

終了時調査結果要約表（英文）

I. Outline of the Project	
Country: Republic of the Philippines	Project title: Project for Improvement of Quality Management for Highway and Bridge Construction and Maintenance Phase II (TCP-2)
Issue/Sector: Transportation	Cooperation scheme: Technical Cooperation
Division in charge: Economic Infrastructure Department	Total cost: about JPY 450 million
Period of Cooperation	(R/D): October 2011 to 30 September 2014 (Extension): (F/U) : (E/N) (Grant Aid)
	Partner Country's Implementing Organization: Department of Public Works and Highways (DPWH) Supporting Organization in Japan: Nippon Engineering Consultants Co. Ltd., Katahira & Engineers International, Hanshin Expressway Co. Ltd.
Related Cooperation:	
<p>1. Background of the Project</p> <p>Improving the quality of road and bridge construction is one of the challenges that the Department of Public Works and Highways (DPWH) needs to address. DPWH's sixteen (16) regional offices (ROs) are in charge of construction and maintenance of roads and bridges, while the Central Office in Manila focuses on policy planning, budgeting, technical standards and research. From 2007 to 2010, the Project on Improvement of Quality Management for Highway and Bridge Construction and Maintenance Phase I was implemented under JICA's technical cooperation to enhance the capacity of regional office engineers by creating a pool of technical trainers at three regional offices (Baguio, Cebu and Davao). Through the Phase I project, the manuals on road and bridge maintenance management were prepared, the skills and knowledge of the engineers in the 3 target ROs and district engineering offices (DEOs) were improved, and the core personnel were trained to expand the project activities to other ROs. The DPWH's capacity in road maintenance was successfully enhanced through a series of JICA's past cooperation. The Phase II project started in October 2011 is targeted to strengthen DPWH's technical expertise in bridges and road slope management and to improve operational aspects of the maintenance management cycle. The Project covers the same 3 ROs as Phase I, and 4 ROs which deal with the maintenance of special bridges were added. Under the Phase II project a long-term expert and ten short-term experts have been dispatched by JICA. A number of engineers from the target ROs and DEOs have participated in the Project activities as counterparts.</p> <p>The Project has been implemented for about two years and half and will be completed by the end of September 2014. JICA and DPWH formed a joint terminal evaluation team with the purposes of reviewing and evaluating the achievements of the Project, suggesting ways forward for the remaining period of the Project and after the Project completion, and drawing lessons for similar type of projects in the future.</p> <p>2. Project Overview</p> <p>(1) Project Purpose</p> <p>The capability of DPWH engineers on road and bridge maintenance management is improved in the selected Regional Offices and district engineering offices.</p> <p>(2) Outputs</p> <p>Output 1: Management cycle for road and bridge maintenance is enhanced. Output 2: Capability of engineers on road slope maintenance management is enhanced. Output 3: Capability of engineers on bridge maintenance management is enhanced.</p> <p>(3) Inputs</p> <p>Japanese side:</p> <p><u>Dispatch of Experts</u>: 10 short-term experts and 1 long-term expert (Special Bridge Inspection) <u>Trainings in Japan</u>: conducted 3 times (26 Aug. - 8 Sep. 2012, 28 Jul. - 10 Aug. 2013, 20 Oct. - 2 Nov. 2013), and 22 C/Ps in total participated.</p>	

Equipment: Office equipments were utilized at Project Office and target ROs for the Project activities. bridge inspection tools

Local cost: JPY21.9 million were spent by the end of 2013. About JPY6.1 million is planned to be spent for 2014 (Jan.-Sep.).

Total Cost: About JPY 450 million

Philippine side:

Appointment of counterpart (C/P) personnel: 56 persons in total, consisting of a Project Manager (PM), Deputy Project Managers (DPM), Coordinators, Technical Working Group members, Counterpart Working Group members and DPWH-JICA TCP-2 Support Staff.

Facilities: Project offices together with necessary facilities were offered at Central Office, Cordillera Administrative Region (CAR), RO-VII (Cebu), and RO-XI (Davao).

Project expenditure: Budgets of JPY336 million for 2012, JPY380 million for 2013, and JPY410 million for 2014 were allocated for implementing the Project activities.

II. Review Team

Members of Evaluation Team	Mr. Jitsuya Ishiguro, Leader/Evaluation Management, Advisor, Transportation and ICT Division 2, Economic Infrastructure Department, JICA Ms. Junko Saikawa, Evaluation Analysis, Consultant, KRI International Corp.
----------------------------	---

Period of Review	16 March to 5 April 2014	Type of Evaluation: terminal evaluation
------------------	--------------------------	---

III. Results of Review

1. Summary of Achievements

(1) Activities for achieving Output 1: 1) Review current maintenance management cycle and identify issues; 2) Examine improving measures; 3) Conduct workshops; 4) Take trial actions.

