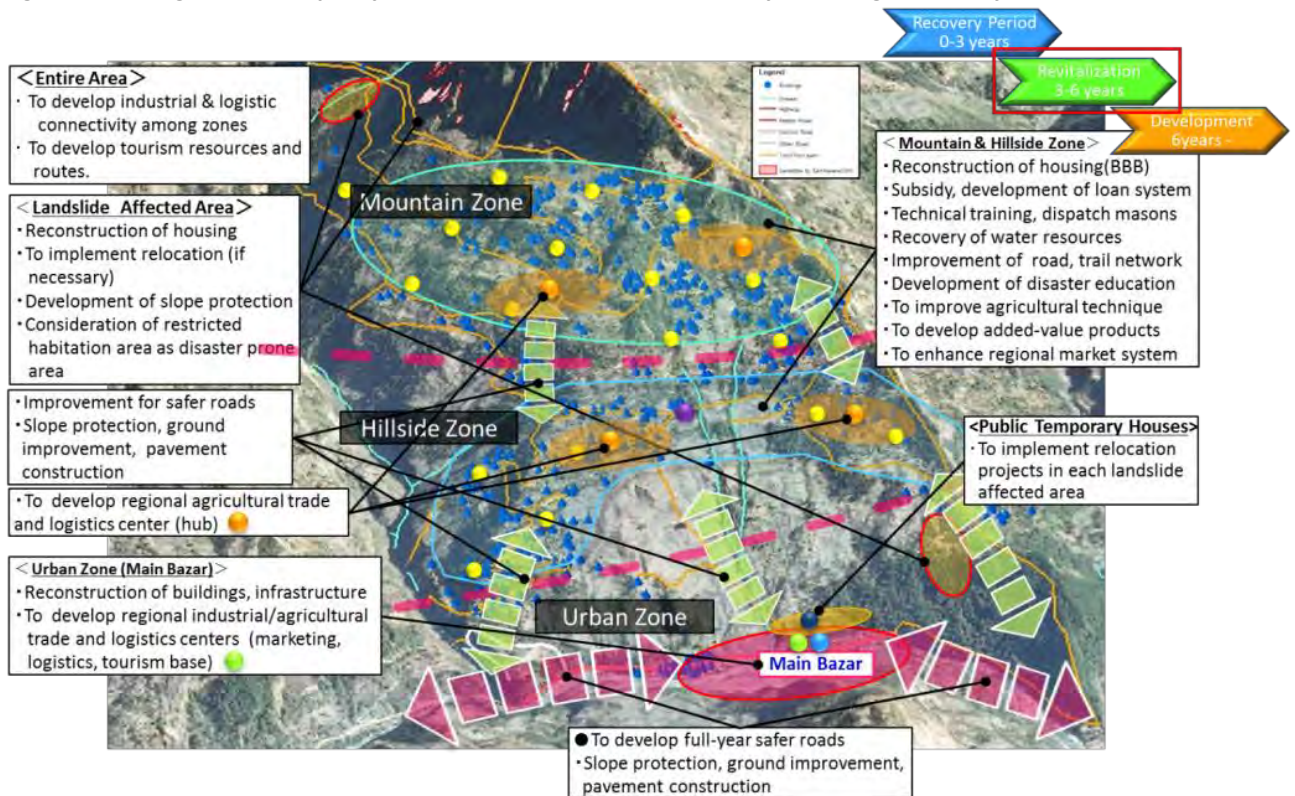
Source: JICA Expert Team

Figure. 6.6 Image of Municipality/VDC Rehabilitation and Recovery Planning (Basic Direction)



