ベトナム社会主義共和国
運輸省　道路総局

ベトナム国
道路維持管理能力強化
プロジェクト
プロジェクト業務完了報告書

添付資料

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独立行政法人
国際協力機構（JICA）

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目次

添付　1. 議事録

本プロジェクトで開催した以下の主要な会議の議事録を添付する。

表 1.1 議事録

	会議名	日程	内容	添付番号
1	Minutes of Meeting Between JICA Detailed Planning Survey Team And Authority Concerned of The Government of The Socialist Republic of Vietnam on Japanese Technical Cooperation For The Project for Capacity Enhancement In Road Maintenance	2011 年 3 月 4 日	詳細計画策定調査の議事録	添付 1-1
2	Record of Discussions Between Japan International Cooperation Agency and Authorities Concerned of The Government Of The Socialist Republic of Viet Nam on Japanese Technical Cooperation for The Project for Capacity Enhancement In Road Maintenance	2011 年 7 月 1 日	JICA と相手国政府実施機関との間で合意文書（R/D）	添付 1-2
3	Minutes of Meeting Between Japan International Cooperation Agency and Authorities concerned of the Government of Socialist Republic of Vietnam on Japanese Technical cooperation Project for the Project for Capacity Enhancement in Road Maintenance	2013 年 9 月 27 日	事後評価の議事録	添付 1-3
4	Minutes of Meeting between Japan International cooperation Agency and Authorities concerned of The Government of Socialist Republic of Vietnam on Japanese Technical cooperation Project for The project for Capacity Enhancement in road maintenance	2013 年 11 月 28 日	業務延長に関する議事録	添付 1-4

MINUTES OF MEETING
BETWEEN
JICA DETAILED PLANNING SURVEY TEAM
AND AUTHORITIES CONCERNED OF
THE GOVERNMENT OF THE SOCIALIST REPUBLIC OF VIET NAM
ON JAPANESE TECHNICAL COOPERATION
FOR THE PROJECT FOR CAPACITY ENHANCEMNET
IN ROAD MAINTENANCE

In response to the official request of the Government of the Socialist Republic of Viet Nam (hereinafter referred to as "Viet Nam"), the Detailed Planning Survey Team (hereinafter referred to as "the Team") of the Japan International Cooperation Agency (hereinafter referred to as "JICA") headed by Mr. Shuntaro Kawahara, visited Viet Nam from 20th February to 4th March, 2011, for the purpose of working out the details of the technical cooperation program concerning "the Project for Capacity Enhancement in Road Maintenance" (hereinafter referred to as "the Project").

The Team exchanged views and had a series of discussions with the concerned officials of the Ministry of Transport (hereinafter referred to as "MOT"), and the Directorate for Roads of Viet Nam (hereinafter referred to as "DRVN"). In the meeting, the followings were agreed upon between the Government of Viet Nam and the Team.

Hanoi, 4th March, 2011

Mr. Shuntaro Kawahara **Leader** **Detailed Planning Survey Team,** **Japan International Cooperation Agency** **Japan**	**Mr. Mai Van Duc** **Deputy Director General** **Directorate for Roads of Viet Nam,** **Ministry of Transport** **The Socialist Republic of Viet Nam**

1. PROJECT TITLE

Both sides agreed that the Project title is "the Project for Capacity Enhancement in Road Maintenance".

2. TERM OF THE PROJECT

The term of the project will be thirty (30) months from the commencement. It can be changed depending on the evaluations.

3. PROJECT SITE

The main activities of the Project will be conducted at DRVN office and the targeted region of the case study. The targeted region will be the whole area under Regional Road Management Unit (RRMU) No.2. The officials of remaining regions will be involved in the project activities done in the targeted region.

4. RECORD OF DISCUSSIONS, PROJECT DESIGN MATRIX AND PLAN OF OPPERATION

The Record of Discussions (R/D) will determine the framework of the Project, and include the contents of this Minutes of Meeting (M/M). Draft R/D is attached to this M/M for reference in ATTACHMENT. It will be agreed and signed among Japanese side and the relevant Vietnamese authorities after approval from JICA Headquarters. And both sides agreed to the contents of the draft Project Design Matrix (PDM) and Plan of Operation (PO) for the Project as shown in ANNEX 1 and 2. The PDM and PO are to be flexibly revised according to the progress and achievement of the Project, upon mutual agreement between MOT and JICA in the form of the Minutes of Meeting, according to R/D.

5. INPUT BY JICA

Both sides agreed that each component and its cost of following inputs will be prepared and born by JICA.

(1) Dispatch of Japanese Experts

The Japanese side will dispatch experts basically in the following field;

a) Road maintenance strategy
b) Road maintenance institution
c) Road asset management

d) Road maintenance
e) Road pavement
f) Road database
g) Capacity development
h) Computer system engineering

Other experts necessary for effective implementation of the Project will be discussed in the Project.

(2) Provision of machinery and equipment

JICA will provide the Project with machinery, equipment and materials needed for the effective implementation of the Project within its budget.

(3) Training of Vietnamese Personnel in Japan

The training of Vietnamese personnel in Japan will be conducted for effective technology development under the condition that both sides agreed when necessity arise. The training fields and the number of participants of the training programs will be identified in the Project.

6. INPUT BY VIETNAMESE SIDE

Both sides agreed that each component and its cost of following inputs will be prepared and born by Vietnamese side.

(1) Assignment of the Personnel

The Vietnamese side agreed to assign the administrative and counterpart personnel from each organization concerned according to the activities of Japanese experts as follows;

a) Administrative Personnel

- Project Director: Deputy Director General of DRVN
- Project Manager: Director of Planning and Investment Department of DRVN
- Deputy Project Manager: Director of Maintenance and Management Department of DRVN

b) Counterpart Personnel

The Vietnamese side agreed to assign counterpart personnel from following organizations:

- Relevant departments of DRVN
- RRMU2 and selected RRMUs, and their Road Technical Centers (RTC)
- RTC Central

(2) Provision of Offices and Facilities

The Vietnamese side agreed to provide the necessary office(s) at the new DRVN's Headquarter and basic office facilities for the implementation of the Project including the office(s) for the Japanese experts.

(3) Budget Allocation for Personnel, Operation and Activities

The Vietnamese side shall allocate the necessary budget for implementation of the Project, including personnel costs, travel expenses for surveys and other recurrent cost.

7. ADMINISTRATON OF THE PROJECT

7-1. Joint Coordinating Committee (JCC)

JCC is the committee to confirm the progress of the Project, discuss important matters and make decisions for the better implementation of the Project. It is held at the timing of the Project's milestone at least twice a year and when necessity arises to fulfil the following functions;

(1) To discuss and approve the annual work plan of the Project to be formulated under the framework of the R/D,

(2) To evaluate the achievement of the annual work plan and overall progress of the Project,

(3) To facilitate the necessary authorization of the Project outputs, and

(4) To review and exchange opinions on major issues that arise during implementation of the Project.

Vice minister of MOT, Director General of DRVN will be the chairperson of the JCC.

7-2. Technical Working Group (TWG)

TWG will be established for the effective development of the activities. The TWG will be held at least once a quarter of a year and when necessity arises to fulfil the following functions;

(1) To discuss and identify the detailed schedule of the activities based on the above mentioned annual work plan,

(2) To discuss the progress of the activities and make necessary adjustment of schedule, and

(3) To review and exchange views on major issues arising from or in connection with the Project activities.

Director of Planning and Investment Department of DRVN, as the Project Manager, will be the chairperson of the TWG.

8. ORGANIZATION CHART

The organization chart of the Project including JCC and TWG is shown in ANNEX 2.

9. OTHER ISSUES

(1) Targeted Region and Roads

To ensure effective technical transfer, the Project activities, such as data collection, data input, data analysis and formulation of road maintenance plans, will be conducted in the targeted region under the RRMU2's jurisdiction. And targeted roads are National Highways administrated by the RRMU2.

(2) Dissemination of the project outputs

To ensure the dissemination of the outputs of the Project, selected officials, who belong to the other RRMUs and Provincial Departments of Transport will participate in the Project activities done in the targeted region. In addition, Japanese experts and counterpart personnel of DRVN will monitor and support the trial activities in the other regions.

(3) Data collection

DRVN will have in-kind contribution, such as counterpart staffs for data input and data collection except for special cases needing special equipment and/or skills. The above mentioned special equipment will be considered as input by JICA, and the surveys in the targeted region using the special equipment and/or skills will be conducted by DRVN staffs together with Japanese experts as a case study activity of the Project.

(4) Products of the Project

Products to be created in the Project will be assumed as follows:

For Plan-A: Enhancement of capacity for road information management

1) Database formats for road reference database
2) Data input software
3) Database operation guidelines
4) Databases with data filled out

For Plan-B: Enhancement of planning capacity for road maintenance

1) PMS data formats
2) Planning software for middle-term and long-term road maintenance plan
3) Software operation guidelines
4) PMS dataset for the targeted region

5) Middle-term road maintenance plans for the targeted region

For Plan-C: Enhancement of road maintenance capacity

1) Pavement monitoring software
2) Software operation guidelines
3) Draft of New version of Routine Maintenance Technical Standard

For Plan-D: Reinforcement of DRVN institutional issues on road maintenance management

1) Recommendation on the institutional development for DRVN
2) Recommendation on institutional development for regional agencies

For Plan-E: Development of human capacity of road management engineers

1) Training courses in Viet Nam
2) Training courses in Japan

(5) Project outline

Both sides agreed the Project outline as shown in ANNEX 4, which shows the coverage of each activity of the Project referring to the road management cycle to be implemented by DRVN.

(6) Coordination with the expressway project

Coordination with the Project for Strengthening Operation and Maintenance System for Expressway is expected on the preparation of manuals and guidelines for road maintenance which is applicable to the expressway administration.

(7) Pavement Management System (PMS)

The both sides agreed that PMS to be developed in the Project should be operated easily and expendably without so many kinds of input data although the PMS would desirably incorporate recent research outcomes done in Viet Nam, Japan and the other countries.

ANNEX

ANNEX 1. PROJECT DESIGHN MATRIX (DRAFT)
ANNEX 2. PLAN OF OPERATION (DRAFT)
ANNEX 3. ORGANIZATION CHART
ANNEX 4. PROJECT OUTLINE

ATTACHMENT

RECORD OF DISCUSSION (DRAFT)

ANNEX 1 PROJECT DESIGN MATRIX (PDM)

PROJECT TITLE; THE PROJECT FOR CAPACITY ENHANCEMENT IN ROAD MAINTENANCE

Project Term; 2.5 Years

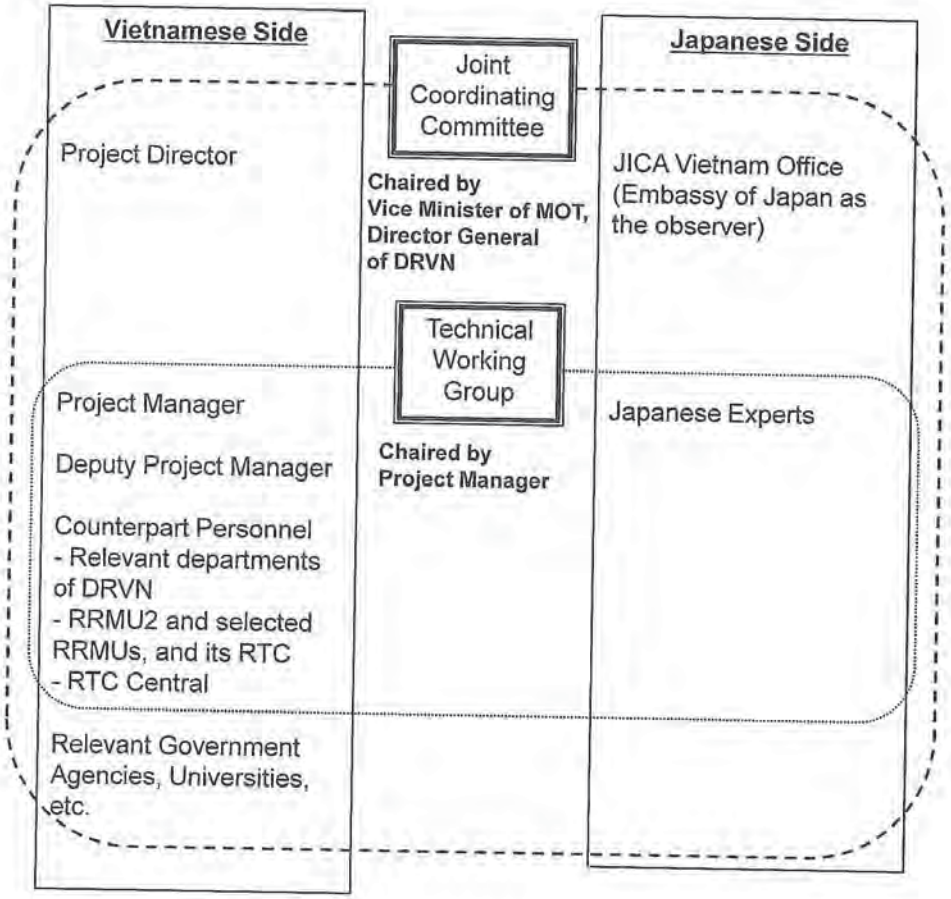
Project Outline	Performance Targets/Indicators	Data Sources/Reporting Mechanisms	Assumptions/Risks
Overall Goal	(Five Years after Project Completion)		
Structural damages which provide serious impacts on the national roads and traffic are reduced.	Pavement damages measured in IRIs, crack rates and other indexes	Survey data on the road pavement conditions	
Project Objective	(Until Project Completion)		
1. Road maintenance technologies are enhanced (PLAN-A, B, C). 2. DRVN's institutional issues are addressed (PLAN-D). 3. Human capacity for road maintenance is developed (PLAN-E).	1. Planning of middle-term maintenance plans is systematized. 2. Road pavement management system is developed. 3. Road databases are computerized. 4. Road maintenance strategies and responsibility assignments between central DRVN and regional agencies are reinforced. 5. Training opportunities aiming to disseminate project outputs and to raise lecturers are provided.	1. 3-Year road maintenance plans. 2. Pavement management and database management software systems. 3. Revised technical standards. 4. Official gazette. 5. The number of training courses and participants.	1. Engineering staffs who received training courses can maintain their responsibilities. 2. DRVN sustainably provides training courses and technical supports to regional agencies.
Outputs			
PLAN-A Enhancement of capacity for road information management.	A-1 Databases are operable. A-2 Databases are used in the daily maintenance management.	A-1 Developed road databases. A-2 Hearing to DRVN staffs.	1. Regional agencies cooperate with the project to fill out road databases. 2. Higher-ranking stakeholders, MOT etc., cooperate with the project, participating in the discussion and accelerating official procedures. 3. Road inspection survey is carried out following standard standards.
PLAN-B Enhancement of planning capacity for road maintenance.	B-1 Middle-term maintenance plans are formulated by the system. B-2 Middle-term plans are regularly formulated by DRVN staffs.	B-1 Formulated middle-term road maintenance plans. B-2 Hearing to DRVN staffs.	
PLAN-C Enhancement of road maintenance technologies.	C-1 Developed technologies are operable in the maintenance management. C-2 Maintenance technologies are regularly updated by DRVN staffs.	C-1 Developed maintenance technologies. C-2 Hearing to DRVN staffs.	
PLAN-D Reinforcement of DRVN institutional issues on road maintenance management.	D-1 Reinforcement plans are agreed on between stakeholders. D-2 Relevant regulations for the plans are disseminated.	D-1 Developed reinforcement plans. D-2 Official gazette, official notice.	
PLAN-E Development of human capacity of road management engineers.	E-1 DRVN's own training courses are held regularly.	E-1 The number of training courses and participants.	

Activities	Inputs Japan Side	Inputs Vietnam Side	Preconditions
PLAN-A; Enhancement of capacity for road information management	1. Subjects where experts are assigned (1) Road maintenance strategy (2) Road maintenance institution (3) Road asset management (4) Road maintenance (5) Road pavement (6) Road database (7) Capacity development (8) Computer system engineering	1. Personnel (1) Project director (2) Project manager (3) Deputy project manager (4) Counterpart staffs (5) Other staffs	1. An appropriate number of counterparts are promptly assigned to the project. 2. Regional agencies cooperate with the project to fill out road databases. 3. Higher-ranking stakeholders, including MOT etc., cooperate with the project, participating in the discussion and accelerating official procedures.
A1.1: Develop concept plans for road database systems and confirm requirements for the systems with synchronization between existing road information systems taken into account	2. Training in Japan Once a year (3 times in total)	2. Facility and equipment Office space, basic facilities and equipment	
(1) Study the current database systems	3. Equipment (1) Special Equipment for road condition survey (2) Computers for database (3) Others needed for the project implementation	3. Expenses for activities (1) Domestic expenses for participants to attend the seminars or training courses conducted in Viet Nam (2) Other expenses for project management and implementation	
(2) Develop a database concept plan	4. Expenses for activities (1) Expenses on expert activities (2) Expenses on software development (3) Expenses on holding training courses in Vietnam (4) Other expenses needed for the project implementation	4. Data collection and data input *except for the activities needs special equipment and/or skills*	
(3) Confirm system requirements (hard-ware and soft-ware)			
A1.2: Develop data input format for (1) road asset databases (road reference, road inventory and road condition databases) and (2) road maintenance database			
(1) Develop system configurations			
(2) Develop data input formats			
(3) Develop data input software			
(4) Develop data input manuals and software operation guidelines			
(5) Monitor data input to be done by DRVN regional agencies (Nationwide)			
PLAN-B; Enhancement of planning capacity for road maintenance			
B1.1: Develop a planning computer system for road pavement maintenance plans, formulate PMS datasets formats and plan middle-term road maintenance plans for the targeted region as a case study			
(1) Study the current planning system and the PMS datasets			
(2) Develop system configurations			
(3) Develop PMS datasets formats			
(4) Conduct field surveys on road conditions by detailing equipment and data input into PMS database in the targeted region			
(5) Monitor PMS data input to be done by regional agencies for other than those measured above, if needed.			
(6) Develop planning software			
(7) Develop PMS software operation guidelines			
(8) Conduct trial runs of the software to ensure system operability and plan middle-term road maintenance plans			
PLAN-C; Enhancement of road maintenance technologies			
C1.1: Enhance road maintenance technologies focusing on road inspection, diagnosis and maintenance work selection			
(1) Study the current road inspection, diagnosis and work selection technologies			
(2) Develop a framework of improvement			
(3) Upgrade road inspection, diagnosis and work selection technologies			
(4) Conduct a case study for the targeted region			
C1.2: Improve Technical Standards 2003 with new technologies taken into			
(1) Study the current Technical Standards 2003			
(2) Formulate a framework for improvement			
(3) Upgrade Technical Standards 2003			
(4) Draft regulations			
C2.1: Enhance pavement monitoring technology making use of road and traffic databases (Pavement monitoring system)			
(1) Study the current pavement monitoring technologies			
(2) Develop a framework of pavement monitoring system			
(3) Develop computer software for the system			
(4) Select data and conduct test trial			
(5) Develop an operation guideline			
(6) Provide technical workshops			
PLAN-D; Reinforcement of DRVN institutional issues on road maintenance management			
D1.1: Reinforce DRVN's central governance in road maintenance, technology development and human capacity development			
(1) Study the current status of DRVN's road maintenance governance			
(2) Develop a framework for improvement			
(3) Develop institutional reinforcement plans			
(4) Draft regulations			
D1.2: Reinforce DRVN's maintenance management functions, reviewing responsibility assignments between central and regional agencies (RMAUs and PDOTs)			
(1) Study the current status of responsibility assignments			
(2) Develop a framework for improvement			
(3) Develop institutional reinforcement plans			
(4) Draft regulations			
PLAN-E; Development of human capacity of road management engineers			
E1.1: Provide training courses on road asset management, planning long/ medium- term road maintenance plans, road inspection and diagnosis technologies and raise trainers for trainings			

