RECORD OF DISCUSSIONS

ON

THE PROJECT FOR CAPACITY DEVELOPMENT OF THE DEPARTMENT OF CLIMATE CHANGE ADAPTATION AND STRATEGIC RISK MANAGEMENT FOR STRENGTHENING OF PUBLIC INFRASTRUCTURE, PHASE II

IN

EL SALVADOR

AGREED UPON BETWEEN

THE MINISTRY OF PUBLIC WORKS, TRANSPORTATION, HOUSING AND URBAN DEVELOPMENT

AND

THE JAPAN INTERNATIONAL COOPERATION AGENCY

San Salvador, February 29th, 2016

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Japan

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Based on the minutes of meetings on the Detailed Planning Survey on the Project for Capacity Development of the Department of Climate Change Adaptation and Strategic Risk Management for Strengthening of Public Infrastructure, Phase II in El Salvador (hereinafter referred to as "the Project") signed on 22 October, 2015 between the Ministry of Public Works, Transportation, Housing and Urban Development (hereinafter referred to as "MOPTVDU") and the Japan International Cooperation Agency (hereinafter referred to as "JICA"), JICA held a series of discussions with MOPTVDU and relevant organizations to develop a detailed plan of the Project.

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

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

The Project will be implemented within the framework of the Agreement on Technical Cooperation signed on 17 August, 2005 (hereinafter referred to as "the Agreement") and the Note Verbales exchanged on 18 June, 2015 between the Government of Japan (hereinafter referred to as "GOJ") and the government of El Salvador (hereinafter referred to as "GOES").

These texts were done in both English and Spanish, each text being equally authentic. In case of any divergence of interpretation, the English text shall prevail.

Appendix 1: Project Description
Appendix 2: Main Points Discussed
Appendix 3: Minutes of Meetings on the Detailed Planning Survey

Appendix 1

PROJECT DESCRIPTION

Both parties confirmed that there is no change in the Project Description agreed on in the minutes of meetings concerning Detailed Planning Survey on the Project signed on October 22, 2015 (Appendix 3).

I. BACKGROUND

Due to its geographical conditions, El Salvador has been extremely vulnerable to a variety of natural disasters, such as hurricanes, tropical storms, earthquakes and volcanic eruptions, which frequently affect its territory and people.

The recent trends of increasing natural hazards have posed risks not only on human lives but also on public infrastructures such as roads, bridges and urban drainage systems.

Given this situation, MOPTVDU has established the Department of Climate Change Adaption and Strategic Risk Management (hereinafter referred to as "DACGER"), in order to integrate and promote the risk prevention and mitigation for public infrastructures.

This initiative of reducing the vulnerability of infrastructure from natural disasters is included in the Five-Year Development Plan 2014-2019 and the MOPTVDU's Institutional Strategic Plan 2009-2024.

GOJ and JICA have been supporting the disaster risk management sector in El Salvador, as one of the priority areas of cooperation. In 2012-2015, the Project for capacity development of the department of climate change adaptation and strategic risk management for strengthening of public infrastructure, phase I, was implemented for DACGER to improve their capacity of the risk management primarily against rain. Based on the new request from GOES, the GOJ has decided to implement the Project (Phase Ⅱ) and entrusted it to JICA.

II. OUTLINE OF THE PROJECT

Details of the Project are described in the Logical Framework (Project Design Matrix: PDM) (Annex I) and the tentative Plan of Operation (Annex II).

1. Title of the Project

The Project for Capacity Development of the Department of Climate Change

Adaptation and Strategic Risk Management for Strengthening of Public Infrastructure, Phase Ⅱ

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

Capacity of the Department of Climate Change Adaptation and Strategic Risk Management (DACGER) is strengthened to improve disaster risk management of road infrastructure.

3. Outputs

(1) Risk diagnosis ability against earthquake for road infrastructure (bridges, road slopes) is improved.
(2) Standard specifications, design guide and cost estimation standards for road disaster risk reduction projects are formulated.
(3) DACGER's project management capacity on road disaster risk reduction projects is enhanced.
(4) Project outcomes from disaster risk diagnosis and road disaster risk reduction projects are shared with domestic and outside countries.

4. Activities

1-1. Review and analysis of earthquake-resistance design standards
1-2. Setting earthquake-resistance standards for bridges and road slopes.
1-3. Collection and organization of basic information on bridges and road slopes during phase 1.
1-4. Formulation of manuals and formats of risk diagnosis.
1-5. Implementation of risk diagnosis
1-6. Planning of road disaster risk reduction projects with total risk assessment from rain and earthquake hazards
1-7. Prioritization of road disaster risk reduction projects through countermeasure alternative studies with benefit-cost analysis.

2-1. Formulation of standard specifications (monitoring of movement state, quality management, construction management) for road disaster risk reduction projects
2-2. Formulation of design guide for road disaster risk reduction projects.
2-3. Formulation of cost estimation standards for road disaster risk reduction projects.
2-4. Request for the approval of standard specification, design guide and, cost estimation standards

3-1. Selection of several pilot projects for risk reduction in road disaster
3-2. Implementation of Environmental and Social Consideration Study based on Terms of reference as referred in Annex VII
3-3. Construction ordering of pilot projects subject to standard specifications3-4. Implementation and management of pilot projects subject to standard specifications

4-1. Strengthen communication between MOPTVDU and public about the project progress and outcomes
4-2. Technical transfer of the Project outcomes to infrastructure-related organizations and local governments by DACGER as master trainers
4-3. Technical exchanges among engineers who are assigned to public infrastructure projects for sharing the Project outcomes (technical tour invitation to pilot projects site at implementation time)
4-4. Sharing of the risk diagnosis manual and standard specifications with Central American Secretary for Economic Integration (hereinafter referred to as "SIECA") and countries of Central America

