MINUTES OF MEETING
ON
THE FIRST JOINT COORDINATING COMMITTEE MEETING
FOR
THE PROJECT FOR STRENGTHENING THE NATIONAL CAPACITY OF EARTHQUAKE DISASTER PROTECTION AND PREVENTION IN MONGOLIA

Joint Coordinating Committee (hereinafter referred to as "JCC") for the Project for Strengthening the National Capacity of Earthquake Disaster Protection and Prevention in Mongolia (hereinafter referred to as "the Project") held its first meeting on 7th of December, 2016 from 9:00 to 11:30, at Conference Room of National Emergency Management Agency (hereinafter referred to as "NEMA"), Ulaanbaatar, Mongolia, chaired by Mr. Batmunkh Uuganbayar Director of Disaster Operation Department, NEMA (for Mr. Badral Tuvshin, Chief and Brigadier General, NEMA), and supported by Mr. Kiyotaka Owada representing the Expert Team dispatched by the Japan International Cooperation Agency (hereinafter referred to as "JICA"). JCC members were invited and attended to the JCC. The list of the participants and agenda of the meeting are provided in Annex 1 and Annex 2, respectively.

The main subjects discussed and agreement made at the meeting are summarized in the attached document hereto.

Ulaanbaatar, December 7, 2016

沢田博美

Ms. Hiromi Sawada
Senior Representative
Mongolia Office
Japan International Cooperation Agency
Japan

Mr. Badral Tuvshin
Chief, Brigadier General
National Emergency Management Agency
Mongolia

大和田清隆

Mr. Kiyotaka Owada
Team Leader ,
JICA Expert Team

ATTACHED DOCUMENT

1. Members of JCC

It was announced that NEMA and JICA had determined the members of JCC as shown in Annex 3, according to the Appendix 2 of the Record of Discussions signed on July 8, 2016 (hereinafter referred to as "R/D").

2. Work Plan

The JICA Expert Team submitted the Work Plan of the Project to Mongolian side and explained the contents of the Work Plan as well as methodology to Mongolian side as shown in Annex 4. Mongolian side and JICA Expert Team agreed that the Work Plan was basically reflecting the contents agreed on R/D and confirmed the master plan of the project as they were specified in the Project Design Matrix (hereinafter referred to as "PDM").

The Mongolian side accepted the Work Plan and significance of dissemination and awareness-raising of guidelines prepared through the Project to organizations related to disaster management and residents in Mongolia is conveyed as additional consideration and following topic is confirmed in the JCC.

(1) It should be considered by each Working Group that the implementation period of activities for dissemination and awareness-raising of guidelines will be implemented during 2019.

3. Monitoring Sheet I & II "Ver. 1"

In the course of the project, monitoring of the project will be carried out by using Monitoring Sheet I & II "Ver. 1" to evaluate the progress of the activities on the project as shown in Annex 5.

JICA Expert team explained the format of Monitoring Sheet I &II "Ver. 1". JCC has agreed the format of Monitoring Sheet I & II "Ver. 1" to be utilized in the project.

JICA Expert Team requested the cooperation of the formulation of Monitoring Sheet I & II "Ver. 1" to work with to evaluate the progress of the project.

4. Nominating of Officers for the Working Group Members

According to R/D, the project organization of Mongolia side includes counterpart (hereinafter referred to as "C/P") working groups (hereinafter referred to as "WG") in order to implement project activities at output level of the project.

Mongolian side submitted the member list of the C/P WG in order to transfer the knowledge and work closely with JICA Expert team. JCC members agreed the members of WG as shown in the Annex 6.

5. Amendment of the administration authorities concerned of Mongolia

The Mongolian side proposed the amendment of administrative personnel as referred to in II-2 (2) of the Appendix 1 of R/D, signed on July 8, 2016 to substitute Deputy Chief of NEMA for Director of Disaster Operation Department of NEMA as Project Manager. JCC requested the amendment of R/D as the draft Minutes of Meeting shown in Annex 7.

6. Second JCC meeting

JCC members agreed that the next JCC meeting will be tentatively scheduled in the second quarter of 2017 in Ulaanbaatar.

7. Question and Answer on the JCC

JICA and JICA Expert Team responded to the questions of JCC members as shown in Annex 8.

Annex 1: List of participants
Annex 2: Agenda of the JCC meeting
Annex 3: List of the member of JCC
Annex 4: Work Plan
Annex 5: Monitoring Sheet I & II "Ver. 1"
Annex 6: Working Group Member List
Annex 7: Draft Minutes of Meeting for Amendment of R/D
Annex 8: Question and Answer in the JCC meeting

Annex 1: List of Participants

The Project for Strengthening the National Capacity of Earthquake Disaster Protection and Prevention in Mongolia

Date: 2016 · 12 · 7 9:00~ 11:30

Place: NEMA Conference Room (1st Floor)

Title of Meeting: JCC. Agenda for the 1st JCC meeting

Name	Department, Organization	E-mail/Tel	Signature
T. Badral	NEMA director		
L. Saynaa	Advisor to the deputy prime minister	88110119 saynaa@cabinet.gov.mn	
S. Magnaisuren	Ministry of Construction and Urban Development	99113143 Eb_enga@yahoo.com	
B. Uuganbayar	NEMA	b_ubayar@yahoo.com	
Yo. Jargalsaikhan	National Security Council	jargalsaikhan@nsc.gov.mn	
L. Ulziibayar	NEMA	ulziis609@yahoo.com	
D. Jargal	State Professional Inspection Agency	Fluke 99176069.	
Z. Munkh-Orgil	Ministry of Finance		
G. Myagmar	Ministry of Education, Culture, Science and Sports	9909-4743 gmyagmar@mecs.gov.mn	
P. Bayarkhuu	UB deputy mayor	99111893	
N. Ulambayar	EMDC		
G. Enkhtuya	Department of capital city planning and master planning, UB City	99016187.	
M. Sato	JICA Mongolia office		
H. Sawada	JICA Mongolia office	Sawada.Hitomi@jica.go.jp	
Yu. Hosokawa	JICA Headquarter	Hosokawa.Yukinori@jica.go.jp	
	The Embassy of Japan in Mongolia		
TAKEYO Kimio	JICA HQ		
Kiyotaka OWADA	JICA Expert Team Leader		
Y. Sakamoto	JICA Mongolia Office	Sakamoto.Yoshimasa@jica.go.jp	

Hideto Omine			[signature]
Masahide Aoki			青木雅秀
Shiro Makita			槇田史郎
B. Khishigbaatar.		93120121.	[signature]
Баярмаа	ОБЕГ БЭХАБ	62263004	[signature]
[illegible]			
[illegible]	НЗД-ын орлогч дарга	88083738	[signature]
[illegible]	НЗД-н орлогч [illegible]	99908187	[signature]
Miki Kodama			[signature]
Kensuke Ichikawa			[signature]
Seiichiro Fukushima			[signature]
Akihiro Furuta			古田明広
Toshikazu Hiraoki			[signature]
Nayanbaatar Anarjargal		99277766	[signature]

[signature] [signature] [signature]

Annex 2: Agenda of the JCC Meeting

Agenda for the 1st Joint Coordinating Committee (JCC) Meeting on the Project for Strengthening the National Capacity of Earth Disaster Protection and Prevention in Mongolia

Date: 7 December 2016

Time: 9:00～11:00

Venue: NEMA Conference Room (1st Floor)

No.	Time	Agenda	Presenter
	8:30-9:00	Registration	
1	9:00-9:05	Welcome and presentation on Project Highlights	*Brigadier general Badral Tuvshin, Chief, NEMA*
2	9:05-9:10	Opening Remarks from JICA	*Ms. Hiromi Sawada* *Senior Representative, JICA Mongolia Office*
3	9:10-9:20	Explanation of Work Plan, Project Outline	*Mr. Kiyotaka Owada* *Team Leader, JICA Project Team* *Mr. Akihiro Furuta* *Deputy Team Leader, JICA Project Team*
4	9:20-9:35	Explanation of Work Plan, Disaster Protection and Prevention Planning (Output1)	*Mr. Kensuke Ichikawa* *JICA Project Team*
5	9:35-9:50	Explanation of Work Plan, Earthquake-resistant Construction (Output2)	*Mr. Seiichiro Fukushima* *JICA Project Team*
6	9:50-10:05	Explanation of Work Plan, Disaster Protection and Prevention Education (Output3)	*Ms.Miki Kodama* *JICA Project Team*
7	10:05-10:15	Pre-Disaster Investment for Resilient Sociaety Mongolia	*Mr. Kimio Takeya* *JICADistinguished Technical Adivisor*
	10:15-10:30	Tea/Coffee Break	
8	10:30-10:55	Discussion on Agenda - Work Plan - Monitoring Sheet Ⅰ&Ⅱ "Ver. 1" - Working Group Member - Schedule for Next JCC Comments from JCC Members	*All Participants*
9	10:55-11:00	Closing Remarks from NEMA	*Lieutenant Colonel Ulziibayar Luvsansharav* *Director of Policy Coordination and Cooperation Department, NEMA*
10	11:00-	Lunch	

Annex 3: List of the member of JCC

JCC Members

	Name	Job title
Chairperson	Tuvshin Badral	Chief of NEMA / Brigadier general
Members of Mongolian side	L. Saynaa	Advisor in charge of Emergency Management of Deputy Prime Minster
	Sandag Magnaisuren	State Secretary of Ministry of Construction and Urban Development
	B. Uuganbyar	Director of Disaster Operation Department, NEMA
	Yondonsuren Jargalsaikhan	Referent of National Security Council
	Luvsansharav Ulziibayar	Director of Policy Coordination and Cooperation Department, NEMA
	Dorjnyam Jargal	Director of infrastructure and State Inspection Department, General State Inspection Agency
	Z. Munkh-Orgil	Officer of Aid Policy Division, Development Financing and Debt Management Department, Ministry of Finance
	G. Myagmar	Director, Division of Preprimary and Primary Education of Ministry of Education, Culture, Science and Sports
	P. Bayarkhuu	Vice Mayor of the Capital City in charge of Urban Development
	N. Ulambayar	Director of Emergency Management Department of the Capital City (EMDC)
	Gombosuren Enkhtuya	Director of Construction Quality and Safety Division, Master Planning Agency of Capital City
Members of Japanese side	Mutsumi SATO	Chief Representative of JICA Mongolia office
	Hiromi SAWADA	Senior Representative of JICA Mongolia office
	Yukinari HOSOKAWA	Officer in charge of the Project of JICA headquarter
Observer		The Embassy of Japan in Mongolia

NATIONAL EMERGENCY MANAGEMENT AGENCY (NEMA)
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

THE PROJECT FOR STRENGTHENING THE NATIONAL CAPACITY OF EARTHQUAKE DISASTER PROTECTION AND PREVENTION IN MONGOLIA

WORK PLAN

DECEMBER 2016

ORIENTAL CONSULTANTS GLOBAL CO., LTD.
KOKUSAI KOGYO CO., LTD.
OYO INTERNATIONAL CORPORATION
ASIAN DISASTER REDUCTION CENTER

Table of Contents

Tables

Page

Figures

Page

【Abbreviations】

ADPC	Asian Disaster Preparedness Center
C/P	Counterpart
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
EMDC	Emergency Management Department of the Capital City
GIS	Geographic Information System
GL	Guideline
IAG	Institute of Astronomy and Geophysics
JICA	Japan International Cooperation Agency
MECSS	Mongolian Ministry of Education, Culture, Science and Sports
MECSS	Ministry of Education, Culture, Science and Sports
MCUD	Ministry of Construction and Urban Development
MRCS	Mongolian Red Cross Society
MSK	Medvedev-Sponheuer-Karnik Intensity Scale
MUST	Mongolian University of Science and Technology
NEMA	National Emergency Management Agency
NGO	Non-Governmental Organization
PC	Precast Concrete
PDM	Project Design Matrix
RC	Reinforced Concrete
TOT	Training of Trainers
USUG	Ulaanbaatar Water Supply and Sewerage Authority
UNDP	United Nations Development Programme
UNISDR	United Nations International Strategy for Disaster Reduction
WBS	Work Breakdown Structure
WG	Working Group

1. Outline of the Project

1.1 Background of the Project

In Mongolia, especially in the Western part, the earthquakes in the magnitude 8 class have been recorded since the 20th century and recently the earthquake risk has been increasing, because in recent years, three active faults, the Hustai Fault, the Emeelt Fault and the Gunjin Fault, were discovered near Ulaanbaatar, the capital of Mongolia, which is densely concentrated with half of the Mongolian people, and the number of both unfelt and felt earthquakes has increased.

Under such circumstance, Japan International Cooperation Agency (JICA), extended the following cooperation for the Emergency Management Department of the Capital City (EMDC) through the technical cooperation for development planning named "The Project for Strengthening the Capacity of Seismic Disaster Risk Management in Ulaanbaatar City ('the previous project' in the following)" from February 2012 to October 2013 and provided the support shown below:

- Drawing up the comprehensive earthquake risk map based upon earthquake risk evaluation, building risk assessment, existing structure risk assessment and fire risk assessment
- Reviewing the Earthquake Disaster Prevention Plan and giving a proposal for its revision
- Drawing up The Guidelines for Seismic Resistance of Mid-to-high-rise Buildings
- Cultivation of human resources (training in Japan, educational activities, awareness raising events and campaigns)

As a consequence of this technical cooperation, concrete proposals were compiled regarding the laws, systems and organizational structures concerning earthquake disaster prevention, earthquake disaster prevention plan, communication and contact control in case of disaster, earthquake observation system, regulations of land use and development, earthquake resistance of buildings and infrastructure, and Community Based Disaster Risk Reduction.

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 ('the Project' in the following) aiming to promote disaster management abilities related to earthquakes in Mongolia. Because the contents of the request were wide-ranging, JICA conducted the Data Collection Survey of Disaster Protection and Prevention in Mongolia ('the preceding research' in the following). Through the preceding research above, JICA coordinated opinions with the Mongolian government and modified the contents of the request above to strengthen 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 survey, JICA and NEMA agreed on the Record of Discussions ('R/D' in the following), which describes the details of the Project.

1.2 Purpose of the Project

(1) Project Name

The Project for Strengthening the National Capacity of Earthquake Disaster Protection and Prevention in Mongolia.

(2) Overall Purpose

Seismic risk will be reduced.

(3) Project Purpose

The capacity of the National Emergency Management Agency will be enhanced through the activities for strengthening the countermeasures for seismic risk.

(4) Project 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.

(5) Target Area

The target area of the Project is all over Mongolia. The pilot Areas for update and revision of the Disaster Management Plan are National Level, Ulaanbaatar City and two provinces as referred to in the record of discussion (R/D).

(6) Related Authorities and Organizations

A. Counterpart ("C/P") Organizations

The main counterpart organization is NEMA, and other related organizations involved in the pilot activities are also counterpart organizations which receive the benefit from the Project through NEMA.

B. Beneficiaries

Direct Beneficiaries: NEMA; Ministry of Construction and Urban Development (MCUD); Ministry of Education, Culture, Science and Sports (MECSS); National Inspection Agency; Construction Quality and Safety Department; City Planning and Master Planning Agency of Capital City.

Indirect Beneficiaries: All Mongolian people.

1.3 Current Situation and Challenges Facing Mongolia

(1) Responding to Changes in the Sense of Crisis for Earthquakes

Seismic observations by the Institute of Astronomy and Geophysics (IAG) of the Mongolian Academy of Sciences shows more seismic activity in and around Ulaanbaatar in recent years. Many of the hypocenters of such earthquakes have concentrated along adjacent active faults. In October 2015, a perceptible earthquake occurred in the UB City center, making UB citizens nervous. According to IAG's newly-defined scenario seismic intensity zones in the in the center of UB city, an earthquake with an intensity of up to 9 on the MSK scale (equivalent to an intensity of lower 6 on the Japan Meteorological Agency scale of 0-7) might strike the city center, triggered by an active fault. This has heightened a sense of crisis. This and other factors have prompted NEMA to review the Disaster Management Law, which focuses on preventive measures against dzuds (severe winter conditions) as well as emergency responses to fires. NEMA intends to expand the scope of the disaster management policy to include earthquake. The bill to revise the current law will be deliberated in the parliament in the autumn of 2016. This initiative has raised expectations for NEMA to exercise leadership among many other related organizations. NEMA needs to improve preparedness with limited human resources.