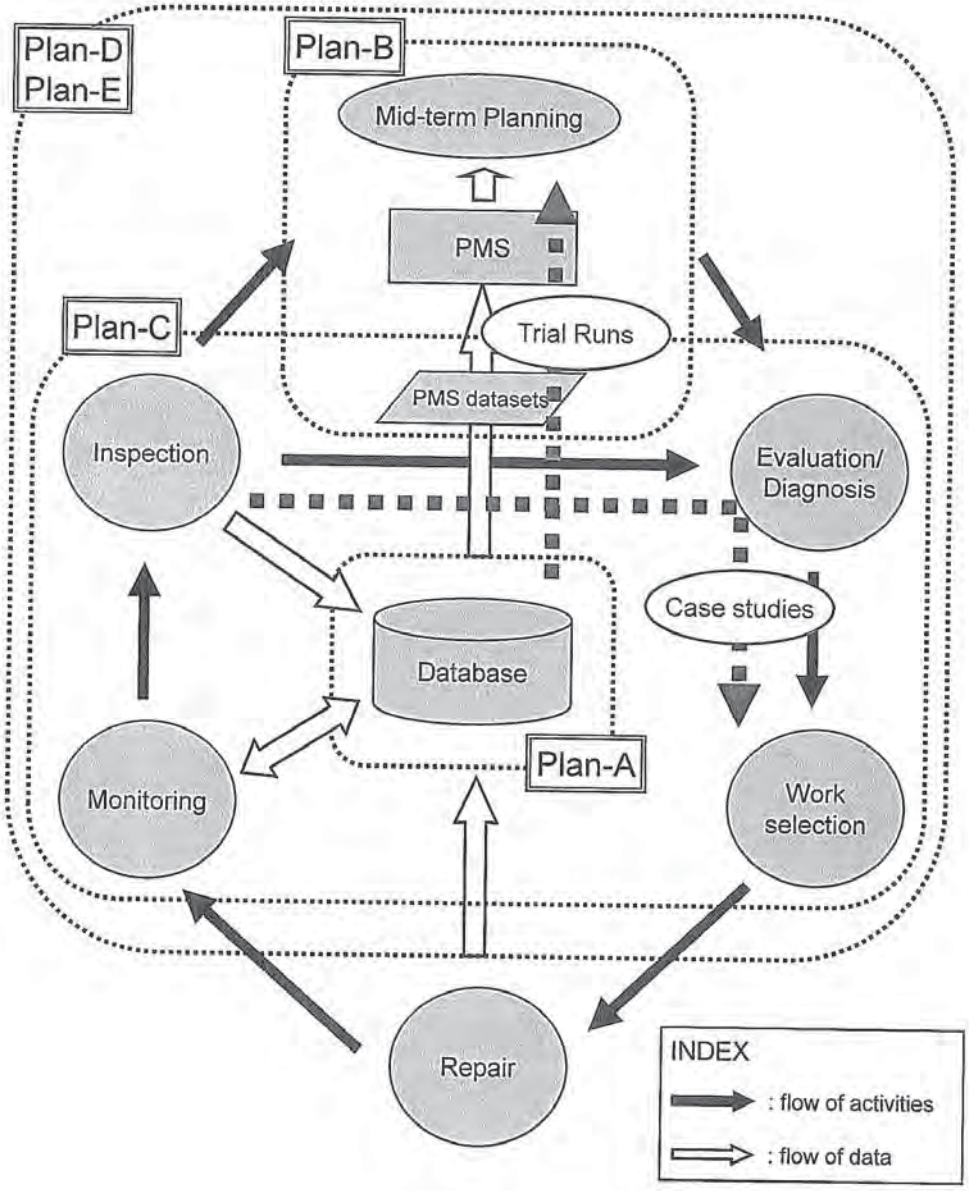
ANNEX 2. Plan of Operation

Plans	Activities	Work Breakdown Structures	1st Year	2nd Year	3rd Year
PLAN-A; Enhance capacity for road information management					
	A1.1;	Develop concept plans for road database systems and confirm requirements for the systems with synchronization between existing road information systems taken into account			
		(1) Study the current database systems			
		(2) Develop a database concept plan			
		(3) Confirm system requirements (hard-ware and soft-ware)			
	A1.2;	Develop data input format for (1) road asset databases (road reference, road inventory and road condition database) and (2) road maintenance database.			
		(1) Develop system configurations			
		(2) Develop data input formats			
		(3) Develop data input software			
		(4) Develop data input manuals and software operation guidelines			
		(5) Monitor data input to be done by DRVN regional agencies (Nationwide)			
PLAN-B; Enhancement of planning capacity for road maintenance					
	B1.1;	Develop a planning computer system for road pavement maintenance plans, formulate PMS datasets formats and plan middle-term road maintenance plans for the targeted region as a case study			
		(1) Study the current planning system and the PMS datasets.			
		(2) Develop system configurations			
		(3) Develop PMS datasets formats.			
		(4) Conduct field surveys on pavement conditions by road condition survey vehicle and data input into PMS database in the targeted region.			
		(5) Monitor PMS data input to be done by regional agencies for other than those measured above, if needed.			
		(6) Develop planning software			
		(7) Develop PMS software operation guidelines			
		(8) Conduct trial runs of the software to ensure system operability and plan middle-term road maintenance plans			
PLAN-C; Enhancement of road maintenance technologies					
	C1.1	Enhance road maintenance technologies focusing on road inspection, diagnosis and maintenance work selection.			
		(1) Study the current road inspection, diagnosis and work selection technologies.			
		(2) Develop a framework of improvement			
		(3) Upgrade road inspection, diagnosis and work selection technologies			
		(4) Conduct a case study for the targeted region			
	C1.2	Improve Technical Standards 2003 with new technologies taken into account			
		(1) Study the current Technical Standards 2003			
		(2) Formulate a framework for improvement			
		(3) Upgrade Technical Standard 2003			
		(4) Draft regulations			
	C2.1	Enhance pavement monitoring technology making use of road and traffic databases (Pavement monitoring system)			
		(1) Study the current pavement monitoring technologies			
		(2) Develop a framework of pavement monitoring system			
		(3) Develop computer software for the system			
		(4) Select data and conduct test trial			
		(5) Develop an operation guideline			
		(6) Provide technical workshops			
PLAN-D; Reinforcement of DRVN institutional issues on road maintenance manag					
	D1.1	Reinforce DRVN's central governance in road maintenance, technology development and human capacity development			
		(1) Study the current status of DRVN's road maintenance governance			
		(2) Develop a framework for improvement			
		(3) Develop institutional reinforcement plans			
		(4) Draft regulations			
	D1.2	Reinforce DRVN's maintenance management functions, reviewing responsibility assignments between central and regional agencies			
		(1) Study the current status of responsibility assignments			
		(2) Develop a framework for improvement			
		(3) Develop institutional reinforcement plans			
		(4) Draft regulations			
PLAN-E; Development of human capacity of road management engineers					
	E1.1;	Provide training courses on road asset management, planning long/ medium- term road maintenance plans, road inspection and diagnosis technologies and raise trainers for trainings	▲	▲	▲ ▲
Common to PLAN-A, B, C					

ANNEX 3. Organization chart of the Project



ANNEX 4. Outline of Project activities



添付 1－1

ATTACHMENT

Draft

RECORD OF DISCUSSIONS BETWEEN JAPAN INTERNATIONAL COOPERATION AGENCY AND AUTHORITIES CONCERNED OF THE GOVERNMENT OF THE SOCIALIST REPUBLIC OF VIET NAM ON JAPANESE TECHNICAL COOPERATION FOR THE PROJECT FOR CAPACITY ENHANCEMNET IN ROAD MAINTENANCE

The Japanese Detailed Planning Survey Team (hereinafter referred to as "the Team") organized by Japan International Cooperation Agency (hereinafter referred to as "JICA") and headed by Mr. Shuntaro Kawahara, visited the Socialist Republic of Viet Nam (herainafter referred to as "Viet Nam") from 20th February to 4th March, 2011 for the purpose of working out the details of the technical cooperation program concerning the Project for Capacity Enhancement in Road Maintenance in Viet Nam.

During its stay in Viet Nam, the Team exchanged views and had a series of discussions with the Vietnamese authorities concerned with respect to desirable measures to be taken by JICA and the Government of Viet Nam for the successful implementation of the above-mentioned Project.

As the result of the discussions, and in accordance with the provisions of the Agreement on Technical Cooperation between the Government of Japan and the Government of Viet Nam, signed in Hanoi on 20th October, 1998 (hereinafter referred to as "the Agreement"), the Team and the Vietnamese authorities concerned agreed on the matters referred to in the document attached hereto.

Hanoi, (day month, year)

(Name) (Title) (Department) Japan International Cooperation Agency Japan	(Name) (Title) (Department), Ministry of Transport The Socialist Republic of Viet Nam

THE ATTACHED DOCUMENT

I. COOPERATION BETWEEN JICA AND THE GOVERNMENT OF VIET NAM

1. The Government of Viet Nam shall implement the Project for Capacity Enhancement in Road Maintenance (hereinafter referred to as "the Project") in cooperation with JICA.

2. The Project will be implemented in accordance with the Master Plan which is given in Annex I.

II. MEASURES TO BE TAKEN BY JICA

In accordance with the laws and regulations in force in Japan and the provisions of Article II of the Agreement, JICA, as the executing agency for technical cooperation by the Government of JAPAN, will take, at its own expense, the following measures according to the normal procedures of its technical cooperation scheme.

1. DISPATCH OF JAPANESE EXPERTS
JICA will provide the services of the Japanese experts as listed in Annex II. The provision of Article III of the Agreement will be applied to the above-mentioned experts.

2. PROVISION OF MACHINERY AND EQUIPMENT
JICA will provide such machinery, equipment and other materials (hereinafter referred to as "the Equipment") necessary for the implementation of the Project as listed in Annex III. The provision of Article VIII of the Agreement will be applied to the Equipment.

3. TRAINING OF VIETNAMESE PERSONNEL IN JAPAN
JICA will receive the Vietnamese personnel connected with the Project for technical training in Japan.

III. MEASURES TO BE TAKEN BY THE GOVERNMENT OF VIET NAM

1. The Government of Viet Nam will take necessary measures to ensure that the self-reliant operation of the Project will be sustained during and after the period

of Japanese technical cooperation, through full and active involvement in the Project by all related authorities, beneficiary groups and institutions.

2. The Government of Viet Nam will ensure that the technologies and knowledge acquired by the Vietnamese nationals as a result of the Japanese technical cooperation will contribute to the economic and social development of Viet Nam.

3. The Government of Viet Nam will take necessary measures to ensure that the knowledge and experience acquired by the Vietnamese personnel from technical training in Japan will be utilized effectively in the implementation of the Project.

4. In accordance with the provisions of Article VI of the Agreement, the Government of Viet Nam will grant in Viet Nam privileges, exemptions and benefits to the Japanese experts referred to in II-1 above and their families.

5. In accordance with the provisions of Article VII of the Agreement, the Government of Viet Nam will take the measures necessary to receive and use the Equipment provided by JICA under II-2 above and equipment, machinery and materials carried in by the Japanese experts referred to in II-1 above.

6. In accordance with the provision of Article V of the Agreement, the Government of Viet Nam will provide the services of Vietnamese counterpart personnel and administrative personnel as listed in Annex IV.

7. In accordance with the provision of Article V of the Agreement, the Government of Viet Nam will provide suitable office and facilities as listed in Annex V.

8. In accordance with the laws and regulations in force in Viet Nam, the Government of Viet Nam will take necessary measures to supply or replace at its own expense 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 under II-2 above.

9. In accordance with the laws and regulations in force in Viet Nam, the Government of Viet Nam will take necessary measures to meet the running expenses necessary for the implementation of the Project.

IV. ADMINISTRATION OF THE PROJECT

1. Deputy Director General of Directorate for Roads of Viet Nam (hereinafter referred to as "DRVN"), Ministry of Transport, as the Project Director, will bear overall responsibility for the administration and implementation of the Project.

2. Director of Planning and Investment Department of DRVN, as the Project Manager, will be responsible for the managerial and technical matters of the Project. Director of Maintenance and Management Department of DRVN will assist the Project Manager as the Deputy Project Manager

3. The Japanese experts will provide necessary recommendations and advice to the Project Director, the Project Manager and the Deputy Project Manager on any matters pertaining to the implementation of the Project.

4. The Japanese experts will give necessary technical guidance and advice to Vietnamese counterpart personnel on technical matters pertaining to the implementation of the Project.

5. For the effective and successful implementation of technical cooperation for the Project, a Joint Coordinating Committee will be established, whose functions and composition are described in Annex VI.

V. JOINT EVALUATION

Evaluation of the Project will be conducted jointly by JICA and the Vietnamese authorities concerned, during the last six months of the cooperation term in order to examine the level of achievement.

VI. CLAIMS AGAINST JAPANESE EXPERTS

In accordance with the provision of Article VII of the Agreement, the Government of Viet Nam undertakes to bear claims, if any arises, against the Japanese experts engaged in technical cooperation for the Project resulting from, occurring in the course of, or otherwise connected with the discharge of their official functions in Viet Nam except for those arising from the willful misconduct or gross negligence of the Japanese experts.

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VII. MUTUAL CONSULTATION

There will be mutual consultation between JICA and the Government of Viet Nam on any major issues arising from, or in connection with this Attached Document.

VIII. MEASURES TO PROMOTE UNDERSTANDING OF AND SUPPORT FOR THE PROJECT

For the purpose of promoting support for the Project among the people of Viet Nam, the Government of Viet Nam will take appropriate measures to make the Project widely known to the people of Viet Nam.

IX. TERM OF COOPERATION

The duration of the technical cooperation for the Project under this Attached Document will be thirty (30) months from the commencement of the Project.

MASTER PLAN

Overall goal

Structural damages which provide serious impacts on the national roads and traffic are reduced.

Project Objective

1. Road maintenance technologies are enhanced (PLAN-A, B, C).
2. DRVN's institutional issues are addressed (PLAN-D).
3. Human capacity for road maintenance is developed (PLAN-E).

Expected Output

PLAN-A: Enhancement of capacity for road information management
PLAN-B: Enhancement of planning capacity for road maintenance
PLAN-C: Enhancement of maintenance technologies
PLAN-D: Reinforcement of DRVN institutional issues on road maintenance management
PLAN-E: Development of human capacity of road management engineers

Activities

PLAN-A

A1.1: Develop concept plans for road database systems and confirm requirements for the systems with synchronization between existing road information systems taken into account.

A1.2: Develop data input format for (1) road asset databases (road reference, road inventory and road condition databases) and (2) road maintenance database.

PLAN-B

B1.1: Develop a planning computer system for road pavement maintenance plans, formulate PMS datasets formats and plan middle-term road maintenance plans for the targeted region as a case study.

PLAN-C

C1.1: Enhance road maintenance technologies focusing on road inspection, diagnosis and maintenance work selection.

C1.2: Improve Technical Standards 2003 with new technologies taken into account.

C2.1: Enhance pavement monitoring technology making use of road and traffic databases (Pavement monitoring system)

PLAN-D

D1.1: Reinforce DRVN's central governance in road maintenance, technology development and human capacity development

D1.2: Reinforce DRVN's maintenance management functions, reviewing responsibility assignments between central and regional agencies (RRMUs and PDOTs)

PLAN-E

E1.1: Provide training courses on road asset management, planning long/ medium- term road maintenance plans, road inspection and diagnosis technologies and raise trainers for trainings

ANNEX II

LIST OF JAPANESE EXPERTS

The Japanese side will dispatch experts basically in the following field:

a) Road maintenance strategy
b) Road maintenance institution
c) Road asset management
d) Road maintenance
e) Road pavement
f) Road database
g) Capacity development
h) Computer system engineering

Other experts necessary for effective implementation of the Project will be discussed in the Project.

ANNEX III

LIST OF MACHINERY AND EQUIPMENT

(1) Special Equipment for road condition survey
(2) Computers for database
(3) Others needed for the project implementation

ANNEX IV

LIST OF VIETNAMESE COUNTERPART AND ADMINISTRATIVE PERSONNEL

1. Administrative Personnel

(1) Project Director: Deputy Director General of DRVN
(2) Project Manager: Director of Planning and Investment Department of DRVN
(3) Deputy Project Manager: Director of Maintenance and Management Department of DRVN

2. Counterpart Personnel

Counterpart personnel will be assigned from following organizations:

(1) Relevant departments of DRVN
(2) RRMU2 and selected RRMUs, and their Road Technical Centers (RTC)
(3) RTC Central

The list of counterpart personnel will be completed by the conclusion of R/D.

ANNEX V

LIST OF OFFICES AND FACILITIES

(1) Office space
(2) Basic facilities and equipment

ANNEX VI

JOINT COORDINATING COMMITTEE

1. Function

JCC is the committee to confirm the progress of the Project, discuss important matters and make decisions for the better implementation of the Project. It is held at the timing of the Project's milestone twice a year and when necessity arises to fulfil the following functions;

(1) To discuss and approve the annual work plan of the Project to be formulated under the framework of the R/D,
(2) To evaluate the achievement of the annual work plan and overall progress of the Project,
(3) To facilitate the necessary authorization of the Project outputs, and
(4) To review and exchange opinions on major issues that arise during implementation of the Project.

Vice minister of MOT, Director General of DRVN will be the chairperson of the JCC.

2. Composition

[Member of Vietnamese side]
Project Director, Project Manager, Deputy Project Manager, Counterpart Personnel, and officials of other relevant entities, such as relevant government agencies, Universities, etc.

[Member of the Japanese side]
Japanese experts, Representative of JICA Vietnam Office

添付 1－1

RECORD OF DISCUSSIONS
BETWEEN
JAPAN INTERNATIONAL COOPERATION AGENCY AND
AUTHORITIES CONCERNED OF THE GOVERNMENT OF
THE SOCIALIST REPUBLIC OF VIET NAM
ON JAPANESE TECHNICAL COOPERATION
FOR
THE PROJECT FOR CAPACITY ENHANCEMNET IN ROAD MAINTENANCE

The Japanese Detailed Planning Survey Team (hereinafter referred to as "the Team") organized by Japan International Cooperation Agency (hereinafter referred to as "JICA") and headed by Mr. Shuntaro Kawahara, visited the Socialist Republic of Viet Nam (hereinafter referred to as "Viet Nam") from 20th February to 4th March, 2011 for the purpose of working out the details of the technical cooperation program concerning the Project for Capacity Enhancement in Road Maintenance in Viet Nam.

During its stay in Viet Nam, the Team exchanged views and had a series of discussions with the Vietnamese authorities concerned with respect to desirable measures to be taken by JICA and the Government of Viet Nam for the successful implementation of the above-mentioned Project.

As the result of the discussions, and in accordance with the provisions of the Agreement on Technical Cooperation between the Government of Japan and the Government of Viet Nam, signed in Hanoi on 20th October, 1998 (hereinafter referred to as "the Agreement"), the Team and the Vietnamese authorities concerned agreed on the matters referred to in the document attached hereto.

Hanoi, 1rst July, 2011

Mr. Tsuno Motonori	Mr. Nguyen Ngoc Dong
Chief Representative	Vice Minister cum Director General
JICA Vietnam Office	Directorate for Roads of Vietnam
Japan International Cooperation Agency	Ministry of Transport
Japan	The Socialist Republic of Vietnam

THE ATTACHED DOCUMENT

I. COOPERATION BETWEEN JICA AND THE GOVERNMENT OF VIET NAM

1. The Government of Viet Nam shall implement the Project for Capacity Enhancement in Road Maintenance (hereinafter referred to as "the Project") in cooperation with JICA.

2. The Project will be implemented in accordance with the Master Plan which is given in Annex I.

II. MEASURES TO BE TAKEN BY JICA

In accordance with the laws and regulations in force in Japan and the provisions of Article II of the Agreement, JICA, as the executing agency for technical cooperation by the Government of JAPAN, will take, at its own expense, the following measures according to the normal procedures of its technical cooperation scheme.

1. DISPATCH OF JAPANESE EXPERTS
JICA will provide the services of the Japanese experts as listed in Annex II. The provision of Article III of the Agreement will be applied to the above-mentioned experts.

2. PROVISION OF MACHINERY AND EQUIPMENT
JICA will provide such machinery, equipment and other materials (hereinafter referred to as "the Equipment") necessary for the implementation of the Project as listed in Annex III. The provision of Article VIII of the Agreement will be applied to the Equipment.

3. TRAINING OF VIETNAMESE PERSONNEL IN JAPAN
JICA will receive the Vietnamese personnel connected with the Project for technical training in Japan.

III. MEASURES TO BE TAKEN BY THE GOVERNMENT OF VIET NAM

1. The Government of Viet Nam will take necessary measures to ensure that the self-reliant operation of the Project will be sustained during and after the period of Japanese technical cooperation, through full and active involvement in the Project by all related authorities, beneficiary groups and institutions.

2. The Government of Viet Nam will ensure that the technologies and knowledge acquired by the Vietnamese nationals as a result of the Japanese technical cooperation will contribute to the economic and social development of Viet Nam.

3. The Government of Viet Nam will take necessary measures to ensure that the knowledge and experience acquired by the Vietnamese personnel from technical training in Japan will be utilized effectively in the implementation of the Project.

4. In accordance with the provisions of Article VI of the Agreement, the Government of Viet Nam will grant in Viet Nam privileges, exemptions and benefits to the Japanese experts referred to in II-1 above and their families.

5. In accordance with the provisions of Article VII of the Agreement, the Government of Viet Nam will take the measures necessary to receive and use the Equipment provided by JICA under II-2 above and equipment, machinery and materials carried in by the Japanese experts referred to in II-1 above.

6. In accordance with the provision of Article V of the Agreement, the Government of Viet Nam will provide the services of Vietnamese counterpart personnel and administrative personnel as listed in Annex IV.

7. In accordance with the provision of Article V of the Agreement, the Government of Viet Nam will provide suitable office and facilities as listed in Annex V.

8. In accordance with the laws and regulations in force in Viet Nam, the Government of Viet Nam will take necessary measures to supply or replace at its own expense 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 under II-2 above.

9. In accordance with the laws and regulations in force in Viet Nam, the Government of Viet Nam will take necessary measures to meet the running expenses necessary for the implementation of the Project.

IV. ADMINISTRATION OF THE PROJECT

1. Deputy Director General of Directorate for Roads of Viet Nam (hereinafter referred to as "DRVN"), Ministry of Transport, as the Project Director, will bear overall responsibility for the administration and implementation of the Project.

2. Director of Planning and Investment Department of DRVN, as the Project Manager, will be responsible for the managerial and technical matters of the Project. Director of Maintenance and Management Department of DRVN will assist the Project Manager as the Deputy Project Manager

3. The Japanese experts will provide necessary recommendations and advice to the Project Director, the Project Manager and the Deputy Project Manager on any matters pertaining to the implementation of the Project.

4. The Japanese experts will give necessary technical guidance and advice to Vietnamese counterpart personnel on technical matters pertaining to the implementation of the Project.

5. For the effective and successful implementation of technical cooperation for the Project, a Joint Coordinating Committee will be established, whose functions and composition are described in Annex VI.

V. JOINT EVALUATION

Evaluation of the Project will be conducted jointly by JICA and the Vietnamese authorities concerned, during the last six months of the cooperation term in order to examine the level of achievement.

VI. CLAIMS AGAINST JAPANESE EXPERTS

In accordance with the provision of Article VII of the Agreement, the Government of Viet Nam undertakes to bear claims, if any arises, against the Japanese experts engaged in technical cooperation for the Project resulting from, occurring in the course of, or otherwise connected with the discharge of their official functions in Viet Nam except for those arising from the willful misconduct or gross negligence of the Japanese experts.