5. Input
(1) Input by JICA
(a) Dispatch of Experts
- Chief advisor / Road disaster risk management.
- Deputy chief advisor / Disaster mitigation project management.
- Slope diagnosis.
- Bridge diagnosis.
- Design / Cost estimation.
- Construction management.
- Geographic Information.
- Environmental and social consideration.
- Experts in other fields, as necessity

(b) Machinery and Equipment
- 3D laser scanner for ground and structure.
- Satellite image and photograph processing software.
- Thermal infrared image camera.
- Automatic measuring device of soil moisture / pore pressure.
- Automatic rain gauges.
- Seismic design software.
- Microtremor array measurement equipment.
- Equipment of primary and secondary wave speed measurement by down-hole method.
- Accelerometer
- Other machinery and equipment, as necessity

(c) Expense of technical exchange with third country, congress participation

In case of importation of the machinery, equipment and other materials under II-5 (1) (b) above will become the property of GOES upon being delivered to MOPTVDU.

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

(2) Input by MOPTVDU

MOPTVDU will take necessary measures to provide at its own expense:

(a) Services of MOPTVDU's counterpart personnel and administrative personnel as referred to in II-6;
(b) Suitable office space and facilities with necessary equipment;
(c) Supply or replacement of machinery, equipment, instruments, vehicles, tools, spare parts and any other materials necessary for the implementation of the Project other than the equipment provided by JICA;
(d) Means of transport and security consideration for the JICA experts for official travel within El Salvador;
(e) Information as well as support in obtaining medical service;
(f) Identification cards;
(g) Available data (including maps and photographs) and information related to the Project;
(h) Running expenses necessary for the implementation of the Project.
(i) Necessary facilities to the JICA experts for the remittance as well as utilization of the funds introduced into El Salvador from Japan related to the implementation of the Project; and
(j) Necessary action to secure the budget for pilot projects.

6. Implementation Structure

The Project organization chart is given in the Annex III. The roles and assignments of relevant organizations are as follows:

(1) MOPTVDU

(a) Project Director

The Minister of MOPTVDU will be responsible for overall administration and implementation of the Project.

(b) Acting Project Director

Chief of Minister's office will be the substitute of the Project Director as acting project director when the project director is absent.

(c) Project Manager

Director of the DACGER will be responsible for the managerial and technical matters of the Project.

(2) JICA Experts

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

(3) Joint Coordinating Committee

Joint Coordinating Committee (hereinafter referred to as "JCC") will be established in order to facilitate inter-organizational coordination. JCC will be held at least once a year and whenever deems it necessary. JCC will be informed of an annual work plan and overall progress including monitoring and

evaluation of the Project, and exchange opinions on major issues that arise during the implementation of the Project. A list of proposed members of JCC is shown in the Annex Ⅳ.

7. Project Site(s) and Beneficiaries

(1) Project Site

Whole El Salvador

(2) Direct beneficiaries

Technical Staffs of DACGER and other participants of trainings or seminars provided in the Project.

(3) Indirect beneficiaries

- Engineers who receive technical service from DACGER such as technical assistance, trainings and seminars through the Project.
- Road users in El Salvador

8. Duration

Five years from the date when the expert team arrives.

9. Reports

MOPTVDU and the JICA experts will jointly prepare the following reports in Spanish.

(1) Monitoring Sheet on semiannual basis until the project completion

(2) Project Completion Report at the time of project completion

10. Environmental and Social Considerations

(1) MOPTVDU agreed to abide by 'JICA Guidelines for Environmental and Social Considerations' in order to ensure that appropriate considerations will be made for the environmental and social impacts of the Project, especially for road disaster risk reduction projects to be supported by the Project.

(2) Environmental Checklist

The environmental and social considerations including major impacts and mitigation measures for the Project are summarized in the Environmental Checklist attached as Annex V. It will be reviewed, and may be revised, in the course of the Environmental and Social Consideration Study for the selected pilot project site.

(3) Monitoring for Environmental and Social Considerations

Monitoring for environmental and social considerations will be conducted by MOPTVDU in accordance with the Monitoring Plan for the Project described in Environmental Management Plan (EMP).

The results of monitoring will be provided to JICA by filling in the Monitoring Form attached as Annex VI, as part of progress reports during the construction phase, and [quarterly, half-yearly or annually] for X years after completion of the Project. MOPTVDU will make the results of monitoring available to local project stakeholders during the same period of progress report submission to

JICA.

(4) Disclosure of Monitoring Result on the Website

JICA will disclose the results of monitoring conducted by MOPTVDU on JICA's website as the present moment as shown in Annex V.

11. Management of Safety for Construction Works

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

III. UNDERTAKINGS OF MOPTVDU

1. MOPTVDU will take necessary measures to ensure that the technologies and knowledge acquired by the Salvadoran nationals as a result of Japanese technical cooperation contributes to the economic and social development of El Salvador, and that the knowledge and experience acquired by the personnel of El Salvador from technical training as well as the equipment provided by JICA will be utilized effectively in the implementation of the Project.