<1st Year> Improving measures on “Documents Filing and Forwarding System” were discussed at TWG meetings; A consolidated action plan was prepared and incorporated into DPWH’s activities to establish an ISO system which are currently underway. <2nd Year> The issue on complexity of the Department Orders (DOs) was identified. Taking stock, classifying, combining or eliminating DOs is underway by all bureaus of DPWH. <3rd Year> The “Sustainability Program” to expand nationwide the project activities after the completion of the Project was discussed at the TWG meetings. A finalized program will be submitted to the 5th JCC to be held in Aug. 2014 for approval.

(2) Activities for achieving Output 2

1) Promote utilizing Road Slope Management System (RSMS): It was concluded that the current RSMS was not serving DPWH’s demand to establish an integrated asset management system and developing another RSMS as a new integrated system was regarded as the most appropriate option.

2) Implement the pilot project for road slope stability: <CAR> Knowledge and technology were transferred from Japanese experts to C/Ps on site selection, field inspection, preliminary detailed engineering design, preparation of bidding documents, and joint supervision over the construction work. The 1st OJT was conducted on 24-26 Jun. 2013 with 48 participants. The 2nd batch of the pilot project commenced in Apr 2013 by DPWH themselves. <Region VII> Selection of a pilot site (Naga-Uling Road). Knowledge and technology were transferred from Japanese experts to DPWH C/Ps on site selection, field inspection, preliminary detailed engineering design, preparation of bidding documents, and joint supervision over the construction work (construction contract was concluded in Jul. 2013 and is planned to be completed in May 2014). The 2nd OJT was conducted on 26-28 Nov. 2013 with 41 participants. The 2nd batch of the pilot project started in Nov 2013 by DPWH.

3) Review and improve manuals on road maintenance and quality control: 3 manuals on road maintenance and quality control (1. Guidebook for Road Construction and Maintenance Management in the Republic of the Philippines; 2. Road Project Management and Supervision Manual Volume I; 3. Road Project Management and Supervision Manual Volume II) were reviewed and improved through CWG meetings. Draft revised manuals were submitted to the 4th JCC.

4) Review and improve on Routine Maintenance Management Manual (RMMM), develop Pocketbook and conduct OJT: <RMMM> Review on current utilization status and revision works were done through interviews with responsible staff in ROs and CWG meetings. Draft revised RMMM was submitted to the 4th JCC. <Pocketbook> OJTs based on a draft Pocketbook were conducted with target

of engineers involved with routine maintenance works (27-28 Jun. 2013 at CAR, 20-21 Jun. 2013 at VII, and 13-14 Jun. 2013 at XI). The draft Pocketbook was submitted to the 3rd JCC. After obtaining an approval from the Secretary, the finalized Pocketbooks were distributed to concerned engineers.

(3) Activities for achieving Output 3

1) Develop Engineering Inspection Manual on Bridge Management System (BMS): CWG prepared a draft manual. Pre-test on the 3rd version of draft manual was conducted for the Careel Bridge in Region XI on 25-29 Jun. 2012. Finalized version (5th version) was submitted to the 3rd JCC and is to be approved by the Secretary.

2) Implement engineering inspections on bridges: OJTs for the use of the 5th draft manual were conducted at Negros on 18-22 Feb. 2013 and at RO-XI on 9-13 Sep. 2013.

3) Implement the pilot project for bridge repair: <RO-VII> Knowledge and technology were transferred from Japanese experts to C/Ps on site selection (Malaga, Pinocawan, Jilocon, Sun-ok bridges), selection of repair methods, preliminary detailed engineering design, preparation for procurement, and joint supervision over the construction work (Construction was started in Apr. 2013 and completed in Oct. 2013). The 2nd OJT was conducted on 20-24 May 2013 with 45 participants (C/Ps and engineers from DEO). The 2nd batch of the pilot project was started in Feb 2014 under DPWH's own initiatives. <RO-XI> Knowledge and technology were transferred from Japanese experts to DPWH C/Ps through site selection (Tamogan, Agdao, Buhangin and Careel bridges), selection of repair methods, preliminary detailed engineering design, preparation for procurement, and joint supervision over the construction work (Construction was started in Jul. 2012 and completed in Dec. 2012). The 1st OJT was conducted on 17-21 Sep. 2012 with 34 participants. The 2nd batch of the pilot project was started in Oct. 2013 under DPWH's own initiatives.

4) Review and improve manuals on bridge maintenance and quality control: Review and revision works on 6 manuals/guidelines (1. Quality Control Manual on Concrete and Steel Bridges Structures; 2. Bridge Repair Manual; 3. Bridge Inspector's Handbook; 4. Load Rating Manual; 5. Bridge Inspection Manual for 1st Mandaue Mactan Bridge (MMB); 6. Bridge Inspection Manual for Marcelo Fernan Bridge (MFB)) were done through CWG meetings. Draft revised manuals were submitted to the 4th JCC.