VII. MUTUAL CONSULTATION

There will be mutual consultation between JICA and the Government of Viet Nam on any major issues arising from, or in connection with this Attached Document.

VIII. MEASURES TO PROMOTE UNDERSTANDING OF AND SUPPORT FOR THE PROJECT

For the purpose of promoting support for the Project among the people of Viet Nam, the Government of Viet Nam will take appropriate measures to make the Project widely known to the people of Viet Nam.

IX. TERM OF COOPERATION

The duration of the technical cooperation for the Project under this Attached Document will be thirty (30) months from the commencement of the Project.

MASTER PLAN

Overall goal

1. Road facilities are properly maintained in the target region.
2. Outputs of the project are disseminated across the country.

Project Objective

1. Road maintenance capacity in the target region is enhanced.
2. Dissemination system of the output of the project across the country is developed.

Expected Output

1. Enhancement of capacity for road information management
2. Enhancement of planning capacity for road maintenance
3. Enhancement of maintenance technologies
4. Reinforcement of DRVN institutional issues on road maintenance management

Activities

Output1: Enhancement of capacity for road information management

1.1: Develop road database systems and confirm requirements for the systems with synchronization between existing road information systems taken into account.

1.2: Develop data input format for (1) road asset databases (road reference, road inventory and road condition databases) and (2) road maintenance database.

1.3: Provide training courses on road information management and cultivate instructors in this field.

1.4: Develop training programs and materials for dissemination across the country.

Output2. Enhancement of planning capacity for road maintenance

2.1: Develop a planning computer system for road pavement maintenance plans and formulate PMS datasets formats.

2.2: Plan middle-term road maintenance plans for the targeted region as a case study.

2.3: Provide training courses on road maintenance planning and cultivate

instructors in this field.

Output3. Enhancement of maintenance technologies

3.1: Enhance road maintenance technologies focusing on road inspection, diagnosis and maintenance work selection.

3.2: Improve Technical Standards 2003 with new technologies taken into account.

3.3: Develop pavement monitoring system making use of road and traffic databases and establish the road monitoring procedures.

Output4. Reinforcement of DRVN institutional issues on road maintenance management

4.1: Reinforce DRVN's central governance in road maintenance, technology development and human capacity development, and DRVN's maintenance management functions, reviewing responsibility assignments between central and regional agencies (RRMUs and PDOTs)

4.2: Review relevant regulations on DRVN's institutional issues on road maintenance management and propose recommendations to DRVN for consideration.

4.3: Develop regulations and training schemes on road information management and road maintenance technology.

ANNEX II

LIST OF JAPANESE EXPERTS

The Japanese side will dispatch experts basically in the following field:

a) Road maintenance strategy
b) Road maintenance institution
c) Road asset management
d) Road maintenance
e) Road pavement
f) Road database
g) Capacity development
h) Computer system engineering

Other experts necessary for effective implementation of the Project will be discussed in the Project.

添付 1－2

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Vice minister of MOT, Director General of DRVN will be the chairperson of the JCC.

2. Composition

[Member of Vietnamese side]
Project Director, Project Manager, Deputy Project Manager, Counterpart Personnel, and officials of other relevant entities, such as relevant government agencies, Universities, etc.

[Member of the Japanese side]
Japanese experts, Representative of JICA Vietnam Office

添付 1－2

MINUTES OF MEETING
BETWEEN
JAPAN INTERNATIONAL COOPERATION AGENCY
AND
AUTHORITIES CONCERNED OF
THE GOVERNMENT OF SOCIALIST REPUBLIC OF VIETNAM
ON
JAPANESE TECHNICAL COOPERATION PROJECT
FOR
THE PROJECT FOR CAPACITY ENHANCEMNET
IN ROAD MAINTENANCE

The Japanese Terminal Evaluation Team (hereinafter referred to as "the Team") organized by Japan International Cooperation Agency (hereinafter referred to as "JICA") headed by Mr. Hozumi Katsuta visited the Socialist Republic of Vietnam from 16 to 27 September 2013 for the purpose of conducting a Terminal Evaluation of "the Project for Capacity Enhancement in Road Maintenance" (hereinafter referred to as "the Project").

During its stay in the Socialist Republic of Vietnam, the Team had a series of discussions and exchanged views with the concerned officials of the Ministry of Transport (hereinafter referred to as "MOT"), and the Directorate for Roads of Viet Nam (hereinafter referred to as "DRVN") in order to evaluate the achievements of the Project.

As a result of the discussions, MOT, DRVN and the Team agreed to the matters in the documents attached hereto.

Hanoi, 27 September 2013

Mr. Hozumi Katsuta
Team Leader
Japanese Terminal Evaluation Team
Japan International Cooperation Agency
Japan

Mr. Nguyen Xuan Cuong
Deputy General Director
Directorate for Road of Vietnam
Ministry of Transport
The Socialist Republic of Vietnam

ATTACHED DOCUMENT

I. Terminal Evaluation of the Project

The Team presented the Terminal Evaluation Report and explained the results including recommendations. The Team and Vietnamese concerned authorities discussed the contents of the Terminal Evaluation Report and adopted the Report as Appendix 1.

ATTACHMENTS:

Appendix – Terminal Evaluation Report (27 September 2013)

Appendix

Terminal Evaluation Report

For

The Project for capacity enhancement in road maintenance in the Socialist Republic of Viet Nam

September 2013

List of Abbreviations

ADB	Asian Development Bank
C/P	Counterpart
DRVN	Directorate of Roads in Vietnam
HDM4	Highway Development & Management Module 4
JCC	Joint Coordinating Committee
JICA	Japan International Cooperation Agency
KEI	KATAHIRA & ENGINEERS INTERNATIONAL
MLIT	Ministry of Land, Infrastructure, Transport and Tourism, Japan
MM	Man Month
MOT	Ministry of Transport
NEXCO	Nippon Expressway Company
OC	Oriental Consultants
OJT	On the Job Training
PDM	Project Design Matrix
PMU	Project Management Unit
PO	Plan of Operation
PMoS	Pavement Monitoring System
PMS	Pavement Management System
R/D	Record of Discussion
RRMU	Regional Road Management Unit
RTC	Road Technical Centre
SEDP	Socio-Economic Development Plan
UTC	University of Transport and Communications
WB	World Bank
WG	Working Group

Table of Contents

1. Outline of the Project

1.1 Background of the Project

The Socialist Republic of Vietnam (hereinafter referred to as Vietnam) has set its development goal as to accelerate Industrialization by the year 2020 through emerging out from the low income countries, in The Socio-Economic Development Strategy (2006-2010,2011-2015). As one of strategies to achieve this target improvement of transport infrastructure has been recognized as a critical issue, and currently a large scale transport infrastructure developments such as airports, ports, expressways and urban railways have been proposed and implemented. The national road network in Vietnam is managed by Directorate for Roads of Vietnam (hereinafter referred to as DRVN) under Ministry of Transport (hereinafter referred to as MOT), and road constructions and renovations are in progress with supports including Government budgets, Yen- loans, World Bank (WB) and Asian Development Bank (ADB). In 2010, the national road network has reached to a total length of 17,385 km, and plays an essential role in the transport infrastructure as well as contributes to a recent rapid economic development.

However, due to low social interest in road maintenance, sufficient budget for road maintenance work has not been allocated. This constrains not only the implementation of actual road maintenance work but also distribution of appropriate amount of budget required for the capacity development of road maintenance work and related personnel trainings. Issues identified in relation to the national road maintenance are; (1) Existing road maintenance plans are formulated with inadequate methods, (2) Detail inventory methods and evaluation criteria for diagnosis are not incorporated into the existing Technical Standards, (3) Inconsistency between Technical Standards on Road Routine Maintenance 2003 (hereinafter referred to as Technical Standards 2003), and Road Maintenance Norms 2001. In addition, due to a delay in computerization of road inventory data and road maintenance history data, they have not been utilized. As a result of above issues, a chronic cycle is incurred in road maintenance; lack of grounds in road maintenance plans and explanations to the relevant financial departments, has been leading to the lack of ability to secure sufficient budget for the road maintenance work.

RoSyBASE for the Pavement Management System (hereinafter referred to as PMS) and HDM-4 for the medium-term maintenance planning have been introduced as technical assistance projects of WB and ADB respectively. In 2007, both systems were recognized as the official system of DRVN. However, due to a poor reliability in data, complex data operation systems and insufficient personnel trainings etc., above systems have not yet reached to the operational level. Therefore an establishment of alternative system is urgently required.

Under above background, DRVN requested Japan International Cooperation Agency (hereinafter referred to as JICA) for the assistance on capacity enhancement in road maintenance.

1.2 Summary of the Project

The Project has been conducted based on the Project Design Matrix(PDM) Version 0 (See Annex 1). Main points are as below.

Project Name		The Project for capacity enhancement in road maintenance
Implementing Institution		Directorate for Roads of Vietnam (DRVN), Ministry of Transport (MOT)
Project Period		30 months from 1st July 2011 to 31st December 2013
Overall Goal		1. Road facilities are properly maintained in the target region. 2. Outputs of the project are disseminated across the country.
Project Purpose		1. Road maintenance institution in the target region is enhanced. 2. Dissemination system of the output of the project across the country is developed.
Outputs	1	Enhancement of capacity for road information management
	2	Enhancement of planning capacity for road maintenance
	3	Enhancement of road maintenance technologies
	4	Reinforcement of DRVN institutional issues on road maintenance management
Activities	1-1	Develop road database systems and confirm requirements for the systems with synchronization between existing road information systems taken into account.
	1-2	Develop data input format for (1) road asset databases and (2) road maintenance database
	1-3	Provide training courses on road information management and cultivate instructors in this field
	1-4	Develop training programs and materials for dissemination across the country.
	2-1	Develop a computer software system for road maintenance planning and formulate PMS datasets formats.
	2-2	Formulate mid-term road maintenance plans for the targeted region.
	2-3	Provide training courses on road maintenance planning and cultivate instructors in this field
	3-1	Implement OJTs to enhance road maintenance technologies focusing on road inspection, diagnosis and maintenance work selection
	3-2	Improve Routine Maintenance Standards 20031) taking in account of new technologies
	3-3	Develop pavement monitoring system making use of developed road database data and establish the road monitoring procedures.
	3-4	Provide training courses on road inspection, diagnoses and selection of maintenance work and cultivate instructors in this field
	3-5	Develop training programs and materials for dissemination across the country
	4-1	Review responsibility assignments among relevant agencies, on road maintenance, technology development and human capacity development
	4-2	Review relevant legislations on DRVN's institutional issues on road maintenance management and propose recommendations to DRVN for consideration.
	4-3	Develop legislations and training institutions for nationwide deployment on road information management and road maintenance technology developed.

2. Introduction

2.1 Objectives of the Terminal Evaluation

Objectives of the Terminal Evaluation are as follows:

1) To review the project implementation process, the project inputs, the progress of the project activities, and achievement levels of the intended outputs based on Project Design Matrix (PDM), the Plan of Operation (PO)
2) To clarify problems and issues to be addressed for the successful implementation of the Project for the remaining periods
3) To evaluate the Project according to the five evaluation criteria(See details in 3.1), i.e. relevance, effectiveness, efficiency, impact and sustainability

2.2 Members of the Terminal Evaluation Team

Name	In charge	Title and Affiliation	Duration of Evaluation
Mr. Hozumi KATSUTA	Team Leader	Senior Advisor (Transport), JICA	23rd – 27th September
Mr. Toru TSUCHIHASHI	Cooperation Planning	Road Engineer, Planning and Coordination Division Transportation and ICT Division 2 Economic Infrastructure Department, JICA	23rd – 27th September
Ms. Chiaki YAMADA	Evaluation Analyst	Pegasus Engineering Corporation	16th – 27th September
Mr. Vu Tu NAM	Interpreter	Freelance	16th – 27th September

2.3 Schedule of the Evaluation

The Terminal evaluation was conducted from 16th to 27st September 2013, and detailed activities are as follows.

Date		Mr. Hozumi KATSUTA (Team Leader)	Mr. Toru TSUCHIHASHI (Cooperation Planning)	Ms. Chiaki YAMADA (Evaluation Analyst)
9/15	Sun			Arrival at Hanoi, Vietnam
9/16	Mon			Courtesy Call to DRVN and Interviews with Expert Team
9/17	Tue			Interviews with Expert team
9/18	Wed			Interviews with Counterpart (C/P)
9/19	Thu			Interviews with C/P
9/20	Fri			Analysis and document preparation
9/21	Sat			Analysis and document preparation
9/22	Sun	Arrival at Hanoi, Vietnam		Analysis and document preparation
9/23	Mon	Courtesy call and Interviews with RRMU2(Regional Road Management Unit) Courtesy call to DRVN and Interviews with DRVN members Meeting with Project experts		
9/24	Tue	Courtesy call and Interviews with Road Technical (RTC)-central Courtesy call and Interviews with to MOT Courtesy call and Interviews with University of Transport Communications (UTC)		
9/25	Wed	Preparation for Minutes of Meeting (M/M)		
9/26	Thu	Preparation for M/M with DRVN		
9/27	Fri	Signing of the M/M Report to JICA Vietnam office Leaving for Narita, Japan		

2.4 Interviewees of the Evaluation

The Terminal Evaluation mission had interviews with several stakeholders such as the experts, DRVN, RRMU2, UTC and RTC-Central for collecting the progress information at the point of the Terminal Evaluation. Details of interviews are shown in Annex 8.

3. Methodology of the Evaluation

3.1 Guidance and framework of the Evaluation

The Terminal evaluation was carried out following JICA's Project Evaluation Guideline. Major items to be evaluated are the following aspects based on the PDM Version 0 and the PO Version 0.

1) Achievements of the Project based on the PDM indicators
2) Implementation process
3) Evaluation by five evaluation criteria

To perform the review, achievements (of Outputs, Project Purpose and Overall Goal) and implementation process were assessed. Information on achievements includes the level of fulfilment of indicators. Implementation process includes the progress of activities, communication issues, and project ownership of Counterpart (C/P). After the information was collected, the achievement of the Project was evaluated by the following five criteria through discussion among the Terminal Evaluation team.

Relevance	Relevance of the Project plan is reviewed in terms of the validity of the Project Purpose and the Overall Goal in connection with the development policy of the Government of the Vietnam, aid policy of the Government of Japan, needs of beneficiaries, and by logical consistency of the Project plan.
Effectiveness	Effectiveness is assessed by evaluating the extent to which the Project had achieved its purpose and by clarifying the relationship between the Project purpose and Outputs.
Efficiency	Efficiency of the Project implementation is analysed with emphasis on the relationship between Outputs and inputs in terms of timing, quality and quantity.
Impact	Impact of the Project is assessed on the basis of both positive and negative influences caused by the Project.
Sustainability	Sustainability of the Project is assessed in terms of political, institutional, financial and technical aspects by examining the extent to which the achievements of the Project would be sustained or expanded after the project period.

The project achievement levels and five criteria are evaluated at 5 different levels as shown below.

Levels	1		2	3	
Achievement	In Progress		Almost Achieved	Fully Achieved	
Levels	1	2	3	4	5
Five criteria	Low	Rather Low	Moderate	Relatively High	High

3.2 Data Collection Method

In order to evaluate the achievements of the Project, the data was collected through following methods:

1) Review of project reports and documents
2) Questionnaire
3) Interview
4) Field observation

4. Achievement and Implementation Process

4.1 Inputs

(1) Japanese side

Item	Achievement (as of 31st August)
Experts	Eleven (11) experts in total have been dispatched since the start of the Project, under the titles as below. The total M/M of these experts amounts to 60.05M/M in the 1st year and 48.70M/M in the 2nd year (As of 31st August) respectively. Details are shown in Annex 3.

List of titles

• Team Leader / Road Maintenance Planning	• Road Database
• Deputy Team leader / Road Maintenance Technology	• Human Capacity Development
• Road Asset Management	• Computer System Technology
• Road Inspection technology	• Project Coordinator / Road Maintenance Planning
• Road Maintenance Technical Standards	• Pavement Materials
• Road Pavement Technology	• Road maintenance strategy

Operational Cost	Operational cost was mainly utilised for Employment of the Project staff, travel expense and rent-a –car etc. Details are shown in Annex 4.
Equipment	Some equipment, such as software, personal computers and colour printers has been procured to the Project. Details are shown in Annex 5. Road condition survey vehicle will be procured next February.
Training in Japan	Training in Japan was conducted once in the 1st year and 5 counterparts participated in the training. Details of the training are shown in Annex 6.

(2) Vietnamese side

Item	Achievement (as of 31st August)
Counterpart	Currently, twenty seven (27) counterparts in total are assigned in 5 Working Groups (WGs).
Operational cost	Operational cost was mainly utilised for consultant costs and office equipment etc. Details are shown in Annex 7.

4.2 Achievement of the Project Purpose

Project Purpose
1. Road maintenance institution in the target region is enhanced.
2. Dissemination system of the output of the project across the country is developed.

Verifiable Indicators	Achievement Level
1 In progress New PMS and new road database is continuously operated and updated after the project completion	<table><tr><td>New Road Database</td><td>Data input formats of road inventory database and road maintenance system have been prepared and RRMU2 staff has already been inputting the data into the system. Input control also has been developed for avoiding input errors. Training for learning database operation & management has been conducted 3 times for DRVN, RRMU and RTC.</td></tr><tr><td>New PMS</td><td>Draft of the new PMS dataset formats for formulating the road maintenance planning has been prepared and it is currently being confirmed by DRVN. Training for learning the new PMS dataset has been conducted in August and training for operating and updating the new PMS continuously is planned to be conducted.</td></tr></table> Data Conversion Software which transfers the data from the road database (Road inventory data, Pavement road maintenance data, Traffic volume data and Pavement condition data) to PMS dataset has been developed by the Project and shared with DRVN in August. The software will be submitted to DRVN. If the Guideline currently being prepared is completed, the database is likely to be operated and updated based on the Guideline.
2 In progress Standard of road maintenance technology enhanced by OJTs is maintained	"Routine Maintenance Standards 2003" was supposed to be revised for the purpose of supporting the road maintenance through the project activity. However, as a result of having discussion on the Standards between the C/P and experts, the Project recognized the necessity not to prepare the Standards but to prepare the "Routine maintenance Manual" for practical use on road maintenance. Main component of the manual has already been submitted to DRVN and it is likely to be approved by DRVN before the end of the Project.
3 Almost Achieved Staff allocation and training program are established for nationwide deployment of project output under the pilot area	"Recommended Training Programs (See Annex 9)" has been prepared for disseminating the project impacts across the country and it has been in the process of confirmation by DRVN. The Programs clarify roles and responsibilities of persons concerned to the training. On the other hand, trainers for training are under cultivation and materials for training such as operation guideline of PMS remain to be developed.

4.3 Achievement of the Outputs

Output 1 : Enhancement of capacity for road information management

Verifiable Indicators	Achievement Level
1-1 In progress Operation of new database system is deployed	Data input formats of road inventory database and road maintenance system have been prepared and RRMU2 staff has already been inputting the prioritized data necessary for formulating the road maintenance planning into the system.
1-2 In progress Record of road database utilization for routine road maintenance works	Given that the new road database is completed, the database will be utilized for not only the routine maintenance but the formulation of pavement monitoring system.
1-3 75 persons Number of staff participated in trainings	At the terminal evaluation, it is confirmed that training has been conducted three times as follows. Details of the training are shown in "Annex 10". <table><tr><th>Name of training</th><th>Content</th><th>Date</th><th>Number of participants</th></tr><tr><td rowspan="3">Road Database System</td><td>Overall Database System</td><td>6 JUN 2013</td><td>24</td></tr><tr><td>Database Operation & Management</td><td>20 JUN 2013</td><td>18</td></tr><tr><td>Database Operation & Management</td><td>28 AUG 2013</td><td>33</td></tr><tr><td colspan="3">TOTAL</td><td>75</td></tr></table>
1-4 In progress Number of trained trainings	The Project has proposed that two agencies entitled "Road infrastructure & Traffic Safety Department" and "DRVN-IC" be in charge of conducting training and the proposal has been agreed by DRVN. Candidates of instructors will be selected in those two agencies.

Output 2 : Enhancement of planning capacity for road maintenance

Verifiable Indicators	Achievement Level
2-1 In progress Record of mid-term road maintenance	At the terminal evaluation, it is confirmed that the new PMS is under development and would be completed in October. After the completion,

	planning formulation by DRVN officials utilizing new PMS	the mid-term road maintenance planning for roads in the pilot area will be formulated with the new PMS.
2-2	62 persons Number of staff participated in trainings	Training for enhancing the planning capacity for road maintenance has been conducted as follows.

Name of training	Content	Date	Number of participants
PMS Dataset Development	PMS dataset & development of pivot type data, Conversion to dataset	27 AUG 2013	31
Road Maintenance Planning	Software for Road Maintenance Plans	27 AUG 2013	31
		TOTAL	62

Training to be conducted are as follows.

Name of training	Content	Date/ times
Pavement Condition Survey	Capacity Enhancement in software for road maintenance plans	3times (1day/ times) in NOV/DEC 2013
Road Maintenance Planning	Budget Planning	Once (1day/ times) in NOV 2013
	Repair Planning, benchmarking Evaluation	Once (1day/ times) in NOV 2013

Output 3 : Enhancement of road maintenance technologies

Verifiable Indicators	Achievement Level
3-1 In progress Utilization of road maintenance technology trained by OJTs	Training for road inspection and road pavement technique was supposed to be conducted 5 times during the Project and training has been conducted 3 times so far. Given that other training is conducted twice, DRVN is expected to acquire the capacity for road inspection and road pavement technique. According to the interview with the experts, DRVN's capacity for road maintenance has been improved compared to the beginning of the Project.
3-2 In progress Road pavement monitoring system is updated by DRVN	Road pavement monitoring system has been updated by the Project experts. After the completion of the Project, DRVN will have an initiative to update the system.
3-3 78 persons Number of staff participated in trainings	Training has been conducted as follows. Details are shown in "Annex 9".