2. MOPTVDU, as a counterpart agency, will take necessary measures for GOES to:
   (1) grant privileges, exemptions and benefits to the JICA experts and their families, which are no less favorable than those granted to experts and members of the missions and their families of third countries or international organizations performing similar missions in El Salvador.
   (2) Provide security-related information as well as measures to ensure the safety of the JICA experts;
   (3) permit the JICA experts to enter, leave and sojourn in El Salvador their assignments therein and exempt them from foreign registration requirements and consular fees.
   (4) exempt the JICA experts from taxes and any other charges on the equipment, machinery and other material necessary for the implementation of the Project;
   (5) exempt the JICA experts from income tax and charges of any kind imposed on or in connection with any emoluments or allowances paid to them and/or remitted to them from abroad for their services in connection with the implementation of the Project; and
   (6) meet taxes and any other charges on the equipment, machinery and other material, referred to in II-5 above, necessary for the implementation of the Project.

3. MOPTVDU will bear claims, if any arises, against the JICA experts resulting from, occurring in the course of, or otherwise connected with, the discharge of their duties in the implementation of the Project, except when such claims arise

from gross negligence or willful misconduct on the part of the JICA experts/ members of the JICA missions.

IV. MONITORING AND EVALUATION

JICA and MOPTVDU will jointly and regularly monitor the progress of the Project through the Monitoring Sheets based on the Project Design Matrix (PDM) and Plan of Operation (PO). The Monitoring Sheets will be reviewed every six (6) months.
Also, Project Completion Report will be drawn up one (1) month before the termination of the Project.

JICA will conduct the following evaluations and surveys to verify sustainability and impact of the Project and draw lessons. The MOPTVDU is required to provide necessary support for them.

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

V. PROMOTION OF PUBLIC SUPPORT

For the purpose of promoting public support for the Project, MOPTVDU will take appropriate measures to make the Project widely known to the people of El Salvador.

VI. MISCONDUCT

If JICA receives information related to suspected corrupt or fraudulent practices in the implementation of the Project, MOPTVDU and relevant organizations will provide JICA with such information as JICA may reasonably request, including information related to any concerned officials of the government and/or public organizations of El Salvador.
MOPTVDU and relevant organizations will not, unfairly or unfavorably treat the person and/or company which provided the information related to suspected corrupt or fraudulent practices in the implementation of the Project.

VII. MUTUAL CONSULTATION

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

VIII. AMENDMENTS

The record of discussions may be amended by the minutes of meetings between JICA and MOPTVDU. However, PO may be amended in the Monitoring Sheets. The minutes of meetings will be signed by authorized persons of each side who may be different from the signers of the record of discussions.

Annex I Logical Framework (Project Design Matrix: PDM)
Annex II Tentative Plan of Operation (PO)
Annex III Project Organization Chart
Annex IV A List of Proposed Members of Joint Coordinating Committee
Annex V Environmental checklist
Annex VI Monitoring form
Annex VII Terms of reference (Environmental and Social Consideration Study)

Appendix 2

MAIN POINTS DISCUSSED

Project Design Matrix

Project Title: The Project for Capacity Development of the Department of Climate Change Adaptation and Strategic Risk Management for Strengthening of Public Infrastructure in El Salvador Phase II

Version 0
February 29th , 2015

Implementing Agency: DACGER
Target Group: DACGER
Period of Project: 5 years
Project Site: Whole El Salvador **Model Site:**

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption	Achievement	Remarks
Overall Goal					
Vulnerability of road infrastructure against disaster is decreased in El Salvador.	・Total number of projects to road disaster risk reduction projects implemented by MOPTVDU will be **. ・The standard specificatin, design standard, cost estimation guideline adopted by MOPTVDU	1. Annual report 2. Record of construction works	Government policy to improve disaster management of public infrastructure is continued.		
Project Purpose					
Capacity of the Department of Climate Change Adaptation and Strategic Risk Management (DACGER) is strengthened to improve disaster risk management of road infrastructure.	・Total number of road disaster risk dignosis conducted by DACGER will be **. ・Total number of disaster risk reduction projects recommended by DACGER will be **. ・Total number of national and regional seminars on disaster risk reduction carried out by DACGER will be **.	1. Project activity record 2. Annual report 3. Report of training	1. Trained counterparts continue their work in DACGER 2. The policy to entrust improvement of disaster management to DACGER continues. 3. Financial resources are allocated to road disaster risk reduction project.		
Outputs					
1. Risk diagnosis ability against earthquake for road infrastructure (bridges, road slopes) is improved.	1.1 Outputs of seismic road slope disaster risk diagnosis 1.2 Outputs of seismic bridge disaster risk diagnosis	1.1 Seismic road slope disaster risk diagnosis report 1.2 Seismic bridge disaster risk diagnosis report	1. Most of the counterparts do not transfer out of DACGER.		
2. Standard specifications, design guide and cost estimation standards for road disaster risk reduction project are formulated.	2.1 Standard specifications are formulated 2.2 Design guides are formulated 2.3 Estimation standers are formulated	2.1 Documents of Standard specifications 2.2 Documents of Design guides 2.3 Documents of Estimation standards	2. There is no large disaster which totally interrupts the Project activities.		
3.DACGER's project management capacity on road disaster risk reduction project is enhanced.	3.1 Pilot projects are implemented	3.1 Pilot project implementation reports			
4. Project outcomes from disaster risk diagnosis and road disaster risk reduction project are shared with domestic and outside countries.	4.1 Seismic risk management procedure and standard specification of road infrastructure strengthening are understood in SIECA's member countries.	4.1 Conference records of infrastructure strengthen in SIECA's member countries.			

