

Japan International Cooperation Agency (JICA)

The Project on Rehabilitation and Recovery from Nepal Earthquake

Inception Report (Draft)

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ORIENTAL CONSULTANTS GLOBAL CO., LTD.

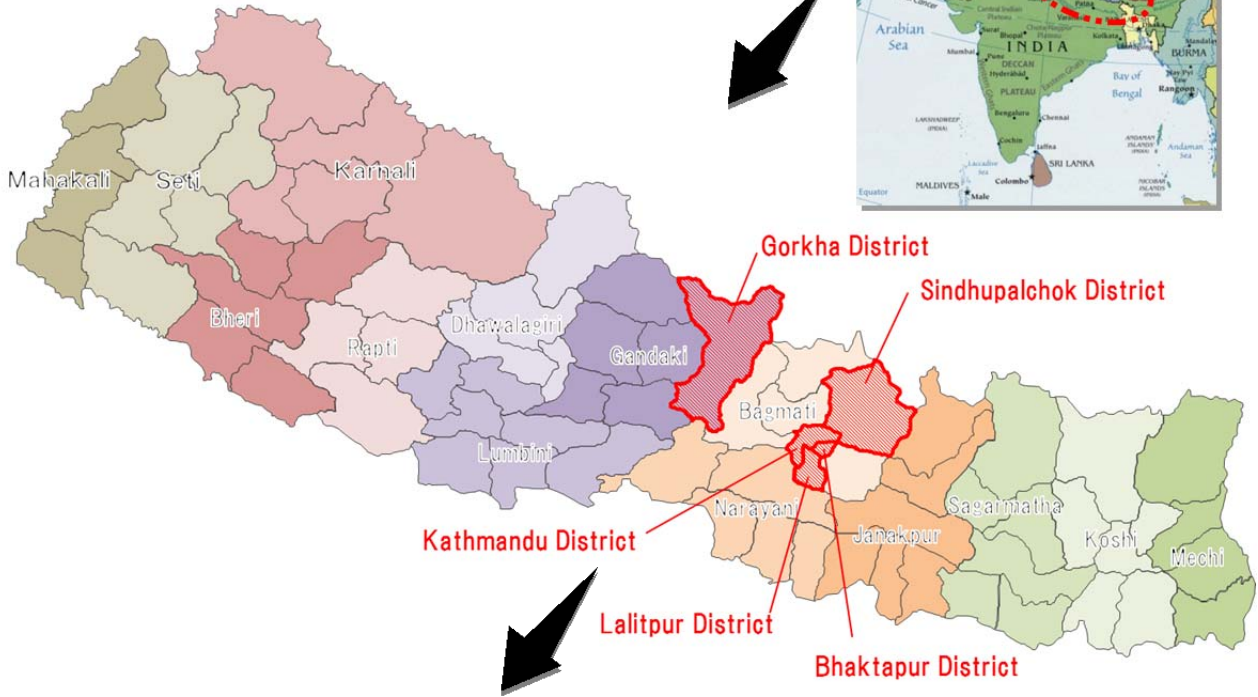
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Location Map of Project Area



Kathmandu Valley

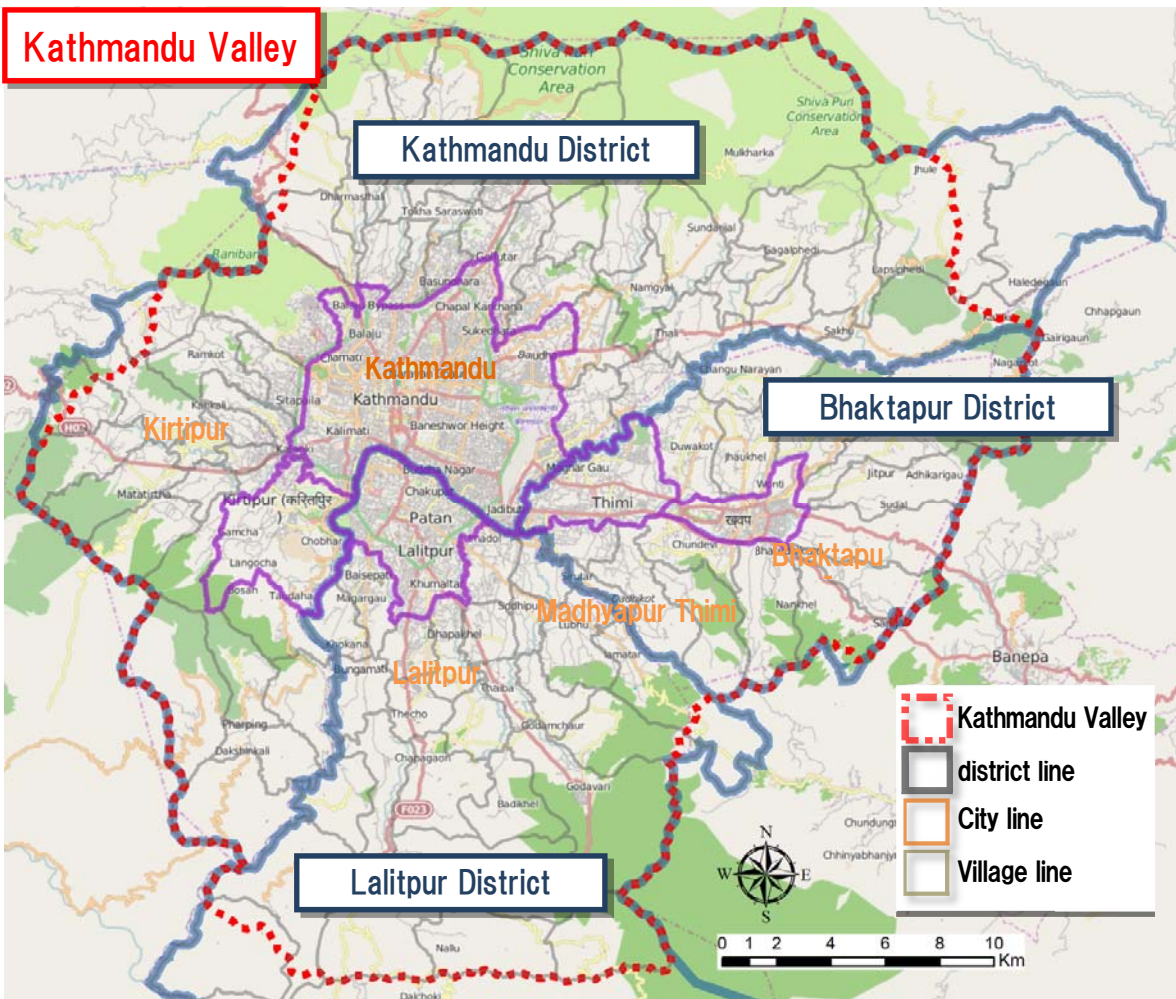


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Attachement RECORD OF DISCUSSION

1. Overview of the Project

1.1 Background of the Project

On 25th April 2015, a magnitude 7.8 earthquake occurred and its epicenter was in the Gorkha District which is approximately 77km northwest of Kathmandu, the capital city of Nepal. Due to several aftershocks, devastating damage was recorded. The total number of deaths was 8,631, the number of injuries was 16,808; there were 500,000 totally collapsed houses and approximately 270,000 partially collapsed houses. The Nepali government estimated the total economic damage caused by the earthquake was approximately 10 billion dollars (GDP of Nepal in 2012-2013 was 19.2 billion dollars). In addition, the Asian Development Bank (ADB) estimated the real GDP growth of Nepal in 2014-2-15 would be 3.8 % which was underestimated by 0.8 % as a result of the earthquake. It is expected the earthquake has caused a serious negative impact to the economy of Nepal.

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

Under these conditions, JICA dispatched a fact finding mission to Nepal from 26th of April to conduct a needs assessment related to rehabilitation and reconstruction and to develop the contents of urgent projects. On 25th of May, the Nepal government and JICA jointly conducted a seminar in Kathmandu to introduce the Japanese experience of reconstructions from earthquakes, formulation of reconstruction plans, and examples of reconstruction projects. In this seminar, JICA emphasized the importance of formulating more disaster-resilient national reconstruction plans which reflected the concept of Build Back Better. This concept indicated that the timing before the rehabilitation and reconstruction phase is the opportunity to develop a more resilient society than the pre-disaster phase, which was based on “Sendai Framework for Disaster Risk Reduction 2015-2030” adopted by the Third United Nations World Conference on Disaster Risk Reduction held in Sendai in March 2015, and “Sendai Cooperation Initiative for Disaster Risk Reduction” stated by the Japanese government. Many participants from the Nepal side appreciated the ideas.

The record of discussion between JICA and the Nepali government is attached as appendix.

1.2 Purpose and Scope of the Project

The purpose of the Project is to comprehensively support the process of early rehabilitation and reconstruction of the affected areas and the formulation of a disaster resilient nation and society by referring to the experience and lessons learned of the disasters and reconstruction in Japan.

The Project is designed to implement a prioritized reconstruction project to fill the demand-supply gap which arises during the transition from a humanitarian assistance phase to rehabilitation and reconstruction. The prioritized project will be implemented in the early stage of the Project considering the participation of the residents. The prioritized project will be basically procured by JICA but the mode of procurement is depending on the size of the project. At the same time, the Project is designed to develop additional projects

such as Grant Aid Program and Loan Projects. For the above-mentioned purposes, the Project will conduct information collection, preparation and project management of prioritized reconstruction projects, project formation and technical assistance (including design and cost estimation) to implement aid projects promptly.