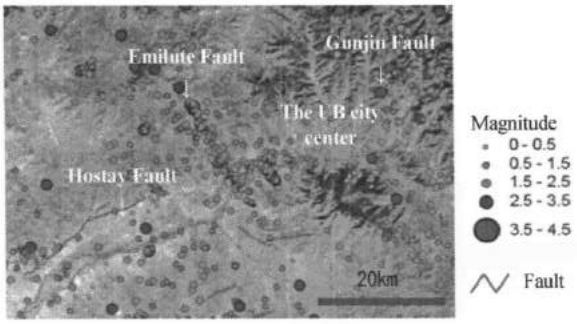


Figure 1.3.1 Distribution of Epicenters in and around UB (from 1996 onward)

Table 1.3.1 Comparison between the Current and Revised Disaster Management Laws

Current Disaster Law	Revised Disaster Law
Disaster drills	Disaster prevention activities
	Disaster risk assessment
	Disaster prevention plan
Preparedness	Preparedness
	Implementation of risk management
	Training and awareness-raising for disaster management
	Disaster risk and DB
	Establishment of a fund
Emergency response	Activities in disasters
	Coordination and management of disaster management activities
Duties and powers	Powers of administrative agencies
Disaster prevention operations	Roles of related organizations
	Humanitarian assistance

(2) Responding to the Scenario Earthquake

Amid a growing sense of crisis for a possible earthquake disaster, MCUD asked IAG to review the scenario seismic intensity zones in 2016. As a result, the seismic intensity of the scenario earthquake was upgraded one notch on the MSK scale from the 1999 scenario. It is therefore urgently necessary to reassess the seismic performance of buildings in order to prepare for the earthquake. The revised construction law of 2016 requires all construction permit applicants to submit a design document for buildings to be constructed in the new scenario seismic intensity zones of 7 or more on the MSK scale. The new requirement has made it urgent to develop seismic assessment standards for the domains not covered under the current regulations. For its part, the State Professional Inspection Agency is responsible for assessing the use of buildings as well as infrastructural structures and lifelines based on seismic assessment under the new construction law. Seismic assessment as mentioned above needs to be implemented promptly. Yet Mongolia's government departments have only limited human resources that have required technical capabilities. It is necessary to build a structure for implementing such assessment.

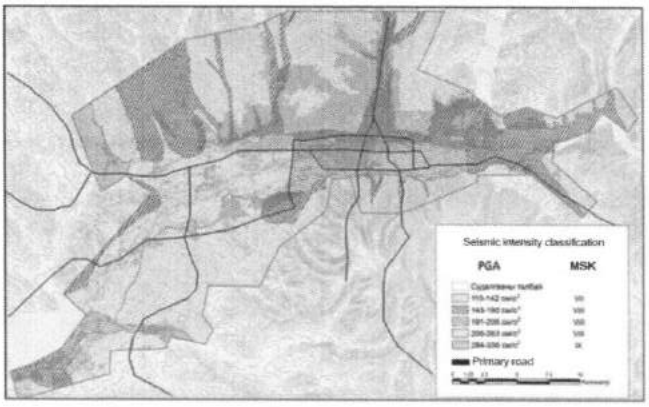


Figure 1.3.2 New Scenario Seismic Intensity Zones in the Center of UB

(3) Practicing DRR education

School education in Mongolia touches on disaster risk reduction (DRR) in some subjects. In some schools, DRR is part of their curricula. In such cases, DRR is taught within the "learning support activity," where schools or teachers can select some of the teaching contents at their own discretion. Many of the schools that engage in DRR education of their own accord are former pilot schools under DRR education projects by donor agencies. This state of affairs suggests the need for a systematic program on DRR.

As for community DRR education, NEMA and EMDC formulate and implement the annual plans for disaster drills as well as training and awareness-raising on DRR. However, such plans have failed to raise public awareness on community DRR in cooperation with related organizations including Non-Governmental Organization (NGO) due in part to the inadequate involvement of potential key players in the activity for community based disaster risk reduction.

The Revised Disaster Management Law calls for DRR education in school education based on the education program as part of the implementation of training and awareness-raising for disaster management. It also requires the heads of sums or khoroos to take charge of community DRR education under the supervision of NEMA, aimags, districts, and cities. In addition, the new law provides that DRR education be implemented in cooperation with NGOs as appropriate. All these provisions point to three requirements: (i) institutionalizing a DRR education curriculum in school education at the initiative of NEMA; (ii) nurturing key players in

community-based disaster risk reduction and promoting coordination among them; and (iii) providing effective teaching materials that will support these activities.

(4) Dealing with the Details of the Request from the Mongolian Government that Build on the Identified Issues in Earthquake Disaster Management in Mongolia

Both in the preceding research and at the R/D meeting, the Mongolian government identified the request details that address the issues shown in the table below, with the project purpose being to develop the capacity of the national disaster management agency through the process of strengthening preventive measures as part of earthquake disaster management. A high level of interest that related organizations in Mongolia have shown in Japan's earthquake disaster management measures suggests that Japan's experience and expertise should be fully taken advantage of in project implementation.

Table 1.3.2 Details of the Request from the Mongolian Government

	Issues (key issues identified and sorted out at the time of the visit)	Request details (agreed upon in the preceding research)
Disaster management plan	• Developing disaster management laws and regulations to improve disaster prevention activities in the National disaster management plan; strengthening disaster management administration through the revision of the Plan	• Drawing up different sets of guidelines (GL) in association with the revision of the Disaster Management Law with the main purpose of increasing and improving disaster prevention activities; providing support for implementing these guidelines
	• Strengthening cooperation among disaster management related agencies	• Supporting the identification of the details of agreements between NEMA and related organizations
	• Monitoring, improving and reporting on the implementation of the disaster management plan; improving the information disclosure system • Increasing the capacity to collect, examine and analyze information related to disaster management	• Issuing a white paper so as to share, monitor, evaluate, and disclose disaster management information • Improving the existing systems for collecting, examining, and analyzing disaster management information
Seismic resistance	• Improving the capacity to assess seismic resistance of buildings	• Conducting seismic diagnosis on buildings, infrastructures, and lifelines; providing expertise in seismic strengthening of buildings; supporting the development of standards
	• Promoting seismic strengthening of buildings	• Supporting both the development of standards for seismic strengthening of buildings and the application of methods
DRR education	• Developing DRR education curricula and related teaching materials for school education; improving the capacity of teachers	• Developing guidelines and teaching materials on DRR education for kindergartens, schools, and communities; and supporting the practical application of them
	• Conducting education and awareness-raising activities for risk reduction to strengthen the disaster management capacity of communities	• Developing teaching materials on DRR education for residents in the capital and provinces; helping government officials responsible for disaster management in providing training

2. Basic Policies of the Project Implementation

Based on the understanding of background of the Project (section 1.1), project purpose and outputs (section 1.2) and important considerations in implementation such as current situation and challenges facing Mongolia (section 1.3), this chapter discusses basic policies for the project implementation from the technical and operational perspectives.

2.1 Basic Policies for Project Implementation from the Technical Perspective

Basic Technical Policy 1: Achieving capacity development and strengthening leadership by acquiring planning and executing abilities based on planning techniques
Basic Technical Policy 2: Creating and strengthening seismic-resistant technologies that fit the realities in Mongolia
Basic Technical Policy 3: Supporting the implementation of the Sendai Framework for Disaster Risk Reduction by taking advantage of Japan's experience and expertise
Basic Technical Policy 4: Transferring technology with a view to supporting sustainability

Basic Technical Policy 1: Achieving capacity development and strengthening leadership by acquiring planning and executing capabilities based on planning techniques

The Project sees activities for Output 1 (NEMA's "Capacity for data collection on disaster risk reduction and coordination among related organizations will be enhanced.) as the central set of activities. In carrying out these activities, the expert team will encourage NEMA to adopt a series of planning techniques--issue analysis, policy drafting, coordination, and implementation, as explained in the next paragraph--to develop the capacity and strengthen the leadership of NEMA as a policy drafting and implementing agency with adequate planning and executing capabilities.

In the area of disaster management plan, the Project will first encourage NEMA to acquire issue identification capabilities using an Issue Analysis Sheet (IAS) in the process of setting the operational agenda for the prevention-related provisions of the Revised Disaster Management Law. Then NEMA will draw up measures to address prevention-related issues through the formulation of varies prevention-related GLs with the help of the input of Japan's expertise and experience. In the formulation process, NEMA will acquire policy drafting and coordinating capabilities while defining two processes--(i) revising the existing operational rules and regulations that are needed to implement such measures or even formulating new ones as appropriate, and (ii) drafting needed agreements between related organizations--as two of the issue-solving methods. Activities in the areas of seismic resistance and DRR education will be practiced within the framework of a pilot project designed to build the planning and executing capabilities of NEMA under the Project, because matters related to these activities are urgently required as disaster prevention activities under the Revised Disaster Management Law. This arrangement will encourage NEMA to participate of its own accord as an activity to put disaster management policy into practice. In the process, NEMA will, as a disaster management agency of the central government, and improve its capacity to advise larger budgets for projects related to disaster management, advise other disaster management related agencies, and coordinate with and among these

agencies. In the process of formulating and revising relevant rules and regulations, the Project will also try to lead NEMA to meet the expectations that a legal framework should be established that will allow NEMA to involve in other organizations' projects related to disaster management.

Basic Technical Policy 2: Creating and strengthening seismic-resistant technologies that fit the realities in Mongolia

Output 2 of the Project will contribute to the earthquake resistance improvement of buildings, infrastructures, and lifelines as a basic for disaster prevention in Mongolia. For this reason, the Project will largely apply earthquake resistance improvement technologies of Japan, which is advanced in this technical area. The technologies to be thus applied should be feasible in Mongolia to ensure the sustainability of earthquake resistance improvement. They should be also economically viable.

With a focus on the sustainability of activities, the Project aims to create and strengthen seismic-resistant technologies that fit the realities in Mongolia while taking the following three aspects into account:

1) Building on the existing seismic assessment method

The Project will build on Japan's advanced technology to develop a seismic assessment method for Mongolia. In the process, the Project will examine the existing specifications for seismic assessment in Mongolia and carefully assess the country's standards of construction technology. The Project will also identify Japan's technologies to be applied so that it will be able to address such issues as the existence of many decrepit buildings and illegal reconstruction that became prominent after democratization as well.

2) Developing practically useful guidelines

The Project will develop different sets of guidelines on seismic assessment, equipment use, earthquake resistance improvement, and rebuilding. These guidelines should be given a legal basis so that they will continue to be used after the termination of the Project. Using existing guides that clearly explain Japanese standards and guidelines on seismic diagnosis as references, the guidelines should also be designed to provide technical backgrounds, checklists, and relevant drawings for the benefit of a broader audience.

3) Training engineers

A great demand is expected for seismic assessment, earthquake resistance improvement, and rebuilding, pointing the need to train engineers in these fields. The process of developing the guidelines should involve people from related organizations including NEMA. Training on completed guidelines should be the training of trainers (TOT) in nature as well as the training of engineers. At the same time, the technologies involved should be diffused through the activities of construction associations.

Basic Technical Policy 3: Supporting the implementation of the Sendai Framework for Disaster Risk Reduction by taking advantage of Japan's experience and expertise

The Project will help Mongolia to achieve the global targets in the Sendai Framework for Disaster Risk Reduction 2015-2030 ("Sendai Framework") that are designed to reduce disaster losses and risks. It also promotes the priorities for action that are identified in the Sendai Framework in the country. The Project will thus contribute to NEMA's activities designed to achieve the Sendai Framework with an appropriate set of

inputs that make the most of Japan's expertise and experience in disaster management measures shown in Figure 2.1.1. Because the support for the implementation of the Sendai Framework is closely related to the development of ownership of the Project by the C/P, efforts will be made to propagate the project outputs in coordination with NEMA and JICA.

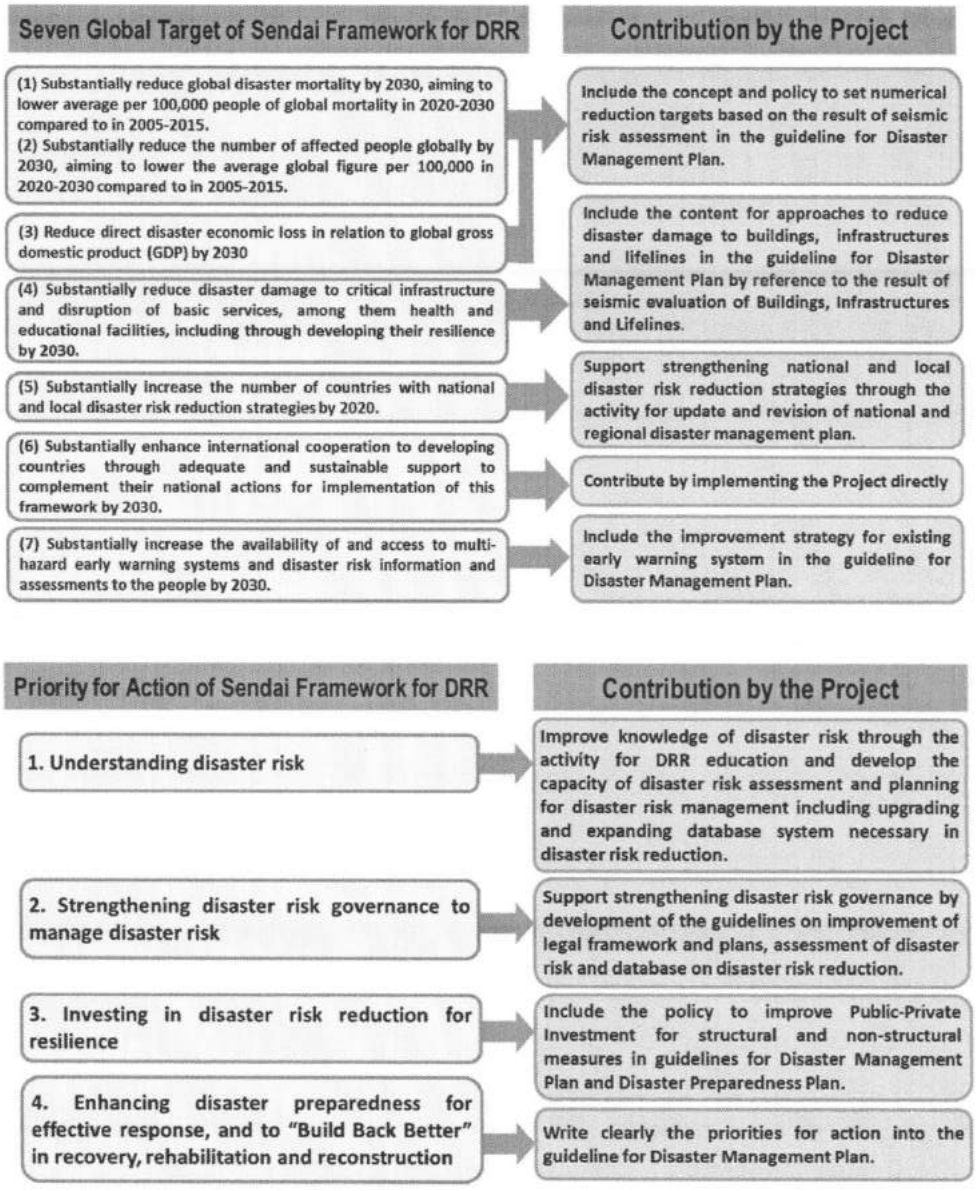


Figure 2.1.1 Contribution for Seven Goal Target and Priority for Action of Sendai Framework for DRR by the Project

In particular, the Project will take advantage of monitoring and other opportunities at two international forums as part of the Sendai Framework's follow-up processes, namely, the Global Platform for Disaster Risk Reduction, scheduled for 2017 and 2019, and the Regional Platform for Disaster Risk Reduction, scheduled for 2018.