Name of training	Content	Date	Number of participants
Inspection Method	General Guidance on Inspection & Manual	18 JUL 2013	14
Revised Routine Maintenance Standard	General on Routine Maintenance Standard and Japanese Practices	24 JUL 2013	31
New Technology	Pavement Repair technology	15 MAY 2013	30
Operation of PMoS	PMoS System	2 AUG 2013	13
		TOTAL	78

Training to be conducted are as follows.

Name of training	Content	Date
Inspection Method	Inspection on Facilities / Inspection technique	SEP 2013
Revised Routine Maintenance Standard	New Routine Maintenance Standard on road Maintenance	SEP 2013

3-4	In progress Number of trained trainers	In order to maintain the technical level of road maintenance, training for "Inspection technology", "Revised Routine Maintenance Technology" and "Pavement Monitoring System" has been conducted. Moreover, "Recommended Training Programs for Project Output Dissemination after the Project" has been prepared for disseminating the project outputs across the country and it has been in the process of confirmation by DRVN. Candidates of instructors will be selected from agencies mentioned in the table below.

Name of Training	Responsible Agency for training implementation
Inspection Technology	• Science, Technology & International Cooperation Department • Road Maintenance & Management Department
Revised Routine Maintenance Technology	• Road Maintenance & Management Department • Road Infrastructure & Traffic Safety Department • Economic and Planning Department (RRMU2)
Pavement Monitoring System	• Road Maintenance & Management Department • Road Infrastructure & Traffic Safety Department • Information Centre

Output 4 : Reinforcement of DRVN institutional issues on road maintenance management

Verifiable Indicators	Achievement Level
4-1 In progress Authority and responsibility of related agenesis	Recommendations entitled "Revision and enhancement of roles and responsibilities on road maintenance/technical development/Training system "have been prepared and they will be submitted to DRVN in

	(DRVN, RRMU and PDOT) are agreed among agencies	October.
4-2	In progress Relevant legislations are recommended	Revision of regulation on DRVN organization will be recommended by the Project before the termination of the Project.
	Almost achieved Relevant legislations are recommended	"Recommendations" prepared through the project activity (WG4), which is expected to be utilized for preparing the Degree on road management and maintenance.

4.4 Possible Achievement of the Overall Goal

Overall Goal
1. Road facilities are properly maintained in the target region.
2. Outputs of the project are disseminated across the country.

	Verifiable Indicators	Achievement Level
1	Index relevant to pavement deterioration (IRI, crack ratio etc.)	Given that all activities are implemented as planned and the Vietnamese side maintains roads continuously based on the mid-term road maintenance planning after the Project, pavement deterioration is expected to be kept at a minimum.
2	Number of delivered training outside project pilot area	It is expected that training is conducted in other pilot areas based on "Recommended Training Programs for Project Output Dissemination after the Project" after the Project.
3	Total length of national roads managed by operation of project outputs	The project has implemented the activities in national roads (2,300km) within RRMU2. If the training plans and training materials are utilized and recommendations from the Project are considered, road pavement management will be worked satisfactorily and effectively. Therefore, the project output is likely to be applied to all the national highways.

4.5 Implementation Process

1) Establishment of Working Groups

At the terminal evaluation, 5 following WGs" (1)Enhancement of Road Information management (2) Enhancement of Road Maintenance Planning (3)Improvement of Road Maintenance Technology (4)Strengthening of Road Maintenance Institutes (5)Reinforcement of Capacity Development" have been established. At least 1 expert has been allocated in each WG. Meetings in WGs have been held as necessary, which contributed C/P to confirm the project progress and to discuss challenges within WGs.

Furthermore, meetings have given frequent opportunities among WGs and as a result, mutual understanding has been getting established and the project activities have been implemented as planned.

2) Involvement of UTC lecturers

Implementation of the project involving lecturers from UTC as local consultants led establishment of the framework for continuing the project activities and disseminating the project outputs across the country. Lecturers from UTC allowed practical learning how to transfer techniques for road maintenance to DRVN in addition establishment of the relationship with DRVN more than the Project expected.

Training for enhancing the road maintenance has been conducted for DRVN, however the DRVN' capacity has not yet reached the satisfactory level. The system, in the technical aspect, which continuously supports DRVN after the Project has been established therefore; the road maintenance is likely to be continued properly.

Recently, DRVN staff asked technical questions to UTC lecturers. Involvement of UTC lecturers from the beginning of the Project can be one of contributing factors for the achievement of the project purpose.

3) Delay of the Project

At the beginning of the Project, data accumulated in RosyBASE and HDM4 were supposed to be utilized for developing the new database. However, due to low reliability of data as well as lack of data, the Project had to collect new data and develop a database system as activities of the Output1. Implementation of these activities in the Output 1 has been not only requiring time but also is behind the project schedules. As a consequence, this caused the delay of the some activities of the Project.

6. Evaluation by five criteria

Relevance	Relevance is high in terms of Vietnamese Government's policy, Japanese aid policy of Official Development Assistance (ODA), needs in Vietnam and advantages of Japanese techniques.

Consistency with Vietnamese Policies :

According to "Socio-Economic Development Plan for 5 years (SEDP, 2011-2015)" executed, the Government of the Vietnam expects that the Vietnam would be an industrialized country by 2020 as the overall objective of the socio-economic development. For the achievement of the objective, the development of the traffic-transport infrastructure is placed as a prioritized issue, especially, the transport and urban infrastructure is recognized to be focused the most. Simultaneously, the government shows a strongly commitment to develop the human resources who are capable of improving and maintaining infrastructure in the aspect of capacity development.

Consistency with Japanese aid policy to Vietnam :

The Government of Japan has adopted the following four prioritized issues in the Country Assistance Plan and rolling plan for the Vietnam revised in December 2012.

(1) Promotion for economic growth and reinforcement of international competitiveness
(2) Improvement of social and living aspects and reducing disparities
(3) Environmental conservation
(4) Governance

In order to address the issue mentioned in (1), the Japanese government is certain that supports for improvement of the capacity for maintenance of the transport infrastructure are essential. The Project purpose is to support the capacity enhancement for maintenance on national roads, which is fully compatible with the basic policy of the Japanese aid policy to assist Vietnam.

Consistency with needs of the target area in the Vietnam :

Recently, the development of infrastructure in Vietnam has been accelerating. So far, there has been an emphasis on construction investment, but currently, there is a growing importance on road maintenance, for example, by the introduction of the road maintenance fund.

The Government of Vietnam has been developing the National roads, route1, 3,5,10 and 18 funded by loan assistance. While the improvement of national roads is on-going, DRVN is placed as an agency responsible for carrying out maintenance of national roads. However, the maintenance of roads has not been fully implemented due to the lack of necessary equipment, human resources and technical capabilities.

The project aims to deal with the need for road maintenance and to strengthen the capacity for road maintenance; therefore, it meets the needs for the target group.

Advantages of Japanese techniques :

The Government of Japan has experiences to support the capacity development and institutional management for road maintenance through the various Grant Aid projects in the developing countries such as Republic of Mozambique and Lao People's Democratic Republic. Especially, such technologies as collecting

data and developing development of database are highly advanced in Japan, and skills and knowledge on these technologies accumulated have been reflected into the Project effectively.

Effectiveness	If activities for achieving indicators are continuously implemented and Project's efforts are sustained until the termination of the Project, the effectiveness is moderate.

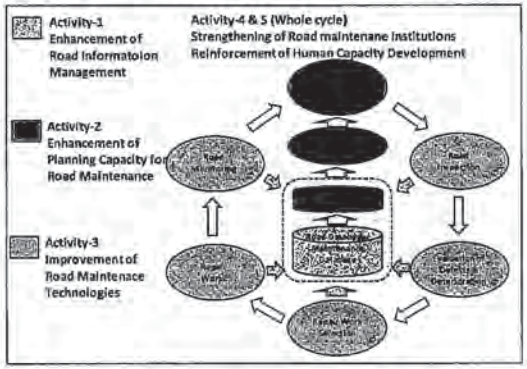
Achievement of the Project purpose :

The project purpose is likely to be achieved if some challenges left are competed.

Contribution of Outputs to the achievement of the Project purpose :

Outputs 1-4 are contributing to the achievement of the Project purpose. Firstly, Output 1 aims to enhance the C/P's capacity for road information management, which is a primitive activity for road maintenance. Output 2 is to enhance the C/P's planning capacity for road maintenance. Also Output 3 aims to enhance the maintenance technology standard. Finally, Output 4 is to reinforce the DRVN institutional issues on road maintenance management. If Outputs 1-4 are achieved, it can be said that the road maintenance institution will be enhanced and system for disseminating the project outputs across the country will be applied. Additionally achievement of output 4 contributed to removing obstacle in legal administrative procedure in road maintenance Therefore; there is a strong correlation between the Outputs and Project purpose.

The table below shows the correlation of each output for achieving the project purpose.



Source: JICA Project Team

Efficiency	The efficiency of the Project is relatively high from the extent of outputs generated

Achievement of Outputs :

As mentioned in the achievement of Outputs, Outputs 1-4 have been partially fulfilled. During the project periods, if the project takes into consideration the following points, there will be more possibility to attain fruitful Outputs.

<Output 1 > the new road database with the necessary data
<Output 2 > PMS and mid-term road maintenance plans
<Output 3 > Routine maintenance Manuals

<Output 4>	Recommendations for Revision of legal documents on road maintenance and management and on DRVN organization

Inputs of timing, quality and cost

- Concerning the human resources allocation on the Vietnamese side, the appropriate number of DRVN, RRMU and RTC staff of the Project has been allocated since the beginning of the Project.
- Trainings in Japan have been held once during the Project period. DRVN has highly appreciated the trainings because they had chances to experience new techniques that are not adopted in the Vietnam through the site visits. It contributed enhancing their motivation to learn various new techniques and become more confident in their improved knowledge.
- The Vietnamese side has prepared the necessary budget for training operation to some extent from the Government.
- In the draft of "Routine maintenance Manual", more visual materials such as pictures and graphs are incorporated alongside the text to enable C/P to understand the contents more easily, hence to be able to carry out the appropriate maintenance work.

Impact	It is hard to evaluate the impact at the Terminal evaluation.

Possibilities to achieve the Overall Goal :

As explained in 4.5, it is difficult to assess the likelihood of achieving the Overall goal at the Terminal evaluation. For achieving the overall goal, first, DRVN has to maintain roads properly based on the "Mid-term road maintenance plan" formulated with accurate and reliable data collected. Furthermore, necessity of road maintenance needs to be prioritized concurrently the road development by the Vietnamese government and DRVN should implement training based on the "Recommended training programs after the Project" which has already been agreed by agencies concerned to the Project.

Correlation between the Project Purpose and the Overall Goal:

The table below shows both the present conditions and conditions in 3-5 years of important assumptions from the Project Purpose to the Overall Goal. If both training programs and materials are prepared and training instructors are cultivated, important assumption 1 (Trainings are continuously implemented by DRVN) is likely to be fulfilled. Concerning the Important assumption 2 (Sufficient budges is allocate for road maintenance activities), DRVN has a difficulty in securing the budget, although DRVN has requested the state budget for MOT because development of roads seems to be more prioritized than road maintenance. On the other hand, the Road Maintenance Fund established is expected as a fund resource and it will contribute DRVN to secure the budget certainly. Concerning the important assumption 3 (Policies on road maintenance in Vietnam do not change drastically), as mentioned in Relevance, the Policies on road maintenance in Vietnam will not change drastically.

Ripple effects of the Project :

A positive impact has been observed through the interviews and the Project Report. Negative impacts have

not been found

<Impact on the political level>

- According to "Comprehensive innovation for management and maintenance of national highway network, No: 538/QD-BGTVT "issued as the Decision on March 2013, Degree is proposed to be developed for clarifying the regulations on road management and maintenance. "Recommendations" prepared through the project activity (WG4), which is expected to be utilized for preparing the Degree. According to the interview with C/P, the Recommendations will be useful and great inputs/ materials for preparing the Degree.

Sustainability	The sustainability of the Project is relatively high from four aspects as below.

Policy Aspects:

According to the interview with the DRVN, it is likely that the Government of Vietnam will remain the current policy and prioritize the human resources development for the road sector. Furthermore, the government recognizes that DRVN is expected to have an important role in road maintenance in Vietnam.

Technical Aspects :

Routine maintenance manual is expected to improve DRVN technical capacity in road maintenance.

The good relationship between UTC and DRVN built up during the Project is useful for DRVN to keep the assigned technology. DRVN is recommended to continue this relationship with UTC after the Project.

Organizational Aspects :

It can be said that the ownership of the Vietnamese side over the Project has been gradually cultivated. Furthermore, DRVN staff is becoming to consider a necessity on conducting the project activities with their own initiatives as the Project progressed.

The draft of "Revision and enhancement of roles and responsibilities on road maintenance/technical development/Training system" will be submitted to DRVN in October. It will clarify roles and responsibilities of organization concerned to the Project and as a result, each organizational function is expected to be strengthened.

Financial Aspect :

According to the interview with C/P, the annual budget provided to DRVN has not reached to the amount which DRVN has requested for last years, this is to say that DRVN has not spent enough budgets for road maintenance. However, So far DRVN has been submitting the national budget request, but since the fund for road operation and maintenance has been established, it has made DRVN highly possible to assure budgets from the fund to save enough budgets for the Project. As a considering point is to collect road use fees annually and utilize the fund based on the Decree of the road maintenance fund. Furthermore, DRVN has to formulate the budget plan for maintaining and operating roads properly based on the "Mid-term road maintenance plan".

6. Conclusion

In conclusion, C/P made great efforts to achieve the Project purpose together with the project experts. Concerning the evaluation by five criteria, relevance, efficiency and sustainability of the Project will reach satisfactory levels. On the other hand, effectiveness will not reach the level the project expected within the project period. Project Impact cannot be measured at the Terminal evaluation, as it is too hard to evaluate the possible achievement of the Overall goal.

Furthermore, it is observed that data input and development of the new database and PMS have been delayed compared to the schedule. It caused the delay of the part of project activities including the finalization of Manuals, guidelines and recommendations. In order to achieve the Project purpose and remaining the Project outputs, DRVN and the project team have to respond to the recommendations mentioned in Chapter 7.

7. Recommendations

I. A few months' extension of the project period

Delay of input of necessary data in the database could be a big obstacle for smooth implementation of the Project as a whole, affecting trainings most which are crucial for raising trainers for disseminating project outputs all over the country. According to current schedule, for instance, the run of PMS would be commenced in November 2013 due to delay of data preparation for PMS. Therefore, even if PMS is established within November, only limited period is left for training by the end of the Project.

Survey equipment for road pavement condition (Road condition survey vehicle) will be newly introduced in February 2014. This is a good opportunity for C/P to have an additional training on sequent road maintenance planning process from data collection to PMS application.

In this regard, a few months' extension of the project period is recommended for securing some time for affected activities such as trainers training and for additional trainings.

II. Actions to be completed by the end of the Project Period

1. There remain activities to be finalized within the project period by the Project team. Targeted main activities are:
   1) Completion of input of necessary data in the database with strong support from DRVN
   2) Completion of PMS development
   3) Implementation of training for mid-term road maintenance plans

2. In the Project, several recommendations/manuals were prepared or under preparation. Great effort should be made for authorization by DRVN by the end of the Project for those recommendations/manuals as follows:
   1) Manual of road routine maintenance work
   2) A Recommendation entitled as " Revision and enhancement of roles and responsibilities on road maintenance/technical development/training system"

III. Actions to be recommended after the Project

It is a long way to establish road maintenance system, and therefore continuous efforts are indispensable for achieving this work. Among other things, strong efforts are highly recommended for following tasks even after the end of the Project:

1) Dissemination of project outputs all over the country
2) Establishment of the complete road database
3) To review and revise/upgrade the road database, PMS and PMoS
4) Full utilization of Manual of road routine maintenance work

IV. Full coordination and lead by PMU

PMU is established to coordinate this project from the beginning of the Project. Though it was observed that PMU has played a very important role for smooth implementation of the Project, further coordination and

lead of PMU is highly expected toward successful end of the Project.

V. More initiative of C/P

Most important characteristic of the technical cooperation project is that initiative of the Project is in the hand of counterpart side. More positive participation of the counterparts in the rest of activities is highly recommended to produce fruitful results in the final stage of the Project.

8. Lesson Learned

There are many different expectations between Vietnamese side and Japanese side.
In order to bridge this gap,

1) Frequent monitoring is required (in this project, mid-term review should be implemented.)
2) Frequent meeting is required to solve questions / doubts quickly and easily (in this project, the project office should be in the same place of main C/Ps)

Annex 1:

Project Design Matrix (PDM)

Project title : the Project for Capacity Enhancement in Road Maintenance **Project term :** 2.5 years

Project summary	Evaluation Index	Measures to obtain criteria	External condition
Overall Goal 1. Road facilities are properly maintained in the target region. 2. Outputs of the project are disseminated across the country.	(until 5 years from project completion) · Index relevant to pavement deterioration(IRI 、 crack ratio etc.) · Number of delivered training outside project pilot area · Total length of national roads managed by operation of project outputs	· Pavement condition survey · Training record · interview to DRVN officials	
Project Objectives 1. Road maintenance institution in the target region is enhanced. 2. Dissemination system of the output of the project across the country is developed.	(until the project completion) · New PMS and new road database is continuously operated and updated after the project completion. · Standard of road maintenance technology enhanced by OJTs is maintained. · Staff allocation and training program are established for nationwide deployment of project output under pilot area	· Status of 3 year road maintenance planning · Survey on utilization of technical specification and developed software · Training Plan, and survey of road maintenance institution	· Trainings are continuously implemented by DRVN. · Sufficient budges is allocate for road maintenance activities. · Policies on road maintenance in Vietnam does not change drastically.
Outputs 1. Enhancement of capacity for road information management 2. Enhancement of planning capacity for road maintenance 3. Enhancement of maintenance technology standard 4. Reinforcement of DRVN institutional issues on road maintenance management	Index1-1: Operation of new database system is deployed Index1-2: Record of road database utilization for routine road maintenance works Index 1-3: Number of staff participated trainings Index 1-4: Number of trained trainers Index2-1: Record of mid-term road maintenance planning formulation by DRVN officials utilizing new PMS Index 2-2: Number of staff participated trainings Index3-1: Utilization of road maintenance technology trained by OJs. Index3-2: Road pavement monitoring system is updated by DRVN Index 3-3: Number of staff participated trainings Index 3-4: Number of trained trainers Index 4-1:Authority and responsibility of Relevant agencies (DRVN, RRMU and PDOT) is agreed among agencies Index 4-2: Relevant legislations are recommended.	· Established road database · Interview to DRVN officials · Training record · Training record · Interview to DRVN officials · Training record · Interview to DRVN officials, and survey on progress of operation · Training record · Training record · Interview to DRVN officials · Legislations	· Trained officers under the project are assigned continuously.

9. Others

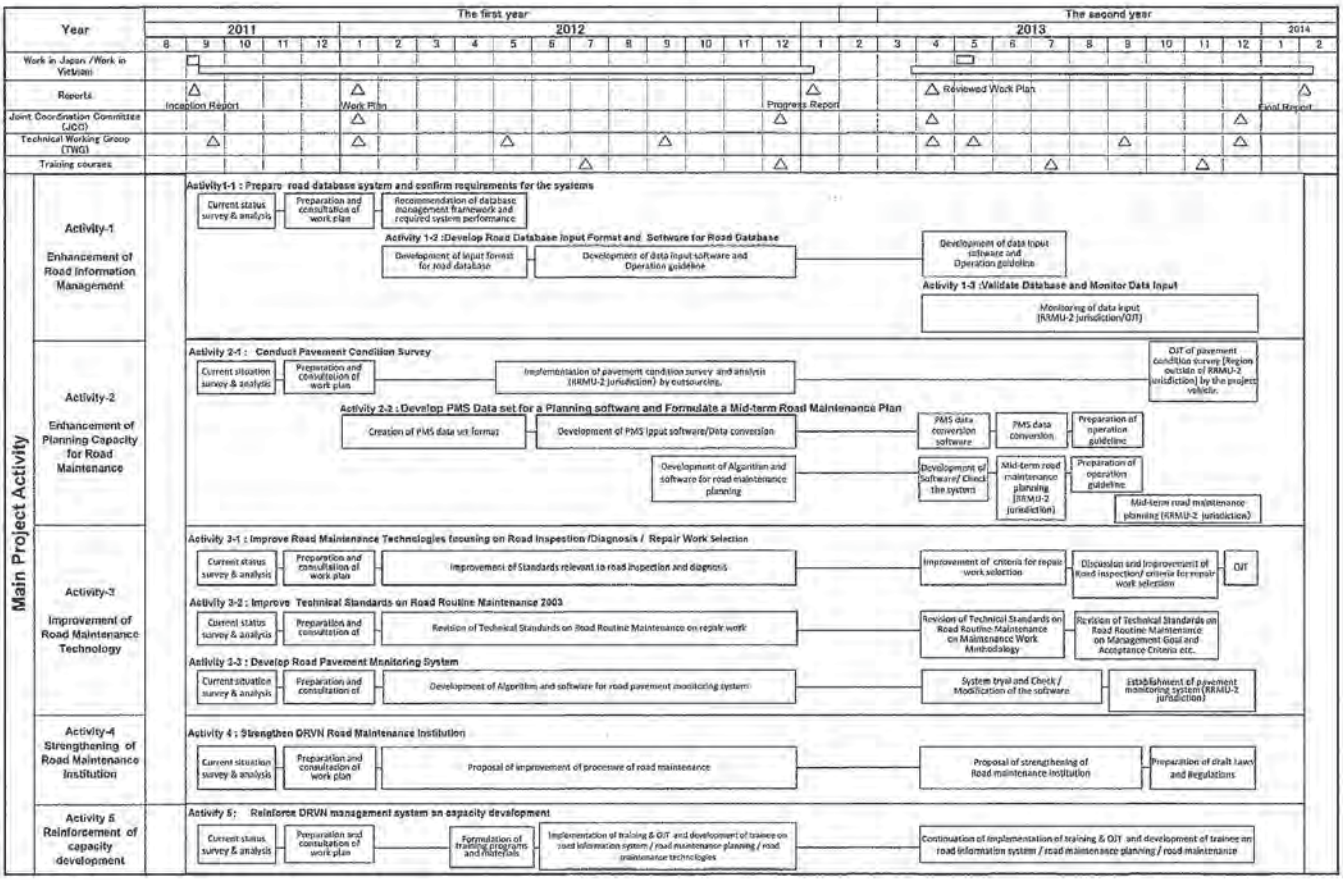
DRVN's Deputy General Director, Mr. Nguyen Xuan Cuong, requested to attach his following comments to the Evaluation Report to secure the sustainability and to be practical.