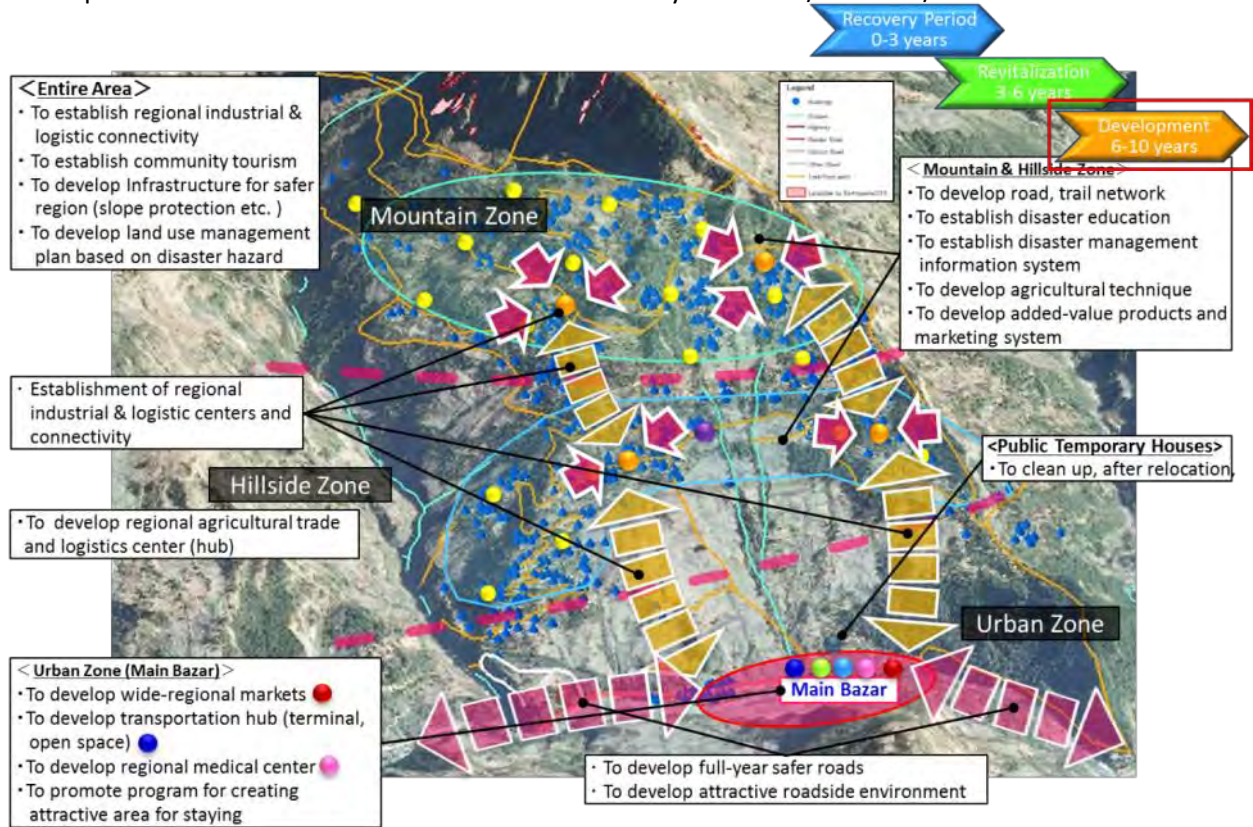
Source: JICA Expert Team

Figure. 6.7 Image of Municipality/VDC Rehabilitation and Recovery Planning (Recovery Period)



Source: JICA Expert Team

Figure. 6.8 Image of Municipality/VDC Rehabilitation and Recovery Planning (Revitalization Period)