Basic Technical Policy 4: Transferring technology with a view to supporting sustainability

It is important to ensure that the Mongolian counterparts will be able to continue their preparedness and preventive activities designed to mitigate and reduce disaster risks in their respective domains even after the completion of the Project. To this end, attention will be paid to ensure that their own initiative will be respected and their ownership be developed in project implementation. Specifically, the expert team will propose that a working group ("WG") be formed under each of the subjects of three outputs: disaster management plan, seismic resistance, and DRR education (see [1-3]). The idea is to ensure technical and operational consultation and coordination between NEMA and other related organizations. Each WG will consist of representatives of NEMA and other related organizations including government departments. It will meet once every one or two weeks to share information and discuss policies for the outputs as well as specific activities. Members of the WGs will be selected in consultation and coordination with NEMA and other related organizations at the beginning of the Project. They should be working-level officials who are suitable as contact persons of their organizations with regard to technology transfer and well-versed in the current disaster management rules and regulations. Through these WGs, the team of experts will transfer technology, through which the needed capacities of the C/Ps will be developed. Such assistance will be designed to allow the C/Ps themselves to continue the utilization of the project outputs even after the Project is completed. In WG activities, attention will be paid to ensure that officials at the C/Ps will be involved in a series of processes, ranging from issue analysis and the formulation and revision of operational rules and regulations to the drafting and approval of needed agreements between related organizations.

2.2 Basic Policies for Project Implementation from the Operational Perspective

Basic Operational Policy 1: Conducting operational management, evaluation, and monitoring of the Project
Basic Operational Policy 2: Recording project activities, propagating the outputs, and conducting public relations
Basic Operational Policy 3: Working with related organizations
Basic Operational Policy 4: Securing safety

Basic Operational Policy 1: Conducting operational management, evaluation, and monitoring of the Project

The operational management, evaluation, and monitoring of the Project will take account the following three aspects into account.

1) Expert assignment planning for sustainable activities in Mongolia

The expert team will design the expert assignment plan to ensure smooth activity implementation for appropriate operational management of the Project. Specifically, the expert team will propose that an operational management group made up of a chief operation manager and a deputy operation manager be formed and that arrangements be made to allow either manager to stay in the Project area for an extended period of time. The team will also assign a Mongolia-based expert for smooth communication in the partner country. In addition, as the Joint Coordination Committee (JCC) will meet every three months in

the Project as requested by the Mongolian government, the expert team will assign, whenever possible, the leaders of the output-specific working groups to coincide the timing of such meetings. This arrangement will ensure that these leaders and officials at the C/Ps will work together regularly to review progress in project activities, identify and sort out the issues to be addressed using Monitoring Sheets, and obtain approval at the JCC as necessary.

2) Monitoring project progress and sharing issues to be addressed using Monitoring Sheets

In the Project, Monitoring Sheets will be used to manage project progress based on the instruction from JICA. It will also identify changes with JICA and Mongolia, if any, to the Project Design Matrix (PDM) and PO that were agreed on at the signing of the R/D in the beginning of the Project, and draft an amended version as necessary. Under this policy, the expert team will, at the start of the Project, explain to officials at the Mongolian C/Ps about the role of Monitoring Sheets in a wider context, especially their relevance to the PDM. Then it will work with them to formulate Monitoring Sheets I&II "Ver. 1," which describe the initial conditions for monitoring.

The Monitoring Sheets will be updated and submitted to JICA Mongolia Office every six months as a matter of principle. Given that the JCC will meet every three months under this particular project, however, the team will work with the Mongolian C/Ps to monitor project progress and identify issues to be addressed before each JCC meeting and update Monitoring Sheets as appropriate for approval at the JCC, despite this principle.

3) Regularly monitoring and reporting on progress in activities

In the Project, the expert team will propose that a Monthly Report be issued and shard with related organizations in Mongolia. The idea is to ensure efficient monitoring of activities for the outputs and frequent sharing of information with these organizations. With the issuance of a Monthly Report and the quarterly checking of the Monitoring Sheets, efforts will be made to timely identify any delay to the Project and any change to the Important Assumptions. Attention will be paid to ensure that the findings of not only such regular monitoring but also day-to-day progress will be reported beforehand to officials at the Mongolian C/Ps and the JICA department in charge. Cooperation will be sought with a supporting committee to be established in Japan by JICA for technical advice for the Project. In this regard, attention will be paid to ensure that reports and other related materials will be reported to the supporting committee in Japan without delay.

Basic Operational Policy 2: Recording project activities, propagating the outputs, and conducting public relations

The Japanese government announced the Sendai Cooperation Initiative for Disaster Risk Reduction at the Third UN World Conference on Disaster Risk Reduction in March 2015. The initiative states that over the four years from 2015 to 2018, Japan will provide a total of four billion dollars in aid and train 40,000 people in sectors related to disaster management. As the Project will contribute to such human resources development as part of this initiative, the numbers, by gender, of participants in training sessions, workshops, and seminars, as well as direct and indirect beneficiaries of technology transfer, both under the Project, will be recorded in the progress report among other products and reported to JICA. The participation of women and

people with special needs (elderly people, persons with disabilities, infants, etc.) in the Project as well as how they benefit from it will be recorded as matters that warrant special attention. Subsequent public relations will be designed to place a special focus on these matters.

Propagation of the outputs will be actively encouraged to provide the C/Ps with incentives to promote, with their ownership, the understanding of the importance of building the earthquake disaster management capacity and call for cooperation and participation in related activities. Apart from the international conferences mentioned in 2-2【1-9】, potential forums for presenting such outputs in Japan include meetings of DRR-related academic societies such as the Japan Society of Civil Engineers, the Institute of Social Safety Science, the Japan Society for Disaster Information Studies and the Annual Convention and the Research Committee on Earthquake Disaster of the Architectural Institute of Japan as far as seismic resistance is concerned. Potential forums overseas in the areas of seismic resistance include the European Conference on Earthquake Engineering and Seismology, where the large turnout who shows deep concern about seismic diagnosis and strengthening work for buildings designed based on the building code of former Soviet Union is expected, to be held in 2018 in Greece, and the Civil Engineering Conference in Asian Region, to be held in 2019 in Japan.

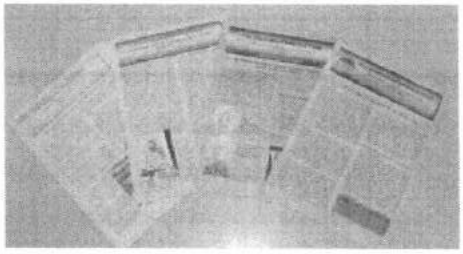


Figure 2.2.1 Newsletters issued by Oriental Consultants Global Co., Ltd

The scope of public relations may include local communities and the private sector as well as related organizations and other aid agencies and NGOs. A special focus will be placed on the Mongolians Association of Civil Engineers and the Mongolians Association of Construction Designers, both of which engage in disaster management activities. The understanding the members of these two major contributors in this field holds the key and they are the main targets of public relations..

The method, medium, and frequency of public relations will be carefully designed to best suit to its purpose, content, and audience. The mission-oriented approach that concentrates on the audience and the method will be applied for a greater impact. As NEMA wants to take advantage of Japan's experience in public relations on disaster management, the expert team will provide information that is needed to share such public relations in Japan with NEMA.

Basic Operational Policy 3: Working with related organizations

The direct C/P in the Project is NEMA, a central government agency responsible for disaster management in Mongolia. Among other issues, the national disaster management agency needs to strengthen cooperation with other related organizations as part of efforts to improve the disaster management frameworks in Mongolia. Support for such closer cooperation is one important area of the Project. The organizations concerned include the Ministry of Construction and Urban Development (MCUD), the Mongolian Ministry of Education, Culture, Science and Sports (MECSS), the State Professional Inspection Agency, and UB City. Efforts will be made to work with NEMA to closely exchange information with other related organizations from the beginning of the Project in order to identify issues to be addressed in implementing the disaster management policy and working with NEMA. Specifically, the expert team will first review the disaster management laws and regulations in Mongolia and then discuss with NEMA some of the issues to be

addressed for strengthening cooperation with other related organizations, as well as specific techniques for identifying issues. After that, the expert team and NEMA will conduct interviews with officials at such organizations. The idea is to identify issues to be addressed in implementing relevant laws and regulations, as well as issues and problems to be addressed in working with other related organizations in carrying out a series of disaster management measures, ranging from disaster management planning and risk management to disaster risk assessment and disaster database development.

The WGs to be established for the outputs will be put to good use in devising specific corrective measures for the issues thus identified. These WGs will bring together representatives of NEMA and the other related organizations including government departments to discuss the course of action for solving these issues. The results of such discussion will be compiled into guidelines and manuals at the initiative of NEMA. In addition, attention will be paid to ensure that a record will be maintained on a number of processes concerned, including the process of identifying issues in implementing relevant laws and regulations, the process of formulating draft agreements with other related organizations and stakeholders, and the process of approving new operational bylaws concerning disaster management and relevant regulations. The idea is to allow Mongolia's related organizations, especially NEMA, to constantly improve and update these documents even after project completion.

When JICA decides to dispatch an additional expert after confirming its necessity in implementing the Project, the expert team will share information and work together with such an additional expert as appropriate. Attention will also be paid to ensure the consistency of assistance in disaster management for Mongolia from JICA and other Japanese agencies.

In implementing the Project, the expert team will work to ensure adequate aid coordination with the United Nations Development Programme, the Asian Development Bank, the World Banks, and other donor agencies that support disaster management in Mongolia. To this end, the expert team will review their trends and even talk with and exchange views with them. Arrangements will be made to ensure coordination and cooperation with The United Nations Office for Disaster Risk Reduction (UNISDR), with which JICA has signed a Memorandum of Cooperation. Possible actions to this end include encouraging UNISDR to participate suitable seminars and workshops organized by the Project to share in advance the schedule of events with headquarters or the Asia Pacific Regional Office of UNISDR. At the same time, when NEMA holds the event for inviting UNISDR officials to Mongolia, the expert team will provide information to JICA and consult with JICA and NEMA so that project outputs will be communicated to them.

Basic Operational Policy 4: Securing safety

Adequate security measures will be taken to ensure the safety of the team of experts so that they will not fall victim to a crime in Mongolia. Specific measures include carefully checking beforehand whether the safety of access to the places of their visit is secured.

5-2-24

3. Project Implementation Measures

3.1 Descriptions of Items to be Implemented

Work items of the Project are as follows.

Task【1】Activities That Affect the Whole Project

【1-1】Developing and Discussing the Work Plan

The expert team will draft a Work Plan of the project based on the relevant information on the previous project, which includes the background, the outputs, and the report on the findings of the detailed design study, and the original Japanese draft of the Work Plan. Before visiting Mongolia for the first round, the team will explain the draft Work Plan to JICA for consultation and add any necessary changes to it. It will then visit Mongolia and explain the amended Work Plan to the Mongolian side. Before the first JCC meeting, the team will agree on the plan with the Mongolian side and finalize its content.

【1-2】 Developing Monitoring Sheets

Based on the PDM and the PO that were finalized at the time of the signing of the R/D as well as on the policy agreed on with JICA, the expert team will, at the start of the Project, explain to the officials of the Mongolian C/P about the role of Monitoring Sheets in a wider context, especially their relevant to the PDM. The team will then work with them formulate Monitoring Sheets I&II "Ver. 1,"which describe the initial conditions for monitoring. The Monitoring Sheets will be updated and submitted to JICA Mongolia Office every six months. Any delay to the Project and any change to the Important Assumptions shall be promptly reported to the officials at the Mongolian C/Ps and the JICA department in charge.

The expert team will develop indicators for monitoring and evaluating the outputs of the Project and progress in achieving the project purpose. It will also figure out the baseline figures at project launch. In addition, the team will clarify the specific method for acquiring the indicators for improving monitoring arrangements.

【1-3】 Reviewing the Previous Project and the Preceding Research

In the process of discussing the Work Plan of the Project, the preceding research will be reviewed. Special attention will be paid to the following aspects:

Disaster management plan:

- The content of deliberation of the Revised Disaster Management bill; any change to the bill after the time of the study
- Current rules and regulations relevant to the guidelines to be developed

Seismic resistance:

- Regulations relevant to the guidelines to be developed
- Quake-resistance standards, design standards, and relevant specifications; the gaps with Japanese counterparts
- Technical and legal procedures of seismic diagnosis and deterioration diagnosis
- The current state of the construction industry in Mongolia and the issues facing the industry (for achieving seismic strengthening with available techniques and materials)

DRR education:

- (For school DRR education) progress in MECSS's approval of the DRR curricula and teaching materials for pre-school, primary, and secondary education that have been jointly developed by United Nations Development Programme (UNDP) and NEMA
- (For community DRR education) progress in the execution of the implementation action plan for the national program for community participatory DRR (the plan was approved in May 2016); personnel architecture and activities of the DRR training center that was established in June 2016; progress in the development of the guide for DRR volunteers based on the rules for DRR volunteers that was approved in April 2016; progress surrounding the DRR curricula and teaching materials for residents and volunteers that have been jointly developed by UNDP and NEMA

① How to utilize the output of "drawing up the comprehensive earthquake risk map"

The results of the seismic hazard assessment, the seismic risk assessment for buildings, the risk assessment for transportation and lifeline structures, and the risk assessment for fire following earthquake will be stored and made available to the public as part of efforts to improve the database system under the Project. The risk assessment for transportation and lifeline structures, in particular, is the only seismic assessment in Mongolia for bridges, roads, and lifeline structures. This particular assessment will be reviewed in developing the seismic assessment of infrastructures and lifelines in the Project. The seismic risk assessment for buildings, for which seismic resistance properties were identified by a WG involving Mongolian academics, will be used as a basic reference material for the guidelines on seismic assessment of buildings.

② How to utilize "reviewing the Earthquake Disaster Prevention Plan and giving a proposal for its revision"

The issues for the disaster management plan that were identified and sorted out for the implementation of the previous project, as well as the proposals for improvement based on the results of the seismic risk assessment will be put to good use as examples in developing the guidelines on disaster management planning and those on preparedness.

③ How to use the "Guideline for Seismic Resistance of Mid- to High-rise Buildings"

The Guideline for Seismic Resistance of Mid- to High-rise Buildings involves a simple diagnostic method based on the limit strength method. This particular diagnostic method, which is one of the Japanese seismic diagnosis methods, will be used for reference in selecting the seismic assessment method for the Project. The structural properties that were identified for different types of buildings in the previous project will also be used as a basic reference material for the guidelines on seismic assessment of buildings that will be developed in the Project. In addition, the recommendations regarding the prioritization of buildings and the earthquake resistance improvement bill will be used for the criteria in the guidelines on seismic strengthening and rebuilding that will be developed in the Project.

【1-4】 Providing training in Japan

The expert team will invite appropriate number of C/Ps who will a pivotal role in the Project to Japan for approximate one week to provide a study program on March 2017. The idea is to effectively conduct activities designed to achieve the project purpose. In selecting the candidate participants and components of the study program, the expert team will consult and coordinate with JICA Mongolia Office and Mongolian

government officials. The team will also provide support and coordination activities for accepting participants of the study program as appropriate, including screening the participants and collecting application forms. Table 3.1.1 shows the proposed venues and components of the study program.

Table 3.1.1 Proposed study program in Japan on March 2017

Purpose		
To share expertise and experience between the Mongolian C/Ps and the Japanese side		
Time		
The second half of March 2017 (approximate one week)		
Potential affiliations of participants		
NEMA, MCUD, MECSS、State Professional Inspection Agency, National Security Council, EMDC, UB department of capital city planning and basic planning		
Places of visit (proposed)		
Common to all outputs		
Disaster Prevention Division, Bureau of General Affairs, Tokyo Metropolitan Government; Cabinet Office; Ministry of Education, Culture, Sports, Science and Technology		
Disaster management administration	**Seismic resistance**	**DRR education**
Sumida Ward (ward-wide and district disaster management, disaster management information); NIED for the cloud-based system for public-private collaboration regarding crisis (disaster management information); Honjo Life Safety Learning Center	Ministry of Land, Infrastructure, Transport and Tourism; Urban Development Project Division and the urban development construction division, Bureau of Urban Development, Tokyo Metropolitan Government (earthquake resistance improvement policy) Urban Renaissance Agency (including a visit to the place where seismic strengthening has been applied (possibly the Takashimadaira Housing Development)	Disaster Reduction and Human Renovation Institute, Kobe City Board of Education, Honjo Life Safety Learning Center, Plus Arts. (For discussion and information gathering about the operation and maintenance of facility and equipment for the DRR training center, interactive facilities for disaster risk management such as Honjo Life Safety Learning Center will be visited).