1) Trial demonstration for road data collection, inputting and processing should be conducted for one national road section of about 100km for sufficient transferring the project outputs.
2) Among total road data items of around 700 items, classifying into groups is needed (into prioritized items, static inventory data items, dynamic data items). The prioritized data items of about 70 items need to be collected first using automatic data collection technology (specialized inspection car, like Pavement Inspection Car) to put into the new developed database system to make sure for sustainability of the system as well as to support DRVN's activity of road management & maintenance.

The evaluation mission stated that the second comment is totally out of the current scope of the Project but these above comments should be discussed in other opportunities including feasibility, technology, and implementation method.

Annex 2:

Plan of Operation(PO)



Annex 1:

Activities	Inputs		External condition
	Japanese side	Vietnamese side	
Output: Enhancement of capacity for road information management. 1.1: Develop road database systems and confirm requirements for the systems with synchronization between existing road information systems taken into account. 1.2: Develop data input format for (1) road asset databases and (2) road maintenance database 1.3: Provide training courses on road information management and cultivate instructors in this field 1.4: Develop training programs and materials for dissemination across the country. Output2. Enhancement of planning capacity for road maintenance 2.1: Develop a computer software system for road maintenance planning and formulate PMS datasets formats. 2.2:Formulate mid-term road maintenance plans for the targeted region. 2.3:Provide training courses on road maintenance planning and cultivate instructors in this field Output3. Enhancement of maintenance technologies 3.1:Implement OJTS to enhance road maintenance technologies focusing on road inspection, diagnosis and maintenance work selection 3.2: Improve Routine Maintenance Standards 2003[1] taking in account of new technologies 3.3: Develop pavement monitoring system making use of developed road database data and establish the road monitoring procedures. 3.4: Provide training courses on road inspection, diagnoses and selection of maintenance work and cultivate instructors in this field 3-5: Develop training programs and materials for dissemination across the country. Output4. Reinforcement of DRVN institutional issues on road maintenance management 4.1Review responsibility assignments among relevant agencies, on road maintenance, technology development and human capacity development 4.2: Review relevant legislations on DRVN's institutional issues on road maintenance management and propose recommendations to DRVN for consideration. 4.3: Develop legislations and training institutions for nationwide deployment on road information management and road maintenance technology developed.	1. Japanese Experts ・ Road maintenance strategy ・ Road maintenance planning ・ Road asset management ・ Road inspection technology ・ Road maintenance technical standards ・ Road pavement technology ・ Road database ・ Human capacity development ・ Computer system technology 2. Training in Japan 3. Procurement of machinery and equipment ・ Special Equipment for pavement condition survey ・ Computers for database	1. Counterparts ・ Relevant department of DRVN ・ RRMU2 and selected RRMUs, and their Road Technical Centers(RTC) ・ RTC-Central 2. List of offices and facilities ・ Project office ・ Basic facility and equipment for project implementation ・ Other budget necessary	・ Counterparts are appointed appropriately. ・ Regional agencies input data for road database and PMS dataset. ・ MOT and other ministries are cooperative to facilitate necessary administrative procedures Pre-condition ・ Project output such as standards and recommendation are institutionalized as required and utilized appropriately.

Annex 4:

Achievement of Inputs (Operational cost /Japanese side)

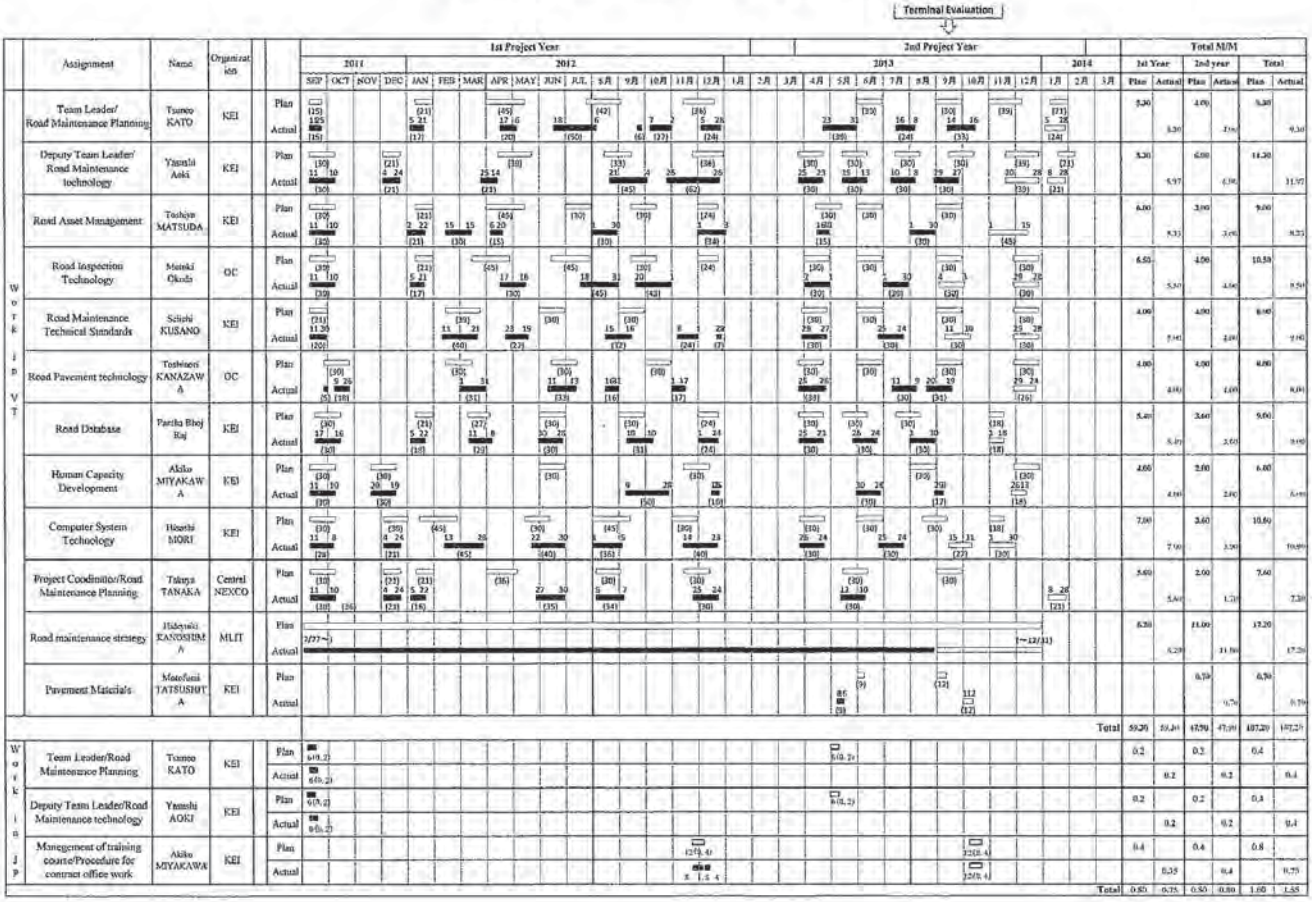
Unit: Thousand Yen

Description	1st year 2011.9-2013.1	2nd year 2013.2-2014.3 (included expected cost)	Total
Employment (Secretary, Interpreter, 3 Developing Software assistants, Assistant for Technical Standard, Project assistant)	4,683	3,071	8,072
Consumables	5	2	7
Travel expense	46	30	76
Communication	22	8	30
Report printing	667	11	678
Rent-a-car	1,503	708	2,211
Local training	221	143	364
Local Consultant	683	0	683
Total	**7,830**	**3,973**	**12,121**

* As of August 2013

Appendix 3:

Achievement of Inputs (Human resource allocation, Japanese side)



Annex 6:

Achievement of Inputs (Training in Japan and Vietnam /Japanese side)

< The 1st year>

The Training in Japan	
Training Periods	2nd ~15th December 2012
Purpose of the Training	To provide knowledge and understanding on advanced institutional and organizational arrangement and technology for road maintenance in Japan
Name (Left) and Position of participants (Right)	Mr. Nguyen Xuan Cuong — Deputy General Director, DRVN Mr. Mr Quach Van Khoa — Director of Road Infrastructure and Traffic Safety Department, DRVN Mr. Thieu Duc Long — Deputy Director of Science and Technology and International Cooperation Department, DRVN Mr. Luong Van Minh — Expert, Road Maintenance and Management Department, DRVN Mr. Nguyen Thi Nhat — Deputy Director of Organization and Personnel Department, DRVN
Assigned Training Implementation Organization	• Regional Development Bureau, MLIT • Public Works Research Institute, MLIT • Nippon Expressway Research Institute Co., Ltd • The Nippon Road Co., Ltd. • Metropolitan Expressway Co., Ltd. • Central Nippon Expressway Co., Ltd. • Katahira and Engineers International

The Training in Vietnam						
Training Periods	26th September 2012					
Purpose of the Training	To introduce framework and report progress of the project To introduce fundamental issues and practices of Japan on road maintenance To discuss issues related to the project implementation					
Participants	< Japanese side >		< Vietnamese side >			
	Embassy of Japan	1	MOT	4	RRMU 4 , RTC4 and PMU4	6
	JICA Vietnam	3	DRVN	26	RRMU 5 , RTC5 and PMU5	6
	University of Kyoto	1	RTC - Central	4	RRMU 7 , RTC7 and PMU7	6
	JICA Project team	13	RRMU	2	Media agencies	2
	Others	3	RTC2	5		
			RRMCs	6		
			Researchers from universities, institutes,	4		
	Sub Total	21			Sub Total	79

Annex 5:

Achievement of Inputs (Equipment provided by Japanese side)

Purchased Date	Name of Equipment	Specification	Quantity	Unit	Unit Price (VND)	Unit Price (Yen)	Purchased in	Current User
December, 2012	Desk top personal computer for system development	DELL Vostro 470MT (7R03R5) Intel Core i7-3770(4*3.4G)/4G/ 500GB/ DVDRW/	2	set	41,780,000	211,795	Vietnam	PJ local staff
December, 2012	Software for system development	Microsoft Visual Studio Professional with MSDN 2010	2	piece	25,670,000	100,113	Vietnam	PJ local staff
April, 2013	Color printer	EPSON STYLUS PHOTO 1390, 1 set of Inkjet (including 6 color)	1	piece	11,650,000	52,425	Vietnam	PJ Team
April, 2013	Desk top personal computer for system development	DELL Vostro 470MT (7R03R5) Intel Core i7-3770(4*3.4G)/4G/ 500GB/ DVDRW/	2	set	34,190,000	153,855	Vietnam	PJ Team
				Total	113,290,000	518,188		

Annex 6:

ALL	The Project	1st	Project activities	Workshop	26 Sep 2012	1day	4	29	11	7	6	13	6	76	
		2nd	Project activities	Workshop	Dec 2013	1day									
Joint Coordination Committee		1st	Project activities		11 Jan 2012	1day		16	4	2	7	6	1	36	
		2nd	Project activities		21 Dec 2012	1day	2	9	2	3		8		24	
		3rd	Project activities		Dec 2013	1day									

Annex 6:

<The 2nd year>

Act	Training / JCC		Contents	Training Method	Date	Duration	Participants							Total	Remark
							MOT	DRVN	RRMU	RTC	RRMC	PMU	Others		
1	Road database system (Act 1)	1st	Overall database system	Computer based classroom	6 Jun 2013	1day	0	10	7	7	0	0	0	24	
		2nd	Database operation & management		20 Jun 2013	1day	0	7	4	7	0	0	0	18	
		3rd	Database operation & management		28 Aug 2013	1day	0	13	9	9	0	0	2	33	
2	Pavement Condition Survey (Act 2.1)	1st	Pavement condition survey	Classroom and OJTs	Nov/Dec 2013	1day									Subject to procurement of vehicle
		2nd	Pavement condition survey			1day									
		3rd	Pavement condition survey			1day									
	PMS dataset development (Act 2.2a)	1st	PMS dataset & development of pivot type data, Conversion to dataset	Computer based classroom	27 Aug 2013	1day	0	18	6	2	0	0	5	31	
	Road maintenance planning (Act 2.2b)	1st	Capacity Enhancement in software for Road maintenance Plans	Computer based classroom	27 Aug 2013	1day	0	18	6	2	0	0	5	31	
		2nd	Budget planning		Sep 2013	1day									
		3rd	Repair planning, benchmarking evaluation		Sep 2013	1day									
3	Inspection Method (Act 3.1)	1st	General Guidance on Inspection & Manual	Workshop	18 Jul 2013	0.5day	0	6	4	3	0	0	1	14	
		2nd	Inspection on Facilities / Inspection Technique	Workshop and OJTs	Sep 2013	1day									
	Revised routine maintenance standard (Act 3.2)	1st	General on Routine Maintenance Standard and Japanese practices	Workshop	24 Jul 2013	0.5 day	0	17	3	2	0	0	9	31	
		2nd	New Routine Maintenance Standard on road maintenance		Sep 2013	1day									
	New Technology (Act 3.2)	1st	Pavement repair technology	Workshop	15 May 2013	0.5day	0	4	4	0	0	14	8	30	
	Operation of PMoS (Act 3.3)	1st	PMoS system	Computer based classroom	2 Aug 2013	0.5day	0	8	3	2	0	0	0	13	
		2nd	PMoS system	Workshop	18 Sep 2013	0.5day									
4	Road Maintenance Institution (Act 4)	1st	PMS	Workshop	28 Jun 2013	0.5day	2	29	8	0	0	0	6	45	

Annex 8:

List of Interviewees (1)

Date		From	to	Place	Interview to	Position
18-Sep	Wed	8:30	9:30	DRVN	Mr. Dang Cong Chien	WG-1, Deputy Team Leader, Science & Technology & International cooperation Department, DRVN
		9:40	10:40		Mr. Pham Thanh Binh	WG-2, Team leader/ Director, Planning and Investment Department, DRVN
		10:50	11:50		Mr. Vu Ngoc Lang	WG-4, Team leader/Director, Road Maintenance & Management Department,
					Mr. Nguyen Duc Cuong	WG-4, Deputy Team leader/Vice Director, Road Maintenance & Management
					Mr. Cao Hoang Can	WG-4, Road Maintenance Management Department, DRVN
		13:40	14:40		Ms. Nguyen Thi Nhat	WG-5, Team Leader/Vice Director, Organication&personnel Department,, DRVN
		14:50	16:20		Dr. Nguyen Trong Phu	WG-3, Team Leader/Director of PMU,
19-Sep	Thu	8:30	9:30	DRVN	<C/P of WG-1>	
					Mr. Hoang Ngoc Nhi	Technical & Construction Management Dept, RRMU2
		9:40	10:40		<C/P of WG-2>	
					Ms. Ta Thi Thuy	Expert, Planning & Investment Department, DRVN
					Ms. Nguyen Thi Hai Ha	Expert, Planning & Investment Department, DRVN
		10:50	11:50		<C/P of WG-3>	
					Mr. Thieu Duc Long	Deputy Team Leader/Deputy Director, Science and technology and International Cooperation, DRVN
					Mr. Nguyen Viet Tuan	Experts, Science and technology and International Cooperation,DRVN
					Mr. Nguyen Vu Tuan	Deputy Director, RTC
		13:40	14:40		<C/P of WG-4>	
					Mr. Nguyen Duc Cuong	Deputy Team Leader/Vice Director, Road Maintenance &Management, DRVN
					Mr. Nguyen Vu Tuan	Deputy Director, RTC
					Mr. Tran Quoc Toan	Expert, Road Maintenance &Management, DRVN
		14:50	15:50		<C/P of WG-5>	
					Ms. Nguyen Hai Vinh	Personnel & Organization Department,
					Mr. Nguyen Vu Tuan	Deputy Director, RTC

Annex 7:

Achievement of Inputs (Operational cost /Vienamese side)

Unit: VND

NO.	ITEM	THE FIRST YEAR		THE SECOND YEAR		TOTAL OF APPROVED COST	TOTAL OF ACTUAL COST
		Cost Estimated approved in 2012	Cost spent from 09/2011-01/2013	Cost Estimated approved in 2013	Cost spent from 02/2013-08/2013		
1	Consultant Cost (PMU and the Relevant Staff)	671,346,845	201,040,157	376,629,955		1,047,976,800	201,040,157
2	Equipment	136,500,000	94,455,000	189,500,000		326,000,000	94,455,000
3	Training	85,400,000	25,832,000	96,200,000	73,988,000	181,600,000	99,820,000
4	Other Expenses	1,439,710,702	100,424,885	2,386,709,034	347,369,695	3,826,419,736	447,794,580
	Total:	**2,332,957,547**	**421,752,042**	**3,049,038,989**	**421,357,695**	**5,381,996,536**	**843,109,737**

DIRECTORATE FOR ROADS OF VIETNAM - PROJECT MANAGEMENT UNIT

Annex 9:

Recommended Training Programs for "After the Project"

Training Program Requirements for "After the Project"					Training program planning for "After the Project"					
Activity	Output	Responsible Agency for development of Project Output	Target Stakeholder	Required Information	Responsible Agency for Training Implementation	Phase	Assigned training implementation organization	Training Style	Duration Frequency	Training Material
Activity 1 Enhancement of Road Information Management	Road Asset Database System	Road Infrastructure & Traffic Safety Dep. Information Centre (DRVN-IC) (In cooperation with) · Science, Technology & International Cooperation Dept. · Planning & Investment Dept. · Road Maintenance & Management Dept. · Road Infrastructure & Traffic Safety Dept. · Technical & Construction Management Dept. (RRMU-2)	DRVN Major Dep. / PPC (State Agency)	· General Guidance on Database System · Database Management · Operation of system	· Road Infrastructure & Traffic Safety Dep. · Information Centre (In cooperation with) · Science, Technology & International Cooperation Dept. · Planning & Investment Dept. · Road Maintenance & Management Dept. · Road Infrastructure & Traffic Safety Dept. · Technical & Construction Management Dept. (RRMU-2)	P-1	· Road infrastructure & Traffic Safety Dep · DRVN-IC	· Seminar/ Workshop · Training courses (Management / Technical)	1day (1/ yr)	· Database system software · Operation Manual
			Road Infrastructure & Traffic Safety Dept. / DRVN-IC (System / Database Manager)	· General Guidance on Database System · Database Management · System Maintenance & Management · Operation of system · Data verification · Data inputting					1day (1/ yr)	
			RRMU / PDOT/BRMUs, (Regional agency / Provincial Gov.)	· General Guidance on Database System · Operation of system · Data verification · Data inputting		P-1	· Road infrastructure & Traffic Safety Dep · DRVN-IC		1day (1/ yr)	
						P-2	· RTC-Central · Academic Institution(UTC)		1day (2/ yr)	
			RTCs (System management /Technical Support)	· General Guidance on Database System · Database Management · System Maintenance & Management · Operation of system · Data verification · Data inputting		P-1	· Road infrastructure & Traffic Safety Dep · DRVN-IC		1day (1/ yr)	
						P-2	· RTC-Central · Academic Institution (UTC)		1day (2/ yr)	
			Consultant and Contractors (Data Input)	· General Guidance on Database System · Data inputting		P-2	· RTC-Central · Academic Institution(UTC)		1day (2/ yr)	
Activity 2 Enhancement of Planning Capacity for Road Maintenance	Activity 2.1 Pavement Condition Survey	· Planning & Investment Dept. (In cooperation with) · Science, Technology & International Cooperation Dept. · Road Maintenance & Management Dept. · Road Infrastructure & Traffic Safety Dept. · Finance Dept. · Economic & Planning Dept. (RRMU-2)	DRVN Major Dep. / PPC (State Agency)	· General Guidance on Pavement Condition Survey	· Planning & Investment Dept. (In cooperation with) · Science, Technology & International Cooperation Dept. · Road Maintenance & Management Dept. · Road Infrastructure & Traffic Safety Dept. · Finance Dept. · Economic & Planning Dept. (RRMU-2)	P-1	· Planning & Investment Dept.	· Seminar/ Workshop · Training courses (Management / Technical)	1day (1/ yr)	· Vehicle · System for pavement condition survey · Operation Manual
			Planning & Investment Dept. (Database Manager /System Manager)	· General Guidance on Pavement Condition Survey · Database Management · System Maintenance & Management · Operation of system · Data verification · Data inputting		P-1	· Planning & Investment Dept.		1day (1/ yr)	
			RRMU/PDOT/BRMUs (Regional agency / Provincial Gov.)	· General Guidance on Pavement Condition Survey · Operation of system · Site Survey Management		P-1	· Planning & Investment Dept.		1day (1/ yr)	
						P-2	· RTC-Central(UTC)		1day (2/ yr)	
			RTCs (System management /Technical Support))	· General Guidance on Pavement Condition Survey · Database Management · System Maintenance & Management · Operation of system · Data verification · Data inputting		P-1	· Planning & Investment Dept.		1day (1/ yr)	
						P-2	· RTC-Central(UTC)		1day (2/ yr)	
			Consultant and Contractors	· General Guidance on Pavement Condition Survey · Data inputting		P-2	· RTC-Central(UTC)		1day (2/ yr)	
	Activity 2.2.a PMS Dataset	· Planning & Investment Dept. · Information Centre (In cooperation with) · Science, Technology & International Cooperation Dept. · Road Maintenance & Management Dept. · Road Infrastructure & Traffic Safety Dept. · Finance Dept. · Economic & Planning Dept. (RRMU-2)	DRVN Major Department / PPC (State Agency)	· General Guidance on Database System · Operation of system	· Planning & Investment Dept. · Information Centre (In cooperation with) · Science, Technology &International Cooperation Dept. · Road Maintenance & Management Dept. · Road Infrastructure & Traffic Safety Dept. · Finance Dept. · Economic & Planning Dept. (RRMU-2)	P-1	· Planning & Investment Dept. · Information Centre	· Seminar/ Workshop · Training courses (Management / Technical)	1day (1/ yr)	· PMS Dataset · Operation Manual User Manual
			Planning & Investment Dept. / Information Centre (System / Database Manager)	· General Guidance on Database System · System Maintenance & Management · Database Management · Operation of system · Data verification · Data input		P-1	· Planning & Investment Dept. · Information Centre		1day (1/ yr)	
						P-2	· RTC-Central · Academic Institution(UTC)		1day (2/ yr)	
			RRMU / PDOT/BRMUs, (Regional agency /	· General Guidance on Database System · Operation of system · Data verification		P-1	· Planning & Investment Dept. · Information Centre		1day (1/ yr)	