1.3 Outputs of the Project

Output 1 Formulation of national level and district level plans

- Setting of expected disaster (Setting expected earthquake disaster and risk assessment based on the result of “The Project for Assessment of Earthquake Disaster Risk for Kathmandu Valley in Nepal”)
- Formulation of a Kathmandu resilient plan
- Formulation of a grand design for district level rehabilitation and reconstruction
- Institutional capacity development for the formulation and implementation of the above-mentioned plans and designs

Output 2 Promotion and dissemination of seismic resistant buildings and structures

- Investigation for the necessity of updating codes for seismic resistant housing, buildings such as schools, infrastructures such as roads and bridges, and lifelines
- Formulation of a guideline for seismic resistant housing and school buildings (herein after the seismic resistant building guideline)
- Investigation of a subsidy system and mechanism for disseminating a seismic resistant building guideline
- Human resource development for seismic resistant housing and school buildings (Including the developing curriculum and textbooks, and implementation of training program)

Output 3 Formulation of prioritized reconstruction project (Program grant aid)

- Selection of prioritized reconstruction project plans
- Design and approximate cost estimation of the prioritized reconstruction project plans

Output 4 Formulation and implementation of Quick Impact Projects (QIPs)

- Formulation of QIPs
- Implementation of QIPs

Table 1-1 Work items in each project area

Scope of work	Kathmandu Valley	Sindhupalchowk	Gorkha
Aerial photo shooting	○ (Approx.50cm resolution)	○ (Approx.150cm resolution)	○ (Approx.50cm resolution)
Preparation of hazard map	—	○	○
Preparation of digital topographic map	○ (1/10,000 (some area 1/5,000))	—	—
Formulation of Kathmandu resilient plan	○	—	—
Formulation of grand design for district level rehabilitation and reconstruction	—	○	○
Review of building and structure code and preparation of guideline	○	○	○
Investigation of the mechanism of subsidy	○	○	○
HRD for seismic resistant housing and school building	○	○	○
Model housing/school construction (QIPs)	△ (Main area is district level)	○ (Chautara/Melamchi/ Bahrabise and surrounding area)	○ (Barpak)
QIPs(other than model housing and school)	△ (Main area is district level)	○ (Chautara/Melamchi/ Bahrabise and surrounding area)	○ (Basin zone including Gorkhabazar and Barpak)
Program grant aid project	Rehabilitation of KB road, rehabilitation of the damaged facilities previously constructed by the Grant Aid	○ (Chautara/Melamchi/ Bahrabise and surrounding area)	○ (Basin zone including Gorkhabazar and Barpak)

1.4 Project counterpart organizations

- 1) National Planning Commission
- 2) Ministry of Urban Development
- 3) Ministry of Federal Affairs and Local Development
- 4) Ministry of Finance
- 5) Ministry of Home Affairs
- 6) Ministry of Physical Infrastructure and Transport
- 7) Ministry of Education
- 8) Kathmandu Valley Development Authority
- 9) Sindhupalchowk District and Gorkha District Government

1.5 Target area of the Project

- (1) Kathmandu(Kathmandu District, Lalitpur District, Bhaktapur District)
- (2) District(Most damaged district Sindhupalchowk District, Epicenter Gorkha District)

2. Project Approach

2.1 Methodology for Project Implementation

Methodology for Project Implementation is as follows.

2.1.1 Contents of Activities and the Methodology

[Common Item of each Output]

Item [1]: Collection, analysis, evaluation of the existing plan and information for developing a framework of the Project

Available material and information were collected and analyzed in Japan to examine the basic direction, methodology, contents of activities, procedures for implementation, schedule, and contents of necessary discussions for the Project.

- 1) Socioeconomic conditions, natural conditions, overview of related regulations* institutions , condition of geospatial information
- 2) Roles and activities of the related Nepali government agencies
- 3) National level plan and existing plan/project of the Nepal government and projects implemented by other donors
- 4) Overview of PDNA
- 5) Condition of the activities implemented by the United Nations and other donor agencies

Item [2]: Survey and analysis of the current condition

The following surveys will be carried out with the objectives of: 1) understanding the situation of disaster damage and needs for recovery & reconstruction in the Target Area, 2) formulating emergency recovery & reconstruction projects, and 3) preparing a plan of prioritized emergency reconstruction and each plan and policy should be based on a mid-term to long-term view for recovery and reconstruction.

[2-1]: Information collection of the damage condition in the project target area and its evaluation analysis

[2-2]: Social environment condition survey

[2-3]: Preliminary scoping of socio-environmental consideration

[2-4]: Social survey in the model district/Village District Committee (VDC)

A social survey, will be carried out for collecting the information of the situation of detailed damage, community, debris disposal, and natural condition as well as ethnic composition, role of gender, used language, existing local group and beneficiaries of disaster response activities, targeting the VDC around Chautara Municipality including Barabise and Melamchi in the Sindhupalchok District, the area around Gorkha in the Gorkha District and basin including Barpac as VDC. In addition, a survey of characteristics of house building, local materials such as bamboo and palm trees for construction of quake-resilient house buildings as well as school buildings, and livelihood to understand what should be paid attention to implement the Project.

[2-5]: Understanding the progress of emergency rehabilitation and reconstruction implemented by the United Nations and other donor agencies

[2-6]: Understanding of the latest security conditions and investigation of the range of the survey target area

[2-7]: Confirmation of past earthquake stricken areas and their magnitudes

[2-8]: Needs assessment survey for the capacity development for government officers in charge of rehabilitation and reconstruction

Item [3]: Study tour in Japan

A study tour in Japan will be implemented to share the knowledge and lessons learned in Japan with the government staff of Nepal through cooperation and support by Local Governments and the Central Government in Japan. Tentative contents of the study tour are shown as below. The contents will be discussed in the process of the Project.

Table 2-1 The schedule and contents of Field Trips in Japan (tentative)

Object		
Sharing of knowledge and experience of the Nepalese and the Japanese		
Time		
February 2016	August 2016	April 2017
Target		
National Planning Commission , Ministry of Urban Development , Ministry of Federal Affairs and Local Development , Ministry of Finance , Ministry of Home Affairs , Ministry of Physical Infrastructure and Transport , Ministry of Education , Kathmandu Valley Development Authority , Sindhupalchowk District and Gorkha District Government		



The schedule and contents (× 3)		
contents	date	Visit
Share experiences of the Great Hanshin-Awaji Earthquake (Tour experience) Disaster lore facility Wide-area disaster prevention base tour Seismic experiment facility tour etc	3	Kobe, Hyogo Prefecture Disaster Reduction and Human Renovation Institute Hyogo Emergency Management and Training Center Hyogo Earthquake Research Center
Share experiences of the Mid Niigata Prefecture Earthquake in 2004 (Tour experience) Disaster lore facility Disaster area tour etc	2	Nagaoka, Niigata Prefecture The CHU-ETSU Earthquake Memorial Corridor CHU-ETSU Memorial Park Ojiya Earthquake Disaster Museum
Share experiences of the Great East Japan Earthquake (Tour experience) Disaster lore facility Disaster area tour etc Reconstruction site tours	3	Higashimatsushima, Miyagi Prefecture Higashimatsushima City Hall Construction site(move to a higher elevation)
Summarizing of training presentations on results of training	2	Kobe, Hyogo Prefecture Tokyo

Item [4]: Implementation of capacity building

Capacity building of related central/regional offices of the Nepali Government, academic institutions as well as related private entities will be implemented through OJT, a collaborative research survey including a commissioned survey, and seminars, etc. The methodology of formulating a concept and plan, methodology of data analysis, diagnosis of quake resistance and risk of buildings, review and implementation of reinforcement and reconstruction, review of the measures for reinforcement of quake resiliency of the buildings through review of building code, and review of each policy for promoting suitable buildings will be shared. It is assumed that a bigger earthquake may happen in Nepal in the future, technical transfer, therefore, is aimed to periodically upload each plan by themselves for future disasters.

[Output 1: Formulation of plans]

Item [5]: Purchase of satellite images or shoot of aerial photos

[5-1]: Purchase of satellite images (stereo) of Kathmandu valley or shoot of aerial photos (approximately 50cm resolution)

[5-2]: Purchase of satellite images (single image) of the Sindhupalchowk District and the Gorkha District (approximately 150cm resolution)

Table 2-2 Comparison of image acquisition method in creating topographic map

style	Aerial photo	Satellite photo (Stereo)	
Image specs	Aerial photo (resolution 0.5m) (local re-consignment)	Satellite photo (resolution 0.5m) (Purchased in Japan)	※1 SO (Security Officer: Nepal SOK or Nepal Army personnel)
Shooting local re-consignment	×Necessary	○Unnecessary	※2 It is necessary to apply the license for the satellite management company with a copyright of the image when used outside the project, Including the use of in Nepal C/P
Shooting permit	×Necessary	○Unnecessary	
SO ^{※1} Taking along	×Necessary (Shooting, Charting work)	◎Unnecessary	
Copyright	○JICA and C/P are owned	× ^{※2} Buy the right to use, License application need	
Quality of the image	○High interpretation accuracy	×Effect of cloud (Max10%)	
Shooting /Image approximate	×Shooting·Ortho forming about \$650,000	◎Image purchase about \$9,800	
Ground orientation point	×Many	○Few	

Satellite images (single image) and existing digital topographic maps will be purchased to identify the locations of landslides, slope failure and dammed lakes in the affected area and formulate hazard maps in the Sindhupalchowk District and the Gorkha District. These maps will be utilized as base maps to understand the damaged situation and expected second disasters and to collect and utilize promptly the information gained for a recovery and reconstruction plan. In addition, digital elevation data (DEM) will also be procured to shorten the working period for deciding the contour line and utilized as terrain model data for slope analysis such as identifying rapid slope areas. During the preparation of the topographic map and ortho image for finalized topographic map, a simplified ortho topographic map will be formulated and utilized as temporary base map available for other activities.

Table 2-3 Base map data list planned to purchase

Activities	Data	Specification
Topographic map	Satellite image	Stereo image/resolution 0.5m Purchased in Japan
Identification of damaged area and hazard maps	Satellite image	Single image/resolution 1.5m Purchased in Japan
	Existing digital topographic map	1:25,000 (partly 1: 50,000) Vector SHP / 1992 Including attribute information Purchased at local Surveying Office
	digital elevation data (DEM)	Global digital 3D topographic data 15m Mesh Purchased in Japan

Item [6]: Preparation of digital topographic maps

Digital topographic maps with the scale of 1:10,000 in the Kathmandu Valley (the scale of 1:5,000 for severely damaged areas) will be prepared based on satellite images procured through the Project and utilized for a resilience plan in Kathmandu. To ensure accuracy, an elevation survey and field survey as well as a field complement survey will be carried out by local subcontractors.

1) Administrative boundaries, 2) roads and road facilities, 3) buildings and public facilities, 4) rivers and lakes, 5) vegetation, 6) contour line and elevation, 7) land use boundaries, 8) administrative names and major landmarks, 9) other related information will be included in the map through a field survey and used to formulate future recovery and reconstruction plans and hazard maps. Final items will be discussed by the Project team and with the Nepali Government.

Item [7]: Preparation of hazard map

1) Issues of the Project

It is assumed that landslides happen many times due to the monsoon season between June and October in Nepal. Hazard maps, therefore, will be prepared to identify the locations of landslides, slope failure and dammed lakes and high-risk areas to prevent second disasters. Satellite images and existing digital topographic maps with the scale of 1:25,000 (partly, the scale of 1:50,000) will be utilized to identify the locations of landslides and formulate hazard maps.

Issues to be solved are as follows to implement the Project:

- a. Budget for load risk management is limited due to economic perspective.
- b. Structural measures at steep slopes are high priced although slope disasters are prone to happen due to the geography of many mountainous areas.
- c. Structure measures on the ground deteriorated in terms of geological structure is high priced although slope disasters are prone to happen due to many mountainous areas which are geologically deteriorated.
- d. Slope disasters are prone to happen due to continuous heavy rain in rainy season.
- e. Slope disasters are prone to happen by earthquake because of many active fault zones.

To solve these issues, it is important to quickly evaluate a wide-area and completely reflect the confirmation and the evaluation in the field with formulated hazard maps.

