

5-2. Capacity Building in Member Countries

5-2-1. Technical Cooperation Project in Nepal

5-2-1-1. Background of the Project

Nepal is located in the area of collision between the Indian plate and the Eurasian plate, which has been hit by earthquakes frequently. Kathmandu Valley, where the capital city of Nepal is located, has experienced several disastrous earthquakes, including the Bihar-Nepal earthquake of magnitude 8.4 which occurred in 1934, leading to collapse of approximately 20% of all buildings in Kathmandu Valley and 9,040 fatalities.

Despite the high risk of a future earthquake in Kathmandu Valley, countermeasures such as retrofitting of buildings for seismic resistance, land use control and application of the National Building Code have not been sufficiently promoted so far. Further, due to the rapid increase of population of Kathmandu Valley, increasing number of population could face the risks caused by extensions work on existing buildings and non-engineered buildings that constructed without the participation of knowledgeable and skilled architects and engineers.

With this background, it has become an urgent need to update the risk assessment for the future development plans and raise policies concern on the disaster risk management. Under the request from the government of Nepal, JICA formulated the “Project for Assessment of Earthquake Disaster Risk for the Kathmandu Valley” and decided to start the project activities from the end of April 2015 and ADRC contributed to it.

On April 25, 2015, just before the commencement of the project, the Gorkha earthquake of Mw7.8 (USGS) occurred at the boundary of the Indian Plate and the Eurasian Plate with its epicenter approximately 76km west of Kathmandu. This earthquake brought heavy damages in a wide range of area; more than 8,600 people were killed and approximately 500,000 buildings were totally destroyed(See 5-2-2-1). Through a series of discussions with counterparts, the project component was partly modified in order to adapt to the post-earthquake situation and respond to the rehabilitation and recovery needs.

5-2-1-2. Outline of the Project

The outline of the project is as shown in the below table.

【Project Period】	April 2015 – October 2016 (Term 1) October 2016 – April 2018 (Term 2) (Total 3 years)
【Project Goal】	To implement the earthquake risk assessment for future scenario earthquakes with considering the earthquake environment after the Gorkha Earthquake, and to develop the DM plan for concrete and effective promotion on disaster risk management for future earthquakes.
【Project Target Areas】	Kathmandu Valley
【Expected Outputs】	[Output 1]: To conduct seismic hazard analysis based on scenario earthquakes utilizing the latest knowledge and create detailed ground model for Kathmandu Valley. [Output 2]: To conduct seismic risk assessment based on the results of seismic hazard analysis (Output1), and summarize as damage estimation by considering several occurrence scenes (time, date, season, etc.) [Output 3]: To enhance skills for updating risk assessment results in accordance with the social environment change in the future. [Output 4]: To formulate BBB recovery and reconstruction plan utilizing the results of hazard analysis, and disaster management plan based on the results of seismic risk assessment for the pilot municipalities.

In the fiscal year 2016, as one of the activities on “Standard Operation Procedure (SOP) Planning”, the existing SOPs in Nepal were reviewed. Then, using the result of the chronological survey on the emergency response activities of the disaster management organizations at national level and in the pilot municipalities in the case of the Gorkha Earthquake, the first version of the SOP for municipality level was drafted. Also, as the activities on the “Community Based Disaster Risk Management (CBDRM)”, a 3-day CBDRM training for the municipality officers in pilot areas was organized. After the training, pilot activities for the CBDRM in the pilot communities were discussed and coordinated among the stakeholders.



Fig. 5-2-1 First Version of the SOP for Municipalities



Fig. 5-2-2 CBDRM Training for Municipality Officers

(Source: JICA Project for Assessment of Earthquake Disaster Risk for the Kathmandu Valley in Nepal)

5-2-2. Project on Rehabilitation and Recovery from Nepal Earthquake

5-2-2-1. 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.

5-2-2-2. Outline of the Project

The outline of the survey is as shown in the below table.