Activities	Inputs		Pre-Conditions
	Japanese Side	Salvadoran Side	
1-1. Review of earthquake-resistance design standards and analyzing them. 1-2. Setting earthquake-resistance standards for bridges and road slopes. 1-3. Collection and organization of basic information on bridges and road slopes during phase 1. 1-4. Formulation of manuals and formats of risk diagnosis. 1-5. Implementation of risk diagnosis 1-6. Planning of road disaster risk reduction projects with total risk assessment of rain and earthquake risk 1-7. Prioritization of road disaster risk reduction projects through countermeasure alternative studies with benefit-cost analysis. 2-1. Formulation of standard specifications (monitoring of movement state, quality management, construction management) for road disaster risk reduction projects 2-2. Formulation of design guide for road disaster risk reduction projects. 2-3. Formulation of cost estimation standards for road disaster risk reduction projects. 2-4. Request for the approval of standard specification, design guide, cost estimation standards 3-1. Selection of several pilot projects for road disaster risk reduction 3-2. Implementation of Environmental and Social Consideration Study 3-3. Construction ordering of pilot projects subject to standard specifications 3-4. Implementation and management of pilot projects subject to standard specifications	1. Expert - Chief advisor / Road disaster risk management - Deputy chief advisor / Disaster mitigation project management - Slope diagnosis - Bridge diagnosis - Design / Cost estimation - Construction management - Geographic information - Environmental and social consideration - Experts in other fields, as necessity 2.Machinery and Equipment - 3D laser scanner for ground and structure - Satellite image and photograph processing software - Thermal infrared image camera - Automatic measuring device of soil moisture / pore pressure - Automatic rain gauges - Seismic design software - Microtremor array measurement equipment - Equipment of primary and secondary wave speed measurement by down hole method - Accelerate meter - Other machinery and equipment, as necessity 3. Expenses of technical exchange with third country, congress participation	1. Assignment of counterparts 2. Expenses necessary for the implementation of the Project and pilot ploject 3. Office space and facilities with necessary equipment 4. Necessary information on implementing the Project	DACGER's mission continues. <Issues and countermeasures>

4-1. Strengthening communication between MOPTVDU and public about the project progress and outcomes 4-2. Technical transfer of the Project outcomes to infrastructure-related organizations and local governments by DACGER as master trainers 4-3. Technical exchanges among engineers who are assigned public infrastructure projects for sharing the Project outcomes (technical tour invitation to pilot projects site at implementation time) 4-4. Sharing of the risk diagnosis manual and standard specifications with Central American Secretary for Economic Integration (hereinafter referred to as "SIECA") and countries of Central America			

ANNEX II

Tentative Plan of Operation

Version 0

CAPACITY DEVELOPMENT OF THE DEPARTMENT OF CLIMATE CHANGE ADAPTATION AND STRATEGIC RISK MANAGEMENT FOR STRENGTHENING OF PUBLIC INFRASTRUCTURE, PHASE II