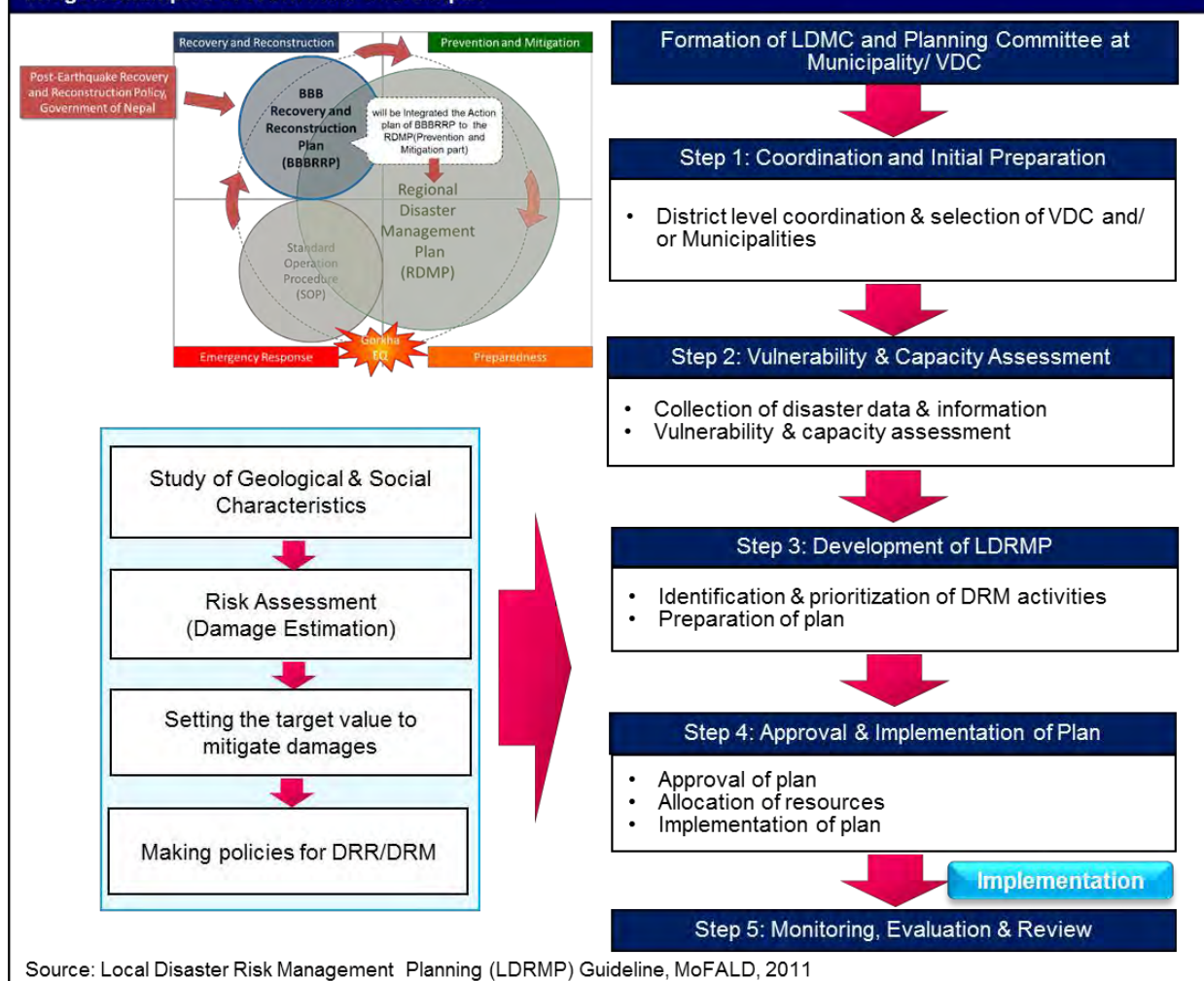
Source: JICA Expert Team

Figure. 6.9 Image of Municipality/VDC Rehabilitation and Recovery Planning (Development Period)

6.5.3 Formulation of Disaster Risk Management Plan in Municipalities and VDCs

Title		Formulation of Disaster Risk Management Plan in Municipalities and VDCs
Action	2-1-6. Formulation of Disaster Risk Management Plan in Municipalities and VDCs 2-1-30. Formulation of Community DRR/DRM Plans	
Responsibility	Responsible Organization	Municipality / VDC (LDMCs : Local Disaster Management Committees)
	Support Organization	DDRC, Partner Organization
Objectives	<ul style="list-style-type: none"> » To institutionalize DRM work and mainstream it in the periodic and annual programs at local levels in order to build disaster resilient society and bring about sustainable development. » Determine minimum basis and common criteria in carrying out local DRM planning. » Analyze local level vulnerability to disasters, level of risk and capacity and formulate a plan with the activities prioritizing disaster risk management in building resilient society. » Show the way for the institutionalization of DRM through equitable. participation of all clusters and classes at local level policy and development programs. 	
Contents	<ul style="list-style-type: none"> » Part -1 Introduction Background, Objective, Significance, Limitations, Methodology, Implementation Strategy » Part -2 Hazard, Vulnerability, Capacity and Risk Assessment Hazard Identification & Ranking, Hazard Analysis, Vulnerability Ranking of Village or Ward, Capacity Analysis of Municipality or VDC, Risk Identification & Assessment » Part -3 Disaster Risk Management Plan (Separately for each Disaster) Disaster Risk Reduction and Preparedness Planning, Policy Level Decision and Management, Awareness Raising and Capacity Building, Risk Reduction, Emergency Preparedness, Activities during Disaster, Activities in the Aftermath of Disaster » Annexes: Task Forces, Maps, Data and Information, Minutes etc. 	
Target Period	2016.08- 2017.08	