For the future plan of training in Japan or third countries, both Mongolian and Japanese sides will discuss implementation policy, the content of training and participants in consideration of the progress of the Project.

【1-5】 Procuring equipment

To date, seismic diagnosis in Mongolia has been conducted by only a few organizations, including the State Professional Inspection Agency, the section of construction quality and safety control of UB City, and the Mongolian University of Science and Technology (MUST). However, many engineers, including those in the private sectors, need to be trained to meet the growing need for seismic diagnosis. Seismic diagnosis requires instrument-based measurement of the actual strength and the degree of degradation of buildings. It is thus important for more engineers to learn how to use such instruments. Training will provide an effective solution to this end. In the preceding research, consultation was made with the C/Ps on what types of equipment will be needed. The following instruments will be procured in the Project. Using these instruments, the expert team will provide training designed to teach and diffuse instrument-based measuring skills. The team will procure an appropriate unit of each type of equipment for the training. One unit will be for the instructor, and the remaining units will be for training participants to use for practice. Such equipment should be procured

promptly after the Project is launched according to procurement plan in consultation with the C/Ps and JICA Mongolia Office, so that there will be no delay in the training schedule. All equipment to be procured for the training will be handed over to Mongolian side at the completion of the Project. The detail content of equipment to be procured will be finally decided within a budget of Japanese side through the discussion for the procurement plan in the activity for output2.

Table 3.1.2 Proposed Equipment to Be Procured for Output 2

Name of equipment
Surface strength measuring instruments
Ultrasonic-based measuring instruments
Corrosion measuring instruments
Concrete covering thickness measuring instruments
Water content measuring instruments

Equipment for DRR awareness-raising should also be procured timely. The plan to identity specifications of such equipment to be installed in the DRR training center that was constructed in UB city in June 2016, as well as the operation and maintenance (O&M) plan for the equipment should be developed. The annual O&M cost for the equipment is supposed to be allocated in the entire national budget from fiscal 2018. In consideration of this matter, both Mongolian and Japanese sides will work together closely to develop the plan of procurement of equipment for DRR awareness-raising.

It is important to ensure that the Mongolia side will have a clear idea of what type of equipment is needed in the process of identifying equipment specifications. To this end, the training scheduled for March 2017 in Japan will be designed so that NEMA and EMDC officials in charge of Output 3 will visit an interactive facility for disaster risk management in Japan, receive a lecture by its operator, and hold discussions with officials at the facility, and the team of experts. The drafting of the letter regarding the shouldering of O&M costs will be assisted by an expert responsible for Output 3 from April 2017 onward.

【1-6】 Propagating the implications and outputs of the Project at international forums

Support will be provided for the upcoming international conferences as shown below:

① Global Platform for Disaster Risk Reduction (May 2017/Mexico)

As one of the main objects for the Project is to support NEMA's activities designed to achieve the global targets in the Sendai Framework with an appropriate set of input that make the most of Japan's expertise and experience in disaster risk reduction, the expert team will consult with JICA and Mongolian side about how to introduce and disseminate the status of activities and outputs in the Project at this event. If the side event of the Global Platform organized by JICA is held, the expert team will take an appropriate action for NEMA based on a direction of JICA.

② Asian Ministerial Conference on Disaster Risk Reduction (2018/Mongolia)

As Mongolia will host this conference, the expert team will consult with JICA and the Mongolian side on ways to showcase the project outputs, including support for booth exhibitions and attractions. Also the expert team will support to the development of posters for side events and PR materials that take advantage of the project brief note in consultation with JICA and the Mongolian side. As for side events to disseminate an output of the Project, the contents of the event will be consulted among JICA Expert team and NEMA side.

Task【2】Activities for Output 1

【2-1】 Identification of the Problems and Challenges on Implementation of Legal Frameworks of Disaster Risk Reduction (Activity 1.1.1)

Problems and challenges on the implementation of the Disaster Management Laws and regulations will be extracted by interviewing C/P and related organizations with NEMA after reviewing the Revised Disaster Management Law and disaster related regulations based on the preceding research. Before conducting the interview, the policy on the problem extraction, concrete method, and the image of the product after the interview will be discussed with NEMA in order to share the recognition.

The Project deals with earthquakes as the main disaster type (hazard), however, the problem extraction in Activity 1 and 3 will be conducted without excluding disaster types other than earthquakes, since NEMA, a central disaster management agency, is also required to respond to other types of natural and man-made disasters.

【2-2】 Development of the Guidelines on Improvement of Legal Framework and Plans, Assessment of Disaster Risk and Database on Disaster Risk Reduction (Activity 1.1.2)

In the compilation of the guidelines (GLs), with reference to the existing documents in Mongolia and cases of other countries including Japan, the items to be considered and items to be included at the time of planning are organized after the discussion with NEMA about the direction to solve the problem extracted in Activity 1.1.1. A common understanding on basic principles, concept, scope of application, definition of terms, importance of disaster history, stakeholder identification, role assignment (stakeholder) regarding formulation works and countermeasures, consideration of autonomy and continuity of GLs shall be obtained. It is desirable that the GLs take due consideration of awareness raising of residents, community and vulnerable person requiring assistance during a disaster to take gender and social structure into consideration. It is also necessary to promote nationwide dissemination of each GL and formulation and revision of the disaster management plan in the future. For that purpose, it is necessary to establish a training program for staff of disaster management related agencies.

Preparation work of the GL for Risk Assessment will follow the steps of 1) Confirmation of objective, background of GL, 2) Confirmation of available data, 3) Confirmation of available methods of assessment, 4) Confirmation of human resources and organization of the working group, then, 5) Compilation of GL. In phase I of the Project, a fairly detailed risk map has been created in accordance with the above procedure in UB City, however, in case the earthquake risk assessment is conducted throughout the Country, there is a high possibility that necessary detailed data cannot be obtained. Keeping in mind that much of the necessary data cannot be obtained, several levels of GL according to the data acquisition situation will be set and prepared.

The GL for Disaster Management Plan will be prepared from the main viewpoint concerning related laws and regulations, mainly based on the Revised Disaster Management Law and the improvement of mutual cooperation. In Mongolia, the existing disaster management plans place emphasis on the emergency response at the time of disaster occurrence, and the plans for advance measures are only for the formulation of an evacuation system, etc.

The most important items of the GL for Disaster Preparedness Plan are countermeasures according to the proposed preparedness level. Based on this, the first task is to incorporate advance measures (including measures to deter damage, measures to mitigate damage and measures to prepare for emergency response) and to formulate GL from this perspective.

The GL for Earthquake Risk Management will be prepared by improving the existing plan and the GL will include contents on the management of the investment mainly for mitigating assumed earthquake damages.

The Disaster Research Institute of NEMA is currently building a disaster database in the disaster information management system, and disaster information is to be input into the master database 24 hours a day. Training of disaster management staff in each district will be provided within 2016, and after that they will be able to access the web-based disaster information registration system from each district. On the other hand, UB City has built a database of map information, land use, buildings and infrastructure information. However, in the disaster database, data such as past disasters and evacuation places are not input, and it is a system completely different from the UB City's database and they are not cooperating. In the Project, the GL for Disaster Database will be prepared so that it can coordinate items with related organizations, grant access rights to the databases, cooperate and share databases, and mutually input and use items.

【2-3】 Development of New Regulation and the Drafts of Revised Version of Regulation on Implementation of Law of Disaster Protection (Activity 1.1.3)

Although the basic law of disaster management in Mongolia is the current Disaster Management Law enacted in 2003, revision work was carried out with emphasis on prevention, and the Revised Disaster Management Law was formulated. The Revised Disaster Management Law will be deliberated at the National Diet in autumn 2016. With the enactment of the Revised Disaster Management Law, it is necessary to respond to the new clauses and strengthen the capacity as follows:

① Since the clauses related to disaster prevention activities were newly added, it is necessary to show the method of preventive activities. A new chapter in the general disaster prevention plan, field-specific earthquake disaster prevention plan shall be created.

② Related to risk assessment: The risk assessment method stipulated by the current Disaster Management Law and stipulated in the Disaster Vulnerability and Risk Assessment Implementation Regulation (Resolution No.176, Government of Mongolia, 2006) have not been implemented since concrete methods are not specified. In Article 8 of the revised disaster prevention law, in which it's described that the organizations implementing risk assessment are given authority, it is necessary for NEMA to show concrete methods for the risk assessment including implementation system and evaluation procedure. While the Risk Assessment GL shows the method of assessment, it is necessary to indicate the rule of selection of the risk assessment executing agency, the system of authorization and the evaluation of the result. We will create this rule with NEMA and support the technical aspects of the evaluation of results. Furthermore, since there are few agencies currently capable of risk assessment, human resource development rules will also be prepared.

③ Related to the disaster management plan: The current Disaster Management Law does not show how to formulate a disaster prevention plan. Only a sample is presented, and in a district without knowledge of disaster prevention plan formulation, this sample itself is used as a disaster prevention activity plan. Since

Article 9 of the Revised Disaster Management Law established provisions for the formulation of disaster prevention activity plans and guidelines, the detailed regulations of disaster prevention law administration shall be revised to show specific methods of concrete formulation, monitoring and plan management.

④ Related to the preparedness plan and risk management plan: Currently, the provision concerning disaster management is the national disaster prevention management regulation (Resolution No. 105, Government of Mongolia, 2016), but the contents are mainly on the preparation system. Items necessary for both preparedness plan and disaster risk management will be arranged, divided and reconfigured according to the Revised Disaster Management Law.

⑤ Related disaster database: Article 15 of the Revised Disaster Management Law newly includes the establishment of the disaster risk and risk database, implementation of survey and research, and disclosure of disaster information, building risk information and disaster prevention information. Therefore, it is necessary to develop an open system on the contents of disaster information and disaster prevention measures. The Disaster Database GL that will be created in Activity 1.1.2 includes indicators on the granting of access rights of databases and mutual use, but regarding the granting of concrete authority and agreement on mutual use, etc., revision of the operational bylaws and relevant regulation will be required. We will conduct these activities with NEMA.

【2-4】 Development of the Draft of the Agreement which Shows the Coordination and Operation among NEMA and Related Organizations (Activity 1.2.1)

It is necessary for NEMA to conclude an agreement on prevention and response in advance, in order to work in cooperation with related organizations and stakeholders. Although an agreement with the broadcasters about the transmission of early warnings has been concluded, other agreements have not been prepared yet. The following are possible agreements for the preparation for a large-scale earthquake disaster as discussed during the preceding research.

Table 3.1.3 Stages, Activities and Organizations that need Agreement

Stage	Activity	Related organizations
Preparation	Drill, Training	International Organizations, NGOs, Private Companies
	Stockpile	Ministry of Food, Agriculture, Private Companies
Response	Securing staffs	Ministry of Construction & Urban Development, Ministry of Road & Transport Development, Ministry of Natural Environment & Tourism
	Securing equipment	Ministry of Construction & Urban Development, Ministry of Road & Transport Development, Ministry of Natural Environment & Tourism, Private Companies
	Emergency transport Fuel procurement	Ministry of Road & Transport Development
	Rescue & life saving Emergency medical	Ministry of Health
	Securing communication	Information & Communication Agency
	Transport control	Ministry of Road & Transport Development
	Water and heat supply	Ministry of Natural Environment & Tourism, Ministry of Energy, USUG, UB City Heating Network Company
	Body treatment	Ministry of Health
Recovery	Housing provision	Ministry of Construction & Urban Development

Because these agreements need to be concluded separately for each activity, the expert team will support NEMA to develop agreements referring to the National Disaster Management Plan, identifying the agreement parties, and drafting agreement contents. It should be noted that in Mongolia, "agreement" takes the form of a contract, cooperation plan, or memorandum of understanding. It will be necessary to discuss within the working group which form the "agreement" will take, based on the purpose of the agreement and its contents.

【2-5】 Implementation of Training Programs for Disseminating the Agreement Mentioned in 【2-4】 and Strengthening the Coordination Structure among Organizations Related to Disaster Risk Reduction (Activity 1.2.2)

The disaster prevention plan of Mongolia is made of a disaster prevention plan at the national level, and is composed of a general disaster prevention plan and sectoral disaster prevention plans at the county and municipal level. NEMA will conduct training to publicize the agreement as defined in [2-4] to all relevant agencies, to mobilize agencies properly at the national, county, and city levels before and after disaster, and to enable coordinated activities for disaster prevention. The expert team will confirm policy of training and support NEMA to develop training contents, to establish the training plan, to prepare necessary material, and support the implementation of training.

In order for the disaster prevention plan to function effectively, meaning a steady practice of preventive measures, it is necessary to make preparedness and emergency response measures more effective, as mentioned in the spirit of the amendment of the Disaster Management Law. Therefore, the Project will confirm the chain of command, the information sharing method, the cooperation framework including local governments during prevention, preparedness and the response period. The Project will implement training to maximize the effect of disaster prevention activity assuming insufficiency of necessary information or lack of command, taking into account unexpected situations during disaster.

The training schedule and the number of trainees will be planned in consideration of the status to develop the draft of the agreement which shows the coordination and operation among NEMA and related organizations. As it's expected that the large number of institutions is related for each agreement, implementation of training will be flexible to maximize the implementation effect, such as divided implementation. Also after the training implementation, as a reference for carrying out similar training for next time, documentation that records the above-mentioned series of processes related to the training will be made.

【2-6】 Update and Revision of National and Regional Disaster Management Plans by Extracting Challenges of Existing Plans (Activity 1.3.1, 1.3.2 and 1.3.3)

Challenges of action programs for disaster prevention and disaster risk reduction countermeasures in existing disaster management plans at the national and regional levels are extracted by reviewing them in consideration of amended disaster management law, in which the article for disaster prevention action was added newly. Then, the contents of new relevant regulations to resolve challenges that are clarified through the reviewing of existing plans and measures to make agreement with disaster-related organizations are examined. At the stage of reviewing existing plans and examining new policies, "the review of earthquake disaster prevention plan and the suggestion for revision of the plan" is one of the outputs in the previous project. Workshops in which all related organizations are gathered are organized for supporting smooth and effective discussion to decide on the responsible organization and the role between related organizations for each agreement of disaster prevention action in consideration of the obligations and responsibilities of each organization for disaster management. The policy of global targets in the Sendai framework 2015-2030 is incorporated into the updated disaster management plan, especially in the part on earthquake disaster prevention such as the earthquake resistance plan, evacuation place improvement plan and relief supplies and human resource plan. Based on the record of discussion (R/D) for the Project, National Level, Ulaanbaatar City and two provinces are the target areas for the update and revision of the regional disaster management plan. Before implementation of the pilot activity, two pilot provinces will be selected.

NEMA has a plan to improve the "Disaster Information Management System," which is managed by the Disaster Management Research Center to gather disaster related information and to utilize it for preparation of disaster management plans for the national level and regional level. The existing system to be developed using open-source software such as DesInventar and GeoDRM was installed as a UNISDR/ADPC project, and the main purpose of system operation is to store and manage the historical disaster record in all of Mongolia. In the Project, the function enhancement of the existing system for swift data collection and effective sharing through the internet is set as one of the target activities. And database extension using GIS to store socioeconomic conditions, building distribution, network of lifeline and infrastructure and evacuation places with necessary attribute information is also planned for monitoring the status for the seismic diagnosis of buildings, infrastructures and lifelines and for evaluating disaster prevention activities. After reviewing the existing system, the draft plan for enhancement of the existing system, including a new common database format and updated system operation procedures, is proposed with Disaster Management Research Center and the priority activities for function enhancement and database extension will be decided through discussion with NEMA and related organizations.