Annex 8:

List of Interviewees (2)

Date		From	to	Place	Interview to	Position
23-Sep	Wed	9:30	11:00	RRMU2	Mr. Bui Xuan Truong	Deputy General Director, RRMU2
					Mr. Pham Thai Khoa	Manager, Technical & Construction Management Dept., RRMU2
					Mr.Nguyen Hong Phuong	Deputy Manager, Traffic Management Dept., RRMU2
					Mr. Hoang Ngoc Nhi	Expert, Technical & Construction Management Dept, RRMU2
					Ms. Phuong Thi Hong	Manager, Economic Planning Dept.,
		13:00	13:30	DRVN	Mr. Nguyen Xuan Cuong	Depty General Director, DRVN
					Mr. Nguyen Trong Phu	Team Leader/Director of PMU, DRVN
					Mr. Nguyen Dinh Thao	Project Local Assistant, UTC
		13:30	15:00	DRVN	Mr. Nguyen Trong Phu	Team Leader/Director of PMU, DRVN
		15:00	16:00	DRVN	Ms. Nguyen Hai Vinh	Personnel & Organization Department, DRVN
24-Sep	Thu	9:00	10:30	RTC	Mr. Nguyen Vu Tuan	Deputy Director, Road technical Centre
					Ms. Vu Thi Thanh	Manager, General Dept., Road Technical
					Mr. Luu Quang Tuan	Expert, Road Technical Center
		14:00	14:45	MOT	Ms. Nguyen Thanh Hang	Deputy Director General, Planning and Investment Department, MOT
					Eng. Nguyen Ngoc Hai	Senior Official of Project Management Division, MOT
		15:30	16:30	UTC	Prof. Dr. Bui Xuan Cay	Dean of Civil University of Transport and Communication, UTC
					Mr. Nguyen Dinh Thao	Project Local Assistant, UTC

Annex 9:

Training Program Requirements for "After the Project"					Training program planning for "After the Project"					
Activity	Output	Responsible Agency for development of Project Output	Target Stakeholder	Required information	Responsible Agency for Training Implementation	Phase	Assigned training implementation organization	Training Style	Duration Frequency	Training Material
	Activity 3.2 Revised Routine Maintenance Standard	· Road Maintenance & Management Dept. · Road Infrastructure & Traffic Safety Dept. · Economic & Planning Dept. (RRMU-2) (In cooperation with) · Science, Technology & International Cooperation Dept. · Planning & Investment Dept. · RTC-2 / RTC-Central	DRVN Major Dep. (State Agency)	· Guideline of revised standard	· Road Maintenance & Management Dept. · Road Infrastructure & Traffic Safety Dept. · Economic & Planning Dept. (RRMU-2) (In cooperation with) · Science, Technology & International Cooperation Dept. · Planning & Investment Dept. · RTC-2 / RTC-Central	P-1	· Road Maintenance & Management Dept. · Road Infrastructure & Traffic Safety Dept. · Economic and Planning Dept. (RRMU-2)	· Seminar/ Workshop · Training courses (Management / Technical)	1day (1/ yr)	· Revised Routine Maintenance Standard
			RRMU/PDOT /BRMUs (End User)	· General Guidance on Revised Routine Maintenance Standard · Appraisal & verification of maintenance work · Selection of repair & maintenance work · Evaluation of road inspection result		P-1	· Road Maintenance & Management Dept. · Road Infrastructure & Traffic Safety Dept. · Economic and Planning Dept. (RRMU-2)		1day (1/ yr)	
						P-2	· RTC-Central		1day (2/ yr)	
			RTCs (End User)			P-1	· Road Maintenance & Management Dept. · Road Infrastructure & Traffic Safety Dept. · Economic and Planning Dept. (RRMU-2)		1day (1/ yr)	
						P-2	· RTC-Central		1day (2/ yr)	
			Consultant and Contractors (End User)			P-2	· RTC-Central		1day (2/ yr)	
	Activity 3.3 Pavement Monitoring System	· Road Maintenance & Management Dept. · Road Infrastructure & Traffic Safety Dept. · Information Centre (In cooperation with) · Science, Technology & International Cooperation Dept. · Planning & Investment Dept. · Economic & Planning Dept. (RRMU-2) · RTC-2/ RTC-Central	DRVN Major Dep / PPC.(State Agency/ End User)	· General Guidance on PMoS System, · Operation of System.	· Road Maintenance & Management Dept. · Road Infrastructure & Traffic Safety Dept. · Information Centre (In cooperation with) · Science, Technology & International Cooperation Dept. · Planning & Investment Dept. · Economic & Planning Dept. (RRMU-2) · RTC-2/ RTC-Central	P-1	· Road Maintenance & Management Dept. · Road Infrastructure & Traffic Safety Dept. · Information Centre · University (UTC)	· Seminar /Workshop · Training courses (Management / Technical)	1day (1/ yr)	· Pavement Monitoring System · Operation Manual
			Road Maintenance & Management Dept./ Road Infrastructure & Traffic Safety Dept. / Information Centre (System / Database Manager)	· General Guidance on PMoS System, · System Maintenance & management · Database management · Data analysis · Operation of System · Data Verification · Data importing		P-1	· Road Maintenance & Management Dept. · Road Infrastructure & Traffic Safety Dept. · Information Centre · University (UTC)		1day (1/ yr)	
			RRMU/PDOT/BRMUs /(Regional agency / Provincial Gov.)	· General Guidance on PMoS System, · Operation of System · Data Verification · Data importing		P-1	· Road Maintenance & Management Dept. · Road Infrastructure & Traffic Safety Dept. · Information Centre · University (UTC)		1day (1/ yr)	
						P-2	· RTC-Central · Academic Institution(UTC)		1day (2/ yr)	
			RTCs (System management / Technical Support)	· General Guidance on PMoS System, · System Maintenance & management · Database management · Operation of System · Data Verification · Data importing		P-1	· Road Maintenance & Management Dept. · Road Infrastructure & Traffic Safety Dept. · Information Centre		1day (1/ yr)	
						P-2	· RTC-Central · Academic Institution(UTC)		1day (2/ yr)	
			Consultant and Contractors							

Annex 9:

Training Program Requirements for "After the Project"					Training program planning for "After the Project"					
Activity	Output	Responsible Agency for development of Project Output	Target Stakeholder	Required information	Responsible Agency for Training Implementation	Phase	Assigned training implementation organization	Training Style	Duration Frequency	Training Material
			Provincial Gov.)	· Data import		P-2	· RTC-Central · Academic Institution(UTC)		1day (2/ yr)	
			RTCs (System management / Technical Support)	· General Guidance on Database System · System Maintenance & Management · Database Management · Operation of system · Data verification · Data import		P-2	· RTC-Central · Academic Institution(UTC)		1day (2/ yr)	
			Consultant and Contractors							
	Activity 2.2b VPMS	Planning and Investment Dept. Information Centre (In cooperation with) · Science, Technology & International Cooperation Dept. · Road Maintenance & Management Dept. · Road Infrastructure & Traffic Safety Dept. · Finance Dept. · Economic & Planning Dept. (RRMU-2)	DRVN Major Department / PPC (State Agency / End User)	· General Guidance on VPMS System · Operation of system · Maintenance & Budget planning · Data analysis	· Planning and Investment Dept. · Information Centre (In cooperation with) · Science, Technology & International Cooperation Dept. · Road Maintenance & Management Dept. · Road Infrastructure & Traffic Safety Dept. · Finance Dept. · Economic & Planning Dept. (RRMU-2)	P-1	· Planning & Investment Dept. · Information Centre	· Seminar/ Workshop · Training courses (Management / Technical)	1day (1/ yr)	· VPMS system · Operation Manual
			Planning & Investment Dept. / Information Centre (System / Database Manager)	· General Guidance on VPMS System · System Maintenance & Management · Operation of system · Maintenance & Budget planning · Data analysis · Data importing · Data Inputting		P-1	· Planning & Investment Dept. · Information Centre		1day (1/ yr)	
			RRMU /PDOT/BRMUs, (Regional agency / Provincial Gov.)	· General Guidance on VPMS System · Operation of system · Maintenance & Budget planning · Data analysis · Data importing · Data Inputting		P-1	· Planning & Investment Dept. · Information Centre		1day (1/ yr)	
						P-2	· RTC-Central · Academic Institution(UTC)		1day (2/ yr)	
			RTCs (System management / Technical Support)	· General Guidance on VPMS System · System Maintenance & Management · Operation of system · Maintenance & Budget planning · Data analysis · Data importing · Data Inputting		P-1	· Planning & Investment Dept. · Information Centre		1day (1/ yr)	
						P-2	· RTC-Central · Academic Institution(UTC)		1day (2/ yr)	
			Consultant and Contractors							
Activity 3 Improving Road Maintenance Technologies	Activity 3.1 Maintenance technology	· Science, Technology & International Cooperation Dept. · Road Maintenance & Management Dept. (In cooperation with) · Road Infrastructure & Traffic Safety Dept. · Planning & Investment Dept. · Economic & Planning Dept. (RRMU-2) · RTC-2 / RTC-Central	DRVN Major Dep. /PPC (State Agency)	· General Guidance on Inspection	· Science, Technology & International Cooperation Dept. · Road Maintenance & Management Dept. (In cooperation with) · Road Infrastructure & Traffic Safety Dept. · Planning and Investment Dept. · Economic and Planning Dept. (RRMU-2) · RTC-2/ RTC-Central	P-1	· Science, technology and International Cooperation Dept. · Road Maintenance & Management Dept.	· Seminar/ Workshop · Training courses (Management / Technical)	1day (1/ yr)	· Technical Standards covering road inspection, Diagnosis, Repair work selection
			RRMU/PDOT/BRMUs, (Site Manager)	· General Guidance on Inspection · Site management · Repair and maintenance work · Data Collection · Patrolling / Inspection		P-1	· Science, technology and International Cooperation Dept. · Road Maintenance & Management Dept.		1day (1/ yr)	
						P-2	RTC-Central		1day (2/ yr)	
			RTCs	· General Guidance on Inspection · Site management · Repair and maintenance work · Data Collection · Patrolling / Inspection		P-1	· Science, technology and International Cooperation Dept. · Road Maintenance & Management Dept.		1day (1/ yr)	
						P-2	RTC-Central		1day (2/ yr)	
			Consultant and Contractors (Site Worker)	· General Guidance on Inspection · Repair maintenance work · Data Collection · Patrolling / Inspection		P-2	RTC-Central		1day (2/ yr)	

Annex 9:

Training Program Requirements for "After the Project"					Training program planning for "After the Project"					
Activity	Output	Responsible Agency for development of Project Output	Target Stakeholder	Required information	Responsible Agency for Training Implementation	Phase	Assigned training implementation organization	Training Style	Duration Frequency	Training Material
Activity 4 Strengthen Road Maintenance institution	Road maintenance Procedure	· Road Maintenance & Management Dept. · Road Infrastructure & Traffic Safety Dept. (In cooperation with) · Science, Technology & International Cooperation Dept. · Planning & Investment Dept. · Organization & Personnel Dept. · Transport & Legislation Dept. · Traffic Management Dep. · RTC-Central	MOT/DRVN Major Department/PPC (State Authority/State Agency)	General Guidance on Road Maintenance institution Road Maintenance institution & Procedure	· Road Maintenance & Management Dept. · Road Infrastructure & Traffic Safety Dept. (In cooperation with) · Science, Technology & International Cooperation Dept. · Planning & Investment Dept. · Organization & Personnel Dept. · Transport & Legislation Dept. · Traffic Management Dep.	P-1	· Road Maintenance & Management Dept. · Road Infrastructure & Traffic Safety Dept.	· Seminar/ Workshop · Training courses (Management / Technical)	1day (1/ yr)	· Road maintenance implementation procedure · Recommendation on road
			RRMU/PDOT /BRMUs (Regional agency / Provincial Gov.)	· General Guidance on Road Maintenance institution · Road Maintenance institution and Procedure		P-1	· Road Maintenance & Management Dept. · Road Infrastructure & Traffic Safety Dept.		1day (1/ yr)	
						P-2	· Road Maintenance & Management Dept. · Road Infrastructure & Traffic Safety Dept.		1day (2/ yr)	
			RTCs (End User)	· General Guidance on Road Maintenance institution · Road Maintenance institution & Procedure		P-1	· Road Maintenance & Management Dept. · Road Infrastructure & Traffic Safety Dept.		1day (1/ yr)	
						P-2	· Road Maintenance & Management Dept. · Road Infrastructure & Traffic Safety Dept.		1day (2/ yr)	
			Consultant and Contractors (End User)	· General Guidance on Road Maintenance institution · Road Maintenance institution & Procedure		P-2	· Road Maintenance & Management Dept. · Road Infrastructure & Traffic Safety Dept.		1day (2/ yr)	

Source: JICA Project Team

MINUTES OF MEETING
BETWEEN
JAPAN INTERNATIONAL COOPERATION AGENCY
AND
AUTHORITIES CONCERNED OF
THE GOVERNMENT OF SOCIALIST REPUBLIC OF VIETNAM
ON
JAPANESE TECHNICAL COOPERATION PROJECT
FOR
THE PROJECT FOR CAPACITY ENHANCEMNET
IN ROAD MAINTENANCE

The Japan International Cooperation Agency (hereinafter referred to as "JICA") exchanged views and had a series of discussions with the concerned officials of the Ministry of Transport (hereinafter referred to as "MOT") and the Directorate for Roads of Viet Nam (hereinafter referred to as "DRVN") with respect to desirable measures to be taken for the successful implementation of the Project for Capacity Development in Road Maintenance (hereinafter referred to as "the Project").

As a result of the discussions, DRVN of behalf of MOT and JICA agreed upon the matters described in the documents attached hereto. This document is related to the Record of Discussion on the Project signed on 1st July 2011.

Hanoi, 28th November 2013

Mr. Mutsuya Mori
Chief Representative
JICA Vietnam Office
Japan International Cooperation Agency
Japan

Mr. Nguyen Xuan Cuong
Deputy General Director
Directorate for Road of Vietnam
Ministry of Transport
The Socialist Republic of Vietnam

THE ATTACHED DOCUMENT

1. Revision of the Term of Cooperation and the Plan of Operation (PO)

DRVN of behalf of MOT and JICA agreed that the term of the Project will be extended until 31th March 2014.

Both sides also confirmed that the activities conducted during the extension period will be in accordance with the recommendations in the Attached Document of the Minutes of Meeting of the Terminal Evaluation of the Project singed on 27th September 2013. Details of the Project during the extension period are described the Plan of Operation (Annex 2).

2. Plan of Operation

The Plan of Operation was prepared to provide rough schedule of the project activities described in the Project Design Matrix. Implementation of the activities shall be on condition that the necessary budget will be allocated for the implementation of the Project by both sides. The schedule is subject to change within the scope of the Record of Discussions when necessity arises in the course of implementation of the Project.

Annexes

1. Project Design Matrix
2. Plan of Operation
3. Record of Discussions
4. Minutes of Meeting of the Terminal Evaluation

nex 1:

Project Design Matrix (PDM)

oject title : the Project for Capacity Enhancement in Road Maintenance　　Project term : 2.75 years

Project summary	Evaluation Index	Measures to obtain criteria	External condition
rall Goal oad facilities are properly maintained in the target gion. Outputs of the project are disseminated across the ountry.	(until 5 years from project completion) ・ Index relevant to pavement deterioration(IRI , crack ratio etc.) ・ Number of delivered training outside project pilot area ・ Total length of national roads managed by operation of project outputs	・ Pavement condition survey ・ Training record ・ interview to DRVN officials	
ject Objectives oad maintenance institution in the target region is nhanced. Dissemination system of the output of the project cross the country is developed.	(until the project completion) ・ New PMS and new road database is continuously operated and updated after the project completion. ・ Standard of road maintenance technology enhanced by OJTs is maintained. ・ Staff allocation and training program are established for nationwide deployment of project output under pilot area	・ Status of 3 year road maintenance planning ・ Survey on utilization of technical specification and developed software ・ Training Plan, and survey of road maintenance institution	・ Trainings are continuously implemented by DRVN. ・ Sufficient budges is allocate for road maintenance activities. ・ Policies on road maintenance in Vietnam does not change drastically.
puts nhancement of capacity for road information anagement nhancement of planning capacity for road aintenance nhancement of maintenance technology standard einforcement of DRVN institutional issues on ad maintenance management	Index1-1: Operation of new database system is deployed Index1-2: Record of road database utilization for routine road maintenance works Index 1-3: Number of staff participated trainings Index 1-4: Number of trained trainers Index2-1: Record of mid-term road maintenance planning formulation by DRVN officials utilizing new PMS Index 2-2: Number of staff participated trainings Index3-1: Utilization of road maintenance technology trained by OJs. Index3-2: Road pavement monitoring system is updated by DRVN Index 3-3: Number of staff participated trainings Index 3-4: Number of trained trainers Index 4-1:Authority and responsibility of Relevant agencies (DRVN, RRMU and PDOT) is agreed among agencies Index 4-2: Relevant legislations are recommended.	・ Established road database ・ Interview to DRVN officials ・ Training record ・ Training record ・ Interview to DRVN officials ・ Training record ・ Interview to DRVN officials, and survey on progress of operation ・ Training record ・ Training record ・ Interview to DRVN officials ・ Legislations	・ Trained officers under the project are assigned continuously.

nex 1:

Activities	Inputs		External condition
	Japanese side	Vietnamese side	
put: Enhancement of capacity for road information management. Develop road database systems and confirm requirements for the systems synchronization between existing road information systems taken into unt. Develop data input format for (1) road asset databases and (2) road ntenance database Provide training courses on road information management and cultivate ructors in this field Develop training programs and materials for dissemination across the ntry. put2. Enhancement of planning capacity for road maintenance Develop a computer software system for road maintenance planning and nulate PMS datasets formats. Formulate mid-term road maintenance plans for the targeted region. Provide training courses on road maintenance planning and cultivate ructors in this field put3. Enhancement of maintenance technologies Implement OJTS to enhance road maintenance technologies focusing on l inspection, diagnosis and maintenance work selection Improve Routine Maintenance Standards 2003[1] taking in account of new nologies Develop pavement monitoring system making use of developed road base data and establish the road monitoring procedures. Provide training courses on road inspection, diagnoses and selection of ntenance work and cultivate instructors in this field Develop training programs and materials for dissemination across the ntry. put4. Reinforcement of DRVN institutional issues on road maintenance management Review responsibility assignments among relevant agencies, on road ntenance, technology development and human capacity development Review relevant legislations on DRVN's institutional issues on road ntenance management and propose recommendations to DRVN for sideration. Develop legislations and training institutions for nationwide deployment oad information management and road maintenance technology developed.	1. Japanese Experts ・ Road maintenance strategy ・ Road maintenance planning ・ Road asset management ・ Road inspection technology ・ Road maintenance technical standards ・ Road pavement technology ・ Road database ・ Human capacity development ・ Computer system technology 2. Training in Japan 3. Procurement of machinery and equipment ・ Special Equipment for pavement condition survey ・ Computers for database	1. Counterparts ・ Relevant department of DRVN ・ RRMU2 and selected RRMUs, and their Road Technical Centers(RTC) ・ RTC-Central 2. List of offices and facilities ・ Project office ・ Basic facility and equipment for project implementation ・ Other budget necessary	・ Counterparts are appointed appropriately. ・ Regional agencies input data for road database and PMS dataset. ・ MOT and other ministries are cooperative to facilitate necessary administrative procedures Pre-condition ・ Project output such as standards and recommendation are institutionalized as required and utilized appropriately.