5) Same as (2) 4).

6) Develop Special Bridge Inspection Manual: Manuals on the target special bridges (1. Cable Stayed Bridge: Diosdado Macapagal Bridge (XIII); 2. PC Box Girder Bridge: Agas-Agas Bridge (VIII); 3. Steel Arch Bridge: Bamban Bridge (III), Liloan Bridge/ Bilian Bridge (VIII); 4. Suspension Bridge: Magapit Bridge (II)) were prepared and submitted to the 4th JCC.

7) Implement training with utilizing the Special Bridge Inspection Manual: OJTs for using draft manuals were conducted at RO-III (7-11 Oct. 2013), RO-II (11- 15 Nov. 2013), and RO-XIII (9-13 Dec. 2013). Bridge condition inspections with using these manuals are planned to be conducted in RO-II (Apr., May, Jun. 2014), RO-III (Apr., Jun., Jul. 2014), and RO-XIII (Jun., Jul., Aug. 2014) with DPWH initiatives.

2. Summary of Evaluation Results

(1) Relevance - High

The Project is aligned to the Philippine Development Plan (2011-2016) and Japan's Country Assistance Policy for the Republic of the Philippines (Apr 2012). The selection of the same target regions as Phase I is relevant in terms of consistency between the two phases. Including additional four regions for the Phase-II is adequate, responding to DPWH's need to maintain special bridges in those regions.

(2) Effectiveness – High

Achievement of the Outputs

Output 1: The maintenance management cycles were strengthened through the activities for the drawings filing & forwarding system, improvement of DOs and preparation of the "sustainability program." Thus, Output 1 has been achieved at a sufficient level.

Output 2: The capability (knowledge and skills) of engineers on road slope maintenance management was enhanced through the pilot projects, OJT and revision of manuals; thus, the Output 2 was achieved at a sufficient level.

Output 3: The capability of engineers on bridge maintenance management was enhanced through pilot project, bridge engineering inspections, OJT and preparation/revision of manuals; thus, the Output 3 has been achieved at a sufficient level.

Achievement of the Project Purpose:

The 2nd batch pilot project construction works for road slope stability and bridge repair were implemented by the DPWH model ROs and DEOs on their own. This shows the degree of the enhancement of their organizational capacity, duplicating the 1st batch pilot project elsewhere. It can be said that the Project Purpose has been achieved at a sufficient level. Utilizing the outputs of the Project, additional activities (OJT on bridge engineering inspection, special bridge condition inspections and site trainings on RMMM) are planned to be conducted by DPWH, the achievement level of the Project Purpose is expected to be further enhanced by the Project completion.

(3) Efficiency - High

Efficiency of Inputs:

The inputs from Japanese side (dispatch of experts, C/P trainings in Japan, provision of equipment, local cost expenditure) were in general appropriate for generating the outputs. Experiences and knowledge obtained from the trainings in Japan were effective for implementing Project activities. Regarding inputs from Philippine side, C/Ps were assigned with consideration of their experiences, expertise and regular duties, and sufficient counterpart budgets were timely allocated for implementing the Project activities.

Efficiency of Activities:

The Project activities progressed efficiently for generating the outputs in general. Effective project implementation (TWG/CWGs) and monitoring (monthly meeting, JCC) structures, clear duties of these TWG/CWGs and their members, good communication, information sharing, collaborative relations between Japanese experts and C/Ps, timely allocation of sufficient counterpart budgets, and effective technology transfer have facilitated the efficient project implementation.

(4) Impacts - High

Prospects for Achievement of the Overall Goal:

The Overall Goal: “Capability of DPWH on road and bridge maintenance management is improved” is likely to be achieved within 3-5 years of the Project completion for the following reasons: 1) The manuals developed/ revised by the Project are to be made accessible to any engineers at the DPWH intranet; 2) Many C/Ps have experiences and capacity to deliver lectures and presentations at OJTs; 3) The other 13 ROs have inspection equipment (e.g. Non-Destructive Testing apparatuses) necessary for the inspection methods introduced under the Project; 4) Preparation of “Sustainability Program” for disseminating the outputs of the Project to all regions is underway.

Other Impacts:

- Through activities of the Project Phase-I and II, a professional network was created among the engineers of the 3 model regions through training occasions.
- There is growing awareness created within DPWH on life cycle cost saving through proper road and bridge maintenance management and need for ensuring maintenance budgets.
- The pilot projects provided opportunities for DPWH to get exposed to new construction materials and their advantages.
- Upon the request of the JICA Philippine Office after the earthquake occurred in Bohol in October 2013, C/Ps together with a Japanese expert conducted inspections on bridge damages in Bohol.