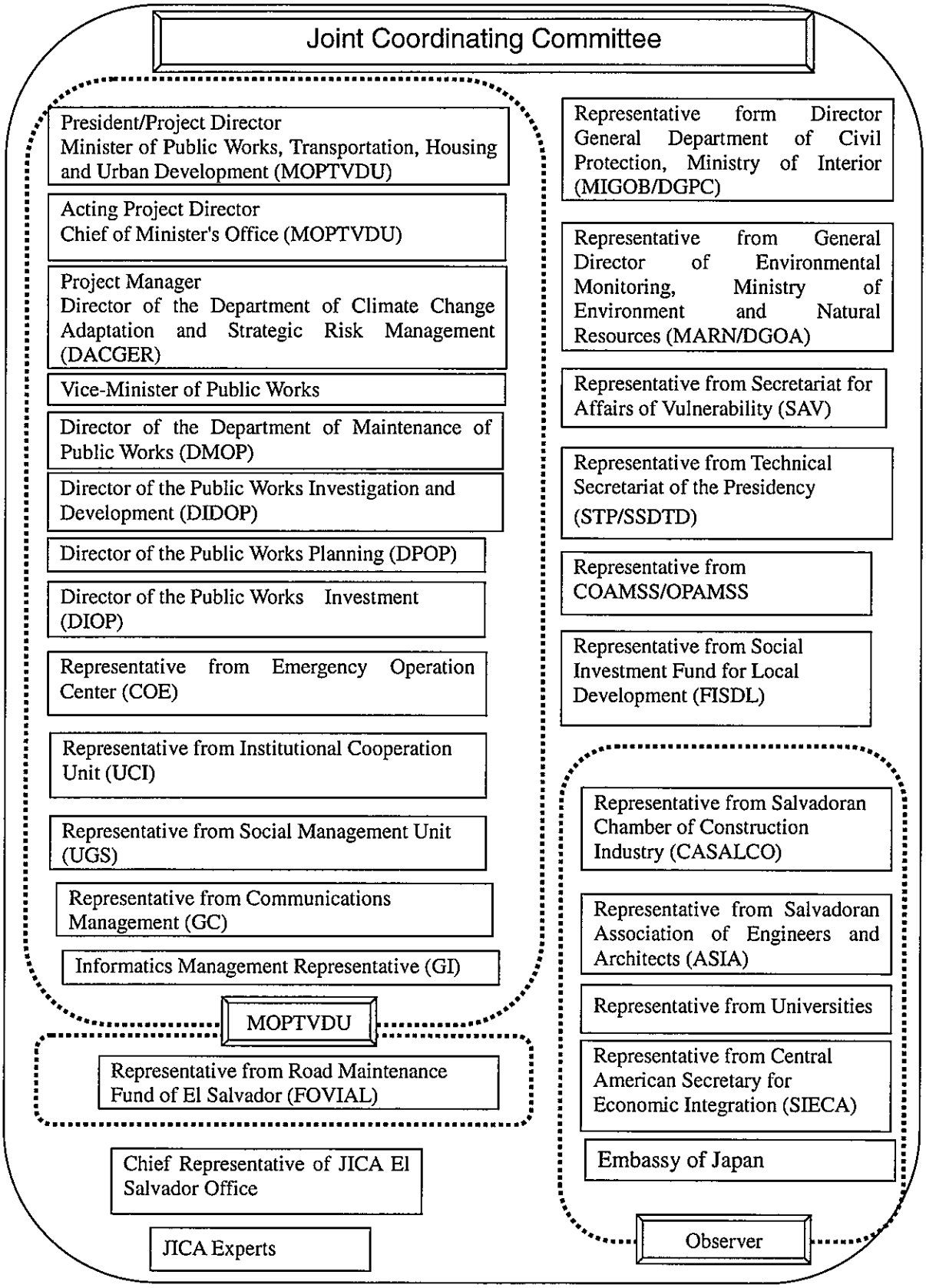
February 29th, 2015

Activities	Year	1st Year				2nd Year				3rd Year				4th Year				5th Year			
		I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
Output 1. Risk diagnosis ability against earthquake for road infrastructure (bridges, road slopes) is improved.																					
1-1. Review of earthquake-resistance design standards and analyzing them.	Plan																				
	Actual																				
1-2. Setting earthquake-resistance standards for bridges and road slopes.	Plan																				
	Actual																				
1-3. Collect and organize basic information on bridges and road slopes during phase 1.	Plan																				
	Actual																				
1-4. Formulation of manuals and formats of risk diagnosis.	Plan																				
	Actual																				
1-5. Implementation of risk diagnosis	Plan																				
	Actual																				
1-6. Planning of road disaster risk reduction projects with total risk assessment of rain and earthquake risk	Plan																				
	Actual																				
1-7. Prioritization of road disaster risk reduction projects through countermeasure alternative studies	Plan																				
	Actual																				
Output 2. Standard specifications, design guide and cost estimation standards for road disaster risk reduction projects are formulated.																					
2-1. Formulation of standard specifications for road disaster risk reduction projects	Plan																				
	Actual																				
2-2. Formulation of design guide for road disaster risk reduction projects.	Plan																				
	Actual																				
2-3. Formulation of cost estimation standards for road disaster risk reduction projects.	Plan																				
	Actual																				
2-4. Request for the approval of standard specification, design guide, cost estimation standards	Plan																				
	Actual																				
Output 3. DACGER's project management capacity on road disaster risk reduction projects is enhanced.																					
3-1. Selection of several pilot projects for road disaster risk reduction	Plan																				
	Actual																				
3-2. Implementation of Environmental and Social Consideration Study	Plan																				
	Actual																				
3-3. Construction ordering of pilot projects subject to standard specifications	Plan																				
	Actual																				
3-4. Implementation and management of pilot projects subject to standard specifications	Plan																				
	Actual																				
Output 4. Project outcomes from disaster risk diagnosis and road disaster risk reduction projects are shared with domestic and outside countries.																					
4-1. Strengthening communication between MOPTVDU and public about the project progress and outcomes	Plan																				
	Actual																				
4-2. Technical transfer of the Project outcomes to infrastructure-related organizations and local governments	Plan																				
	Actual																				
4-3. Technical exchanges among engineers who are assigned public infrastructure projects	Plan																				
	Actual																				
4-4. Sharing of the risk diagnosis manual and standard specifications with SIECA and countries of Central America	Plan																				
	Actual																				

Duration / Phasing		
	Plan	
	Actual	

Monitoring Plan	Year	1st Year				2nd Year				3rd Year				4th Year				5th Year			
		I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
Monitoring																					
Joint Coordination Committee	Plan																				
	Actual																				
Set-up the Detailed Plan of Operation	Plan																				
	Actual																				
Submission of Monitoring Sheet	Plan																				
	Actual																				
Reports/Documents																					
Work Plan	Plan																				
	Actual																				
Project Completion Report	Plan																				
	Actual																				

Project Organization Chart



LIST OF PROPOSED MEMBERS OF JOINT COORDINATING COMMITTEE

Chairperson: Minister, MOPTVDU

Members:

(1) Salvadoran Side

1) Project Director: Minister, MOPTVDU
2) Acting Project Director: Chief of Minister's Office, MOPTVDU
3) Project Manager: Director, DACGER
4) Project Members:
   - DACGER Deputy Director of Technical Study Section
     Deputy Director of Bridge and Culvert Section
     Deputy Director of Drainage Section
     Deputy Director of Geotechnical Section
5) Agencies concerned in MOPTVDU
6) Relevant personnel accepted by the Chairperson, if necessary.

(2) Japanese Side

1) JICA El Salvador Office
   - Representative (s)
2) JICA Experts
   - Chief advisor / Road disaster risk management
   - Deputy Chief advisor / Disaster mitigation project management
   - Slope diagnosis
   - Bridge diagnosis
   - Design / Cost estimation
   - Construction management
   - Geographic information
   - Environmental and social consideration
4) Representative of the Embassy of Japan (Observer)
5) Other personnel, if necessary

JCC will be scheduled based on the maximum availability of the members listed above.