Annex : 3

RECORD OF DISCUSSIONS
BETWEEN
JAPAN INTERNATIONAL COOPERATION AGENCY AND
AUTHORITIES CONCERNED OF THE GOVERNMENT OF
THE SOCIALIST REPUBLIC OF VIET NAM
ON JAPANESE TECHNICAL COOPERATION
FOR
THE PROJECT FOR CAPACITY ENHANCEMNET IN ROAD MAINTENANCE

The Japanese Detailed Planning Survey Team (hereinafter referred to as "the Team") organized by Japan International Cooperation Agency (hereinafter referred to as "JICA") and headed by Mr. Shuntaro Kawahara, visited the Socialist Republic of Viet Nam (hereinafter referred to as "Viet Nam") from 20th February to 4th March, 2011 for the purpose of working out the details of the technical cooperation program concerning the Project for Capacity Enhancement in Road Maintenance in Viet Nam.

During its stay in Viet Nam, the Team exchanged views and had a series of discussions with the Vietnamese authorities concerned with respect to desirable measures to be taken by JICA and the Government of Viet Nam for the successful implementation of the above-mentioned Project.

As the result of the discussions, and in accordance with the provisions of the Agreement on Technical Cooperation between the Government of Japan and the Government of Viet Nam, signed in Hanoi on 20th October, 1998 (hereinafter referred to as "the Agreement"), the Team and the Vietnamese authorities concerned agreed on the matters referred to in the document attached hereto.

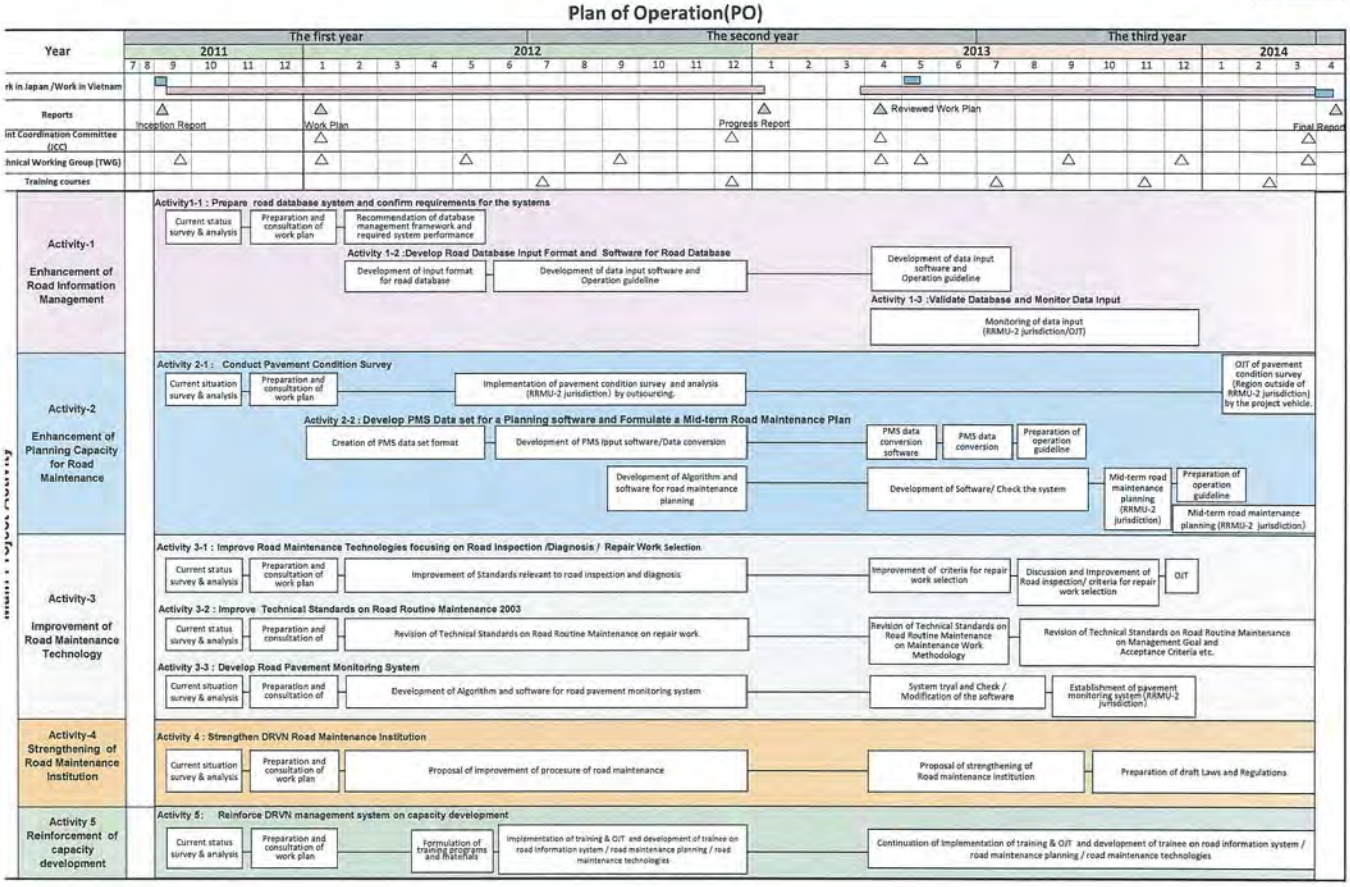
Hanoi, 1rst July, 2011

Mr. Tsuno Motonori
Chief Representative
JICA Vietnam Office
Japan International Cooperation Agency
Japan

Mr. Nguyen Ngoc Dong
Vice Minister cum Director General
Directorate for Roads of Vietnam
Ministry of Transport
The Socialist Republic of Vietnam

Annex : 2

Plan of Operation(PO)



THE ATTACHED DOCUMENT

I. COOPERATION BETWEEN JICA AND THE GOVERNMENT OF VIET NAM

1. The Government of Viet Nam shall implement the Project for Capacity Enhancement in Road Maintenance (hereinafter referred to as "the Project") in cooperation with JICA.

2. The Project will be implemented in accordance with the Master Plan which is given in Annex I.

II. MEASURES TO BE TAKEN BY JICA

In accordance with the laws and regulations in force in Japan and the provisions of Article II of the Agreement, JICA, as the executing agency for technical cooperation by the Government of JAPAN, will take, at its own expense, the following measures according to the normal procedures of its technical cooperation scheme.

1. DISPATCH OF JAPANESE EXPERTS
JICA will provide the services of the Japanese experts as listed in Annex II. The provision of Article III of the Agreement will be applied to the above-mentioned experts.

2. PROVISION OF MACHINERY AND EQUIPMENT
JICA will provide such machinery, equipment and other materials (hereinafter referred to as "the Equipment") necessary for the implementation of the Project as listed in Annex III. The provision of Article VIII of the Agreement will be applied to the Equipment.

3. TRAINING OF VIETNAMESE PERSONNEL IN JAPAN
JICA will receive the Vietnamese personnel connected with the Project for technical training in Japan.

III. MEASURES TO BE TAKEN BY THE GOVERNMENT OF VIET NAM

Annex : 3

1. The Government of Viet Nam will take necessary measures to ensure that the self-reliant operation of the Project will be sustained during and after the period of Japanese technical cooperation, through full and active involvement in the Project by all related authorities, beneficiary groups and institutions.

2. The Government of Viet Nam will ensure that the technologies and knowledge acquired by the Vietnamese nationals as a result of the Japanese technical cooperation will contribute to the economic and social development of Viet Nam.

3. The Government of Viet Nam will take necessary measures to ensure that the knowledge and experience acquired by the Vietnamese personnel from technical training in Japan will be utilized effectively in the implementation of the Project.

4. In accordance with the provisions of Article VI of the Agreement, the Government of Viet Nam will grant in Viet Nam privileges, exemptions and benefits to the Japanese experts referred to in II-1 above and their families.

5. In accordance with the provisions of Article VII of the Agreement, the Government of Viet Nam will take the measures necessary to receive and use the Equipment provided by JICA under II-2 above and equipment, machinery and materials carried in by the Japanese experts referred to in II-1 above.

6. In accordance with the provision of Article V of the Agreement, the Government of Viet Nam will provide the services of Vietnamese counterpart personnel and administrative personnel as listed in Annex IV.

7. In accordance with the provision of Article V of the Agreement, the Government of Viet Nam will provide suitable office and facilities as listed in Annex V.

8. In accordance with the laws and regulations in force in Viet Nam, the Government of Viet Nam will take necessary measures to supply or replace at its own expense 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 under II-2 above.

9. In accordance with the laws and regulations in force in Viet Nam, the Government of Viet Nam will take necessary measures to meet the running expenses necessary for the implementation of the Project.

IV. ADMINISTRATION OF THE PROJECT

1. Deputy Director General of Directorate for Roads of Viet Nam (hereinafter referred to as "DRVN"), Ministry of Transport, as the Project Director, will bear overall responsibility for the administration and implementation of the Project.

2. Director of Planning and Investment Department of DRVN, as the Project Manager, will be responsible for the managerial and technical matters of the Project. Director of Maintenance and Management Department of DRVN will assist the Project Manager as the Deputy Project Manager

3. The Japanese experts will provide necessary recommendations and advice to the Project Director, the Project Manager and the Deputy Project Manager on any matters pertaining to the implementation of the Project.

4. The Japanese experts will give necessary technical guidance and advice to Vietnamese counterpart personnel on technical matters pertaining to the implementation of the Project.

5. For the effective and successful implementation of technical cooperation for the Project, a Joint Coordinating Committee will be established, whose functions and composition are described in Annex VI.

V. JOINT EVALUATION

Evaluation of the Project will be conducted jointly by JICA and the Vietnamese authorities concerned, during the last six months of the cooperation term in order to examine the level of achievement.

VI. CLAIMS AGAINST JAPANESE EXPERTS

In accordance with the provision of Article VII of the Agreement, the Government of Viet Nam undertakes to bear claims, if any arises, against the Japanese experts engaged in technical cooperation for the Project resulting from, occurring in the course of, or otherwise connected with the discharge of their official functions in Viet Nam except for those arising from the willful misconduct or gross negligence of the Japanese experts.

VII. MUTUAL CONSULTATION

There will be mutual consultation between JICA and the Government of Viet Nam on any major issues arising from, or in connection with this Attached Document.

VIII. MEASURES TO PROMOTE UNDERSTANDING OF AND SUPPORT FOR THE PROJECT

For the purpose of promoting support for the Project among the people of Viet Nam, the Government of Viet Nam will take appropriate measures to make the Project widely known to the people of Viet Nam.

IX. TERM OF COOPERATION

The duration of the technical cooperation for the Project under this Attached Document will be thirty (30) months from the commencement of the Project.

ANNEX I

MASTER PLAN

Overall goal

1. Road facilities are properly maintained in the target region.
2. Outputs of the project are disseminated across the country.

Project Objective

1. Road maintenance capacity in the target region is enhanced.
2. Dissemination system of the output of the project across the country is developed.

Expected Output

1. Enhancement of capacity for road information management
2. Enhancement of planning capacity for road maintenance
3. Enhancement of maintenance technologies
4. Reinforcement of DRVN institutional issues on road maintenance management

Activities

Output1: Enhancement of capacity for road information management

1.1: Develop road database systems and confirm requirements for the systems with synchronization between existing road information systems taken into account.

1.2: Develop data input format for (1) road asset databases (road reference, road inventory and road condition databases) and (2) road maintenance database.

1.3: Provide training courses on road information management and cultivate instructors in this field.

1.4: Develop training programs and materials for dissemination across the country.

Output2. Enhancement of planning capacity for road maintenance

2.1: Develop a planning computer system for road pavement maintenance plans and formulate PMS datasets formats.

2.2: Plan middle-term road maintenance plans for the targeted region as a case study.

2.3: Provide training courses on road maintenance planning and cultivate

Annex : 3

instructors in this field.

Output3. Enhancement of maintenance technologies

3.1: Enhance road maintenance technologies focusing on road inspection, diagnosis and maintenance work selection.

3.2: Improve Technical Standards 2003 with new technologies taken into account.

3.3: Develop pavement monitoring system making use of road and traffic databases and establish the road monitoring procedures.

Output4. Reinforcement of DRVN institutional issues on road maintenance management

4.1: Reinforce DRVN's central governance in road maintenance, technology development and human capacity development, and DRVN's maintenance management functions, reviewing responsibility assignments between central and regional agencies (RRMUs and PDOTs)

4.2: Review relevant regulations on DRVN's institutional issues on road maintenance management and propose recommendations to DRVN for consideration.

4.3: Develop regulations and training schemes on road information management and road maintenance technology.

ANNEX II

LIST OF JAPANESE EXPERTS

The Japanese side will dispatch experts basically in the following field:

a) Road maintenance strategy
b) Road maintenance institution
c) Road asset management
d) Road maintenance
e) Road pavement
f) Road database
g) Capacity development
h) Computer system engineering

Other experts necessary for effective implementation of the Project will be discussed in the Project.

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ANNEX III

LIST OF MACHINERY AND EQUIPMENT

(1) Special Equipment for road condition survey
(2) Computers for database
(3) Others needed for the project implementation

ANNEX IV

LIST OF VIETNAMESE COUNTERPART AND ADMINISTRATIVE PERSONNEL

1. Administrative Personnel

(1) Project Director: Deputy Director General of DRVN
(2) Project Manager: Director of Planning and Investment Department of DRVN
(3) Deputy Project Manager: Director of Maintenance and Management Department of DRVN

2. Counterpart Personnel

Counterpart personnel will be assigned from following organizations:

(1) Relevant departments of DRVN
(2) RRMU2 and selected RRMUs, and their Road Technical Centers (RTC)
(3) RTC Central

The list of counterpart personnel will be completed by the conclusion of R/D.

Annex 3

ANNEX V

LIST OF OFFICES AND FACILITIES

(1) Office space
(2) Basic facilities and equipment

ANNEX VI

JOINT COORDINATING COMMITTEE

1. Function

JCC is the committee to confirm the progress of the Project, discuss important matters and make decisions for the better implementation of the Project. It is held at the timing of the Project's milestone twice a year and when necessity arises to fulfill the following functions:

(1) To discuss and approve the annual work plan of the Project to be formulated under the framework of the R/D,

(2) To evaluate the achievement of the annual work plan and overall progress of the Project,

(3) To facilitate the necessary authorization of the Project outputs, and

(4) To review and exchange opinions on major issues that arise during implementation of the Project.

Vice minister of MOT, Director General of DRVN will be the chairperson of the JCC.

2. Composition

[Member of Vietnamese side]

Project Director, Project Manager, Deputy Project Manager, Counterpart Personnel, and officials of other relevant entities, such as relevant government agencies, Universities, etc.

[Member of the Japanese side]

Japanese experts, Representative of JICA Vietnam Office

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MINUTES OF MEETING
BETWEEN
JAPAN INTERNATIONAL COOPERATION AGENCY
AND
AUTHORITIES CONCERNED OF
THE GOVERNMENT OF SOCIALIST REPUBLIC OF VIETNAM
ON
JAPANESE TECHNICAL COOPERATION PROJECT
FOR
THE PROJECT FOR CAPACITY ENHANCEMNET
IN ROAD MAINTENANCE

The Japanese Terminal Evaluation Team (hereinafter referred to as "the Team") organized by Japan International Cooperation Agency (hereinafter referred to as "JICA") headed by Mr. Hozumi Katsuta visited the Socialist Republic of Vietnam from 16 to 27 September 2013 for the purpose of conducting a Terminal Evaluation of "the Project for Capacity Enhancement in Road Maintenance" (hereinafter referred to as "the Project").

During its stay in the Socialist Republic of Vietnam, the Team had a series of discussions and exchanged views with the concerned officials of the Ministry of Transport (hereinafter referred to as "MOT"), and the Directorate for Roads of Viet Nam (hereinafter referred to as "DRVN") in order to evaluate the achievements of the Project.

As a result of the discussions, MOT, DRVN and the Team agreed to the matters in the documents attached hereto.

Hanoi, 27 September 2013

Mr. Hozumi Katsuta
Team Leader
Japanese Terminal Evaluation Team
Japan International Cooperation Agency
Japan

Mr. Nguyen Xuan Cuong
Deputy General Director
Directorate for Road of Vietnam
Ministry of Transport
The Socialist Republic of Vietnam

Annex : 4

ATTACHED DOCUMENT

1. Terminal Evaluation of the Project

The Team presented the Terminal Evaluation Report and explained the results including recommendations. The Team and Vietnamese concerned authorities discussed the contents of the Terminal Evaluation Report and adopted the Report as Appendix 1.

ATTACHMENTS:

Appendix – Terminal Evaluation Report (27 September 2013)

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Appendix

Terminal Evaluation Report

For

The Project for capacity enhancement in road maintenance

in the Socialist Republic of Viet Nam

September 2013

添付 1－4

List of Abbreviations

ADB	Asian Development Bank
C/P	Counterpart
DRVN	Directorate of Roads in Vietnam
HDM4	Highway Development & Management Module 4
JCC	Joint Coordinating Committee
JICA	Japan International Cooperation Agency
KEI	KATAHIRA & ENGINEERS INTERNATIONAL
MLIT	Ministry of Land, Infrastructure, Transport and Tourism, Japan
MM	Man Month
MOT	Ministry of Transport
NEXCO	Nippon Expressway Company
OC	Oriental Consultants
OJT	On the Job Training
PDM	Project Design Matrix
PMU	Project Management Unit
PO	Plan of Operation
PMoS	Pavement Monitoring System
PMS	Pavement Management System
R/D	Record of Discussion
RRMU	Regional Road Management Unit
RTC	Road Technical Centre
SEDP	Socio-Economic Development Plan
UTC	University of Transport and Communications
WB	World Bank
WG	Working Group

Annex 4

Table of Contents

Annex 4

I. Outline of the Project

1.1 Background of the Project

The Sociafist Republic of Vietnam (hereinafter referred to as Vietnam) has set its development goal as to accelerate Industrialization by the year 2020 through emerging out from the low income countries, in The Socio-Economic Development Strategy (2006-2010,2011-2015). As one of strategies to achieve this target improvement of transport infrastructure has been recognized as a critical issue, and currently a large scale transport infrastructure developments such as airports, ports, expressways and urban railways have been proposed and implemented. The national road network in Vietnam is managed by Directorate for Roads of Vietnam (hereinafter referred to as DRVN) under Ministry of Transport (hereinafter referred to as MOT), and road constructions and renovations are in progress with supports including Government budgets, Yen- loans, World Bank (WB) and Asian Development Bank (ADB). In 2010, the national road network has reached to a total length of 17,385 km, and plays an essential role in the transport infrastructure as well as contributes to a recent rapid economic development.

However, due to low social interest in road maintenance, sufficient budget for road maintenance work has not been allocated. This constrains not only the implementation of actual road maintenance work but also distribution of appropriate amount of budget required for the capacity development of road maintenance work and related personnel trainings. Issues identified in relation to the national road maintenance are; (1) Existing road maintenance plans are formulated with inadequate methods, (2) Detail inventory methods and evaluation criteria for diagnosis are not incorporated into the existing Technical Standards, (3) Inconsistency between Technical Standards on Road Routine Maintenance 2003 (hereinafter referred to as Technical Standards 2003), and Road Maintenance Norms 2001. In addition, due to a delay in computerization of road inventory data and road maintenance history data, they have not been utilized. As a result of above issues, a chronic cycle is incurred in road maintenance; lack of grounds in road maintenance plans and explanations to the relevant financial departments, has been leading to the lack of ability to secure sufficient budget for the road maintenance work.

RoSyBASE for the Pavement Management System (hereinafter referred to as PMS) and HDM-4 for the medium-term maintenance planning have been introduced as technical assistance projects of WB and ADB respectively. In 2007, both systems were recognized as the official system of DRVN. However, due to a poor reliability in data, complex data operation systems and insufficient personnel trainings etc., above systems have not yet reached to the operational level. Therefore an establishment of alternative system is urgently required.

Under above background, DRVN requested Japan International Cooperation Agency (hereinafter referred to as JICA) for the assistance on capacity enhancement in road maintenance.

Annex 4

1.2 Summary of the Project

The Project has been conducted based on the Project Design Matrix(PDM) Version 0 (See Annex 1). Main points are as below.

Project Name		The Project for capacity enhancement in road maintenance
Implementing Institution		Directorate for Roads of Vietnam (DRVN), Ministry of Transport (MOT)
Project Period		30 months from 1st July 2011 to 31st December 2013
Overall Goal		1. Road facilities are properly maintained in the target region. 2. Outputs of the project are disseminated across the country.
Project Purpose		1. Road maintenance institution in the target region is enhanced. 2. Dissemination system of the output of the project across the country is developed.
Outputs	1	Enhancement of capacity for road information management
	2	Enhancement of planning capacity for road maintenance
	3	Enhancement of road maintenance technologies
	4	Reinforcement of DRVN institutional issues on road maintenance management
Activities	1-1	Develop road database systems and confirm requirements for the systems with synchronization between existing road information systems taken into account.
	1-2	Develop data input format for (1) road asset databases and (2) road maintenance database
	1-3	Provide training courses on road information management and cultivate instructors in this field
	1-4	Develop training programs and materials for dissemination across the country.
	2-1	Develop a computer software system for road maintenance planning and formulate PMS datasets formats.
	2-2	Formulate mid-term road maintenance plans for the targeted region.
	2-3	Provide training courses on road maintenance planning and cultivate instructors in this field
	3-1	Implement OJTs to enhance road maintenance technologies focusing on road inspection, diagnosis and maintenance work selection
	3-2	Improve Routine Maintenance Standards 20031) taking in account of new technologies
	3-3	Develop pavement monitoring system making use of developed road database data and establish the road monitoring procedures.
	3-4	Provide training courses on road inspection, diagnoses and selection of maintenance work and cultivate instructors in this field
	3-5	Develop training programs and materials for dissemination across the country
	4-1	Review responsibility assignments among relevant agencies, on road maintenance, technology development and human capacity development
	4-2	Review relevant legislations on DRVN's institutional issues on road maintenance management and propose recommendations to DRVN for consideration.