It is to be noted that the "disaster information management system" shall be improved on the basis of the already available system entitled "NIED Disaster Information Sharing System" which has been developed by

Japan's National Institute of Earth Science and Disaster Resilience (NIED). The existing NIED system is based on Web-GIS and is capable of performing input and utilization of various disaster information and sharing with other agencies. As shown in Figure 3.1.1, the system is based on Web-GIS, disaster response operations and its processing procedures are represented by tab and menu buttons to make it easier to use even for a staff inexperienced in disaster response. Moreover, due to various disaster information shared by the system, via the Internet, it is possible to share with neighboring local governments and higher agencies. In view of the development situation of the disaster information management system in Mongolia, also taking into consideration the existing underdeveloped local disaster prevention information collection system, NIED system, which has a better track record, shall be consulted for the improvement of the "disaster information management system" of NEMA.

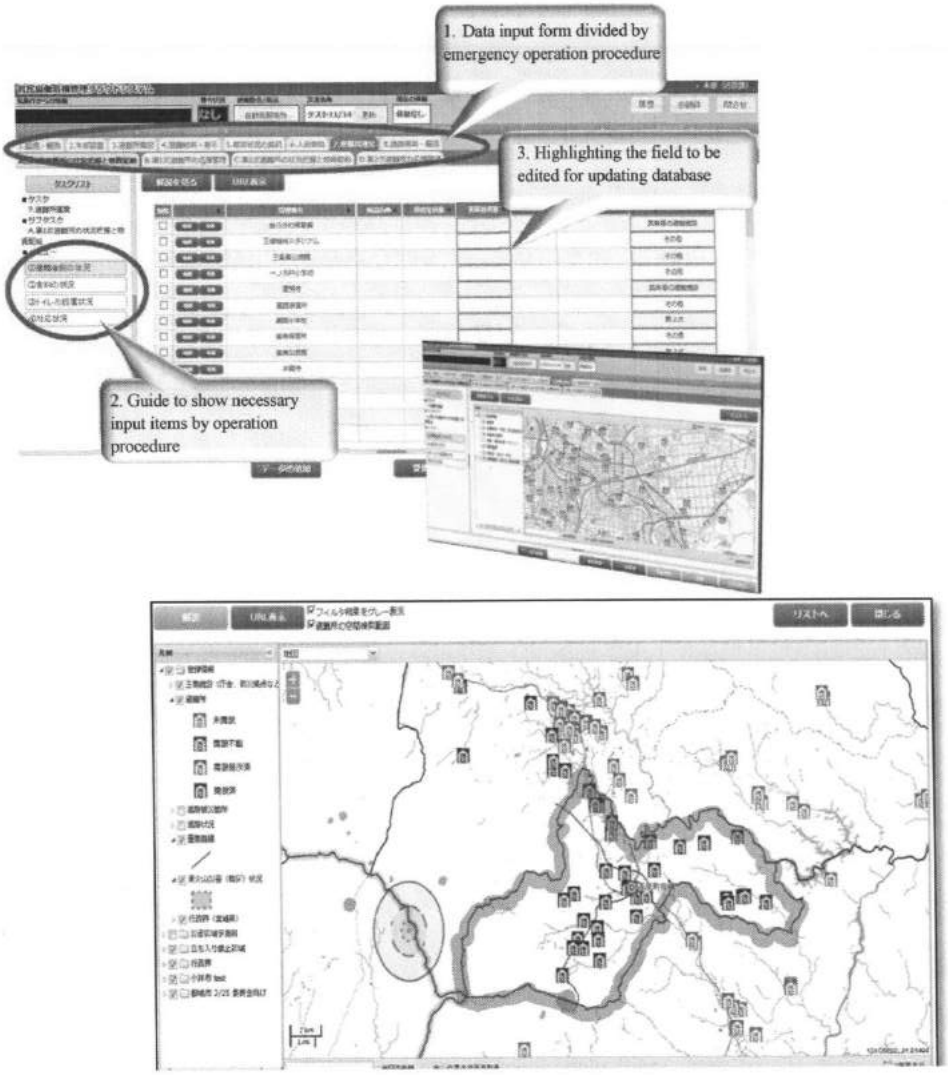


Figure 3.1.1 Display images for NIED Disaster Information Sharing System (Upper: Support tool for data registration and management, Down: Web-based Location map to share the status of disaster response such as operation of evacuation centers.)

【2-7】 Development of a "White Paper on Disaster Management" (Action 1.3.4)

Support will be provided so that NEMA can develop a document equivalent to Japan's "White Paper on Disaster Management" continuously and autonomously. The "White Paper on Disaster Management" is a tool for informing the public widely on the status of disaster occurrence and facts about the present conditions in disaster management. Support will be provided for the publication preparation of the "White Paper on Disaster Management" based on the information gathered during the Project.

Assistance establishing policies for the elaboration of the "White Paper on Disaster Risk Management" will be provided referring to the following preparatory steps: the roll of the "White Paper on Disaster Management", its objective, its range, its basic structure, and real case examples in Japan. The time of publication of the "White Paper on Disaster Management" will be decided after consultation with NEMA once the Project has started. The administrative year cycle, the academic year cycle, etc., will be considered for the time of publication.

The objective of the "White Paper on Disaster Management" is to take actions in disaster management. For this purpose, the "White Paper on Disaster Management" is a document that serves to: share progress in disaster management actions; monitor these actions, widely diffuse disaster management ideas and successful cases; and forms the basis for disaster management related budget. The readers are not only people of the central and regional governments involved in disaster management, but local residents that take part in disaster management, researchers, engineers and general inhabitants interested in disaster management. As it targets a wide range of people, the main volume will only contain the minimum essentials. Information and data necessary for engineers and government officials will be picked up in the book of materials.

Involving residents in disaster risk reduction actions is very important. Residents should introduce real cases of disaster risk reduction measures where they participate as main constituents. Not only successful cases but failures and causes of failures should be addressed in order to share as lessons. By using familiar cases, general inhabitants can experience the importance of disaster management. As for the contents, they will be made so people will look forward to the publication of the document every year. Regarding the issue of the document, for each publication, seminars will be held to inform about it widely.

In order to make an objective description in the contents about the entity of disasters and facts about the present conditions in disaster countermeasures, the document will be elaborated based on discussions between ministries and agencies, and web publication will also be considered. From the above, the basic structure of the "White Paper on Disaster Management" will be as shown in below.

Table 3.1.4 Proposed Structure for the "White Paper on Disaster Management"

Section 1	● Objectives of the "White Paper on Disaster Management" ● Idea of Disaster Management ● Basic line way of thinking about actions for disaster management
Section 2	● Existence of disasters in Mongolia ● Disaster countermeasures up to the present
Section 3	● Disaster management plan ● Implementation status of the plan ● Lessons learnt from disasters, introduction of real cases of disaster management actions
Section 4	● Future course of action ● Numerical targets per issue, differentiated by roles
Book of materials	● Status of disaster management actions per Prefecture and Municipality ● Methods of disaster management measures (successful real cases both within and outside Mongolia) ● Advice on the action plan (overview) ● Tendencies in international disaster management actions (tendencies in international conferences) ● Overview of disaster management laws, systems/institutions, and system of the disaster management plan ● Disaster management budget

The items inside the white paper will be discussed based on discussions with the stakeholders, and the publication of 2017 will be elaborated during the first half of 2018. A manual for elaborating the "White Paper on Disaster Management" will be created, extracting lessons learnt from the creation of the publication of 2017. The publication of 2018 will be elaborated in compliance with the manual. The manual will be revised subsequently.

【2-8】 Improvement of Database for Seismic Diagnosis of Buildings, Infrastructures and Lifelines (Activity 1.3.5)

The improvement plan of the database for seismic diagnosis of buildings, infrastructures and lifelines in "Disaster Information Management System" operated by the Disaster Research Center is decided together with NEMA and Ulaanbaatar City by reference to existing database management by Ulaanbaatar City for seismic diagnosis of buildings targeting reinforced concrete and masonry using the formalized sheet named as "Passport" in which the evaluation results of structure and shape for targeted buildings is described one by one. At the stage of discussion for the database improvement plan, it is noted that the database will be shared by online system not only with NEMA and Ulaanbaatar City but with disaster related organizations and each province and city. The seismic diagnosis of infrastructures and lifelines has not been implemented yet because there is no standard of evaluation in Mongolian. First, the method and

Figure 3.1.2 Example of passport by UB City

procedure for diagnosis of infrastructures and lifelines is defined through the discussion with NEMA and responsible organizations for each infrastructure and lifeline. Then, the common database format and the policy of database sharing with related organizations are decided in consideration of effective utilization of the new database as a source for updating disaster management plans for the national level and regional level.

Task【3】Activities for Output 2

【3-1】 Supporting Work to Modify the Specifications for Evaluation of Building, Lifeline and Infrastructure Vulnerability（Activity 2.1.1）

Existing specifications regarding the evaluation of building vulnerability and lifeline vulnerability in Mongolia shall be collected at first. After seeing these, their specifications will be modified. These specifications shall be suitable for NEMA's projects. In case existing specification are not found, new specifications will be prepared by NEMA under technical support by the Project.

We support to improve the current earthquake resistance plan for structures such as buildings and bridges listed below. These are not for seismic estimation but for deterioration diagnosis.

- Procedure to estimate physical deterioration on house buildings (Construction Regulation 31-104-01)
- Directions to estimate earthquake resistance of current buildings (Construction Regulation 31-102-0)
- Manual to estimate bridge soundness (JICA project)

Considering the previous JICA project, some modifications are suggested as follows:

- Extend type of structure: According to the preceding research, seismic evaluation is for masonry construction, and therefore it should be applied to reinforced concrete construction (RC) and precast concrete construction (PC) as well.
- Extend a target of structure: It has been applied to deteriorated buildings and surface malfunctioning so far, but can apply for actual strength to buildings with no surface deterioration. It can apply to infrastructures and lifeline facilities as well.

Regarding infrastructural structure (roads, bridges) and lifelines, it seems there aren't any specifications regarding seismic evaluations. If it was confirmed that NEMA doesn't have any specifications in NEMA, they would be made based on the Japanese way. In that case, previous project methods shall be reviewed. Besides, it shall be referred to when making GL document.

【3-2】 Development of a Guideline of Seismic Evaluation of Buildings, Infrastructures and Lifelines and Guideline of Machine Usages (Activity 2.1.2)

Based on modified specifications of seismic evaluations, GL documents regarding seismic evaluations for buildings, infrastructures and lifelines are made with NEMA and related organizations of Mongolia.

The GL documents for infrastructures will target buildings, roads and bridges. And GL documents for lifelines will target water, sewage, hot water pipes, power lines and power supply facilities. In the GL document, evaluation materials such as checklists shall be included.

And we will have an in-depth discussion with counterparts and confirm GL's positioning. The following are points to note for GL preparation.

Buildings' seismic estimation: It is made based on Japanese Seismic Diagnosis method.

- Can easily evaluate many buildings: Mongolia is to change the design intensity scale overall and to require many buildings to estimate with the new design intensity scale all over the country.
- Can estimate actual strength: It is reasonable and practical to strengthen the structure depending on the degree of insufficiency, instead of rebuilding due to seismic insufficiency. Therefore, a method is needed to estimate a building's actual strength.

According to the type of structure, the support for GL of seismic estimation is as follows.

- RC structure: Based on the "Standard for Seismic Evaluation of Existing Reinforced Concrete Buildings, The Japan Building Disaster Prevention Association, 2011", GL is made from reflecting on Mongolia's seismic design standard, that is, the design code "Construction Code of Mongolia, Construction Regulation, 22-01-02*/2006" for buildings where seismic activity is active.
- PC structure: Based on "Standard for Seismic Evaluation of Existing PC Buildings, The Japan Building Disaster Prevention Association, 2015", GL is made from reflecting on the knowledge and experience of Prof. Duinkherjav at MUST, the authority on PC structures.
- Masonry construction: As for low-story (1~2 F) building, the local conditions are reflected to GL preparation referring to "Standards for structural design of unreinforced masonry structures, The Architectural Institute of Japan, 2006" and "Standards on seismic diagnosis for brick masonry structures, The Hokkaido Architectural Technology Association, 2015".
  On the other hand, as for multiple-story buildings made of blocks without reinforcement (3~5 F) which may collapse by earthquake, GL is made by reference to other countries' standards (ex. International Building Code (IBC) in USA, Eurocode in Europe, and FEMA273, highly influential to the world structural design code).
  As for historical masonry buildings, we propose studying other countries' seismic diagnosis and strengthening of masonry buildings of cultural treasures and compiling the data as reference.

Seismic estimation of bridges: GL refers to the manual for evaluating soundness of bridges and the manual for investigating soundness of bridges by JICA project, and "Katayama's method" about the risk of a bridge's collapse.

- Can correspond to the 3-level estimation shown in "Regulation for implementing estimation of disaster vulnerability and risk (Resolution No. 176, Government of Mongolia, 2006)".

Seismic estimation of other buildings and lifeline facilities: As for roads, the line structures such as water supply and sewage, heating water supply, etc., the GL refers to the method of vulnerability curves used in Japan.

- Can correspond to the 3-level estimation shown in "Regulation for implementing estimation of disaster vulnerability and risk (Resolution No. 176, Government of Mongolia, 2006)".

Hardware use: GL is made about how to use measurement equipment on seismic estimation.

- Can evaluate objectively and properly, considering use in Mongolia's environment (particularly severe winter).

【3-3】 Implementation of the Training to Improve Knowledge and Ability for Those Who Carry Out Seismic Estimation on Structures and Lifelines (Activity 2.1.3)

For the purpose of comprehending and gaining ground on the improvement proposals and GL for seismic estimation, NEMA and participants provide support to the Ministry of Construction and Urban Development, State Professional Inspection Agency, UB City Office, the staff of each prefectural section (building・infra・lifeline), and other related business circles.

Four-time trainings are proposed as the training programs for seismic estimation. The first one is for all participants, and the overview of seismic estimation is introduced. Usage of measuring equipment is explained as well. The remaining three programs are carried out, divided by type of building structure. The training is properly set up with exercises and question-and-answer sessions in order not to be a one-way lecture.

Table 3.1.5 Tentative Training Program for Seismic Estimation

	Objective	Contents	Participants
1st	Introduction of Seismic Estimation	• Purpose • Legal background (Positioning of GL) • Utilization of estimation results • Usage of hardware • Others (Software, etc.)	NEMA, MCUD, State Professional Inspection Agency, UB City, Relevant personnel in each prefecture, other related business circles
2nd	Seismic Estimation for Masonry Buildings	• Explanation of method and discussion • Exercises	Ditto
3rd	Seismic Estimation for RC and PC Buildings	• Explanation of method and discussion • Exercises	Ditto
4th	Seismic Estimation for Infrastructure and Lifelines	• Explanation of method and discussion • Exercises	Ditto

To formulate and implement the training programs, the following are points to note:

- Playing the role of TOT: As a training manual, we compile the methods and points with training materials to let Mongolia continue to carry out the Project after terminating. We provide several trainings and play the role of TOT in order to let Mongolia's staff be trainers themselves.
- Let many participants learn: We make efforts to find the best way for many participants to learn the method of seismic estimation since it is available even for non-engineers.

【3-4】 Development of a Guideline on Seismic Strengthening and Rebuilding (Activity 2.2.1)

Based on the improvement plan confirmed in [3-1] and the seismic estimation GL from [3-2], we provide technical support to let NEMA make GL for Seismic Strengthening and Rebuilding, considering Mongolia's actual situation. The following are points to note for preparation:

- Balanced Seismic Strengthening: Properly estimate where it is impossible to retrofit, for example, foundations, etc., and note not to overly retrofit on specific areas.
- Economic efficiency: Can retrofit with inexpensive materials and techniques.