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
6 Note	Reference to Checklist of Other Sectors	(a) Where necessary, pertinent items described in the Forestry Projects checklist should also be checked (e.g., projects including large areas of deforestation). (b) Where necessary, pertinent items described in the Power Transmission and Distribution Lines checklist should also be checked (e.g., projects including installation of power transmission lines and/or electric distribution facilities).	(a) N (b) N	(a) (b) Not relevant
	Note on Using Environmental Checklist	(a) If necessary, the impacts to trans boundary or global issues should be confirmed, if necessary (e.g., the project includes factors that may cause problems, such as trans boundary waste treatment, acid rain, destruction of the ozone layer, or global warming).	(a) N	(a) Not relevant

1) Regarding the term "Country's Standards" mentioned in the above table, in the event that environmental standards in the country where the project is located diverge significantly from international standards, appropriate environmental considerations are required to be made.
In cases where local environmental regulations are yet to be established in some areas, considerations should be made based on comparisons with appropriate standards of other countries (including Japan's experience).
2) Environmental checklist provides general environmental items to be checked. It may be necessary to add or delete an item taking into account the characteristics of the project and the particular circumstances of the country and locality in which it is located.

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
1 Permits and Explanation	(1) EIA and Environmental Permits	(a) Have EIA reports been already prepared in official process? (b) Have EIA reports been approved by authorities of the host country's government? (c) Have EIA reports been unconditionally approved? If conditions are imposed on the approval of EIA reports, are the conditions satisfied? (d) In addition to the above approvals, have other required environmental permits been obtained from the appropriate regulatory authorities of the host country's government?	(a) N (b) N (c) N (d) N	(a) (b) (c) (d) They will be considered when pilot project sites and methods are selected. Basically, EIA is not need for the road disaster risk reduction project.
	(2) Explanation to the Local Stakeholders	(a) Have contents of the project and the potential impacts been adequately explained to the Local stakeholders based on appropriate procedures, including information disclosure? Is understanding obtained from the Local stakeholders? (b) Have the comment from the stakeholders (such as local residents) been reflected to the project design?	(a) N (b) N	(a) (b) Explanation to the Local Stakeholders will be implemented when pilot project sites and methods are selected.
	(3) Examination of Alternatives	(a) Have alternative plans of the project been examined with social and environmental considerations?	(a) N	(a) They will be considered as necessary when pilot project sites and methods are selected.
2 Pollution Control	(1) Air Quality	(a) Is there a possibility that air pollutants emitted from the project related sources, such as vehicles traffic will affect ambient air quality? Does ambient air quality comply with the country's air quality standards? Are any mitigating measures taken? (b) Where industrial areas already exist near the route, is there a possibility that the project will make air pollution worse?	(a) Y (b) N	(a) (b) In construction stage, there are some possibility that air quality get worse because of the construction machine. The proper maintenance of construction machine is required so as to mitigate the effect. Because the road disaster risk reduction project is to strength the existing structure, therefore the traffic volume are not expected to increase due to the project. It means that air quality won't be worse after the project.
	(2) Water Quality	(a) Is there a possibility that soil runoff from the bare lands resulting from earthmoving activities, such as cutting and filling will cause water quality degradation in downstream water areas? (b) Is there a possibility that surface runoff from roads will contaminate water sources, such as groundwater? (c) Do effluents from various facilities, such as parking areas/service areas comply with the country's effluent standards and ambient water quality standards? Is there a possibility that the effluents will cause areas not to comply with the country's ambient water quality standards?	(a) Y (b) Y (c) N	(a) (b) Some of the road disaster risk reduction projects aim for preventing such slope failures or landslides including cutting or filling. There are some possibilities to cause water quality degradation. For example, in construction works in and around rivers streams, reservoirs or channels, the supervision consultant and contractor should monitor and control the turbid water as necessary. It will be reconsidered when the pilot project sites and methods are selected. (c) Not relevant
	(3) Wastes	(a) Are wastes generated from the project facilities, such as parking areas/service areas, properly treated and disposed of in accordance with the country's regulations?	(a) Y	(a) The solid waste should be separated into hazardous, non-hazardous and reusable waste streams and store temporary on site as necessary.

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
	(4) Noise and Vibration	(a) Do noise and vibrations from the vehicle and train traffic comply with the country's standards?	(a) Y	(a) In construction stage, there are some possibility that noise and vibration occur. The restriction of construction time is one of the ways to mitigate the effect. The road disaster risk reduction project is to strength the existing structure, therefore the traffic volume are not expected to increase due to the project. It means that noise and vibration won't be worse.

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
3 Natural Environment	(1) Protected Areas	(a) Is the project site located in protected areas designated by the country's laws or international treaties and conventions? Is there a possibility that the project will affect the protected areas?	(a) N	(a) There could be some protected area in the project sites, however, road disaster risk reduction projects are allowed to implement in such protected area because the policy of of protected area is to prevent disaster risk. So the project won't affect the protected areas.
	(2) Ecosystem	(a) Does the project site encompass primeval forests, tropical rain forests, ecologically valuable habitats (e.g., coral reefs, mangroves, or tidal flats)? (b) Does the project site encompass the protected habitats of endangered species designated by the country's laws or international treaties and conventions? (c) If significant ecological impacts are anticipated, are adequate protection measures taken to reduce the impacts on the ecosystem? (d) Are adequate protection measures taken to prevent impacts, such as disruption of migration routes, habitat fragmentation, and traffic accident of wildlife and livestock? (e) Is there a possibility that installation of roads will cause impacts, such as destruction of forest, poaching, desertification, reduction in wetland areas, and disturbance of ecosystems due to introduction of exotic (non-native invasive) species and pests? Are adequate measures for preventing such impacts considered? (f) In cases the project site is located at undeveloped areas, is there a possibility that the new development will result in extensive loss of natural environments?	(a) N (b) N (c) N (d) N (e) N (f) N	(a) (b) (c) (d) (e) (f) The road disaster risk reduction project is to strength the existing structure, therefore such impacts are not expected.
	(3) Hydrology	(a) Is there a possibility that alteration of topographic features and installation of structures, such as tunnels will adversely affect surface water and groundwater flows?	(a) Y	(a) There are some possibility of topographic features alternation when cut or embankment are strengthened. For example, the contractors will be prohibited from washing the construction tools along the rivers, streams, reservoirs and other public water to prevent further pollution.
	(4) Topography and Geology	(a) Is there any soft ground on the route that may cause slope failures or landslides? Are adequate measures considered to prevent slope failures or landslides, where needed? (b) Is there a possibility that civil works, such as cutting and filling will cause slope failures or landslides? Are adequate measures considered to prevent slope failures or landslides? (c) Is there a possibility that soil runoff will result from cut and fill areas, waste soil disposal sites, and borrow sites? Are adequate measures taken to prevent soil runoff?	(a) Y (b) Y (c) Y	(a) (b) (c) Some of the road disaster risk reduction projects aim for preventing such slope failures or landslides.

