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1. 2nd JCC

The meeting of the 2nd JCC was held at the conference room of Department of Road, Headquarters (DoR, HQ) on 7th April 2017. In the meeting, DoR made a presentation about the activities taken place after the 1st JCC (28th Oct. 2016). Progress of the project was confirmed between CAMBRIDGE Experts (Experts) and DoR.

(1) The Inventory of Bridges

The basic form for the inventory of bridges was created by Experts and HQ on October 2016. Information of the bridges collected and arranged by the Bridge Divisions of DoR (BDs) based on that form was reported. Data collection was finished. However, as issues was still left in some respects Experts explained again the purpose organizing the inventory of bridges: The correct and unified information is necessary for Bridge Management System (BMS). and gave DoR some suggestions for making the better inventory of bridges.

(2) Bridge Engineering • BMS

DoR made a presentation about bridge engineering (basic knowledge and plan for designing) and BMS based on the seminars were held at BDs by Experts and HQ.

(3) Management of Bridge Construction

DoR proposed the check list for the quality and safety at the construction sites (draft) made by Experts and HQ and explained risks and accident type and measures at the site.

(4) Public Relation

Experts introduced activities of public relation: reports of CAMBRIDGE project and 1st JCC at TV (BBS) / Newspaper (kuensel) and JICA website. CAMBRIDGE T-shirts (UNIQLO) under producing at that time were completed.



Photo1 2nd JCC



Figure1 Examples of public relation
(Left: CAMBRIDGE T-shirts, Right: JICA website)

2. Progress of the project

Various kinds of activities: seminars of bridge engineering etc., finalization of the inventory of bridges, preparation of OJT about both management of construction and maintenance of bridges and creation of BMS data base are progressing after the 2nd JCC as a schedule following.

(1) Bridge Engineering

Tests about bridge engineering (basic knowledge and plan for designing) were done at HQ and some BDs in order to confirm upskilling and will be continued. Seminars of preliminary design were started.

(2) The Inventory of Bridges

The inventory of bridges was finalized by Experts and BDs. Since seminars of inspection and diagnosis was held at BDs, BDs started evaluation of bridges.

	2016			2017												2018												2019								
	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9
Engineering / Inventory																																				
Inspection / Diagnosis																																				
Repair / Reinforcement																																				
BMS																																				
Management of construction																																				
Maintenance plan																																				
JCC	●							●					●												●											●

(3) Preparation of OJT (Management of Construction)

OJT is being prepared at under construction 2 bridges as model cases: Dangdung Bridge located near the Paro airport (L=57m, 2-span continuous PC bridge) and Wangchu bridge at Thimphu (L=54m+40m, Arch bridge+2-span continuous RC bridge). The check list and guideline for the quality and safety (draft) are being improved for more practical ones through site inspection and trial of them by Experts and DoR.

(4) Preparation of OJT (Maintenance: Inspection /Diagnosis and Repair/Reinforcement)

OJT is being prepared at candidate 2 bridges as model cases: Kathley III Bridge (RC) and another one. Experts and engineers of HQ discuss about appropriateness of site selection and contents of OJT after site visit.

(5) Maintenance Plan

Experts and HQ checked and analyzed existing data base, plan and implementation of budget and system and organization of maintenance for improvement of maintenance plan.

3. Future planning

The meeting of the 3rd JCC is planned to be held on 13th October 2017. Progress of the project mentioned above and object and contents of activities forward are going to be reported and discussed.

Contents of activities are introduced as below.





(1) OJT of Management of Construction




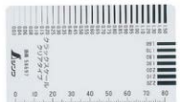
OJT starts on October 2017. The beginning site is Wangchu bridge. The check list and guideline will be revised through trial and discussion. After that, they are going to be promoted to all over the country by seminars are held at BDs.

(2) OJT of Maintenance: Inspection/Diagnosis and Repair /Reinforcement

OJT is planned on February-March 2018. Inspection tools have been handed over to DoR. Contents of OJT are being considered to aim to transfer a course of technology from inspection/diagnosis to repair/reinforcement utilizing the tools.

Table1 List of inspection tools

RC Rader (1pcs)	Concrete Core Machine (1pcs)
	
Hammer Drill (1pcs)	Generator (1pcs)
	

Schmidt Hammer (9pcs)	GPS (10pcs)
	
Test Hammer (9pcs)	Crack Scale (9pcs)
	

(3) Creation of BMS

Information of bridges collected and arranged starts being inputted to BMS framework prepared. When it is reflected, Experts and engineers of HQ will discuss about operation and management with connecting to DoR server. At the same time, seminars are planned at BDs for utilizing BMS.



Figure2 Cycle of maintenance and BMS system

4. Comment from CAMBRIDGE Experts

CAMBRIDGE shall accurately implement various guidance to bridge engineers under DoR on bridge construction and maintenance. Furthermore, CAMBRIDGE shall correspond that road users are able to pass not anxiety, safely and comfortably on bridge.

TOPIC

~Peach-blossom viewing~



After the 2nd JCC meeting, DoR, CAMBRIDGE Experts and JICA staffs held a Peach-blossom viewing party to get to know each other better. About 60 guests enjoyed, discussing the CAMBRIDGE project and cooperative friendship between Bhutan and Japan, and sharing each culture.

Thank you very much for joining!