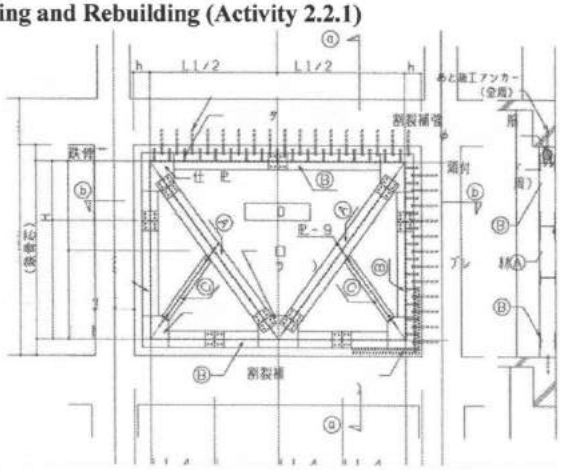


Figure 3.1.3 Example of Strengthening by Steel Bracing for RC Structure

- Assessment of Seismic Strengthening and Rebuilding: Can judge to retrofit or to rebuild under technical and economical restrictions.
- Priority: Give priority order to the targeted buildings since those are expected to be too many.
- Easy to understand: Present some examples of retrofit methods to let the inexperienced learn the technical matters easily.

【3-5】 Trial Design of Rebuilding and Strengthening Construction on Housing, Kindergartens, Schools, Hospitals and Government Buildings (Activity 2.2.2)

We make NEMA and the relevant institutions provide technical support to make a trial design of strengthening the above buildings with GL established in [3-4]. The following are points to note for trial design.

- Balanced selection of buildings: Select those that can be proper for trial design of RC structure, PC structure, or Masonry construction.
- Cost calculation: Calculate the cost of retrofitting and use the materials proposed on GL established in [3-4].
- Compile retrofitting documents: Accounts, drawings, etc., produced under trial design are the data for future seismic construction.

Pilot retrofitting work will be done after the discussion on it in the relevant WG activity.

【3-6】 Implementation of Training to Improve Knowledge and Ability on Seismic Strengthening (Activity 2.2.3)

Based on GL and trial design of strengthening and rebuilding, NEMA and participants provide support for those in the Ministry of Construction and Urban Development, State Professional Inspection Agency, UB City Office, the staff of each prefectural section of building, and the other related business circles in order to implement the training plan.

Five-time trainings are proposed as the training programs for seismic strengthening. The training programs are implemented five times basically. The first one is for all participants, and the overview of strengthening and rebuilding is introduced. The following three programs from the second to the fourth are carried out, divided by type of building structure. The training is properly set up with exercises and question-and-answer sessions in order not to be a one-way lecture. The last program is to introduce trial designs and master the whole matter thoroughly from the 2nd to the 4th.

Table 3.1.6 Tentative Training Program for Seismic Strengthening

	Objective	Contents	Participants
1st	Introduction of Seismic Strengthening	• Purpose • Legal background (Positioning of GL) • Judgement of Strengthening or Rebuilding • Priority of Strengthening • Others (Software, etc.)	NEMA, MCUD, State Professional Inspection Agency, UB City, Relevant personnel in each prefecture, other related business circles
2nd	Seismic Strengthening for Masonry Buildings	• Explanation of method and discussion • Exercises	Ditto
3rd	Seismic Strengthening for RC Buildings	• Explanation of method and discussion • Exercises	Ditto
4th	Seismic Strengthening for PC Buildings	• Explanation of method and discussion • Exercises	Ditto
5th	Introduction of Trial Design	• Issues in strengthening design • Technical focus point • Points in strengthening design • Cost, etc.	Ditto

To formulate and implement the training programs, the following is a point to note:

- Play the role of TOT: As a training manual, we compile the methods and points with training materials to let Mongolia continue to carry out the Project after terminating. We provide several trainings and play the role of TOT in order to let Mongolia's staff be trainers themselves.

Task [4] Activities for Output 3

At the beginning of the activities, a working group (WG) for school DRR education is formed consisting of the counterparts in charge of school DRR education in NEMA and MECSS and JICA experts. The WG undertakes coordination and management roles for smooth preparation and effective implementation of the below [4-1], [4-2], [4-3] and [4-4] activities. During the stay of the JICA experts, the WG meetings are periodically conducted.

Also, a WG for community DRR awareness is formed consisting of the counterparts in charge of community DRR awareness in NEMA, MECSS, etc., and JICA experts. The WG plays coordination and management roles for smooth preparation and effective implementation of the below [4-5], [4-6] and [4-7] activities and convenes regular meetings during JICA experts' stay.

【4-1】 Development of Guideline for DRR Education in Pre-School, Elementary School, And Junior High School (Activity 3.1.1)

Article 14 of The Revised Disaster Management Law, "disaster protection training and advocacy", stipulates that the administrative organization in charge of education shall be responsible for training on disaster protection education for students, schoolchildren and preschoolers as reflected in education planning. In the current education curriculum in elementary and junior high school, DRR education is not one separate subject. Some subjects include contents related to disasters and DRR, however, they are not indicated for systematic study for DRR.

For providing systematic learning of disaster risk reduction in public education, a committee for the development of a guideline for school DRR education is formed consisting of experts, specialists and relevant persons on disasters and DRR in NEMA, MECSS, relevant organizations, IAG, and MUST. The committee reviews current laws and regulations on DRR education, the teacher training system, and past activities related to DRR education provided by other donor agencies, and discuss necessary actions and procedures for incorporating DRR education systematically in the curriculum, current subjects, and school activities in public education.

The proposed members of the committee and a preliminary draft outline of the guideline for school DRR education are as shown in the below tables. The members will be finalized based on the discussion in the working group for school DRR education.

Table 3.1.7 Proposed Members of the Committee for the Development of the Guideline for DRR Education in Schools (preliminary draft)

Co-Chairs	NEMA: Director for Disaster Prevention (or Deputy Director) MECSS: Director for Education Policy (or Deputy Director)
Secretariat	Members of the WG for school DRR education (NEMA Disaster Prevention Department: Senior Officer 1, Junior Officers 2) (MECSS Primary and Secondary Education Division: Senior Officer 1, Junior Officers 2) (JICA Experts in charge of DRR Education)
Members	Director of NEMA Disaster Research Institute Director of Disaster Prevention Division of EMDC Director of Pre-school Education Division of MECSS Director of Higher Education Division of MECSS Officer of Education Program Research Sector, Education Institute Officer of Pre-school, Primary, and Secondary Education Department, Institute of Teacher's Professional Development Officer of Disaster Prevention Technique Institute Officer of Department of Seismology, IAG Experts of Seismology and Meteorological Disasters, Mongolian University of Science and Technology (MUST) Expert of Primary and Secondary Education, Mongolian State University of Education (MSUE) Staff of Mongolia Red Cross Society (MRCS) Staff of UNDP (in charge of the development of DRR education curriculum and materials)

Table 3.1.8 Preliminary Draft Outline of Guideline for School DRR Education (draft)

– Natural disasters and issues & challenges on DRR education in Mongolia – Purpose and objectives of school DRR education – Laws, regulation, and system on school DRR education – Points of attention, and guideline for promoting school DRR education (DRR education according to national standard for education, curriculum, and children's stage of development) – Contents of learning in each subject, and educational activities – Practical examples

【4-2】 Development of Educational Materials for DRR Education in Pre-School, Primary School, and Junior High School (Activity 3.1.2)

Existing DRR educational materials are collected and reviewed by the WG of School DRR Education based on information gained through the discussion in activity [4-1], and through the visit to donor agencies and NGOs that have conducted DRR activities in Mongolia.

UNDP in cooperation with NEMA developed DRR education materials and curriculum for pre-school, primary, and secondary schools in 2016. They are in the process of approval by the MECSS. At the beginning of the project activities, the situation of approval of the contents are reviewed since the contents of the materials seem to cover wide areas of disaster and DRR knowledge and techniques.

The table below shows the proposed review items of existing DRR educational materials. The reviewed materials are listed and kept for future reference.

Table 3.1.9 Proposed Review Items of Existing DRR Educational Materials (draft)

Review Items (draft)	Material A	Material B	Material C
Publisher			
Target learners (pupils, elementary students, junior high school students, etc.)			
Type of materials (books, DVD, work sheet, etc.)			
Target disasters			
Target DRR cycle (disaster mitigation, preparedness, response, and recovery/rehabilitation)			
Contents of learning (mechanism of disasters, disaster mitigation measures, ways to protect yourself from disasters: proactive actions, supporting others / contribution to society, etc.)			
Purpose of leaning (Acquisition of knowledge, experience, learning of thoughts, decision, and perspectives)			
Teaching method (lecture, group discussion, experiment, project-based learning, etc.)			

After the development of the guideline in activity [4-1] and review of the existing materials, insufficient educational materials are identified for providing DRR education based on the guideline. In the JICA Study conducted in March and April of 2016, the following educational materials were identified as insufficient: materials to visually learn earthquake mechanism and effects (image model for learning magnitude and seismic intensity, shaking experiment equipment, etc.); materials to learn efforts for mitigating disaster damage (seismic protection of buildings, prevention measures for electric and gas leakage, etc.); materials to

learn / teach proactive actions (DRR field exercise to check risks of towns, disaster simulation game, games to learn first actions to be taken in case of a disaster, etc.)

In the Project activity, based on the discussion and decision in the WG of School DRR Education, one material each for pre-school, primary and secondary schools (total 3 materials) are developed. Task forces for the development of each material are formed for the development of materials. Appropriate number of workshops is held for discussing the contents appropriate for Mongolia. The table below shows the proposed members of task forces and participants of the workshops.

Table 3.1.10 Proposed Members of Task Forces and Participants of the Workshops.

		Pre-School	Primary School	Secondary School
Task force (10-13 persons)	Chair	Officer of NEMA Disaster Prevention Department		
	Secretariat	WG for School DRR Education		
	Members (5 persons)	Pre-school education division of MECSS, Education Institute (Education Program Sector), Institute of Teacher's Professional Development (Pre-school, Primary, and Secondary Education Dept.), Department of Seismology of IAG, Experts of Seismology of MUST	Education Institute (Education Program Sector), Institute of Teacher's Professional Development (Pre-school, Primary, and Secondary Education Dept.), Department of Seismology of IAG, Experts of Seismology of MUST	Education Institute (Education Program Sector), Institute of Teacher's Professional Development (Pre-school, Primary, and Secondary Education Dept.), Department of Seismology of IAG, Experts of Seismology of MUST
Participants of Workshops (Total 30 persons)		Above task force members and 20 additional persons related to pre-school education from EMDC, Education Institute, Institute of Teacher's Professional Development, Educational Department of UB City, schools of UB City, and MRCS	Above task force members and 20 additional persons related to primary school education from EMDC, Education Institute, Institute of Teacher's Professional Development, Educational Department of UB City, schools of UB City, and MRCS	Above task force members and 20 additional persons related to secondary school education from EMDC, Education Institute, Institute of Teacher's Professional Development, Educational Department of UB City, schools of UB City, and MRCS

【4-3】 Implementation of Training Program for Teacher Instructors (Activity 3.1.3)

Through discussion in the WG for School DRR Education, the training program for teacher instructors is planned and implemented utilizing the guideline and materials developed in activity [4-1] and [4-2]. In addition, the evaluation method of the training are developed. The 3-day training program for 30 instructors is conducted each for pre-school, elementary school, and secondary school. Evaluation of the training is conducted for each of the training programs.

After the training, through the review of the training, a DRR education training manual is developed by the WG of School DRR education for ensuring sustainability of training implementation. The proposed training schedule is as shown in the below table.

Table 3.1.11 Schedule of Implementation of Training Program for Teacher Instructors

	Instructors for Pre-school Teachers	Instructors for Primary School	Instructors for Secondary School
Planning and Preparation of Training	March-April 2018	April-May 2018	May-June 2018
Implementation of Training (for 30 instructors)	April 2018	May 2018	June 2018
Review of the Training and Development of Training Manual	April-June 2018	May-July 2018	June-Aug. 2018

【4-4】 Indirect Support for Implementation of Training Program for Teachers and School Staff Members (Activity 3.1.4)

The members of the WG for School DRR Education provide indirect support for the training program (target: 30 teachers and school staff members) to be conducted by teacher instructors who joined the training program in activity [4-3].

Further, a 1-day review workshop is conducted for each training, pre-school, primary school, and secondary school. The results of the review, information and lessons learned are compiled by the WG for School DRR Education. The proposed participants of each workshop are 15 persons including members of the WG for School DRR Education, staff members of the Institute of Teacher's Professional Development, instructors who conducted the training for teachers and school staff members.

The proposed schedule for the above training and 1-day workshop are as shown in the table below.

Table 3.1.12 Proposed Schedule of the Training for Teachers and School Staff Members

	Training for Pre-School Teachers	Training for Elementary School Teachers	Training for Secondary School Teachers
Preparation of Training	June-Aug. 2018	Aug.-Sep. 2018	Aug.-Oct. 2018
Implementation of Training (Target: 30 teachers and school staff members)	Aug. 2018	Oct. 2018	Nov. 2018
Implementation of 1-day workshop for review of training Participants: 15 persons including members of WG for school DRR education, staff members of Institute of Teacher's Professional Development, instructors who conducted the training for teachers and school staff members	Aug. 2018	Oct. 2018	Nov. 2018
Finalization of the training manual developed in activity [4-3] based on the results of the above workshop	Aug.-Oct. 2018	Oct.-Dec. 2018	Nov.-Dec. 2018

【4-5】 Development of Comprehensive Schedule of DRR Education and Awareness Raising at National Level and Regional Level (Activity 3.2.1)

According to the previous study, each implementing agency, such as NEMA, EMDC, and donors, independently manages DRR education and awareness raising activities. These plans are not open to other organizations, and that condition makes it difficult for NEMA to comprehensively manage these activities in a

timely manner. In addition, NEMA and EMDC develop their training plan in the beginning of each fiscal year and do not update based on the changes of the schedule. Even though the Revised Disaster Management Law prescribes the agencies to implement DRR education and awareness raising activities, other agencies that are not designated to provide trainings actually implement DRR education and awareness raising activities.

Based on the above-mentioned conditions and challenges, developing a comprehensive schedule of DRR education and awareness raising activities enables NEMA to manage the schedule of EMDC, MECSS and donors that implement DRR activities in Mongolia. The schedule visualizes the activities of various organizations and contributes to avoiding overlap and missing activities. Through the process of developing the schedule, it is expected to strengthen the leadership of NEMA as a coordinating agency of the DRR sector.

The Project will conduct interviews with NEMA, EMDC, MECSS, MRCS and donors about the process of developing a training plan and coordination and collaboration with other related agencies. Based on the result, the Project will investigate the framework for NEMA to manage the training program as a coordinating agency. The Project assumes a framework in which the disaster management agencies and donors formulate a working group and hold regular meetings to update the progress of the Project and coordinate the pilot sites of the trainings. It is expected that the comprehensive schedule, which is the result of coordination among the working group, will be updated on the website so that the information is open to stakeholders. The Project will support the development of the framework to update the comprehensive schedule during the regular meeting of the above-mentioned working group. As for the focal persons, the Project expects the Policy Coordination and Cooperation Department and Disaster Prevention Department, Training Section of NEMA to be the leaders of the working group.

Table 3.1.13 Major Challenges Confirmed in the Previous Study

Current Conditions and Challenges	Countermeasures (draft)
• Role and responsibility of DRR education and awareness raising activities between NEMA and MECSS is not clear. • NEMA and EMDC independently develop annual training schedule. • The staff level of EMDC officers do not have access to overall schedule of the training. • Donors' activities that are a significant portion of the DRR trainings are not reflected in the training schedule • NEMA develops the annual schedule in the beginning of fiscal year but it is not designed to update the schedule.	• Develop accessible comprehensive schedule to government agencies and donors (ex. Website) • Integrate donors' DRR training schedules into annual training plan • The training schedule can be updated in the middle of the fiscal year

【4-6】 Development of DRR Education and Awareness Raising Activities, Educational Material and Implementation of Trainings in the Pilot Areas (Activities 3.2.2)

In Mongolia, the "National Programme for Community Participatory Disaster Risk Reduction" was approved in May 2016, and the DRR educational materials prepared by UNDP for employees, citizens, volunteers were officially endorsed by decree by the Head of NEMA. The Project will review the materials and DRR awareness raising materials developed by MRCS, World Vision and other donors, and will finalize the

contents of the material with NEMA, EMDC, and MECSS. The Project assumes that separate training materials will be developed for urban residents, ger area residents and rural residents based on their regional characteristics. The Project also considers developing audio-visual materials for adults, which other donors do not develop.