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
4 Social Environment	(1) Resettlement	(a) Is involuntary resettlement caused by project implementation? If involuntary resettlement is caused, are efforts made to minimize the impacts caused by the resettlement? (b) Is adequate explanation on compensation and resettlement assistance given to affected people prior to resettlement? (c) Is the resettlement plan, including compensation with full replacement costs, restoration of livelihoods and living standards developed based on socioeconomic studies on resettlement? (d) Are the compensations going to be paid prior to the resettlement? (e) Are the compensation policies prepared in document? (f) Does the resettlement plan pay particular attention to vulnerable groups or people, including women, children, the elderly, people below the poverty line, ethnic minorities, and indigenous peoples? (g) Are agreements with the affected people obtained prior to resettlement? (h) Is the organizational framework established to properly implement resettlement? Are the capacity and budget secured to implement the plan? (i) Are any plans developed to monitor the impacts of resettlement? (j) Is the grievance redress mechanism established?	(a) (b) (c) (d) (e) (f) (g) (h) (i) (j)	(a) (b) (c) (d) (e) (f) (g) (h) (i) (j) No resettlement is required.
	(2) Living and Livelihood	(a) Where roads are newly installed, is there a possibility that the project will affect the existing means of transportation and the associated workers? Is there a possibility that the project will cause significant impacts, such as extensive alteration of existing land uses, changes in sources of livelihood, or unemployment? Are adequate measures considered for preventing these impacts? (b) Is there any possibility that the project will adversely affect the living conditions of the inhabitants other than the target population? Are adequate measures considered to reduce the impacts, if necessary? (c) Is there any possibility that diseases, including infectious diseases, such as HIV will be brought due to immigration of workers associated with the project? Are adequate considerations given to public health, if necessary? (d) Is there any possibility that the project will adversely affect road traffic in the surrounding areas (e.g., increase of traffic congestion and traffic accidents)? (e) Is there any possibility that roads will impede the movement of inhabitants? (f) Is there any possibility that structures associated with roads (such as bridges) will cause a sun shading and radio interference?	(a) N (b) Y (c) N (d) N (e) N (f) N	(a) No new roads will be installed. (b) There will be temporary water use restrictions around the construction area. (c) The risk of infectious diseases spreading is low as the majority of the work force will be from the local area. (d) (e) (f) The road disaster risk reduction project is to strength the existing structure, therefore such impacts are not expected.

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
4 Social Environment	(3) Heritage	(a) Is there a possibility that the project will damage the local archeological, historical, cultural, and religious heritage? Are adequate measures considered to protect these sites in accordance with the country's laws?	(a) N	(a) There seems to be no archeological, historical, cultural and religious heritage sites around the project site. It will be reconsidered when pilot project sites and methods are selected.
	(4) Landscape	(a) Is there a possibility that the project will adversely affect the local landscape? Are necessary measures taken?	(a) Y	(a) There are some possibilities to affect the local landscape according to the methods for slope protection. The contractor shall prepare vegetative restoration plans such as tree planting.
	(5) Ethnic Minorities and Indigenous Peoples	(a) Are considerations given to reduce impacts on the culture and lifestyle of ethnic minorities and indigenous peoples? (b) Are all of the rights of ethnic minorities and indigenous peoples in relation to land and resources to be respected?	(a) N (b) N	(a) (b) There seems to be no ethnic minorities and indigenous peoples around the project site. It will be reconsidered when pilot project sites and methods are selected.
	(6) Working Conditions	(a) Is the project proponent not violating any laws and ordinances associated with the working conditions of the country which the project proponent should observe in the project? (b) Are tangible safety considerations in place for individuals involved in the project, such as the installation of safety equipment which prevents industrial accidents, and management of hazardous materials? (c) Are intangible measures being planned and implemented for individuals involved in the project, such as the establishment of a safety and health program, and safety training (including traffic safety and public health) for workers etc.? (d) Are appropriate measures being taken to ensure that security guards involved in the project not to violate safety of other individuals involved, or local residents?	(a) N (b) Y (c) Y (d) Y	(a) No (b) (c) (d) Construction works will be conducted in accordance to JICA's safety guideline "The Guidance for the Management of Safety for Construction Works in Japanese ODA Projects (2014)". Following are some of the main safety measures that will be implemented: - Preparation of safety plan - Implementation of environment, health and safety (EHS) induction programs for all workers - Provision of personal protective equipment (PPE) - Strict compliance to speed limits - Avoid using roads with high risk of accidents - Placement of warning signs and traffic control officers (e.g. during traffic restrictions)
	(1) Impacts during Construction	(a) Are adequate measures considered to reduce impacts during construction (e.g., noise, vibrations, turbid water, dust, exhaust gases, and wastes)? (b) If construction activities adversely affect the natural environment (ecosystem), are adequate measures considered to reduce impacts? (c) If construction activities adversely affect the social environment, are adequate measures considered to reduce impacts?	(a) Y (b) N (c) Y	(a) (b) (c) They will be considered when pilot project sites and methods are selected.