Images/Examples of Work Flow and Output



Source: Local Disaster Risk Management Planning (LDRMP) Guideline, MoFALD, 2011

6.5.4 Development of Logistics Center and Transportation Network for Recovery and DRM


Title		Development of Logistics Center and Transportation Network for Recovery and DRM
Action	1-1-4. Establishment of Local Resource Center and Logistics Hubs for Housing Reconstruction 1-1-6. Support for Procuring Affordable and Good-Quality Construction Material 2-2-5. Consideration of Emergency Transportation and Logistics Plan 2-2-6. Development of Disaster Management Base Facilities and Network of Base Facilities 2-2-8. Development of Emergency Road Network including Alternative Way 2-2-11. Development of Stockpile, Warehouses, and Ensuring Disaster Stockpiles	
Responsibility	Responsible Organization	NRA(DL-PIU), DUDBC Division Office, DTO, DDC, DDRC, DRO, Municipality / VDC (LDMCs, CDMCs)
	Support Organization	NRA, Nepal Police, Nepal Army, Partner Organization
Objectives	» To develop transportation and logistics network, facilities and stockpiles etc. for recovery and emergency response after the disasters.	
Contents	» Consideration and planning of emergency transportation network and logistics center based on lessons learned from the earthquake, logistic centers used in the emergency response after the disasters, District Transportation Master Plan etc. » Development of disaster management facilities and network of base facilities. » Development of emergency road network including alternative way. » Development of stockpiles, warehouses, and ensuring disaster stockpiles.	
Target Period	2017-2026	

Images/Examples of Work Flow and Output


- After the earthquake, relief activities were carried out through three major distribution centers, Chautara, Meramuchi and Lamusangh (Mangkha VDC).

- It is important to develop these logistics centers based on lessons learned from the earthquake.

Factory of Lamusanghu used as main distribution center after the EQ.




Existing Road Network



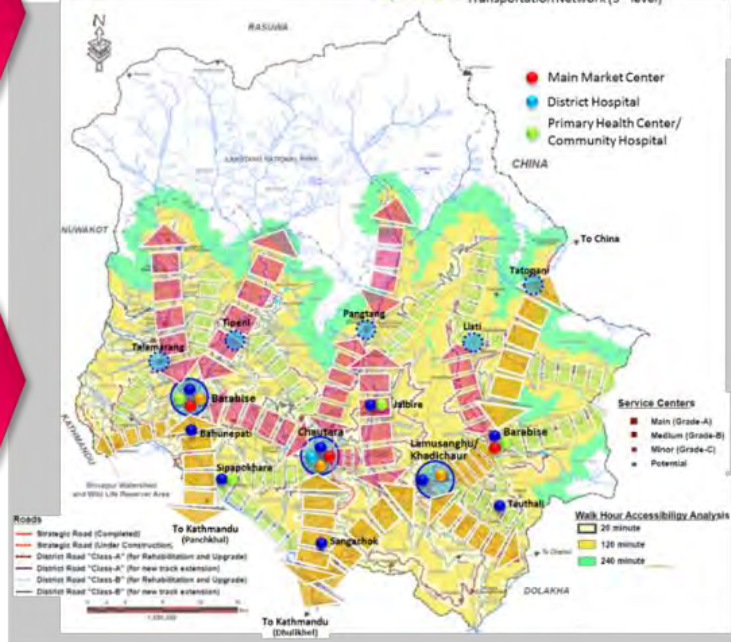
Planning and Development

- Availability of reconstruction materials should be improved by establishment of local resource center and road network.