2) Methodology of Survey and Review to Solve Issues

(1) Field Survey

In the field, typical landslide disasters (landslide in the broad sense, slope failure, landslide and debris flow shown in the literature of Landslide Society) which happened in this earthquake will be included on the map.

(2) Analysis of collapse mechanism

Typical collapse mechanisms of some landslide disasters will be clarified. For the analysis, the following items are noted:

- Whether collapse started before the earthquake
- Whether the earthquake was definitely the trigger of the landslide
- Whether heavy rain was one of the factors of the collapse

(3) Ambient Field Survey

Some slopes which did not collapse, with possibilities that may have a similar slope failure happen in the near future around the target area will be sampled based on (2)-1) and (2)-2) and mapped.

How a) collapsed geography and b) collapsed hazardous geography identified by the survey will be reflected in satellite images and topographic maps before and after will be confirmed and rules will be formulated to categorize collapsed geography on hazard maps.

(4) Reflect to Hazard Map

- a. Formulate disaster damage map: locations of landslides will be identified on ortho photos and polygon of the locations of slope movement will be formulated.
- b. Detect topography/geological data: data of the locations of slope movement: slope-ratio, height, geology and run out distance of debris will be detected from ortho photos, digital elevation data (DEM) overlaid on the ortho photos, and digital geological map.
- c. Verify high-risk area: high-risk areas will be set based on the result of analysis of topographical/geological information of the detected affected area. Validity of the range will be confirmed through overlaying the area with ortho photos and confirming the field.

3) Work Flow

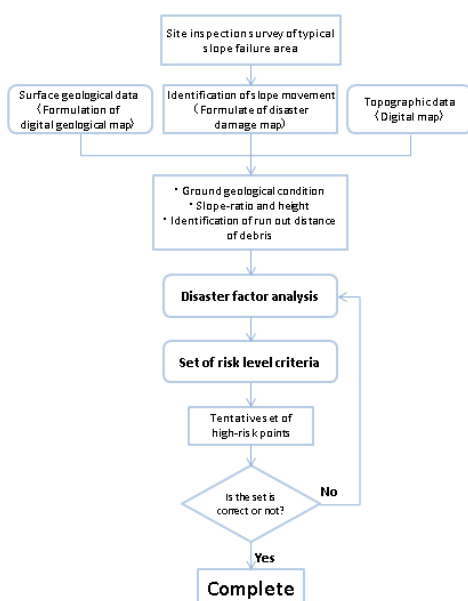


Figure 2-1 Flow of sediment disaster assessment

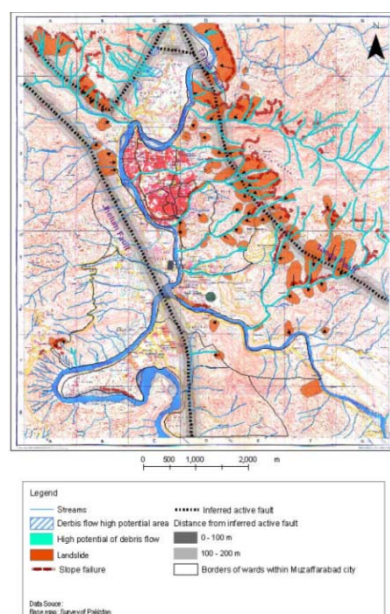


Figure 2-2 Examples of landslide map(Pakistan Muzaffarabad)

Item [8]: Development of resilience plan and grand design for rehabilitation and recovery

[8-1]: Kathmandu valley resilient plan

A resilient plan and grand design for rehabilitation and reconstruction will be formulated, including the reconstruction of economic activities. The resilient plan will be formulated, targeting Kathmandu valley. A grand design for rehabilitation and reconstruction will be formulated for two districts, Sindhupalchowk District and Gorkha District.

Table 2-4 Kathmandu resilience plan and grand design for rehabilitation and recovery

Kathmandu resilience plan	Grand design for rehabilitation and reconstruction in Sindhupalchowk District and Gorkha District
a. Setting the target year	a. Setting the target year
b. Kathmandu resilient vision	b. Rehabilitation and reconstruction vision
c. Policy goal for achieving the vision (including indicators)	c. Policy setting for achieving rehabilitation and reconstruction vision (including indicators)
d. Setting socioeconomic framework	d. Setting socioeconomic framework
e. Formulation of land use plan based on Kathmandu resilient goal	e. Formulation of public infrastructure/facilities/service rehabilitation and reconstruction policy

Kathmandu resilience plan	Grand design for rehabilitation and reconstruction in Sindhupalchowk District and Gorkha District
f. Formulation of rebuilding plan for housing and livelihood	f. Formulation of housing and livelihood rehabilitation and reconstruction policy (including the investigation of policy for agriculture/history/traditional artworks)
g. Formulation of prioritized infrastructure development and improvement plan	g. Relocation of evacuee's community/rebuilding plan (If the evacuees stay from surrounding mountainous areas, assist their rebuilding in their original community or adjacent areas if the place is appropriate by confirming the will of the residents. (Target cities are Chautara in the Sindhupalchowk District and Barpak in the Gorkha District, assumed to implement with QIPs)
h. Formulation of industrial reconstruction plan (Including the investigation of policy for tourism/history/cultural heritage rehabilitation)	—
i. Formulation of disaster resilient public service and institutional framework	h. Formulation of disaster resilient public service and institutional framework
j. Capacity evaluation for disaster management and disaster response and capacity development including human resource development	i. Capacity evaluation for disaster management and disaster response and capacity development including human resource development
k. Proposal of Urban development management/regulation system suitable for Kathmandu valley which is necessary for rehabilitation and reconstruction (Development permission system, disaster management road, park, land readjustment)	—
l. Proposal of participation of private sectors rehabilitation and reconstruction and collaboration with Japanese municipalities	—
m. Investigation of alternatives including socio-environmental impacts based on the ideas of Strategic Environmental Assessment (SEA)	j. Investigation of alternatives including socio-environmental impacts based on the ideas of Strategic Environmental Assessment (SEA)
n. Preparation of Indigenous People's Planning Framework	k. Preparation of Indigenous People's Planning Framework

[8-2]: Grand design for rehabilitation and reconstruction of two districts

Table 2-5 Contents of items to be implemented for District level rehabilitation and reconstruction

Sindhupalchowk District	Gorkha District
Formulation of a grand design for rehabilitation and reconstruction (Formulation of the vision of rehabilitation and reconstruction, mechanism of rehabilitation and reconstruction, industrial promotion and others)	Formulation of a grand design for rehabilitation and reconstruction (Formulation of the vision of rehabilitation and reconstruction, mechanism of rehabilitation and reconstruction, industrial promotion and others)
Identification of the danger areas of landslide and preparation of hazard map	Identification of the danger areas of landslide and preparation of hazard map
—	Formulation of road and bridge all year traffic maintenance plan damaged by the earthquake such as spot road improvement in Gorkha where the district government is located and Barwa which is the hub of transportation considering the Grant Aid Program
Rebuilding and redevelopment of public facility/infrastructure considering QIPs and Program Grant Aid	Rebuilding and redevelopment of public facility/infrastructure considering QIPs and Program Grant Aid
Construction of seismic resistant model housing/schools, anti-seismic reinforcement for existing housing/school in Chautara/Melamchi/ Bahrabise by QIPs, and establishment of a system of dissemination.	Construction of seismic resistant model housing/school, anti-seismic reinforcement for existing housing/school in Barpak by QIPs, and establishment of a system of dissemination (If the Project adopt PP band, possibility of localization of the material is considered (Ex. Considering the usage of Chusan palm which is widely available in Nepal to make band))
Implementation of the project by QIPs which contributed to livelihood improvement (Ex. Agricultural technical assistance which contributes to restoration or an increase of income, securing the access to markets etc.)	Implementation of the project by QIPs which contributed to livelihood improvement (Ex. Agricultural technical assistance which contributes to restoration or an increase of income, securing the access to markets etc.)
Technical transfer for the construction of seismic resistant model housing/schools, anti-seismic reinforcement for existing housing/schools, means of dissemination, developing manuals and textbooks, human resource development	Technical transfer for the construction of seismic resistant model housing/schools, anti-seismic reinforcement for existing housing/schools, means of dissemination, developing manuals and textbooks, human resource development
Assistance for disseminating seismic resistant housing/schools by utilizing subsidies from the Nepal government	Assistance for disseminating seismic resistant housing/schools by utilizing subsidies from the Nepal government

Sindhupalchowk District	Gorkha District
Formulation of a system for strengthening public service utilizing NGOs and community, strengthening road operation and maintenance, and the restoration of livelihoods etc.	Formulation of the system for strengthening public service utilizing NGOs and community, strengthening road operation and maintenance, and the restoration of livelihoods etc.

Social consideration and gender should be considered on every process of the Project. In particular, the formulation of “Indigenous Peoples Planning Framework (IPPF)”, the activity of component 1, is an effective activity in order to consider social vulnerable including ethnic minorities, Dalit and women in Nepal. Considering the characteristics of the Project, the formulation of IPPF is assumed based on safeguard policy OP4.10 Annex C of Asian Development Bank as below.

Table 2-6 IPPF safeguard policy of Asian Development Bank

	Contents (7 items of ADB)	Methodology
1	Identification and screening of sub-project propositions (process of discussion and participation of main counterparts and indigenous people is assumed.)	Confirm residential areas of each ethnic group and caste in the target area through a community development committee and word committee and review the priority for the formulation of IPPF. Formulate common format for screening.
2	Review of potential positive and negative effects to indigenous people	Regarding social assessment, evaluate positive and negative effects to ethnic minorities, Dalit and women, making maximal use of baseline information of the target area, and review alternative plans if necessary. On the process of assessment, set meetings with representatives from all ethnic group residents in target area.
3	Formulation of implementation plan of social assessment	
4	Framework for discussion based on enough sharing information in advance	
5	Formulation of indigenous people plan based on impact evaluation of project activities (including policy for complaint management)	Make a report of the result of the social assessment (including a policy for complaint management from local counterparts and a capacity building program for counterparts).
6	Agreement of monitoring and report	Make a policy of monitoring and report of sub-project with local counterparts.
7	Agreement of open of indigenous people plan	Make publication policy formulated under IPPF with local counterparts.

[Output 2: Formulation of a seismic resistant building guideline and its dissemination and human resource development]:

Item [9]: Confirmation of and review on the building standards to prepare for future earthquake disaster,

The Nepali building standards consists of NBC100s and NBC200s, and NBC200s especially stipulates specifications according to types of structure. As an internationally rare case, a method to improve seismic capacity of common residences is stipulated in the standards such as NBC202: LOAD BEARING MASONRY, NBC203: LOW STRENGTH MASONRY, NBC204: EARTHEN BUILDING (EB). These Nepali building standards, of which India has the details, were established based on the “Guidelines for Earthquake Resistant Non-Engineered Construction” published by IAEE in 1986. In order to prepare for future earthquake disaster, The Project Team will review the Nepali building standards and pick up articles necessary to be amended or added. The review will be conducted in consideration of the condition of L1 earthquake, and L2 earthquake which standards will be established half a year later.