(5) Sustainability - High

Policy Aspects: Maintenance management of roads and bridges is given high priority in the current Philippine Development Plan (2011-2016) and the mandate of DPWH is to fulfill this plan. Many C/Ps hope that basic policies on road and bridge maintenance management would more or less remain the same under new Presidency after June 2016.

Organizational and Technical Aspects: Through the Project Phase-I and II, DPWH as an organization has kept high project ownership. Since many high level officers of DPWH were assigned as C/P, there

is high possibility that knowledge and skills transferred under the Project will be accumulated and continued to be utilized in DPWH. It is planned to keep the current structure of the C/Ps in some form even after the Project completion, which would enable current C/Ps to play major roles in sustaining the Project outcomes and disseminating them to all regions.

Financial Aspects: According to explanations of major C/Ps, there is high possibility that “Sustainability Program” would be approved since the outputs of the Project as well as necessity of its continuation and dissemination would be surely understood by the government. If this Program is approved, its financial sustainability is expected to be ensured.

3. Factors that promoted realization of effects

(1) Factors concerning to Planning

None.

(2) Factors concerning to the Implementation Process

- TWG and CWGs were organized, and the Project activities were conducted mainly by these groups. C/Ps were engaged in the Project activities with clear understanding on the duties and responsibilities of these groups and their members.
- C/Ps were assigned as members of these TWG/CWGs with consideration of their expertise, experiences and regular duties. While nearly all C/Ps were concurrently engaged in DPWH regular duties, DPWH assigned Coordinators and TCP-2 Administrative Support Staffs who could work nearly full-time for the Project, which facilitated coordination between Japanese experts and C/Ps and among C/Ps, leading to smooth Project implementation.
- Overall implementation of the Project was appropriately monitored by Monthly Meetings and JCC Meetings.
- Sufficient amount of counterpart budgets was allocated by DPWH for implementing the Project activities, since road and bridge maintenance is on high priority under the current government. A counterpart budget proposal for the Project was prepared and submitted on-time.
- In the Project, a series of works of the pilot projects were implemented with utilizing knowledge and skills obtained through the activities of developing/revising manuals and OJTs. Technology transfer through actual practice made C/Ps’ knowledge and skills firmer than the lecture-based approach.

4. Factors that impeded realization of effects

(1) Factors concerning to Planning

None.

(2) Factors concerning to the Implementation Process

None.

5. Conclusions

The Project continues to be relevant to the Philippine development policies and Japanese ODA policies. The project activities have been efficiently implemented and generated a sufficient level of the outputs, which have led a sufficient level of the achievement of the Project Purpose. Prospects for achieving the Overall Goal are likely, and sustainability is high in terms of policy, organizational, technical and financial aspects. Therefore, it is suggested that the Project be successfully closed in September 2014 as planned in the R/D.

6. Recommendations

(1) Actions to be taken by the Project completion

For further enhancing the achievement level of the Project Purpose and for achieving the Overall Goal, both Japanese experts and DPWH are required to take the following measures:

1) Obtaining formal approvals on developed/revised manuals and their distribution: Formal approvals on 16 manuals developed/revised by the Project should be obtained from the Secretary. These manuals

should be disseminated within DPWH.

2) Preparing “Sustainability Program” and obtaining an approval: “Sustainability Program” under preparation should be completed and approved by the Secretary.

3) Incorporating activities and outputs of the Project into regular duties of DPWH: DPWH should integrate OJT activities conducted in the Project into DPWH regular training courses, and incorporate the use of the manuals developed/prepared by the Project to DPWH regular duties and projects.

(2) Actions to be taken after the Project completion

1) To DPWH: “Sustainability Program” should be implemented in all regions led by a program implementation team whose major members would be C/Ps. Incorporating activities and outputs of the Project into DPWH regular duties and projects should be promoted.

2) To JICA: JICA is required to monitor the progress in implementation of “Sustainability Program” and status of actual function of “management cycle on road and bridge maintenance” by receiving reports from DPWH upon JICA’s request.

7. Lessons Learnt

(1) Necessity of ensuring budgets for project activities: The allocation of the counterpart budget was made timely by DPWH and was disbursed for the workshops and the pilot projects, contributing the smooth implementation of the project activities. The budgeting schedule and system of a partner country should be confirmed at the project planning stage in order for a counterpart agency to ensure necessary budgets for project activities.

(2) Effectiveness of technology transfer through hands-on practice: In the Project, the design and supervision of the works of the pilot projects were implemented by the trained C/Ps with the knowledge and skills obtained through the OJTs. Technology transfer through the actual practice with direct proximity to C/Ps’ regular duties was effective, making their knowledge and skills more established through experiences with experts’ guidance. Transferring technology on an OJT basis should be designed in full consideration of C/Ps’ regular duties.

8. Follow-up Situation

(Not applicable)