- Development of Emergency Logistics Center
- Emergency Logistics Center Used after the EQ
- Development of Construction Material Center
- Existing Construction Material Center

- ↔ Development of Wide Area Emergency Transportation Network (1st level)
- ↔ Development of Emergency Transportation Network (2nd level)
- ↔ Development of Feeder Emergency Transportation Network (3rd level)



6.5.5 Quick Impact Projects (QIPs) by JICA

Title	Quick Impact Projects (QIPs) by JICA	
Action	1-1-9. Development of Capacity and Public Awareness for Seismic Resistant Houses 1-1-16. Recovery of Water Supply Facilities 1-4-5. Recovery and Development of Base Facilities for Supporting Livelihood of Women's Group 2-1-3. Reconstruction of Public and Community Buildings Based on Safer Standard 2-2-1. Recovery of Roads and Bridges 3-1-2. Rehabilitation and Reconstruction of Agricultural Buildings (Agriculture and Forestry Service Offices, Collection etc.) 3-1-10. Development and Capacity Building of Farmers for Cultivation Technique 3-1-11. Consideration and Development of Agricultural Techniques for Harvesting New Value Add Vegetables, Crops Suitable in Each Area 3-1-13. Improvement of Supply Chain of Agricultural Products	
Responsibility	Responsible Organization	JICA
	Support Organization	NRA, NRA(DL-PIU) DUDBC Division Office, WSSDO, WCO, DADO, DLSSO, DFO, DTO, DRO, DDC, Municipality / VDC etc.
Objectives	» QIPs are implemented with the aim of promoting the entire process of recovery and reconstruction by contributing to: the restarting of economic activities, the reconstruction of daily lives and the strengthening of government organization's capacities in implementing supportive measures for disaster management in the target area. At the same time, they are also limited to activities that can be completed within the study period, while maintaining appropriate quality, and those that can secure concrete structures for operation and maintenance.	
Contents	» The outline of each QIP contents is as shown in the table on the next page.	
Target Period	2016 – 2018	