Item [10]: Formulation of a seismic resistant building guideline

[10-1]: Characteristic analysis on collapsed residences and schools due to the earthquake

The Project Team will conduct a characteristic analysis on collapsed residences and schools due to the earthquake and the result of analysis will be utilized for academic conferences.

[10-2]: Review on the existing building standards and actual design and construction works, clarification of

problems in terms of seismic resistance, clarification of the background and mechanism of illegal construction

The Project Team will review the existing building standards and actual design and construction work, and clarify the problems in terms of seismic resistance. The Project Team will also clarify the background and mechanisms of illegal construction including the analysis on the effectiveness and problems of building permits being implemented in some municipalities, since there are many buildings not in accordance with the building standards in Nepal. The Project Team will consider the strategy to expand the building permit system being implemented by Katmandu and Lalitpur municipalities in Katmandu Basin to rural areas.

[10-3]: Establishment of seismic resistant building guidelines, support to the establishment of the guidelines, proposition of a comprehensive strategy to improve the quality of buildings and residences

The Project Team will discuss the system of law and standards for future earthquake disaster with the Nepali government and other donors, establish models of residences/schools construction and reinforcement, and establish earthquake-resistant building guidelines. The Project Team, together with JICA, will support the Nepali government to establish a committee, explain to committee members and prepare documents in order that the government authorizes the guidelines. The Project Team will also propose a comprehensive strategy to improve the quality of buildings/residences including the development of engineers and craft workers.

Item [11]: Support to the construction of residence and school models based on the earthquake-resistant building guidelines

[11-1]: Construction of residence and school models

The Project Team will construct 11 residence and school models as QIPs based on the earthquake-resistant building guidelines mentioned above at VDC near Chautara, Sindhupalchowk District and Barpak, Gorkha District. The Project Team will consider the conditions for construction such as life style and needs, community's situation, socioeconomic conditions, natural conditions, natural construction materials easy to obtain, and accessibility. Roles and responsibilities of the counterparts are as mentioned in 15-2.

Note: It is envisaged that reinforcement works in accordance with the building standards are difficult in the area with severe geographical conditions such as Barpak, Gorkha District. Therefore, The Project Team will consider realistic reinforcement works especially to save lives during an earthquake as large as this time in consultation with JICA.

[11-2]: Technical transfer of residence/school model construction

The Project Team will implement a technical transfer of residence/school model construction to the main counterparts so that the counterparts will be able to construct residences/schools according to the seismic resistant building guidelines at their own initiatives. The Project Team will study a system for constant human resource development such as the development of vocational training function at a specific institution.

[11-3]: Brochure for residence model construction

The Project Team will prepare a brochure and visual training material for residence model construction which includes necessary construction materials, construction schedule, important points for construction,

etc. in order to introduce the residence model construction all over the country by November 2015.

Item [12]: Study on dissemination mechanism

[12-1]: Supporting mechanism based on subsidy

The Project Team will study on a supporting mechanism for residences/schools to be constructed according to the earthquake-resistant building guidelines mentioned above, such as a supporting system for the reconstruction of residences and subsidies. The Project Team will especially study the conditions for subsidies (level of collapse, financial capability), the target of subsidies (individual or community, etc.), self-pay ratio, subsidy payment procedures (in case bank transfer is not available, etc.), subsidy payment timing (in one time or in installments), monitoring on the utilization of a subsidy (preparation of check lists, monitoring by inspector, etc.) so that the mechanism will be applicable for Nepali society.

The following are the cases implemented in other projects:

1) Community-based residence reconstruction system, 2) Monitoring on construction sites by a housing facilitator, 3) Architectural inspection and guidance on site by an engineer (TOT trainer), were implemented together with a subsidy. A system of which housing facilitators were trained by TOT trainers was developed.

[12-2]: Supporting mechanism not based on a subsidy

The Project Team will propose to the Nepali government an appropriate building permit system in accordance with the earthquake-resistant building guidelines even without a subsidy, following the analysis on the background and mechanism of illegal construction mentioned in above 10-2.

[Output 3: Formulation of priority reconstruction projects (Grant Aid Program) (Targets are basically facilities, roads, water supply systems, etc. procured by Japanese Grant Aid.)]

Item [13]: Formulation of priority reconstruction projects (Grant Aid Program)

The Project Team will conduct a needs analysis and formulate sub-projects in order to support quick rehabilitation and reconstruction of socioeconomic infrastructures in the target area. The Project Team will make a list of priority reconstruction projects and profiles of each project. Specific tasks are as follows:

[13-1]: Preparation of priority reconstruction projects list and project profile

[13-2]: Collection and confirmation of information on priority reconstruction projects

[13-3]: Study on criteria for priority reconstruction projects, proposition of optional projects in consideration of effectiveness and environmental and social considerations, selection of sub-projects

[13-4]: Planning, outline design, outline cost estimate and construction plan for sub-projects selected in 13-3

[13-5]: Survey on environmental and social considerations

a: Sub-projects under the environmental category A and B defined by the “JICA Guidelines for Environmental and Social Considerations (April 2010)” shall not be included in the Grant Aid Program. The Project Team will confirm environmental and social impacts of candidate sub-projects through scoping and will utilize this information as references for environmental categorization. These sub-projects which require site acquisition or resettlement, or the one with negative impact to minority group shall not be included in Grant Aid Program.

- b: The Project Team will confirm social consensus on the sub-projects through support to conduct stakeholder meetings (purpose of meeting, participants, agenda, etc.)

[13-6]: Survey on natural conditions

[Output 4: Formulation and Implementation of Quick Impact Projects (QIPs)]

Out of the prioritized recovery and reconstruction projects selected on item [11], profiles of the projects with emergency demand and possibility to be implemented as QIPs, will be formulated.

Item [14]: Formulation of Quick Impact Projects (QIPs)

Quick Impact Projects (QIPs) will be implemented with the aim of promoting the process toward reconstruction by contributing to the restarting of economic activities, reconstruction of daily lives, and strengthening of government organizations' capacities in implementing supportive measures for disaster management in the Target area. At the same time, they also require: to be completed within the Project Period, maintain appropriate quality, and secure a concrete structure for operation and maintenance. Taking into consideration such factors, the following criteria should be considered for selecting Quick Impact Projects:

- Target facilities should be related to basic public services or activities for maintaining livelihoods
- No duplication of those activities implemented by other donor organizations
- Easy physical access to the project site
- Agreement on operation and maintenance are made with local stakeholders (implementation agency and community organizations)
- Period required for construction is to be within approximately 6 to 10 months
- Adverse impact to the natural and social environment should be avoided, mitigated or substituted with feasible countermeasures
- The Project is in line with the policies for disaster recovery and reconstruction which are to be proposed through this Project
- Total cost of the projects does not exceed five hundred million yen at a maximum.

Actual selection of Quick Impact Projects will be done among those discussed with the Philippines' side and JICA. Necessary assignment for implementation will be discussed with JICA. In this proposal, only the amount for survey by local subcontractors, about forty million yen, is allocated.

Item [15]: Implementation of Quick Impact Projects (QIPs)

QIPs selected in item [12] will be implemented to restart economic activities, reconstruct daily lives, and strengthen government organizations' capacities in implementing supportive measures for disaster management in the Target area in the following process:

[15-1]: Purpose, contents, scale, schedule of QIPs

To promote the process toward reconstruction, QIPs will be carried out for the restarting of economic activities and reconstruction of daily lives. Selection of QIPs will be done among those discussed with the Philippines' side and JICA. In particular, only the Projects categorized as environmental category "C" under The Basics of Environmental and Social Considerations of JICA will be implemented, therefore the selection will be certainly discussed with JICA beforehand.

The target of QIPs are livelihood reconstruction, public infrastructure/facilities, technical dissemination and human resource development, which can be finalized within the project period. Condition of selecting the facilities does not necessary need to be the rehabilitation of existing facilities, but the scale of the target facilities should be selected on the condition that the construction work is finished within the project period, and an appropriate quality control and operation and maintenance system is secured. In addition, facility design and construction period will be set considering the influence of the monsoon period. QIPs are designed to contribute to the reconstruction projects implemented by the Nepali government and other donors and to provide lessons learned to the other reconstruction projects.

Implementation of QIPs is associated to take the following procedures:

- a. Survey of the activities by private sector, NGO, NPOs and other stakeholders
- b. Evaluation of an implementation system for public services
- c. Compile commercial customs of Nepal related to defect liability
- d. Evaluation of residents' means of livelihood and their technical expertise
- e. Community capacity enhancement for a disaster resilient society
- f. Formulation of a debris treatment plan and its partial implementation
- g. Construction of model housing/schools (Chautara/Melamchi/ Bahrabise in Sindhupalchowk District and Barpak in Gorkha District are the target areas, and the Project implement technical transfer related to construction)
- h. Selection of priority reconstruction projects (Priorities are infrastructure, government offices, schools, health facilities, hospitals, and public markets which urgently need early rehabilitation and the project which can expect a synergetic effect with livelihood improvement projects)
- i. Survey of procurement conditions
- j. Plan, design and cost estimation of priority reconstruction projects
- k. Implementation and management of priority reconstruction projects
- l. Evaluation of priority reconstruction projects

[15-2]: Role sharing of stakeholders

By contracting one component or construction in various sites, if the project cost exceeds 10 million JPY, it is assumed JICA will directly contract with a contractor to implement the projects. When JICA directly contracts with a contractor, the Project Team will support JICA for formulating a facility development plan, preparation of tender documents, tender assistance, contract assistance, confirmation of mobilization, construction supervision, inspection of final construction, and finalization of the construction

[15-3]: Identification of Implementation Structure / Implementation of QIPs

Although the implementation of QIPs are mainly led by the Project Team, considering that the Municipality and Village Development Committee are the main leaders of rehabilitation and reconstruction on the local level, the Project needs to establish an implementation system by involving them. Through the implementation of QIPs, it is expected that the capacity of local government officers will be enhanced.