【Survey Period】	July 2015 – March 2019
【Survey Goal】	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 learnt of the disasters and reconstruction in Japan.
【Target Areas】	Damaged area: Gorkha, Sindhupalchok Capital: Kathmandu area
【Basic Policy of the Survey】	1) Formulation of national level and district level plans 2) Promotion and dissemination of seismic resistant buildings and structures 3) Formulation of prioritized reconstruction project (Program grant aid) 4) Formulation and implementation of Quick Impact Projects (QIPs)

ADRC has dispatched the experts on “Community Based Disaster Risk Management(CBDRM)” to conduct the CBDRM workshops for Disaster Risk Reduction (DRR) awareness and establishment of Early Warning Systems (EWS) at areas of high risk of landslide. Followings are example of activities at local.

Landslides are one of the most familiar natural disaster in Nepal, because many Nepali live at slope areas with terraced field. It means Nepali people are living with risk of landslides. However, there are no Landslide EWS in Nepal. Therefore, to protect lives at high risk communities, community awareness and community based disaster risk reduction are necessary. JICA project team held a DRR seminar at Kerabari village, Syaule, Sindhupalchok in collaboration with Department of Water Induced Disaster Prevention: DWIDP, with participation of more than 50 villagers including the village leader and school teacher. Kerabari villagers have lost some friends and families caused by a big landslide at the Nepal earthquake on 25th April 2015.



Fig. 5-2-3.DRR workshop at local community

After that, a settlement affected by the landslide moved to safer places within the village by their own judgment. And the landslides experts from Japan highly recommended establishing EWS including monitoring systems at the top of the hill to catch the signal of future landslides. Participants learnt the basic knowledge of landslides, and set a simplified rain gauge, an angle meter, and an extension meter. Participants deepened their understanding of self-evacuation and alerting the local government in case of abnormal value based on self-monitoring. It was a pilot case of the DRR education at community level, therefore JICA project team hopes that the seminar and contents will be revised and formulated as a sustainable activity in Nepal in collaboration with landslide experts and other related organizations of EWS.

5-2-3. Data Collection Survey of Disaster Protection and Prevention in Mongolia

5-2-3-1. Background of the Survey

In Mongolia, especially in the western part, occurrence of the several large-scale earthquakes of magnitude 8.0 or the similar scale has been recorded in the earthquake chronology. Recently three active faults were discovered in the suburbs of Ulaanbaatar (UB) city, capital of Mongolia, and also the number of both unfelt and felt earthquakes in UB city has increased. These situations raise concerns about the increased risk of earthquake in Mongolia.

Under such circumstance, JICA extended the cooperation for the Emergency Management Department of the Capital City (EMDC) through “The Project for Strengthening the Capacity of Seismic Disaster Risk Management in Ulaanbaatar City” from February 2012 to October 2013 and provided the following support: 1) drawing up the comprehensive earthquake risk map, 2) reviewing the Earthquake Disaster Prevention Plan and giving a proposal for its revision, 3) Drawing up the Guidelines for Seismic Resistance of Mid-to-high-rise Buildings, and 4) cultivation of human resources for DRR.

In the light of the consequence of the technical cooperation, in 2013, the National Emergency Management Agency (NEMA) of the central government of Mongolia requested to the Government of Japan to provide aid for the following technical cooperation project. Since the contents of the request were wide-ranging, JICA conducted a field survey in February 2014. The survey concluded need for the improvement of legal system, human resource development, public awareness and information sharing for quality control of building construction as issues of priority in the field of improvement of seismic resistant construction.

While more than two years passed since the above request was made by the NEMA, the government of Mongolia accelerated various their-own efforts for disaster risk reduction. Also, in March 2015, the third UN World Conference on DRR was organized and the Sendai Framework for DRR 2015-2030 was adopted in the Conference. Consequently, it was needed to reconsider the support strategy to Mongolia in line with the global movement based on the Sendai Framework and by reviewing the requests not only on seismic resistant construction measures, but also on overall earthquake DRR measures. Against this background, “Data Collection Survey of Disaster Protection and Prevention in Mongolia” was conducted for reviewing and analyzing the latest information on DRR measures and efforts.

5-2-3-2. Outline of the Survey

The outline of the survey is as shown in the below table.