Images/Examples of Work Flow and Output

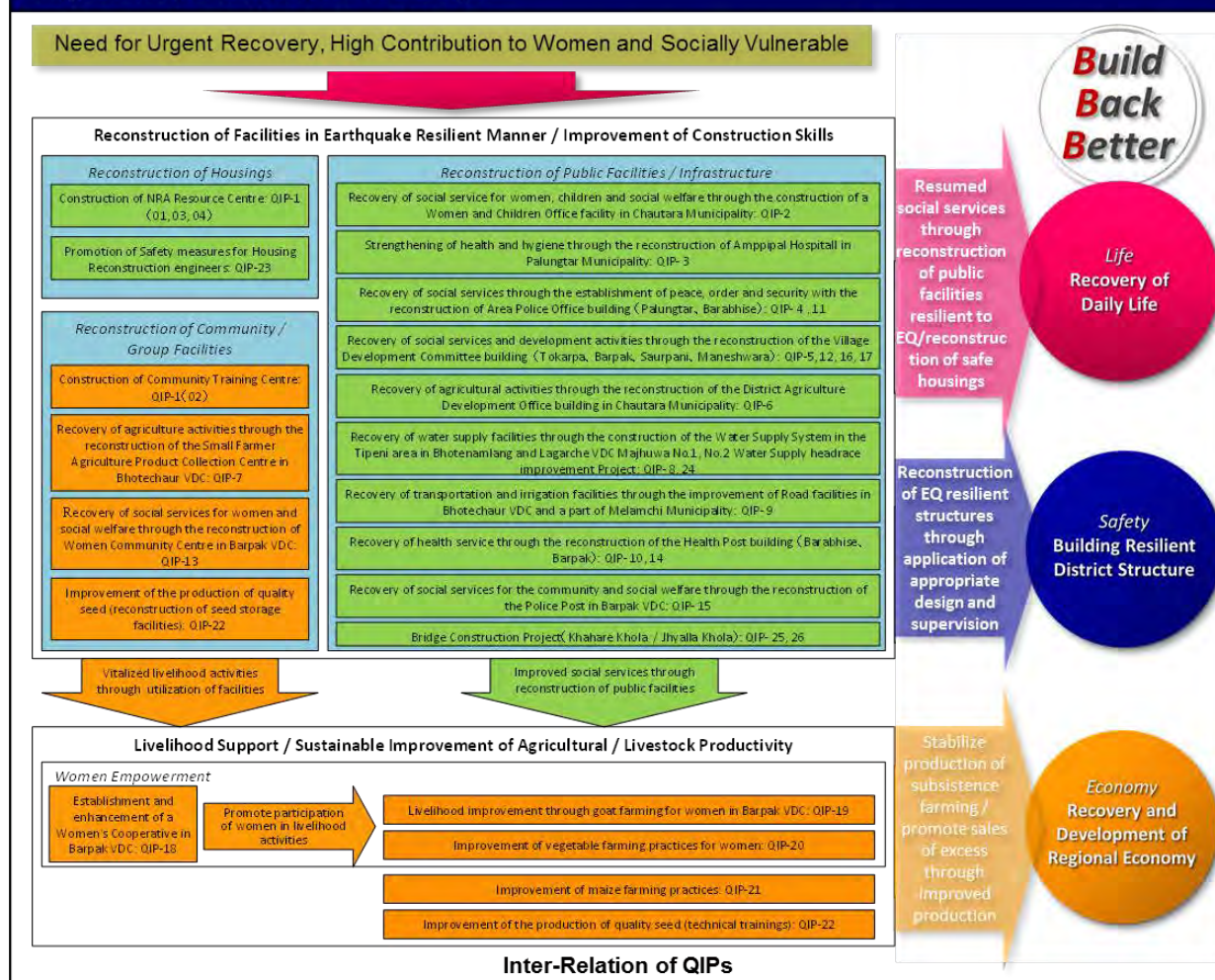
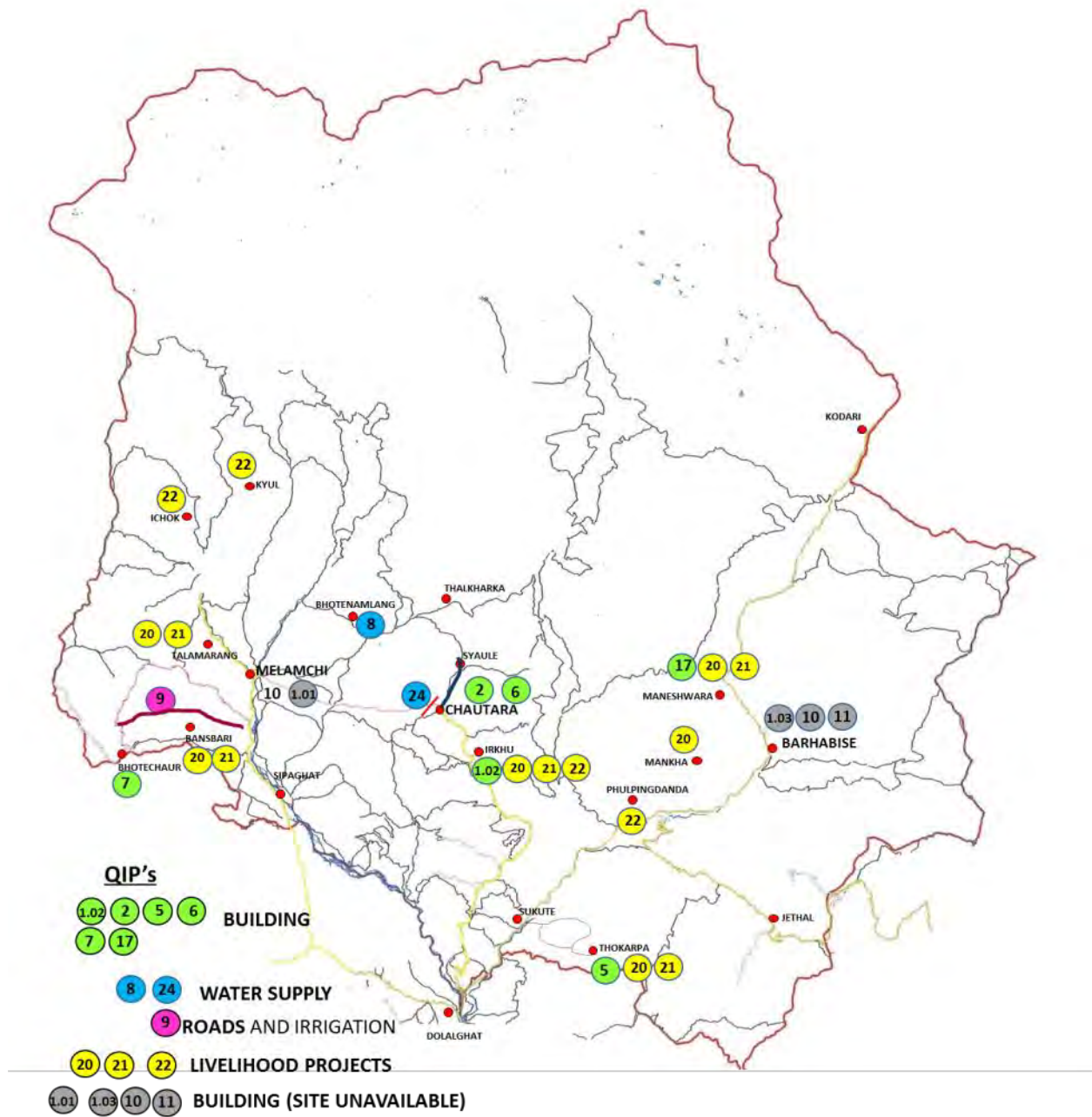