Content of assumed QIPs and its rationale at this time are as follows:

Table 2-7 Tentative prioritized Quick Impact Projects (QIPs)

No	Project Name	Reasons of selection
1	Project on strengthening sales of dairy products by introducing technology of pasteurization cultivation and simple silage	In rural agricultural areas in Nepal, milk, yogurt and butter have been produced, consumed at home, and the surplus has been sold. Because it is too heavy work to secure food for livestock, pasteurization cultivation will be promoted and simple silage will be introduced so that the condition, that food is stably secured in winter season, is created. Therefore, it is aimed that milk of livestock is stably provided livelihood is restored due to the reduction of work for securing pasteurization cultivation and sale of surplus of dairy products.
2	Project on capacity building of VDC and Municipality for reconstruction of quake-resilient public facilities	Design, quotation, bidding, contracting and supervising will be implemented with architecture technicians from VDC/ Municipality and technology transfer will be aimed about the technology of operation and management of projects related to reconstruction of quake-resilient public facilities through the reconstruction of public facilities.
3	Project on repair and reinforcement of village loads through community participation	Reinforcement work for village loads that residents can participate in will be carried out as Cash for Work and instructions about construction techniques will be given to local people, and employment opportunities will be created for the people who got lost a part of their income source.
4	Project on training of quake-resilient building technology through construction of model houses/schools	Various models of model houses/schools will be reviewed so that local contractors, local people or women can work. Regarding each model, the assumed contractor will be invited to commence construction work and receive On-the-Job training for construction technology. In case it is difficult for the contractor to construct in terms of their skill, the project will receive the feedback and be improved. The know-how and lesson-learned from the work will be summarized as a video or manual and utilized as text promoted.
5	Project on training of quake-resilient reinforcement technology of existing houses/schools	Quake-resilient reinforcement technology with available local materials will be transferred to local contractor, architecture technicians of VDC/ Municipality and local people, utilizing partially damaged existing houses/schools. The know-how and lesson-learned from the work will be summarized as video or manual and utilized as text promoted.
6	Emergency recovery project on a grant aid project utilizing Japan's experience	Lightly affected buildings constructed under the grantaid project of Japan will be recovered so that the function is also recovered.
7	Forecasting and warning system of landslide	A displacement gauge and rain gauge will be set at the location with vulnerability of landslide and an evacuation warning system will be introduced to issue evacuation calls and evacuation warnings under the condition which landslide may happen as pilot project

Works implemented by subcontractors (Environmental impact survey related to QIPs)

When implementing the QIPs, the following surveys are implemented by subcontractors:

Table 2-8 Survey implemented by subcontractor regarding QIPs

Survey	Related projects	Requirements
Initial Environmental Evaluation (IEE)	Project on strengthening the sales of dairy products by introducing technology of pasteurization cultivation and simple silage Project on capacity building of VDC and Municipality for reconstruction of quake-resilient public facilities Project on the repair and reinforcing of village loads through community participation Project on training of quake-resilient building technology through construction of model houses/schools Project on training of quake-resilient reinforcement technology of existing houses/schools Emergency recovery project on grant aid project utilizing Japan's experience	Survey and make report for project review at initial period of environmental impact evaluation policy in Nepal

Item [16]: Preparation and discussion of Inception Report

- 1) The Project Team compiles the project approach, work plan and implementation framework and prepares the Inception Report. The Project Team explains it to JICA about the contents and obtains its approval.
- 2) The Project Team explains and discusses the work plan based on the Inception Report to the Nepali government and obtain its approval.

Item [17]: Preparation and discussion of Progress Report

- 1) The Project Team compiles the selection process of emergency rehabilitation and reconstruction project, its result of selection, contents of the project and the result of socio-environmental consideration survey, progress of hazard maps and digital topographic maps, drafts a guideline for seismic resistant building, which are to be implemented after the Inception Report and will explain to JICA to obtain its approval. Progress Report is designed to be open to the public.
- 2) The Project Team submits a Progress Report to the Nepali Government and explains and discusses the content to obtain its approval. In addition, both sides confirm the progress of the activity schedule, personnel schedules which are planned during the Inception Report submission phase ,and review the plan if necessary.

Item [18]: Preparation and discussion of Interim Report

- 1) The Project Team compiles the results of the activities after Progress Report as Interim Report 1 and 2 and explains it to JICA to obtain its approval.
- 2) The Project Team submits an Interim Report to the Nepali government and explains and discusses the contents to obtain its approval. In addition, both sides confirm the progress of the activity schedule, personnel schedules which are planned during the Progress Report submission phase ,and review the plan if necessary.

Item [19]: Preparation and discussion of Draft Final Report

- 1) The Project Team compiles the result of the activities after the Interim Report as the Draft Final Report and explains it to JICA to obtain its approval.
- 2) The Project Tem submits the Draft Final Report to the Nepal government and explains and discusses the contents to obtain its approval.

Item [20]: Preparation of Final Report

Based on the comments from the Nepali government, the Project Team modifies the Draft Final Report and finalizes the Final Report and submits it to JICA.

Name of the Reports	Submission	Number of copies
Inception Report (IC/R)	July 2015	20 copies
Progress Report PR/R)	September 2015	20 copies
Interim Report1(IT/R1)	April 2016	20 copies
Interim Report2(IT/R2)	November 2016	20 copies
Draft Final Report(DF/R)	April 2017	20 copies
Final Report(F/R)	June 2017	30 copies

2.2 Work Plan

Below is the work flowchart based on the work items shown in 2.1.

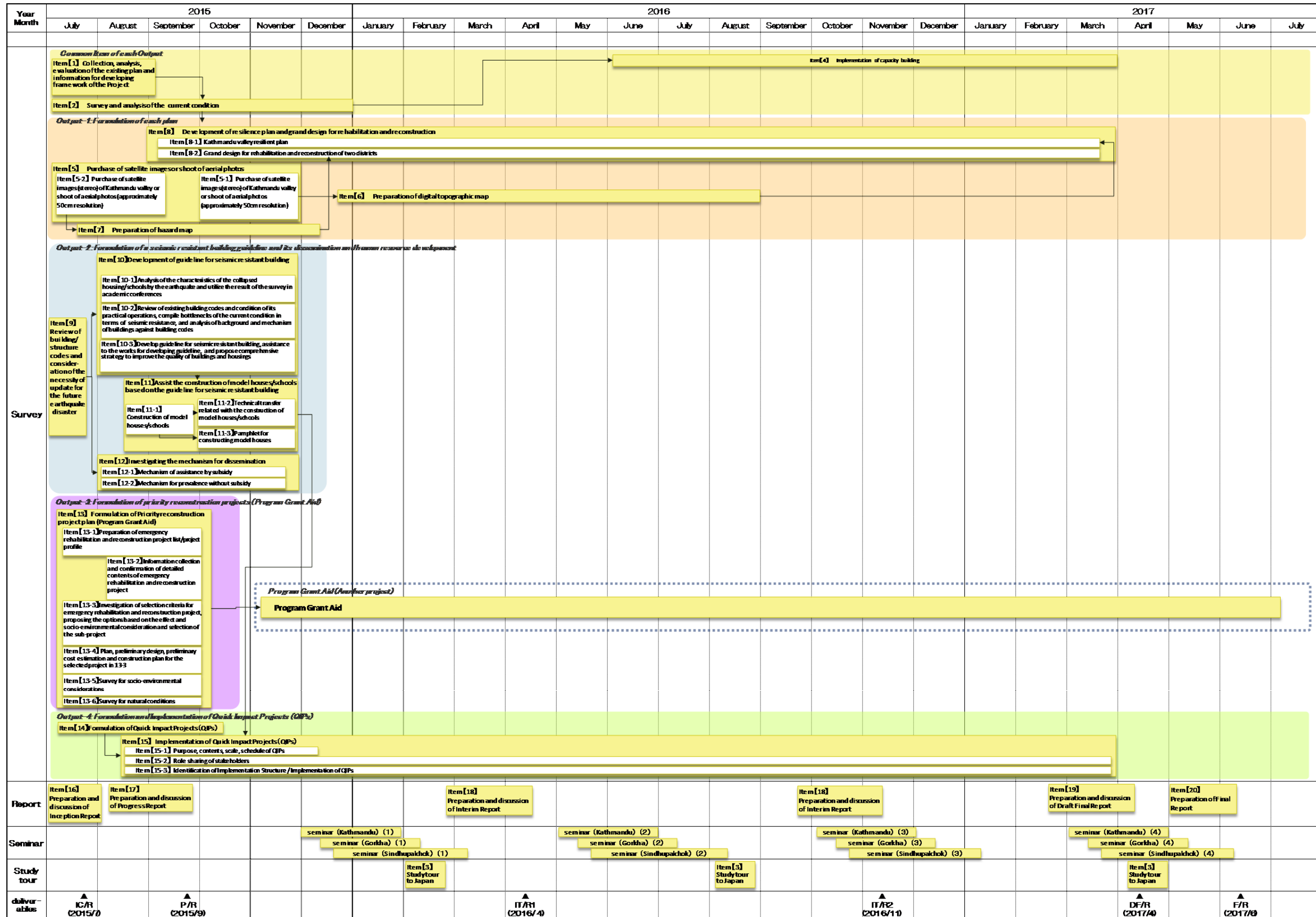


Figure 2-3 Flowchart for work implementation

The Project will be implemented from July 2015 to July 2017. Below is the work schedule during the project implementation period.

Work schedule

Item	Year Month	2015						2016						2017													
		7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6		
Common Item of each Output																											
Item[1]	Collection, analysis, evaluation of the existing plan and information for developing a framework of the Project	████████																									
Item[2]	Survey and analysis of the current condition	████████																									
Item[3]	Study tour into Japan												████████						████████								
Item[4]	Implementation of capacity building	████████																									
Output 1:Formulation of plans																											
Item[5]	Purchase of satellite images or shoot of aerial photos	████████																									
Item[5-1]	Purchase of satellite images (stereo) of Kathmandu valley or shoot of aerial photos (approximately 50cm resolution)	████████																									
Item[5-2]	Purchase of satellite images (single image) of the Sindhupalchowk District and the Gorkha District (approximately 150cm resolution)	████████	████████																								
Item[6]	Preparation of digital topographic maps												████████														
Item[7]	Preparation of hazard map							████████																			
Item[8]	Development of resilience plan and grand design for rehabilitation and recovery	████████																									
Item[8-1]	Kathmandu valley resilient plan	████████																									
Item[8-2]	Grand design for rehabilitation and reconstruction of two districts	████████																									
Output 2:Formulation of a seismic resistant building guideline and its dissemination and human resource development																											
Item[9]	Confirmation of and review on the building standards to prepare for the future earthquake disaster	████████																									
Item[10]	Formulation of a seismic-resistant building guideline	████████																									
Item[10-1]	Characteristic analysis on collapsed residences and schools due to the earthquake	████████																									
Item[10-2]	Review on the existing building standards and actual design and construction works, clarification of problems in terms of seismic resistance, clarification of the background and mechanism of illegal construction	████████																									
Item[10-3]	Establishment of seismic resistant building guidelines, support to the establishment of the guidelines, proposition of a comprehensive strategy to improve the quality of buildings and residences	████████																									
Item[11]	Support to the construction of residence and school models based on the earthquake-resistant building guidelines	████████																									
Item[11-1]	Construction of residence and school models	████████																									
Item[11-2]	Technical transfer of residence/school model construction			████████																							
Item[11-3]	Brochure for residence model construction			████████																							
Item[12]	Study on dissemination mechanism			████████																							
Item[12-1]	Supporting mechanism based on subsidy			████████																							
Item[12-2]	Supporting mechanism not based on a subsidy			████████																							
Output 3:Formulation of priority reconstruction projects (Grant Aid Program)																											
Item[13]	Formulation of priority reconstruction projects (Grant Aid Program)	████████																									
Item[13-1]	Preparation of priority reconstruction projects list and project profile			████████																							
Item[13-2]	Collection and confirmation of information on priority reconstruction projects	████████																									
Item[13-3]	Study on criteria for priority reconstruction projects, proposition of optional projects in consideration of effectiveness and environmental and social considerations, selection of sub-projects	████████																									
Item[13-4]	Planning, outline design, outline cost estimate and construction plan for sub-projects selected in 13-3	████████																									
Item[13-5]	Survey on environmental and social considerations	████████																									
Item[13-6]	Survey on natural conditions	████████																									
Output 4:Formulation and Implementation of Quick Impact Projects (QIPs)																											
Item[14]	Formulation of Quick Impact Projects (QIPs)	████████																									
Item[15]	Implementation of Quick Impact Projects (QIPs)	████████																									
Item[15-1]	Purpose, contents, scale, schedule of QIPs	████████																									
Item[15-2]	Role sharing of stakeholders	████████																									
Item[15-3]	Identification of Implementation Structure / Implementation of QIPs	████████																									
Report																											
Item[16]	Preparation and discussion of Inception Report	△-△																									
Item[17]	Preparation and discussion of Progress Report			△-△																							
Item[18]	Preparation and discussion of Interim Report							△-△												△-△							
Item[19]	Preparation and discussion of Draft Final Report																									△-△	
Item[20]	Preparation of Final Report																									△-△	