【Survey Period】	February – November 2016
【Survey Goal】	To review current situation and issues for earthquake disaster risk reduction measures in Mongolia. To reexamine the request from the government of Mongolia and propose support strategy by JICA for serving the consideration of the next project.
【Target Areas】	Whole of Mongolia (Research Base: UB city)
【Basic Policy of the Survey】	1) To analyze issues and challenges for earthquake DRR measures from the comprehensive perspective 2) To consider contents for technical cooperation for demonstrating and maximum utilizing leading technology in Japan 3) To propose support contents in line with the Sendai Framework for DRR and based on the current situation of Mongolia
【Items of the Field Survey】	<ul style="list-style-type: none"> • Past earthquake history and damage situation • Earthquake occurrence probability and damage estimation • Earthquake observation and early warning • Earthquake risk map • Law, regulation, policy, DRR plan • Disaster management system and social capitals • Disaster information • Emergency response system • Information collection on the situation of mainstreaming of DRR • Seismic protection construction standards and construction administration • DRR education • Project related to Urban Master Plan in UB city • On-going and past DRR-related projects of other donors, possibility of collaboration, duplication with the requested activities

ADRC dispatched the expert on “DRR Education” in this survey to review and analyze current situation and issues to be addressed in the field of DRR education in Mongolia. Also, based on the survey result, priority activities to be conducted in the next project were proposed.



Fig. 5-2-4 Observation Visit to the Public DRR Training Center under Construction



Fig. 5-2-5 Interview Survey in Emergency Management Department in UB City (EMDC)

(Source: JICA Data Collection Survey of Disaster Protection and Prevention in Mongolia)

5-2-4. Technical Cooperation Project in Mongolia

5-2-4-1. Background of the Project

In 2013, the National Emergency Management Agency (NEMA) of the central government of Mongolia requested the Government of Japan to provide aid for the technical cooperation project aiming to promote disaster management abilities related to earthquakes in Mongolia. JICA conducted the Data Collection Survey of Disaster Protection and Prevention in Mongolia (refer to the section 5-2-3) from February 2016, and collected relevant information. Through the survey, JICA coordinated opinions with the Mongolian government and modified the contents of the request above to the ones focusing on strengthening the ability of NEMA. Then, in May 2016, the modified request was finally adopted by the government of Japan. Subsequently, JICA dispatched the Detailed Planning Study Team, and according to the result of the study, JICA and NEMA agreed on the details of the Project named “The Project for Strengthening the National Capacity of Earthquake Disaster Protection and Prevention in Mongolia”, and started the project activities from November 2016.

5-2-4-2. Outline of the Project

【Project Period】	November 2016 – January 2020 (3 years)
【Project Goal】	The capacity of the National Emergency Management Agency will be enhanced through the activities for strengthening the countermeasures for seismic risk.
【Expected Outputs】	Output 1: Capacity for data collection on disaster risk reduction and coordination among related organizations will be enhanced. Output 2: Capacity of public administration officer related to the seismic assessment and seismic strengthening of buildings will be enhanced. Output 3: Implementing a plan on disaster risk reduction education and awareness raising activities will be developed and realized.

ADRC dispatched the expert for taking the leadership of the overall activities to achieve above mentioned “Output 3” in this project. Also, the following activities related to the School DRR are the main responsibilities of the ADRC;

- Development of Guideline for DRR Education in Pre-School, Elementary School, And Junior High School,
- Development of Educational Materials for DRR Education in Pre-School, Primary School, and Junior High School,
- Implementation of Training Program for Teacher Instructors, and
- Indirect Support for Implementation of Training Program for Teachers and School Staff Members

In the fiscal year 2016, as an initial activity, Japanese School DRR Education guideline was introduced, and the survey on current situation of DRR contents in the school education in

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Mongolia was initiated. Further, the training program for the project counterpart persons was organized in Japan in March 2017 for learning Japan's DRR efforts, including School DRR education.



Fig. 5-2-6 Introduction of DRR-related Contents in Japanese School Texts



Fig. 5-2-7 Training in Japan: Field Visit to Disaster Reduction and Human Renovation Institute (DRI)

(Source: Project for Strengthening the National Capacity of Earthquake Disaster Protection and Prevention in Mongolia)