For the implementation of pilot activities that will utilize the materials, the Project designs a TOT workshop to train the lecturers to implement awareness raising activities for the public in the DRR training center. The target of the TOT training will be the head of the pilot district, community activity coordinator and volunteers. NEMA and EMDC officers will be the lecturers of the workshop. After the TOT workshop, its participants will conduct DRR awareness raising workshops to implement DRR activities at the community level to the leaders of baug and khroo.

Since the Revised Disaster Management Law prescribes that DRR awareness raising activities should be conducted once a year, it is expected to develop a framework for the participants of the pilot activities to provide lectures to the public once a year. The Project assumes the establishment of such as DRR week, which can be before the comprehensive DRR exercise on Thursday in the fourth week of March, so that the activities can expect a synergetic effect with the existing DRR activities in Mongolia.

Since disaster vulnerability differs by housing structure in Mongolia, the Project selects one pilot site from an urban area, a ger area, and a rural area, considering the future expansion to other regions. The Project will support the implementation of the DRR awareness raising workshops for the public once for each pilot site.

Table 3.1.14 Overview of DRR Awareness Raising Workshops

TOT workshop for awareness raising for public (UB City: DRR Training Center)
Target: head of pilot district, community activity coordinator and volunteers (Approx. 50 persons) Lecturers: NEMA, EMDC, DRR related organizations, MRCS, NGO, etc. Contents: Basic knowledge about disaster (earthquake), DRR System in Mongolia, First Aid, SAR, Methodology to conduct workshops
DRR Awareness raising workshop for public (Pilot area: Urban area, Ger-area, Rural area / 1 time, total 3 times)
Target: Leader of khroo and baug at the pilot areas (Approx. 50 persons) Lecturers: Participants of the TOT workshop, MRCS, NGO Contents: Basic knowledge about disaster (earthquake), Preparation for disaster at household level, disaster response, first aid, and SAR

【4-7】 Develop and Implement Educational and Training Program for Implementing Disaster Prevention and Simulation Program in DRR Training Center (Activity 3.2.3)

It is desirable for the DRR Training Center to have a program to educate students and the public to learn disaster knowledge and preparation like Japanese life safety learning center, as well as the function for DRR awareness raising activities' training mentioned in【4-6】. Since the program should be applicable to the leisure of the public and extracurricular activity of students, the Project assumes to develop a two-hour program as is commonly designed in Japanese life safety learning center.

Even though the facility of the DRR Training Center was established in 2016, a detailed layout and necessary materials and facilities have not been procured yet. The Project will investigate the operation and maintenance

of the Center during the site visit and finalize the specifications of the equipment with C/Ps by utilizing C/P training in Japan. Based on the equipment to be procured by the Project, the Project designs training programs, assists in the procurement of the equipment, and supports the operation of the training program. Considering expansion to other regions, the training program and exhibition will include a movie, DRR goods exhibition, and DRR quiz, which do not require a large-scale facility such as the DRR Training Center. The contents of the exhibition will take into account installation in the existing facilities such as the EMD office at the province level and the Regional Disaster Preparedness Center, which are the regional bases of MRCS.

Table 3.1.15 Program of DRR Training Center and Example of Necessary Equipment

Program	Purpose	Equipment (Example)
DRR theater (Approx. 30 mins)	To visualize how an earthquake is frightful and devastating	Movie material about earthquake
Earthquake experience (Approx. 20 mins)	To experience the shake of an earthquake for those who do not have experience of a felt earthquake	Earthquake generating equipment
Fire extinguisher experience (Approx. 20 mins)	To experience how to use a fire extinguisher	Fire extinguisher, screen
Smoke experience (Approx. 20 mins)	To learn proper action during fire by demonstrating the situation of fire hazard	Equipment for generating harmless smoke
DRR goods exhibition	To introduce disaster preparation at resident level	DRR goods, DRR game for children, etc.
DRR quiz booth	To confirm the level of understanding about the contents of exhibition	Exhibition panel

3.2 Products

Table 3.2.1 shows the kind of reports to be prepared during the project period.

Table 3.2.1 The name of Reports and their Preparation Timing

Products	Preparation timing
Work Plan	By the end of December 2016
Monitoring Sheets	Within one month after project launch and every six months thereafter
Project Progress Report	One year after project launch; two years after project launch
Project Completion Report	At the time of project completion

4. Project Implementation Structure

4.1 Project Implementation Structure

The implementation structure of the Project is shown in the figure and table below.

Given that many stakeholders are involved in the activities for each output, a working group (WG) will be set up to conduct the Project smoothly for each of the three outputs: disaster management plan, seismic resistance, and DRR education. Each WG, made up of representatives of NEMA and other related organizations including government departments, will meet once every one to two weeks to share information and discuss the policy and activities for the output concerned. Each WG will draw up a Monthly Report to communicate the results of the discussion and project progress to other stakeholders in the Project. The Steering Committee will come together before each JCC meeting basically. At the Steering Committee, JCC member of counterpart organizations and representatives of each WG will discuss the Monitoring Sheets and share relevant information.

For authorized process of guidelines for seismic diagnosis of buildings, seismic diagnosis of infrastructures and lifelines and design for seismic strengthening, three study committees will be set up among members of academic societies and engineering associations in Mongolia with WG2 member. Those committees will be organized and managed mainly by MCUD, and WG2 will ask each committee to develop technical guidelines based on their abundant experiences and technical knowledge of design and construction.

For developing school DRR education guidelines, establishment of the study committee to authorize the guidelines for school DRR education is proposed. The committee will be set up among researchers of seismic hazard, experts of education, teachers and officers of related organizations for education in Mongolia. The committee member will discuss the content of draft guidelines which will be prepared by WG3 through several times of meetings.

Figure 4.1.1 Chart of organizations involved in the Project

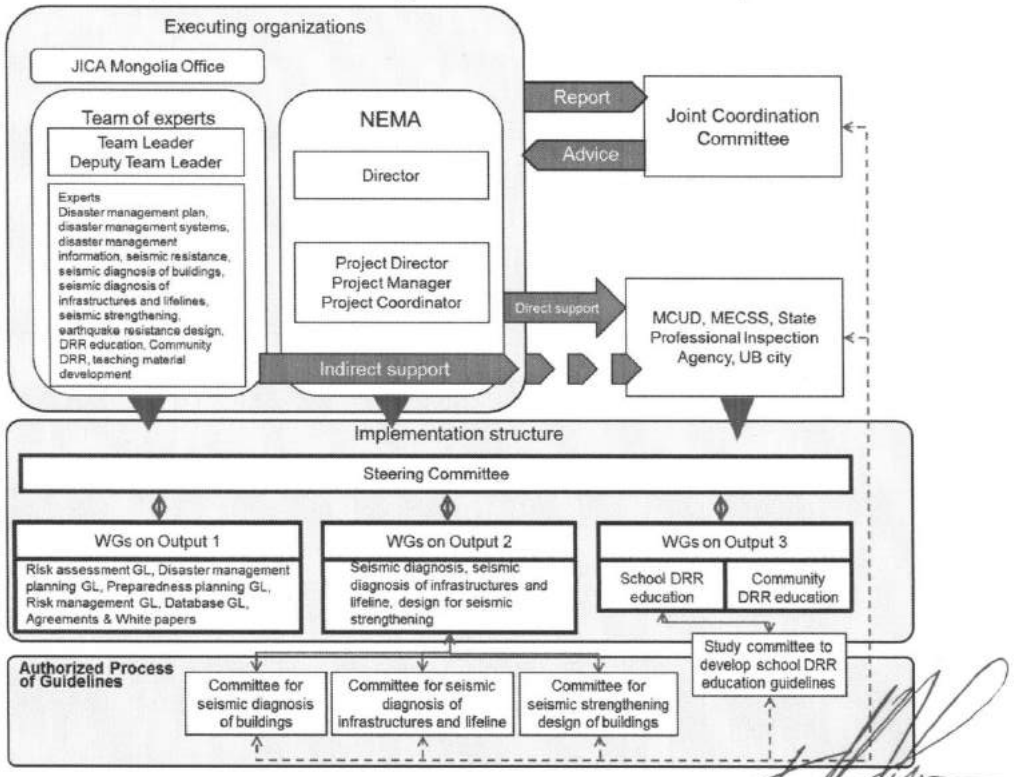


Table 4.1.1 Working Groups

Working Group (WG)		Sub-WG	Member	
			Mongolian Side	Japanese Side
WG1	**Disaster Management Plan** WG1 Coordinator: **D.Bazarragchaa** Policy Coordination and Cooperation Department, NEMA	Risk Assessment Guideline	**D.Serjmyadag** Law Enforcement University of Mongolia **P.Amarzaya** Disaster Research Institute, NEMA	**Osamu NISHII**
		Disaster Management Planning Guideline, Preparedness Planning Guideline and Risk Management Guideline	**Ts.Turmandakh** Disaster Operation Department, NEMA **B.Bayanmunkh** Policy Coordination and Cooperation Department, NEMA **B.Batsaikhan** Disaster Prevention Department, NEMA **B.Khishigbaatar** EMDC	**Osamu NISHII** **Kensuke ICHIKAWA**
		Database Guideline	**B.Purevnyam** Disaster Operation Department, NEMA **D.Badamsuren** Disaster Research Institute, NEMA **Sodnomragchaa** Disaster Research Institute, NEMA	**Tadashi ISE** **Akihiro FURUTA**
		Agreements & White papers	**E.Altankhishig** Policy Coordination And Cooperation Department, NEMA **D.Erdenebat** Administrative Management Department, NEMA	**Osamu NISHII** **Kensuke ICHIKAWA** **Yoshitaka YAMAZAKI** **Shiro MAKITA**
WG2	**Seismic Resistance** WG2 Coordinators: **D.Zanabazar** MCUD **Z.Battulga** Disaster Operation Department, NEMA	Seismic Diagnosis of Buildings	**D.Zanabazar** MCUD **A.Ankhtuya** MCUD **Sh.Uranchimeg** Inspection Agency **B.Tsend-Ayush** Master Planning Agency of Capital City, Construction Quality and Safety Department **G.Saruultuya** Construction Development Center **T.Galbadrakh** Finance and Logistics Department, NEMA	**Seiichiro FUKUSHIMA** **Masahide AOKI** **Shigeki KITA**
		Seismic Diagnosis of Infrastructures and Lifelines	*Same as Seismic Diagnosis of Buildings*	**Jun MATSUO** **Seiichiro FUKUSHIMA**
		Design for Seismic Strengthening	*Same as Seismic Diagnosis of Buildings*	**Seiichiro FUKUSHIMA** **Hideto OMINE**
WG3	**DRR Education** WG3 Coordinator: **D.Munkhbat** Disaster Prevention Department, NEMA	School DRR Education	**Ch.Gantsetseg** MECSS **D.Munkhbat** Disaster Prevention Department, NEMA	**Miki KODAMA** **Yujiro OGAWA** **Yoko OTA** **Amarjargal NAYANBAATAR**
		Community DRR Education	**D.Bat-Erdene** Disaster Prevention Department, NEMA **Sh.Ganbold** EMDC	**Miki KODAMA** **Yujiro OGAWA** **Toshikazu HIWAKI** **Yoko OTA** **Amarjargal NAYANBAATAR**

Supporting JCC meetings and explaining progress

To establish the Project implementation structure, the first JCC meeting will be held in at the start of the Project, in December 2016. The expert team will support the meeting, making arrangements for the director of NEMA, who will chair the meeting, to attend the meeting. The first JCC meeting will aim to reach consensus on the schedule, implementation structure, and other aspects of the Project. The JCC will meet quarterly in light of the request from NEMA director, the chair.

Table 4.1.2 JCC Members

	Name	Job title
Chairperson	Tuvshin Badral	Chief of NEMA / Brigadier general
Members of Mongolian side	L. Saynaa	Advisor in charge of Emergency Management of Deputy Prime Minster
	Sandag Magnaisuren	State Secretary of Ministry of Construction and Urban Development
	B. Uuganbyar	Director of Disaster Operation Department, NEMA
	Yondonsuren Jargalsaikhan	Referent of National Security Council
	Luvsansharav Ulziibayar	Director of Policy Coordination and Cooperation Department, NEMA
	Dorjnyam Jargal	Director of infrastructure and State Inspection Department, General State Inspection Agency
	Z. Munkh-Orgil	Officer of Aid Policy Division, Development Financing and Debt Management Department, Ministry of Finance
	G. Myagmar	Director, Division of Preprimary and Primary Education of Ministry of Education, Culture, Science and Sports
	P. Bayarkhuu	Vice Mayor of the Capital City in charge of Urban Development
	N. Ulambayar	Director of Emergency Management Department of the Capital City (EMDC)
	Gombosuren Enkhtuya	Director of Construction Quality and Safety Division, Master Planning Agency of Capital City
Members of Japanese side	Mutsumi SATO	Chief Representative of JICA Mongolia office
	Hiromi SAWADA	Senior Representative of JICA Mongolia office
	Yukinari HOSOKAWA	Officer in charge of the Project of JICA headquarter
Observer		The Embassy of Japan in Mongolia

Table 4.1.3 Proposed Items to be Discussed at the First JCC Meeting

Proposed agenda for the first JCC meeting	
• Content of the Work Plan • Planning project activities • Approval of Monitoring Sheets I & II "Ver. 1"	• Designation/appointment of C/P officials in charge of each output • Components and candidate participants in the first training in Japan • Schedule for the next JCC meeting

5. PDM

5.1 PDM

The PDM is shown in the below table.

Table 5.1.1 Project Design Matrix (1/3)

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption	Achievement
Overall Goal				
Seismic risk will be reduced.	1. Number of the approved guideline, rules, provisions 2. Number of white paper open to public 3. Number of the executed seismic assessment 4. Number of the seismic strengthed building 5. Number of implemented activities on disaster risk reduction education	Study by NEMA	The policy on disaster risk reduction will not be changed in Mongolia.	
Project Purpose				
The Capacity of National Emergency Management Agency will be enhanced through the activities for strengthening the countermeasures for seismic risk.	1. The number of the approved guidelines and agreement 2. The number of the data on disaster risk reduction which newly established and improved	Project report	NEMA expands the pilot activities in other aimags and sums.	
Outputs				
1. Capacity for data collection on disaster risk reduction and coordination among related organizations will be enhanced.	1.1 The number of guidelines, operational rules, provisions which are developed. 1.2 The number of the draft of agreement developed and participants who participated in the training programs on agreements 1.3 White peper on disaster risk reduction	Project report	1. The counterparts from NEMA, the Ministry of Construction and Urban Development and the Ministry of Education continue to work in the same position. 2. Participants in training programs continue to work in the same position. 3. The relation among related organizations is maintained. 4. Exchange information is maintained among the related organizations.	
2. Capacity of public administration officer related with the seismic assessment and seismic strengthening for buildings will be enhanced.	2.1 Guideline for seismic assessment The number of the participants in the training program on seismic assessment 2.2 Guideline for seismic strengthening The number of the traning program on seismic strengthening	Project report		
3. Implementing plan on disaster risk reduction education and awareness raising activities will be developed and realized.	3.1 The number of the cases of delivering classes on disaster risk reduction based on the activities of the Project 3.2 The number of visitos in Training Center	Ordinance of Ministry of Education, Culture and Science Ordinance of NEMA		

Table 5.1.2 Project Design Matrix (2/3)