Legends: ██████████ Field Survey ██████████ Works in Japan △-△ Discussions on Reports

2.3 Plan for dispatching experts

2.3.1 Composition of the Project Team

Composition of the Project Team is shown in the table 2-9 below.

Table 2-9 Composition of the Project Team

Output	No.	Assignment	
Output 1: Formulation of plans	1	Project Manager/Rehabilitation • Reconstruction Plan	
	2	Resilience Plan/Administrative Organization	
	3	Disaster Evaluation/Disaster Management Plan 1	
	4	Road/Bridge Plan	
	5	Water Supply Plan	
	6	Sewerage Plan	
	7	Tourism and Cultural Property Reconstruction Plan	
	8	Social Consideration/Gender	
	9	Digital Topography Map/GIS 1	
	10	Social and Environmental Consideration	
	11	Project Coordinator/Aid Coordination/Training Plan 1	
	Grand design for rehabilitation and reconstruction of two districts	12	Team Leader/Local Rehabilitation • Reconstruction1
		13	Urban Planning 1/Local Rehabilitation • Reconstruction 2
		14	Local Administration/Organization Plan 1
		15	Land Use Plan/Local Administration/Organization Plan 2
		16	Community Development 1
		17	Community-based Disaster Risk Management
		18	Disaster Evaluation/Disaster Management Plan 2
		19	Disaster Evaluation/Disaster Management Plan 3
		20	Digital Topography Map/GIS 2
		21	Hazard Map
		22	Project Coordinator/Aid Coordination/Training Plan 2
Output 2: Formulation of a seismic resistant building guideline and its dissemination and human resource development	23	Team Leader/Seismic Resistant Building • Structure/ Building • Structure Risk Evaluation	
	24	Seismic Resistant Related Legal System	
	25	Structural Calculation/Model Seismic Resistant Housing/School Construction 1	
	26	Model Seismic Resistant Housing/School Construction 2	
	27	Community Development 2/Technical Dissemination	
	28	Housing Subsidy System	
	29	Project Coordinator/Aid Coordination/Training Plan 3	
Output 3: Formulation of priority reconstruction projects (Grant Aid Program)	30	Team Leader/Rehabilitation • Reconstruction Project (Civil)	
	31	Team Leader/Rehabilitation • Reconstruction Project (Architecture)	
	32	Public Facility Construction Plan 1	
	33	Public Facility Construction Plan 2	
	34	Water Supply Facility Rehabilitation Plan	
	35	Road • Bridge Rehabilitation Plan 1	
	36	Road • Bridge Rehabilitation Plan 2	
	37	Power Distribution Facility Plan/Power Supply Ancillary Facility Design	
	38	Construction • Procurement Plan/Cost Estimation 1	
	39	Construction • Procurement Plan/Cost Estimation 2	
	40	Social and Environmental Consideration/Natural Condition Survey	
	41	Project Coordinator/Public Facility Construction Plan 3/Aid Coordination/Training Plan 4	
Output 4: Formulation and Implementation of Quick Impact Projects (QIPs)	42	Team Leader/QIPs	
	43	Living Environment Improvement Activities (including Debris Treatment) 1	
	44	Living Environment Improvement Activities (including Debris Treatment) 2	
	45	Public Facility Building Plan/Design 1	
	46	Public Facility Building Plan/Design 2	
	47	Livelihood Improvement (Agriculture/Tourism) 1	
	48	Livelihood Improvement (Agriculture/Tourism) 2	
	49	Public Participation/Organizational Capacity Building	
	50	Construction • Procurement Plan/Cost Estimation/Implementation Supervision 1	
	51	Construction • Procurement Plan/Cost Estimation/Implementation Supervision 2	
	52	Construction • Procurement Plan/Cost Estimation/Implementation Supervision 3	
	53	Project Coordinator/Aid Coordination/Training Plan 5	

2.3.2 Work implementation structure

The Project Team consists of four teams “Output 1, 2, 3 and 4” and Project Manager/Rehabilitation and Recovery Plan will surely manage and compile the teams. A leader is assigned to each team and closely communicates with Project Manager/Rehabilitation and Recovery Plan and responsible for the management of the Project.

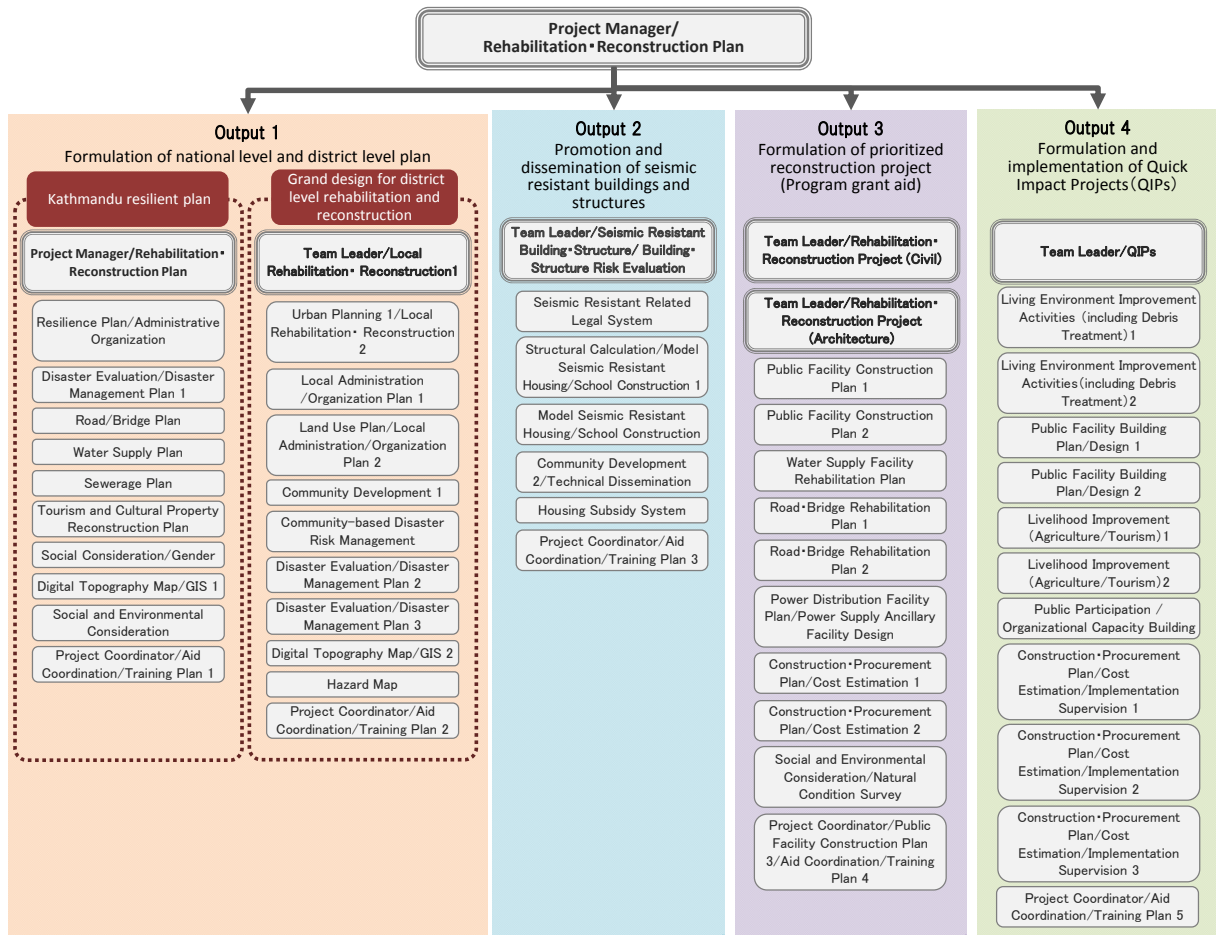


Figure 2-4 Work implementation structure

Manning schedules are shown in the next page.