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
5 Others	(2) Monitoring	(a) Does the proponent develop and implement monitoring program for the environmental items that are considered to have potential impacts? (b) What are the items, methods and frequencies of the monitoring program? (c) Does the proponent establish an adequate monitoring framework (organization, personnel, equipment, and adequate budget to sustain the monitoring framework)? (d) Are any regulatory requirements pertaining to the monitoring report system identified, such as the format and frequency of reports from the proponent to the regulatory authorities?	(a) Y (b) Y (c) Y (d) N	(a) (b) Monitoring will be conducted through combination of field measurement and visual inspection. Covered items will be considered according to pilot project sites and methods. (c) Monitoring will be conducted by the construction contractor and MOPTVDU as supervisor. Cost for monitoring equipment is included in the pilot project budget. (d) Not expected.

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
6 Note	Reference to Checklist of Other Sectors	(a) Where necessary, pertinent items described in the Forestry Projects checklist should also be checked (e.g., projects including large areas of deforestation). (b) Where necessary, pertinent items described in the Power Transmission and Distribution Lines checklist should also be checked (e.g., projects including installation of power transmission lines and/or electric distribution facilities).	(a) N (b) N	(a) (b) Not relevant
	Note on Using Environmental Checklist	(a) If necessary, the impacts to trans boundary or global issues should be confirmed, if necessary (e.g., the project includes factors that may cause problems, such as trans boundary waste treatment, acid rain, destruction of the ozone layer, or global warming).	(a) N	(a) Not relevant

1) Regarding the term "Country's Standards" mentioned in the above table, in the event that environmental standards in the country where the project is located diverge significantly from international standards, appropriate environmental considerations are required to be made.
In cases where local environmental regulations are yet to be established in some areas, considerations should be made based on comparisons with appropriate standards of other countries (including Japan's experience).
2) Environmental checklist provides general environmental items to be checked. It may be necessary to add or delete an item taking into account the characteristics of the project and the particular circumstances of the country and locality in which it is located.

MONITORING FORM

-If environmental reviews indicate the need of monitoring by JICA, JICA undertakes monitoring for necessary items that are decided by environmental reviews. JICA undertakes monitoring based on regular reports including measured data submitted by the project proponent. When necessary, the project proponent should refer to the following monitoring form for submitting reports.

-When monitoring plans including monitoring items, frequencies and methods are decided, project phase or project life cycle (such as construction phase and operation phase) should be considered.

1. Responses/Actions to Comments and Guidance from Government Authorities and the Public

Monitoring Item	Monitoring Results during Report Period
ex.) Responses/Actions to Comments and Guidance from Government Authorities	

2. Mitigation Measures

- Air Quality (Emission Gas / Ambient Air Quality)

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country's Standards	Referred International Standards	Remarks (Measurement Point, Frequency, Method, etc.)
SO_2						
NO_2						
CO						
O_3						
Soot and dust						
SPM						
Dust						

- Water Quality (Effluent/Wastewater/Ambient Water Quality)

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country's Standards	Referred International Standards	Remarks (Measurement Point, Frequency, Method, etc.)
pH						
SS (Suspended Solid)						
BOD/COD						
DO						
Total Nitrogen						
Total Phosphorus						
Heavy Metals						

Hydrocarbons / Mineral Oils						
Phenols						
Cyanide						
Temperature						

- Waste

Monitoring Item	Monitoring Results during Report Period

- Noise / Vibration

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country's Standards	Referred International Standards	Remarks (Measurement Point, Frequency, Method, etc.)
Noise level						
Vibration level						

- Odor

Monitoring Item	Monitoring Results during Report Period

3. Natural Environment

- Ecosystem

Monitoring Item	Monitoring Results during Report Period
ex.) Negative effects/Actions to Valuable species	

4. Social Environment

- Resettlement

Monitoring Item	Monitoring Results during Report Period

- Living / Livelihood

Monitoring Item	Monitoring Results during Report Period

Terms of Reference

Environmental and Social Consideration Study

(1) Conducting the following baseline surveys on environmental and social consideration

- National and regional laws and regulations on environmental and social consideration, such as environmental impact assessment, pollution control, resettlement, public participation, provision of information to public. Gap analysis between these regal frameworks and JICA Environmental and Social Consideration Guideline (April, 2010) will be conducted.
- National and regional institutions which are in charge of environmental and social consideration.
- Designated national parks, other protected areas, habitats of wildlife and plants, cultural heritages by national or regional government in and near pilot project sites
- Social environment such as land use, rural communities, poor, ethnic minorities and indigenous peoples, economic and industrial activities in and near pilot project sites

(2) Scoping on possible environmental and social impacts, focusing on Air Quality, Water Quality, Wastes, Noise and Vibration, Subsidence, Odor, Protected Areas, Ecosystem, Resettlement, Living and Livelihood, Heritage, Landscape, Ethnic Minorities and Indigenous People, Working conditions, Impacts during Construction and Accident Prevention Measures.

(3) Initial environmental and social examinations in pilot project sites

(4) Evaluations of the impact of the project and alternatives to the project including zero-option scenario

(5) Identifying mitigation measures to minimize the negative impacts of the project

(6) Making monitoring plans for the project

(7) Defining budget, financial resources, implementation organization

(8) The draft scoping report and the draft environmental and social consideration report to be consulted with local stakeholders, when necessary. Comments submitted to the report shall be taken into account in the final reports.