Activities	Inputs		Important Assumption
	The Mongolian Side	**The Japanese Side**	
1.1.1 To identity problems and challenges on implementation of legal frameworks of disaster risk reduction 1.1.2 To develop guidelines on improvement of legal frameworks and plans, assessment of disaster risk and database on disaster risk reduction 1.1.3 To develop new regulation and the drafts(note 1-1)) of revised version of regulation on implementation of Law of disaster protection 1.2.1 To develop the draft of the agreement (note 1-2)) which shows the coordination and cooperation among NEMA and related organizations 1.2.2 To realize training programs for disseminating the agreement menttioned in 1.2.1 and strengthening the coordination structure among organizations related with disaster risk reduction 1.3.1 To identify problems and challenge of monitoring, report, evaluation and disclosure of disaster protection plan at national and local levels (note 1-3)) 1.3.2 To revise these plans and make a manual for the revision of disaster protection plan 1.3.3 To improve the present system (note 1-4)) which collect and analyze information on disaster risk reduction	Assignment of counterparts - Project Director - Project Managers - Project Coordinator - Project Members For Output 1 - Policy Coordination and Cooperation Depertment, NEMA - Disaster Operational Department,. NEMA - Disaster Prevention Department, NEMA - Disaster Research Institute, NEMA - Emergency Management Department of Capital City (EMDC)	Dispatch of Experts - Leader - Disaster Risk Management - Disaster Risk Reduction Framework - Disaster Risk Reduction Information - Seismic Strengthening Assessment - Seismic Strengthening Method - Seismic Strengthening Design - Disaster Risk Reduction Education - Disaster Risk Reduction at Commnity Level - Educational Material Development Provision of Equipment - Equipment for seismic assessment - Earthquake simulation experience equipment for Training Center such as shaking table Training in Japan and/or the third countries	

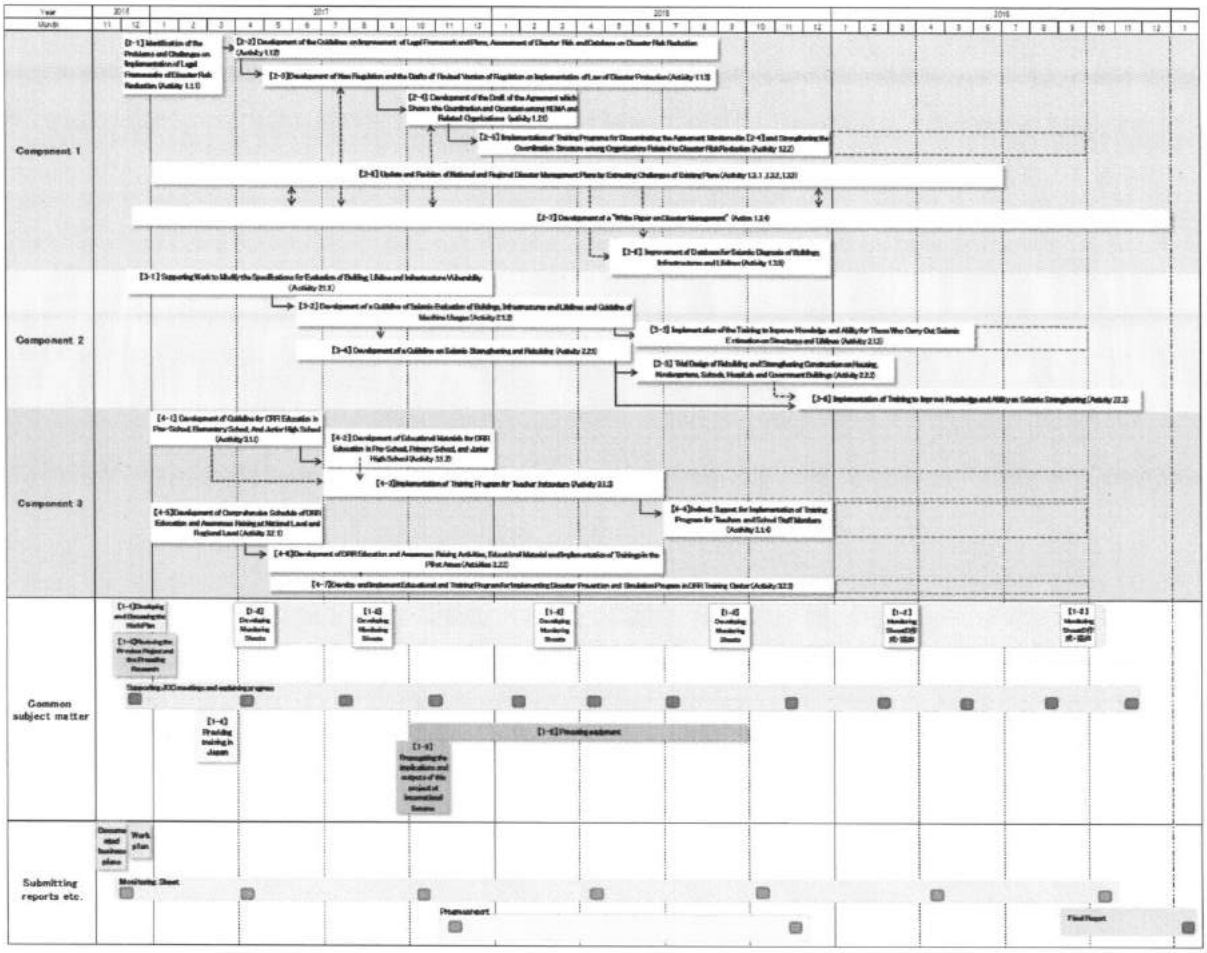
Table 5.1.3 Project Design Matrix (3/3)

Activities	Inputs		Important Assumption
3.1.1 To develop a guideline which shows contents, method and implementation way of disaster risk reduction education in kindergaten and schools based on Law of Disaster Protection 3.1.2 To develop textbooks, supplementary readers and eduational materials related with disaster risk reduction education in kindergarten and primary and secondary schools 3.1.3 To implement training programs for the instructors (note 3-1)) of Teacher Traininig Institutes and experts of educational department in local governments, using the guideline and materials developed in 3.1.1 and 3.1.2 respectively 3.1.4 To implement the training program for teachers by the instructors and experts who received the training programs mentioned in 3.1.3 3.2.1 To develop comprehensive work plan (note 3-2)) for disaster risk reduction education and raising awareness at national and local levels 3.2.2 To develop materials for the training on disaster risk reduction education and raising awareness, and implement the training for the target groups (note 3-3)) in pilot areas 3.2.3 To develop and implement educational and training program for implementing disaster prevention and simulation program in Training Center	For Output 3 - Disaster Prevention Department, NEMA - Ministry of Education, Culture and Science - Teacher Training Institute - Educational Research Institutte - Emergency Management Department at aimag level		<Issues and countermesures>

6. Operational Flow Chart

6.1 Operational Flow Chart

The following operational chart is shown in the below figure.



- The dashed bar chart means possibility to extend the period of activties for dissemination and awareness-raising of guidelines prepared through the Project to organizations related to disaster management and resident in Mongolia

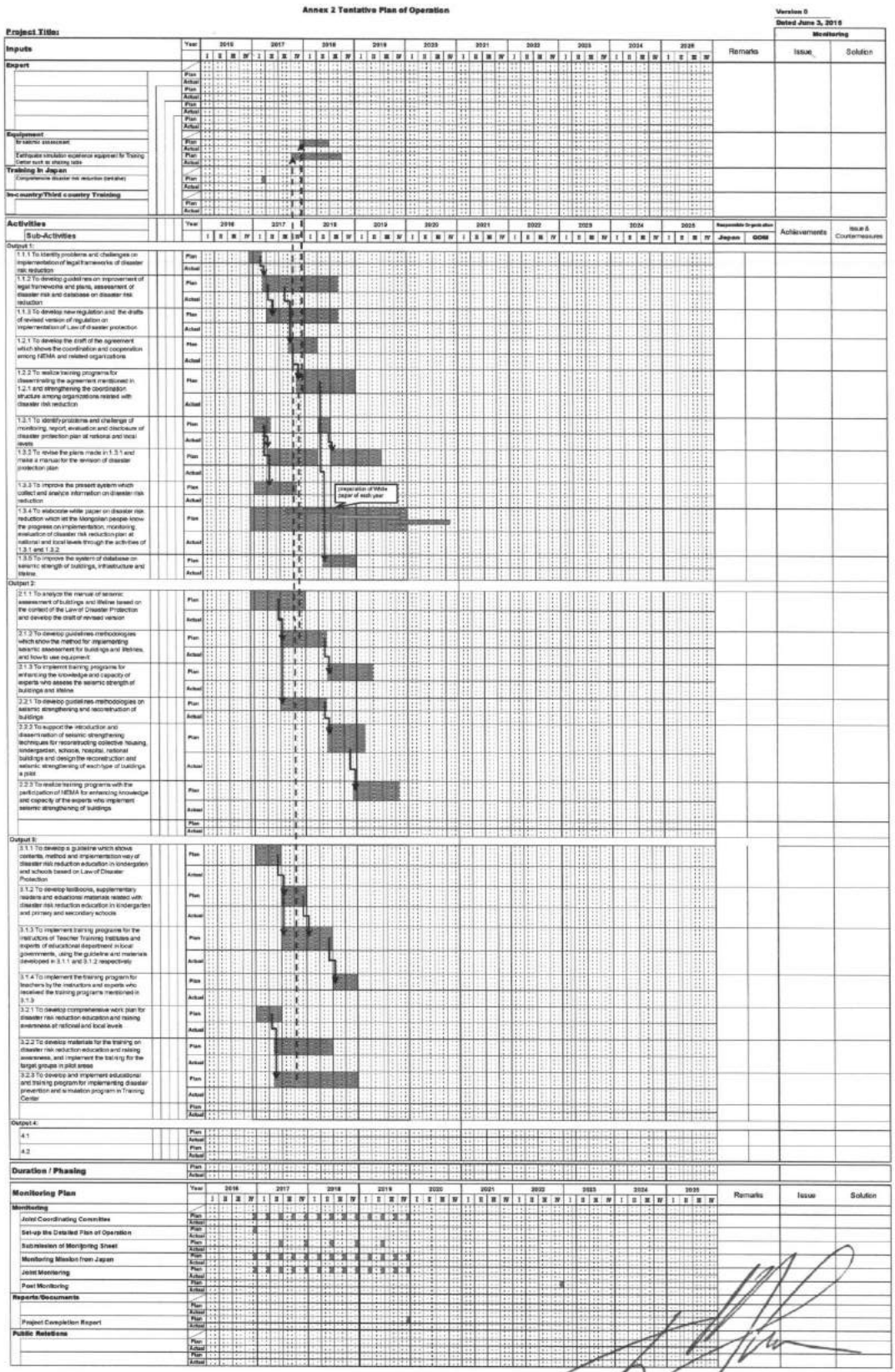
Figure 6.1.1 Operational Flow Chart

7. Plan of Operation

7.1 Work Breakdown Structure

The Work Breakdown Structure (WBS) of the Project is shown in the below table.

Table 7.1.1 Work Breakdown Structure



8. Personnel Plan

8.1 Members of the Expert Team

The table below shows the expert member of the Project:

Table 8.1.1 The experts by area of responsibility

Outputs	Area of responsibility	Name
Across the outputs	Team Leader/integrated disaster management I	Kiyotaka OWADA
	Deputy Team Leader/integrated disaster management II	Akihiro FURUTA
Output 1: Disaster management plan	Disaster management plan I	Osamu NISHII
	Disaster management plan II	Kensuke ICHIKAWA
	Disaster management system I	Yoshitaka YAMAZAKI
	Disaster management system II	Shiro MAKITA
	Disaster management information I	Tadashi ISE
	Disaster management information II	Akihiro FURUTA
Output 2: Seismic resistance	Seismic resistance	Seiichiro FUKUSHIMA
	Seismic diagnosis of buildings /seismic strengthening I(RC, PC)	Masahide AOKI
	Seismic diagnosis of buildings /seismic strengthening II (Masonry Construction)	Shigeki KITA
	Seismic diagnosis of infrastructures and lifelines	Jun MATSUO
	Earthquake resistance design	Hideto OMINE
Output 3: DRR education	DRR education I	Miki KODAMA
	DRR education II	Yujiro OGAWA
	Community disaster management / project coordination I	Toshikazu HIWAKI
	Development of disaster management teaching materials I	Yoko OTA
	Development of disaster management teaching materials II / project coordination II	Amarjargal NAYANBAATAR

8.2 Operational Personnel Architecture

The figure below shows a schematic chart of the personnel architecture that depicts the overall picture of the implementation structure of the Project:

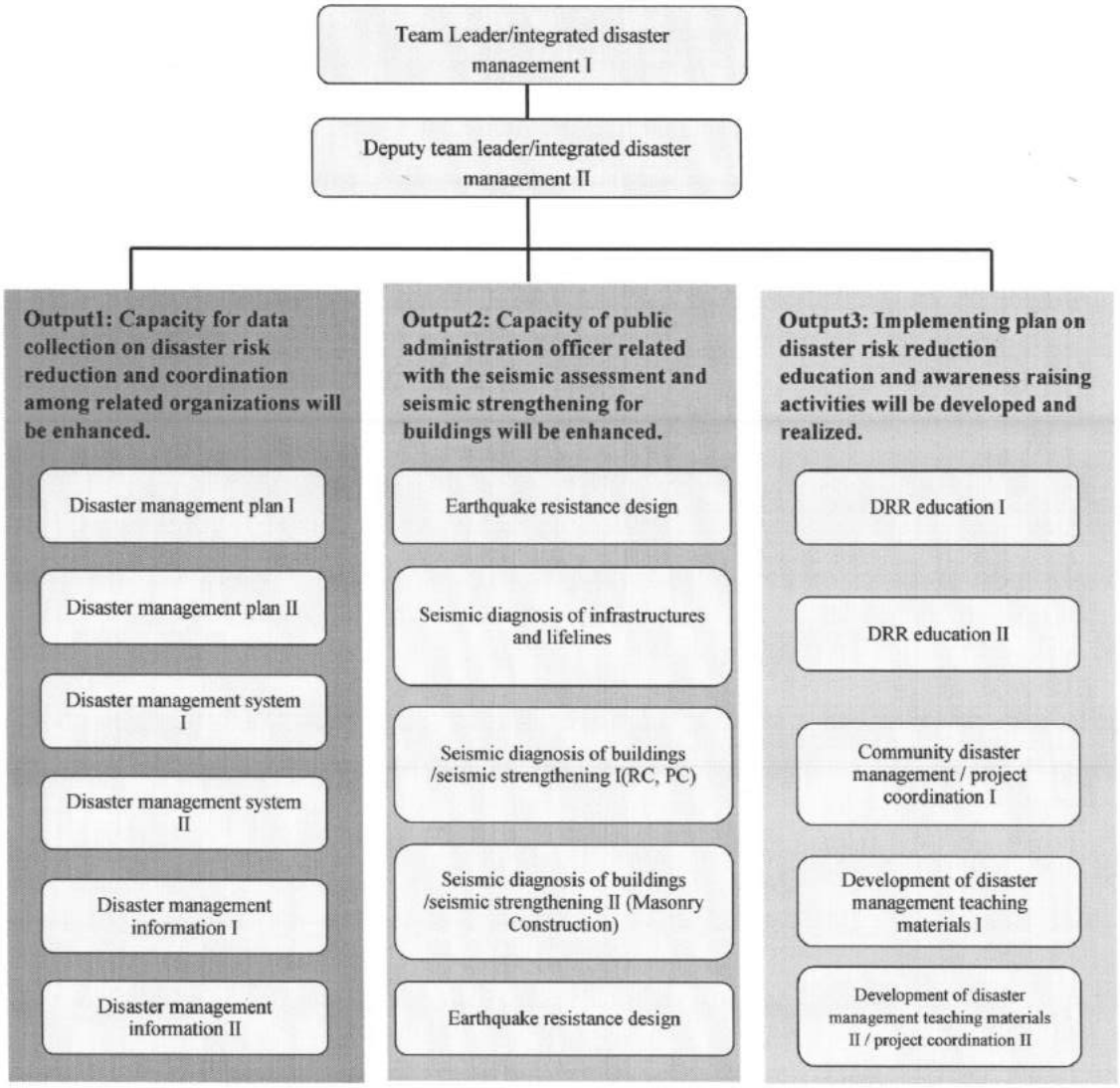


Figure 8.2.1 Chart of the expected implementation structure of the Project

9. Arrangements to be Made by the Partner Implementing Agency

- Suitable office space with necessary equipment
- Credentials or identification cards
- Available data (including maps and photographs) and information related to the Project
- Necessary facilities to the JICA experts for the remittance as well as utilization of the funds introduced into Mongolia from Japan in connection with the implementation of the Project
- Information as well as support in obtaining medical service