Manning schedule (1/2)

	Assignment	Name	Affiliation	2015												2016						2017						日/月							
				FY2015					FY2016							FY2017																			
				July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June	Special	Leave						
※	Project Manager/Rehabilitation・ Reconstruction Plan	Ichiro KORYASHI	OCG																																6.33
	Resilience Plan/Administrative Organization	Masaki CHIDA	PCK																																5.00
	Disaster Evaluation/Disaster Management Plan 1	Yoshitaka YAMASAKI	OCG																																0.83
	Road/Bridge Plan	Masaki GOTO	OCG																																3.33
	Water Supply Plan	Shimao HIDAKA	OCG																																3.33
	Sewerage Plan	Tetsuya KURAMACHI	PCK																																0.83
	Tourism and Cultural Property Reconstruction Plan	Nami HIRAI	OCG																																2.50
	Social Consideration/Gender	Masami WATANABE	OCG																																3.67
	Digital Topography Map/GIS 1	Takeo SUGIMOTO	Pasco																																4.00
	Social and Environmental Consideration	Koichiro SHIBASAKI	PCK																																2.67
	Project Coordinator/Aid Coordination/Training Plan 1	*****	OCG																																6.50
※	Team Leader/Local Rehabilitation・ Reconstruction	Yoshihiro ASANO	OCG																																5.00
	Urban Planning 1/Local Rehabilitation・ Reconstruction 2	Kiyotaka OWADA	OCG																																5.00
	Local Administration/Organization Plan 1	Yoshi OTA	OCG																																6.53
	Land Use Plan/Local Administration/Organization Plan 2	Masato ARASHI	PCK																																5.00
	Community Development 1	*****	***																																1.67
	Community-based Disaster Risk Management	Kachi ARAKIDA	OCG																																2.33
	Disaster Evaluation/Disaster Management Plan 2	Satoru SHIBATA	PCK																																2.33
	Disaster Evaluation/Disaster Management Plan 3	Kaoru NAKAZATO	PCK																																1.50
	Digital Topography Map/GIS 2	Akihiro SUGITA	Pasco																																2.67
	Hazard Map	*****	***																																1.67
	Project Coordinator/Aid Coordination/Training Plan 2	Shuichi SHIRAI	OCG																																7.50
※	Team Leader/Seismic Resistant Building・ Structure/ Building・ Structure Risk Evaluation	Hiroshi IMAI	NOHORI																																5.10
	Seismic Resistant Related Legal System	Shoichi ANDO	NOHORI																																0.83
	Structural Calculation/Model Seismic Resistant Housing/School Construction 1	*****	OCG																																2.50
	Model Seismic Resistant Housing/School Construction 2	*****	NOHORI																																3.00
	Community Development 2/Technical Dissemination	Yasuichiro SEKI	OCG																																1.67
	Housing Subsidy System	Yasutoku MEGASE	OCG																																0.83
	Project Coordinator/Aid Coordination/Training Plan 3	Maki TANAKA	NOHORI																																1.83

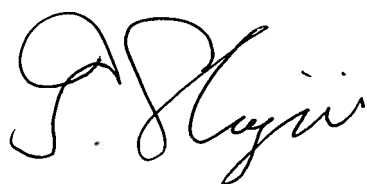
Manning schedule (2/2)

	Assignment	Name	Affiliation	2015												2016												2017						H/M										
				FY2015												FY2016												FY2017						Nepal	Japan									
				July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June																	
Nepal	Team Leader/Rehabilitation・ Reconstruction Project (Civil)	Yoshiki MIYAZAKI	OCG	■	■	■	■																			15(0.80)	15(0.80)	15(0.80)															1.50	
	Team Leader/Rehabilitation・ Reconstruction Project (Architecture)	Kazuhiko MIYATAKE	OCG	■	■	■	■																				10(0.33)	35(1.17)															1.50	
	Public Facility Construction Plan 1	Tomoki MIYANO	OCG	■	■	■	■																					6(1.00)															2.00	
	Public Facility Construction Plan 2	Tatsuo KOIKE	OCG	■	■	■	■																					6(1.00)														2.00		
	Water Supply Facility Rehabilitation Plan	*****	CTII	■	■	■	■																					6(1.00)														2.00		
	Road・Bridge Rehabilitation Plan 1	*****	OCG	■	■	■	■																					75(2.50)														2.50		
	Road・Bridge Rehabilitation Plan 2	*****	OCG	■	■	■	■																					6(1.00)														2.00		
	Power Distribution Facility Plan/Power Supply Ancillary Facility Design	Hiroshi OMURA	OCG	■	■	■	■																				30(1.00)	30(1.00)															2.00	
	Construction・Procurement Plan/Cost Estimation 1	Teruo SHIGESATO	OCG	■	■	■	■																				15(0.80)	45(1.60)														2.00		
	Construction・Procurement Plan/Cost Estimation 2	*****	OCG	■	■	■	■																					6(1.00)															2.00	
	Social and Environmental Consideration/Natural Condition Survey	Abrarshu POKHRELI	OCG	■	■	■	■																					6(1.00)															2.00	
	Project Coordinator/Public Facility Construction Plan 3/Aid Coordination/Training Plan 4	Nana YAMAGUCHI	OCG	■	■	■	■																					75(2.50)															2.50	
	Team Leader/QIPs	Atsuhiko YAMAMOTO	OCG	■	■	■	■																				30(1.00)	10(0.33)															7.67	
	Living Environment Improvement Activities (Including Debris Treatment) 1	Atsuko TSURUTA	OCG	■	■	■	■																				25(0.83)																2.50	
	Living Environment Improvement Activities (Including Debris Treatment) 2	Se KIUME	OCG	■	■	■	■																					30(1.00)																1.00
	Public Facility Building Plan/Design 1	*****	MOHORI	■	■	■	■																					75(2.50)															3.33	
	Public Facility Building Plan/Design 2	Senta FURUMORI	PCK	■	■	■	■																				25(0.83)	35(1.17)														2.00		
	Livelihood Improvement (Agriculture/Tourism) 1	Saburo MATSUI	OCG	■	■	■	■																					25(0.83)															0.83	
Livelihood Improvement (Agriculture/Tourism) 2	Naoto WATANABE	OCG	■	■	■	■																					25(0.83)															0.83		
Public Participation/Organizational Capacity Building	Akira NAKAMURA	OCG	■	■	■	■																					25(0.83)															0.83		
Construction・Procurement Plan/Cost Estimation/Implementation Supervision 1	Kunio KIZEN	OCG	■	■	■	■																				25(0.83)	25(0.83)														1.67			
Construction・Procurement Plan/Cost Estimation/Implementation Supervision 2	Shin AIKAWA	OCG	■	■	■	■																					25(0.83)															0.83		
Construction・Procurement Plan/Cost Estimation/Implementation Supervision 3	Yujiro IMASAWA	OCG	■	■	■	■																				30(0.67)															0.67			
Project Coordinator/Aid Coordination/Training Plan 5	Natsuki TAKEUCHI	OCG	■	■	■	■																																			3.50			
Total Work in Nepal																								145.61																				
Japan	Project Manager/Rehabilitation・ Reconstruction Plan	Ichiro KOBAYASHI	OCG	△																						5(0.30)														1.35				
	Seismic Resistant Related Legal System	*****	***		△																						6(0.30)													0.80				
	Team Leader/Rehabilitation・ Reconstruction Project (Civil)	*****	***			△																					6(0.30)													0.30				
	Team Leader/Rehabilitation・ Reconstruction Project (Architecture)	*****	***			△																					6(0.30)													0.30				
Team Leader/QIPs	*****	***			△																					6(0.30)													1.60					
Total in Japan																								4.35																				
Reporting				△																						ICR																		
Total																								145.61	4.35																			
Total																								149.96																				

Legend: ■ Work in Nepal
△ Work in Japan

RECORD OF DISCUSSIONS
ON
THE PROJECT ON REHABILITATION AND RECOVERY FROM
NEPAL EARTHQUAKE
IN
NEPAL
AGREED UPON BETWEEN
MINISTRY OF FINANCE
AND
JAPAN INTERNATIONAL COOPERATION AGENCY

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In response to the official request of the Government of Nepal (hereinafter referred to as "GON") to the Government of Japan, the Japan International Cooperation Agency (hereinafter referred to as "JICA") held a series of discussions with the Ministry of Finance (hereinafter referred to as "MoF") and National Planning Commission (hereinafter referred to as "NPC") and relevant organizations to develop a detailed plan of the Project on Rehabilitation and Recovery from Nepal Earthquake (hereinafter referred to as "the Project").

Both parties agreed the details of the Project and the main points discussed as described in the Appendix 1 and the Appendix 2 respectively.

Both parties also agreed that GON, the counterpart to JICA, will be responsible for the implementation of the Project in cooperation with JICA, coordinate with other relevant organizations and ensure that the self-reliant operation of the Project is sustained during and after the implementation period in order to contribute toward social and economic development of Nepal.

The Project will be implemented within the framework of the Agreement on Technical Cooperation signed on 3rd September, 2003 (hereinafter referred to as "the Agreement") and the Note Verbales to be exchanged between the Government of Japan (hereinafter referred to as "GOJ") and GON.

The effectiveness of the record of discussions is subject to the exchange of the Note Verbales and the approval of JICA.

Appendix 1: Project Description



PROJECT DESCRIPTION

I. BACKGROUND

A huge earthquake (M7.8) struck Nepal on 25th April, 2015 and caused large scale damage and casualties. Following series of aftershocks worsen damages, and many stone and mud houses across earthquake-hit districts were collapsed or destroyed by the disaster. Even though the epicenter of the earthquake was in Gorkha district, about 77km north west of the Capital city, the damage extends to all over Nepal. Out of 75 districts across the country, 14 districts were severely damaged and three areas, Kathmandu, Sindhupalchowk and Gorkha district were especially in bad situations. Around 8,631 peoples were killed, 16,808 people were wounded, about 500,000 houses were totally collapsed and around 270,000 houses were partially damaged as of (date).

The GON quickly took immediate responses to rescue casualties and rehabilitate damaged infrastructure. In addition, GON requested emergency assistances to the world. In response, many donors and countries expressed their sincere condolences for the earthquake victims, and committed to providing humanitarian and reconstruction assistances to Nepal. The Government of Japan (hereinafter referred to as "GOJ") also dispatched an Emergency Disaster Recovery Team from 27th April and had a series of discussions with the GON and donors, and extended rescue and medical services for those in immediate needs.

In parallel to these emergency relief operations, GOJ, JICA and GON organized a seminar featuring quick analyses of the earthquake disaster and Japanese experiences of disaster preparedness and recovery under the concept of "Build-Back-Better" (hereinafter referred to as "BBB concept"), which was also one of the major topics in the 3rd World Conference on Disaster Risk Reduction in Sendai in March 2015. The seminar was attended by around 400 government officials and early recovery / development partners. Japan's intention to support people of Nepal and assist in rebuilding Nepal to be more disaster-resilient society were well received by the audiences as Japan, one of the most earthquake prone countries in the world, shares similar experiences and has substantial expertise and know-how on how to cope with earthquake disasters.

Since then, JICA has been deploying several experts in earthquake engineering and urban and housing planning to conduct quick reviews on the situation on the ground, and make recommendations for GON officials and relevant cluster teams of the Post Disaster Needs Assessment (hereinafter referred to as "PDNA") how to incorporate BBB concept into the reconstruction planning processes as an overarching philosophy.

Humanitarian aid, which is jointly being provided by GON, non-governmental organizations and the United Nations intensively, is still in need even after almost two months after the earthquake. It is no doubt that the international



community need to continue these efforts in the coming several months as recovery progresses is likely to be sluggish than originally expected due to geological disadvantage, and rainy season is approaching before people finish reconstruction of their houses. At the same time, it is right time to move on to the next stage where GON, hand in hand with development partners, figures out how to reconstruct more resilient nation to cope with potential devastating earthquake in future.

To respond to such needs in timely and seamless manner, JICA is in preparation for extending further assistances in technical cooperation, grant aid and loan aid. It is aiming at addressing not only continuing urgent needs of people suffered from lack of basic social services such as medical, educational and water facilities, physical accessibilities and means of livelihood but also mid-to-long term reconstruction needs for resilient nation building through formulating a reconstruction master plan and developing infrastructure such as houses and schools. The Project will play a fundamental role in whole development interventions of JICA, and contains the components specified in "II. OUTLINE OF THE PROJECT".