Table 6.1 List of QIPs in Sindhupalchowk District

Project No.	Project Name	Site	Project Outline
QIP-01.02 (02)	Construction of Community Training Center in Irkhu VDC	Irkhu, Sindhupalchok	Construction of one storey training complex (seminar room, toilets)
QIP-02	Recovery of social service for women, children and social welfare through construction of Women and Children Office facility in Chautara Municipality	Chautara, Sindhupalchok	Construction of WCDO building (2 storeys, training room, office, toilets) Reinforcement of retaining wall (buttress, retaining wall, gabion)
QIP-05	Recovery of social service and development activities through reconstruction of Village Development Committee building at Thokarpa VDC	Thokarpa, Sindhupalchok	Reconstruction of the VDC Building (1 story, office, seminar room and toilet)
QIP-06	Recovery of agricultural activities through reconstruction of District Agriculture Development Office building in Chautara	Chautara, Sindhupalchok	Reconstruction of DADO Office Providing necessary facilities for the DADO activities
QIP-07	Recovery of agriculture activities through reconstruction of Small Farmer Agriculture Product Collection Center at Bhotechaur VDC	Bhotechaur, Sindhupalchok	Reconstruction of the Small Farmer Agricultural Product Collection Center (2 Storey, collection room, training room, 3 offices and toilets) Technical guidance for vegetable production
QIP-09	Recovery of transportation and irrigation facilities through improvement of Road facilities at Bhotechaur VDC and a part of Melamchi Municipality	Bhotechaur, Melamchi, Sindhupalchok	Rehabilitation of Road facilities (side drains, cross drains and retaining wall)
QIP-17	Recovery of social service and development activities through reconstruction of Village Development Committee building at Maneshwara VDC	Maneshwara, Sindhupalchok	Reconstruction of the VDC office (1 story, office, toilets)
QIP-20	Vegetable Cultivation Technique (Targeting Local Women Group)	(Irkhu, Talarang, Bansbari, Mangkha, Maneshwara, Thokarpa) Sindhupalchok	. Training on vegetable production skills . Capacity building of DADO
QIP-21	Improvement of maize farming practices	(Irkhu, Talarang, Bansbari, Mangkha, Maneshwara, Thokarpa) Sindhupalchok	. Training on maize production skill . Capacity building of DADO
QIP-22	Improvement of the production of quality seed	Ichok, Sindhupalchok	. Training on the production of quality seeds
		Kiwool, Sindhupalchok	. Training on post-harvested treatment skills
		Irkhu, Sindhupalchok	Capacity building for agricultural cooperative management
		Phulpingdanda, Sindhupalchok	
QIP-23	Promotion of Safety measures for Housing Reconstruction engineers	Chautara, Sindhupalchok	Procurement and distribution of safety kits (goggles, masks, gloves) Development and distribution of safety leaflets
QIP-24	Majhuwa No.1, No.2 Water Supply Headrace Improvement Project	Selang VDC, Sindhupalchok	Improving disaster resiliency of the Water Supply facility through its appropriate design and structures

Source: JICA Project Team



Source: JICA Project Team

Figure. 6.10 Location of QIPs in Sindhupalchowk District