II. OUTLINE OF THE PROJECT

1. Title of the Project

The Project on Rehabilitation and Recovery from Nepal Earthquake (hereinafter referred to as "the Project")

2. Expected Goals which will be attained after implementing the Proposed Plan

Rehabilitation and recovery from the earthquake will be enhanced, and disaster-resilient cities will be created through implementation of proposed rehabilitation and recovery plans.

3. Outputs

The outputs of the Project are as follows.

- (1) To develop resilient development plan in Kathmandu Valley and rehabilitation and recovery plan in Sindhupalchowk and Gorkha districts
- (2) To develop institutional capacities for disseminating resilient houses and public facilities by reviewing building codes and developing guidelines
- (3) To conduct surveys for making outline designs on public facilities and roads/bridges for formulating "Grant Aid Program"
- (4) To formulate and implement "Quick Impact Projects" to address urgent needs
- (5) To enhance technical capacity of Nepali counterpart personnel as well as relevant stakeholders throughout the project

4. Activities

- (1)-1 Set scenario earthquakes
 - (1)-2 Formulate "Resilient Development Plan in Kathmandu Valley"
 - (1)-3 Formulate "Rehabilitation and Recovery Plan in Sindhupalchowk and Gorkha District.
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- (2)-1 Review existing structural standards and codes for building and



- infrastructure, and institutional mechanisms for enforcement and propose measures for improvement
- (2)-2 Develop earthquake resilient building guidelines, especially for houses and schools
 - (2)-3 Review and propose enhanced subsidy mechanisms for dissemination of resilient houses and facilities
 - (2)-4 Conduct training for builders and stakeholders to effectively disseminate appropriate technology on house/school buildings

 - (3)-1 Create lists and profiles on emergency rehabilitation/recovery projects
 - (3)-2 Conduct outline design works, cost estimates, and implementing plans for "Grant Aid Program"

 - (4)-1 Implement projects which needs urgent rehabilitation and recovery among the priority projects listed in (3)-1 in order to regain public services and livelihood

 - (5) To conduct capacity development activities for Nepali counterpart personnel as well as relevant stakeholders throughout the project

5. Input

(1) Input by JICA

(a) Dispatch of Mission

For the implementation of the Project, JICA shall dispatch as its own expense, the member of the JICA missions to Nepal (hereinafter referred to as "JICA Mission"). Specialties of the Mission are broadly exemplified below (specialties may be subject to change)

- Rehabilitation/recovery plan
- Disaster resilient plan under BBB concept
- Structural engineering
- Risk/vulnerability assessment of building and infrastructure
- Land use plan
- Urban development management institutions
- Disaster evaluation and management
- Infrastructure plans and engineering designs (roads/bridges/water/waste water, power, public facilities (governmental buildings/hospitals/schools etc.))
- Tourism and cultural heritage recovery
- environmental and social consideration
- GIS and digital mapping
- Community empowerment
- Community disaster management
- Livelihood recovery and enhancement (tourism, agriculture, etc.)
- Housing subsidy and dissemination mechanism
- Capacity development

(b) Training



JICA will implement country specific training in Japan at least two times for the related persons for the Project

Input other than indicated above will be determined through mutual consultations between JICA and GON during the implementation of the Project, as necessary.

(2) Input by GON

GON will take necessary measures to provide the following items at its own expense:

- (a) Assign counterpart personnel and administrative personnel as well as mobilize relevant organizations to cooperate with and implement the Project in an effective manner;
- (b) Arrange suitable office space with necessary equipment;
- (c) Supply or replacement of machinery, equipment, instruments, vehicles, tools, spare parts and any other materials necessary for the implementation of the Project other than the equipment provided by JICA;
- (d) Information as well as support in obtaining medical service;
- (e) Credentials or identification cards;
- (f) Available data (including maps and photographs) and information related to the Project;
- (g) Running expenses necessary for the implementation of the Project;
- (h) Expenses necessary for transportation within Nepal as well as for the installation, operation and maintenance thereof; and
- (i) Necessary facilities to members of the JICA missions for the remittance as well as utilization of the funds introduced into Nepal from Japan in connection with the implementation of the Project

6. Implementation Structure

The project organization is described below. The roles and assignments of relevant organizations are as follows:

(1) NPC

As a designated institution for coordinating rehabilitation and recovery efforts of GON, NPC is the focal point for coordination and communication among relevant ministries and agencies of GON and the Mission throughout the Project implementation period. Major responsibilities of NPC are:

- Communicate with the Mission and coordinate with relevant ministries as a representing institution of GON for the Project implementation
- Monitor progresses of the Project and organize meetings with relevant organizations as necessary
- Assign responsible persons to JICA Mission
- Take a leading roles in GON to mobilize resources as necessary
- Take measures necessary to implement the Project as described 5. (2) above

NPC will assign one Project Director and responsible for overall coordination of the Project.

The Project Director may designate responsible officials within NPC to support administrative and managerial duties of the Project, and, in consultation with MOF, assign relevant organizations below to implement the Project in cooperation with the Mission.

(2) Relevant Organizations for the Project implementation

Since the Project covers wide range of administrations, several organizations described below need to take responsibilities under their respective jurisdictional limits.

- Ministry of Finance (hereinafter referred to as "MOF")
Responsible for endorsing the Project as GON and secure fiscal and budgetary measures as necessary
- Ministry of Urban Development (hereinafter referred to as "MOUD")
Responsible for urban development issues as a whole such as urban development planning and regulations, standard and code for building and infrastructure, utility services, housing, etc.
- Ministry of Federal Affairs and Local Development (hereinafter referred to as "MOFALD")
Responsible for development and management of districts outside Kathmandu Valley
- Ministry of Physical Infrastructure & Transport (hereinafter referred to as "MOPIT")
Responsible for developing, operating and maintaining infrastructure such as roads, bridges etc.
- Ministry of Education (hereinafter referred to as "MOE")
Responsible for education and relevant facilities
- Ministry of Home Affairs (hereinafter referred to as "MOHA")
Responsible for disaster preparedness, management and coordination
- Kathmandu Valley Development Authority (hereinafter referred to as "KVDA")
Responsible for urban planning and development management in Kathmandu Valley
- District Development Committee of Shindhupalchowk (hereinafter referred to as "DDC-S")
Rehabilitation and recovery plan and implementation of QIPs in Shindhupalchowk
- District Development Committee of Gorkha (hereinafter referred to as "DDC-G")
Rehabilitation and recovery plan and implementation of QIPs in Gorkha

Those organizations shall cooperate with JICA Missions as well as with each other for implementation of the Project by:

- Assigning responsible counterpart personnel to JICA Mission
- Providing technical advices and data pertaining to the Project
- Attend the meeting and make input as necessary throughout the Project
- Develop policies, institutions, technical standards etc. in cooperation

- with JICA Mission to achieve BBB concept
- Disseminate and implement the proposals and recommendations to be produced by the Project

(3) JICA Missions

The JICA experts will give necessary technical guidance, advice and recommendations to GON on any matters pertaining to the implementation of the Project.

(4) Joint Coordinating Committee

Joint Coordinating Committee (hereinafter referred to as "JCC") will be established in order to facilitate inter-organizational coordination. JCC will be held whenever deems necessary. Members are NPC and relevant organizations described above.

7. Project Site(s) and Beneficiaries

(1) Project Site(s)

Kathmandu Valley, Sindhupalchok District, Gorkha District.

(2) Beneficiaries

Relevant administrations, public organizations and general citizens in the Project sites

8. Duration

The Project will be carried out for approximately 24 months effective from the date of first arrival of the JICA Mission.

The schedule is tentative and subject to change when both parties agreed upon any necessities that may arise during the course of the Project.

9. Reports

JICA will prepare and submit the following reports to the NPC in English.

- (1) 20 copies of Inception Report at the commencement of the first work period in Nepal
- (2) 20 copies of Progress Report at the time of 3 months after the commencement of the first work period in Nepal
- (3) 20 copies of First Interim Report at the time about 9 months after the commencement of the first work period in Nepal
- (4) 20 copies of Second Interim Report at the time about 16 months after the commencement of the first work period in Nepal
- (5) 20 copies of Draft Final Report at the time about 21 months after the commencement of the first work period in Nepal
- (6) 30 copies of Final Report within one (1) month after the receipt of the comments on the Draft Final Report

10. Environmental and Social Considerations

GON will abide by 'JICA Guidelines for Environmental and Social Considerations' in order to ensure that appropriate considerations will be made for the environmental and social impacts of the Project.

11. Management of Safety for Construction Works

For construction works which will be carried out in the Project, GON and JICA will assure the management of safety in accordance with the "Safety Plan" and "Method Statements of Safety" submitted by contractors based on the Guidance for the Management of Safety for Construction Works in Japanese ODA Projects.

III. UNDERTAKINGS OF GON

1. GON will take necessary measures to:

- (1) ensure that the technologies and knowledge acquired by Nepal nationals as a result of Japanese technical cooperation contributes to the economic and social development of Nepal, and that the knowledge and experience acquired by the personnel of Nepal from technical training as well as the equipment provided by JICA will be utilized effectively in the implementation of the Project; and
- (2) grant privileges, exemptions and benefits including official visa to members of the JICA missions and their families, which are no less favorable than those granted to experts and members of the missions and their families of third countries or international organizations performing similar missions in Nepal.

Other privileges exemptions and benefits will be provided in accordance with Agreement on Technical Cooperation signed on 3rd September 2003 between GOJ and GON.

IV. MONITORING AND EVALUATION

JICA will conduct the following evaluations and surveys to verify how the proposed plan is utilized and draw lessons. The GON is required to provide necessary support for them.

1. Ex-post evaluation three (3) years after the project completion, in principle
2. Follow-up surveys on necessity basis

V. PROMOTION OF PUBLIC SUPPORT

For the purpose of promoting support for the Project, GON will take appropriate measures to make the Project widely known to the people of Nepal.

VI. Misconduct

If JICA receives information related to suspected corrupt or fraudulent practices in the implementation of the Project, GON and relevant organizations will provide JICA with such information as JICA may reasonably request, including information related to any concerned official of the government and/or public organizations of Nepal.

GON and relevant organizations will not, unfairly or unfavorably treat the person and/or company which provided the information related to suspected corrupt or

fraudulent practices in the implementation of the Project.

VII. MUTUAL CONSULTATION

JICA and GON will consult each other whenever any major issues arise in the course of Project implementation.

VIII. AMENDMENTS

The record of discussions may be amended by the minutes of meetings between JICA and GON. The minutes of meetings will be signed by authorized persons of each side who may be different from the signers of the record of discussions.



Appendix 2

Main Points Discussed

1. Outline of the Project (appendix 1) and details will be discussed and agreed with relevant Ministries and organization by the time of 1st Joint Coordination Committee (JCC).

End