	4-3	Develop legislations and training institutions for nationwide deployment on road information management and road maintenance technology developed.

2. Introduction

2.1 Objectives of the Terminal Evaluation

Objectives of the Terminal Evaluation are as follows:

1) To review the project implementation process, the project inputs, the progress of the project activities, and achievement levels of the intended outputs based on Project Design Matrix (PDM), the Plan of Operation (PO)
2) To clarify problems and issues to be addressed for the successful implementation of the Project for the remaining periods
3) To evaluate the Project according to the five evaluation criteria(See details in 3.1), i.e. relevance, effectiveness, efficiency, impact and sustainability

2.2 Members of the Terminal Evaluation Team

Name	In charge	Title and Affiliation	Duration of Evaluation
Mr. Hozumi KATSUTA	Team Leader	Senior Advisor (Transport), JICA	23rd – 27th September
Mr. Toru TSUCHIHASHI	Cooperation Planning	Road Engineer, Planning and Coordination Division Transportation and ICT Division 2 Economic Infrastructure Department, JICA	23rd – 27th September
Ms. Chiaki YAMADA	Evaluation Analyst	Pegasus Engineering Corporation	16th – 27th September
Mr. Vu Tu NAM	Interpreter	Freelance	16th – 27th September

2.3 Schedule of the Evaluation

The Terminal evaluation was conducted from 16th to 27st September 2013, and detailed activities are as follows.

Date		Mr. Hozumi KATSUTA (Team Leader)	Mr. Toru TSUCHIHASHI (Cooperation Planning)	Ms. Chiaki YAMADA (Evaluation Analyst)
9/15	Sun			Arrival at Hanoi, Vietnam
9/16	Mon			Courtesy Call to DRVN and Interviews with Expert Team
9/17	Tue			Interviews with Expert team
9/18	Wed			Interviews with Counterpart (C/P)
9/19	Thu			Interviews with C/P
9/20	Fri			Analysis and document preparation
9/21	Sat			Analysis and document preparation
9/22	Sun	Arrival at Hanoi, Vietnam		Analysis and document preparation
9/23	Mon	Courtesy call and Interviews with RRMU2(Regional Road Management Unit) Courtesy call to DRVN and Interviews with DRVN members Meeting with Project experts		
9/24	Tue	Courtesy call and Interviews with Road Technical (RTC)-central Courtesy call and Interviews with to MOT Courtesy call and Interviews with University of Transport Communications (UTC)		
9/25	Wed	Preparation for Minutes of Meeting (M/M)		
9/26	Thu	Preparation for M/M with DRVN		
9/27	Fri	Signing of the M/M Report to JICA Vietnam office Leaving for Narita, Japan		

2.4 Interviewees of the Evaluation

The Terminal Evaluation mission had interviews with several stakeholders such as the experts, DRVN, RRMU2, UTC and RTC-Central for collecting the progress information at the point of the Terminal Evaluation. Details of interviews are shown in Annex 8.

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3. Methodology of the Evaluation

3.1 Guidance and framework of the Evaluation

The Terminal evaluation was carried out following JICA's Project Evaluation Guideline. Major items to be evaluated are the following aspects based on the PDM Version 0 and the PO Version 0.

1) Achievements of the Project based on the PDM indicators
2) Implementation process
3) Evaluation by five evaluation criteria

To perform the review, achievements (of Outputs, Project Purpose and Overall Goal) and implementation process were assessed. Information on achievements includes the level of fulfilment of indicators. Implementation process includes the progress of activities, communication issues, and project ownership of Counterpart (C/P). After the information was collected, the achievement of the Project was evaluated by the following five criteria through discussion among the Terminal Evaluation team.

Relevance	Relevance of the Project plan is reviewed in terms of the validity of the Project Purpose and the Overall Goal in connection with the development policy of the Government of the Vietnam, aid policy of the Government of Japan, needs of beneficiaries, and by logical consistency of the Project plan.
Effectiveness	Effectiveness is assessed by evaluating the extent to which the Project had achieved its purpose and by clarifying the relationship between the Project purpose and Outputs.
Efficiency	Efficiency of the Project implementation is analysed with emphasis on the relationship between Outputs and inputs in terms of timing, quality and quantity.
Impact	Impact of the Project is assessed on the basis of both positive and negative influences caused by the Project.
Sustainability	Sustainability of the Project is assessed in terms of political, institutional, financial and technical aspects by examining the extent to which the achievements of the Project would be sustained or expanded after the project period.

The project achievement levels and five criteria are evaluated at 5 different levels as shown below.

Levels	1		2		3
Achievement	In Progress		Almost Achieved		Fully Achieved
Levels	1	2	3	4	5
Five criteria	Low	Rather Low	Moderate	Relatively High	High

3.2 Data Collection Method

In order to evaluate the achievements of the Project, the data was collected through following methods:

1) Review of project reports and documents
2) Questionnaire
3) Interview
4) Field observation

4. Achievement and Implementation Process

4.1 Inputs

(1) Japanese side

Item	Achievement (as of 31st August)
Experts	Eleven (11) experts in total have been dispatched since the start of the Project, under the titles as below. The total M/M of these experts amounts to 60.05M/M in the 1st year and 48.70M/M in the 2nd year (As of 31st August) respectively. Details are shown in Annex 3. List of titles • Team Leader / Road Maintenance Planning • Deputy Team leader / Road Maintenance Technology • Road Asset Management • Road Inspection technology • Road Maintenance Technical Standards • Road Pavement Technology • Road Database • Human Capacity Development • Computer System Technology • Project Coordinator / Road Maintenance Planning • Pavement Materials • Road maintenance strategy
Operational Cost	Operational cost was mainly utilised for Employment of the Project staff, travel expense and rent-a –car etc. Details are shown in Annex 4.
Equipment	Some equipment, such as software, personal computers and colour printers has been procured to the Project. Details are shown in Annex 5. Road condition survey vehicle will be procured next February.
Training in Japan	Training in Japan was conducted once in the 1st year and 5 counterparts participated in the training. Details of the training are shown in Annex 6.

(2) Vietnamese side

Item	Achievement (as of 31st August)
Counterpart	Currently, twenty seven (27) counterparts in total are assigned in 5 Working Groups (WGs).
Operational cost	Operational cost was mainly utilised for consultant costs and office equipment etc. Details are shown in Annex 7.

4.2 Achievement of the Project Purpose

Project Purpose
1. Road maintenance institution in the target region is enhanced.
2. Dissemination system of the output of the project across the country is developed.

Verifiable Indicators	Achievement Level
1 In progress New PMS and new road database is continuously operated and updated after the project completion	New Road Database: Data input formats of road inventory database and road maintenance system have been prepared and RRMU2 staff has already been inputting the data into the system. Input control also has been developed for avoiding input errors. Training for learning database operation & management has been conducted 3 times for DRVN, RRMU and RTC. New PMS: Draft of the new PMS dataset formats for formulating the road maintenance planning has been prepared and it is currently being confirmed by DRVN. Training for learning the new PMS dataset has been conducted in August and training for operating and updating the new PMS continuously is planned to be conducted. Data Conversion Software which transfers the data from the road database (Road inventory data, Pavement road maintenance data, Traffic volume data and Pavement condition data) to PMS dataset has been developed by the Project and shared with DRVN in August. The software will be submitted to DRVN. If the Guideline currently being prepared is completed, the database is likely to be operated and updated based on the Guideline.
2 In progress Standard of road maintenance technology enhanced by OJTs is maintained	"Routine Maintenance Standards 2003" was supposed to be revised for the purpose of supporting the road maintenance through the project activity. However, as a result of having discussion on the Standards between the C/P and experts, the Project recognized the necessity not to prepare the Standards but to prepare the "Routine maintenance Manual" for practical use on road maintenance. Main component of the manual has already been submitted to DRVN and it is likely to be approved by DRVN before the end of the Project.
3 Almost Achieved Staff allocation and training program are established for	"Recommended Training Programs (See Annex 9)" has been prepared for disseminating the project impacts across the country and it has been in the process of confirmation by DRVN. The Programs clarify roles and

nationwide deployment of project output under the pilot area	responsibilities of persons concerned to the training. On the other hand, trainers for training are under cultivation and materials for training such as operation guideline of PMS remain to be developed.

4.3 Achievement of the Outputs

Output 1 : Enhancement of capacity for road information management

Verifiable Indicators	Achievement Level
1-1 In progress Operation of new database system is deployed	Data input formats of road inventory database and road maintenance system have been prepared and RRMU2 staff has already been inputting the prioritized data necessary for formulating the road maintenance planning into the system.
1-2 In progress Record of road database utilization for routine road maintenance works	Given that the new road database is completed, the database will be utilized for not only the routine maintenance but the formulation of pavement monitoring system.
1-3 75 persons Number of staff participated in trainings	At the terminal evaluation, it is confirmed that training has been conducted three times as follows. Details of the training are shown in "Annex 10".

Name of training	Content	Date	Number of participants
Road Database System	Overall Database System	6 JUN 2013	24
	Database Operation & Management	20 JUN 2013	18
	Database Operation & Management	28 AUG 2013	33
		TOTAL	75

1-4 In progress Number of trained trainings	The Project has proposed that two agencies entitled "Road infrastructure & Traffic Safety Department" and "DRVN-IC" be in charge of conducting training and the proposal has been agreed by DRVN. Candidates of instructors will be selected in those two agencies.

Output 2 : Enhancement of planning capacity for road maintenance

Verifiable Indicators	Achievement Level
2-1 In progress Record of mid-term road maintenance planning formulation by DRVN officials utilizing new PMS	At the terminal evaluation, it is confirmed that the new PMS is under development and would be completed in October. After the completion, the mid-term road maintenance planning for roads in the pilot area will be formulated with the new PMS.
2-2 62 persons Number of staff participated in trainings	Training for enhancing the planning capacity for road maintenance has been conducted as follows.

Name of training	Content	Date	Number of participants
PMS Dataset Development	PMS dataset & development of pivot type data, Conversion to dataset	27 AUG 2013	31
Road Maintenance Planning	Software for Road Maintenance Plans	27 AUG 2013	31
		TOTAL	62

Training to be conducted are as follows.

Name of training	Content	Date/ times
Pavement Condition Survey	Capacity Enhancement in software for road maintenance plans	3times (1day/ times) in NOV/DEC 2013
Road Maintenance Planning	Budget Planning	Once (1day/ times) in NOV 2013
	Repair Planning, benchmarking Evaluation	Once (1day/ times) in NOV 2013

Output 3 : Enhancement of road maintenance technologies

Verifiable Indicators	Achievement Level
3-1 In progress Utilization of road maintenance technology trained by OJTs	Training for road inspection and road pavement technique was supposed to be conducted 5 times during the Project and training has been conducted 3 times so far. Given that other training is conducted twice, DRVN is expected to acquire the capacity for road inspection and road pavement technique. According to the interview with the experts, DRVN's capacity for road maintenance has been improved compared to the beginning of the Project.
3-2 In progress Road pavement monitoring system is updated by DRVN	Road pavement monitoring system has been updated by the Project experts. After the completion of the Project, DRVN will have an initiative to update the system.
3-3 78 persons Number of staff participated in trainings	Training has been conducted as follows. Details are shown in "Annex 9".

Name of training	Content	Date	Number of participants
Inspection Method	General Guidance on Inspection & Manual	18 JUL 2013	14
Revised Routine Maintenance Standard	General on Routine Maintenance Standard and Japanese Practices	24 JUL 2013	31
New Technology	Pavement Repair technology	15 MAY 2013	30
Operation of PMoS	PMoS System	2 AUG 2013	13
		TOTAL	78

Training to be conducted are as follows.

Name of training	Content	Date
Inspection Method	Inspection on Facilities / Inspection technique	SEP 2013
Revised Routine Maintenance Standard	New Routine Maintenance Standard on road Maintenance	SEP 2013

3-4 In progress
Number of trained trainers

In order to maintain the technical level of road maintenance, training for "Inspection technology", "Revised Routine Maintenance Technology" and "Pavement Monitoring System" has been conducted.

Moreover, "Recommended Training Programs for Project Output Dissemination after the Project" has been prepared for disseminating the project outputs across the country and it has been in the process of confirmation by DRVN. Candidates of instructors will be selected from agencies mentioned in the table below.

Name of Training	Responsible Agency for training implementation
Inspection Technology	• Science, Technology & International Cooperation Department • Road Maintenance & Management Department
Revised Routine Maintenance Technology	• Road Maintenance & Management Department • Road Infrastructure & Traffic Safety Department • Economic and Planning Department (RRMU2)
Pavement Monitoring System	• Road Maintenance & Management Department • Road Infrastructure & Traffic Safety Department • Information Centre

Output 4 : Reinforcement of DRVN institutional issues on road maintenance management

Verifiable Indicators	Achievement Level
4-1 In progress Authority and responsibility of related agenesis	Recommendations entitled "Revision and enhancement of roles and responsibilities on road maintenance/technical development/Training system "have been prepared and they will be submitted to DRVN in

(DRVN, RRMU and PDOT) are agreed among agencies	October.
4-2 In progress Relevant legislations are recommended	Revision of regulation on DRVN organization will be recommended by the Project before the termination of the Project.
Almost achieved Relevant legislations are recommended	"Recommendations" prepared through the project activity (WG4), which is expected to be utilized for preparing the Degree on road management and maintenance.

4.4 Possible Achievement of the Overall Goal

Overall Goal
1. Road facilities are properly maintained in the target region.
2. Outputs of the project are disseminated across the country.

	Verifiable Indicators	Achievement Level
1	Index relevant to pavement deterioration (IRI, crack ratio etc.)	Given that all activities are implemented as planned and the Vietnamese side maintains roads continuously based on the mid-term road maintenance planning after the Project, pavement deterioration is expected to be kept at a minimum.
2	Number of delivered training outside project pilot area	It is expected that training is conducted in other pilot areas based on "Recommended Training Programs for Project Output Dissemination after the Project" after the Project.
3	Total length of national roads managed by operation of project outputs	The project has implemented the activities in national roads (2,300km) within RRMU2. If the training plans and training materials are utilized and recommendations from the Project are considered, road pavement management will be worked satisfactorily and effectively. Therefore, the project output is likely to be applied to all the national highways.

4.5 Implementation Process

1) Establishment of Working Groups

At the terminal evaluation, 5 following WGs" (1)Enhancement of Road Information management (2) Enhancement of Road Maintenance Planning (3)Improvement of Road Maintenance Technology (4)Strengthening of Road Maintenance Institutes (5)Reinforcement of Capacity Development" have been established. At least 1 expert has been allocated in each WG. Meetings in WGs have been held as necessary, which contributed C/P to confirm the project progress and to discuss challenges within WGs.

Furthermore, meetings have given frequent opportunities among WGs and as a result, mutual understanding has been getting established and the project activities have been implemented as planned.

2) Involvement of UTC lecturers

Implementation of the project involving lecturers from UTC as local consultants led establishment of the framework for continuing the project activities and disseminating the project outputs across the country. Lecturers from UTC allowed practical learning how to transfer techniques for road maintenance to DRVN in addition establishment of the relationship with DRVN more than the Project expected.

Training for enhancing the road maintenance has been conducted for DRVN, however the DRVN' capacity has not yet reached the satisfactory level. The system, in the technical aspect, which continuously supports DRVN after the Project has been established therefore; the road maintenance is likely to be continued properly.

Recently, DRVN staff asked technical questions to UTC lecturers. Involvement of UTC lecturers from the beginning of the Project can be one of contributing factors for the achievement of the project purpose.

3) Delay of the Project

At the beginning of the Project, data accumulated in RosyBASE and HDM4 were supposed to be utilized for developing the new database. However, due to low reliability of data as well as lack of data, the Project had to collect new data and develop a database system as activities of the Output1. Implementation of these activities in the Output 1 has been not only requiring time but also is behind the project schedules. As a consequence, this caused the delay of the some activities of the Project.

Annex 4

6. Evaluation by five criteria

Relevance	Relevance is high in terms of Vietnamese Government's policy, Japanese aid policy of Official Development Assistance (ODA), needs in Vietnam and advantages of Japanese techniques.

Consistency with Vietnamese Policies :

According to "Socio-Economic Development Plan for 5 years (SEDP, 2011-2015)" executed, the Government of the Vietnam expects that the Vietnam would be an industrialized country by 2020 as the overall objective of the socio-economic development. For the achievement of the objective, the development of the traffic-transport infrastructure is placed as a prioritized issue, especially, the transport and urban infrastructure is recognized to be focused the most. Simultaneously, the government shows a strongly commitment to develop the human resources who are capable of improving and maintaining infrastructure in the aspect of capacity development.

Consistency with Japanese aid policy to Vietnam :

The Government of Japan has adopted the following four prioritized issues in the Country Assistance Plan and rolling plan for the Vietnam revised in December 2012.

(1) Promotion for economic growth and reinforcement of international competitiveness
(2) Improvement of social and living aspects and reducing disparities
(3) Environmental conservation
(4) Governance

In order to address the issue mentioned in (1), the Japanese government is certain that supports for improvement of the capacity for maintenance of the transport infrastructure are essential. The Project purpose is to support the capacity enhancement for maintenance on national roads, which is fully compatible with the basic policy of the Japanese aid policy to assist Vietnam.

Consistency with needs of the target area in the Vietnam :

Recently, the development of infrastructure in Vietnam has been accelerating. So far, there has been an emphasis on construction investment, but currently, there is a growing importance on road maintenance, for example, by the introduction of the road maintenance fund.

The Government of Vietnam has been developing the National roads, route1, 3,5,10 and 18 funded by loan assistance. While the improvement of national roads is on-going, DRVN is placed as an agency responsible for carrying out maintenance of national roads. However, the maintenance of roads has not been fully implemented due to the lack of necessary equipment, human resources and technical capabilities.

The project aims to deal with the need for road maintenance and to strengthen the capacity for road maintenance; therefore, it meets the needs for the target group.

Advantages of Japanese techniques :

The Government of Japan has experiences to support the capacity development and institutional management for road maintenance through the various Grant Aid projects in the developing countries such as Republic of Mozambique and Lao People's Democratic Republic. Especially, such technologies as collecting

data and developing development of database are highly advanced in Japan, and skills and knowledge on these technologies accumulated have been reflected into the Project effectively.

Effectiveness	If activities for achieving indicators are continuously implemented and Project's efforts are sustained until the termination of the Project, the effectiveness is moderate.

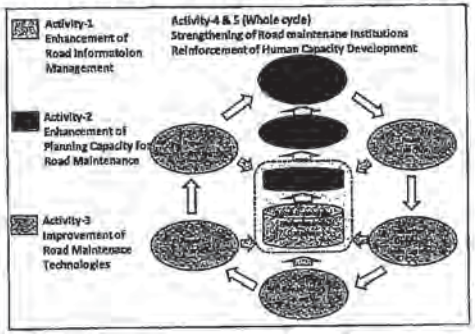
Achievement of the Project purpose :

The project purpose is likely to be achieved if some challenges left are competed.

Contribution of Outputs to the achievement of the Project purpose :

Outputs 1-4 are contributing to the achievement of the Project purpose. Firstly, Output 1 aims to enhance the C/P's capacity for road information management, which is a primitive activity for road maintenance. Output 2 is to enhance the C/P's planning capacity for road maintenance. Also Output 3 aims to enhance the maintenance technology standard. Finally, Output 4 is to reinforce the DRVN institutional issues on road maintenance management. If Outputs 1-4 are achieved, it can be said that the road maintenance institution will be enhanced and system for disseminating the project outputs across the country will be applied. Additionally achievement of output 4 contributed to removing obstacle in legal administrative procedure in road maintenance Therefore; there is a strong correlation between the Outputs and Project purpose.

The table below shows the correlation of each output for achieving the project purpose.



Source: JICA Project Team

Efficiency	The efficiency of the Project is relatively high from the extent of outputs generated

Achievement of Outputs :

As mentioned in the achievement of Outputs, Outputs 1-4 have been partially fulfilled. During the project periods, if the project takes into consideration the following points, there will be more possibility to attain fruitful Outputs.

<Output 1 > the new road database with the necessary data
<Output 2 > PMS and mid-term road maintenance plans
<Output 3 > Routine maintenance Manuals

<Output 4> Recommendations for Revision of legal documents on road maintenance and management and on DRVN organization

Inputs of timing, quality and cost

- Concerning the human resources allocation on the Vietnamese side, the appropriate number of DRVN, RRMU and RTC staff of the Project has been allocated since the beginning of the Project.
- Trainings in Japan have been held once during the Project period. DRVN has highly appreciated the trainings because they had chances to experience new techniques that are not adopted in the Vietnam through the site visits. It contributed enhancing their motivation to learn various new techniques and become more confident in their improved knowledge.
- The Vietnamese side has prepared the necessary budget for training operation to some extent from the Government.
- In the draft of "Routine maintenance Manual", more visual materials such as pictures and graphs are incorporated alongside the text to enable C/P to understand the contents more easily, hence to be able to carry out the appropriate maintenance work.

Impact	It is hard to evaluate the impact at the Terminal evaluation.

Possibilities to achieve the Overall Goal :

As explained in 4.5, it is difficult to assess the likelihood of achieving the Overall goal at the Terminal evaluation. For achieving the overall goal, first, DRVN has to maintain roads properly based on the "Mid-term road maintenance plan" formulated with accurate and reliable data collected. Furthermore, necessity of road maintenance needs to be prioritized concurrently the road development by the Vietnamese government and DRVN should implement training based on the "Recommended training programs after the Project" which has already been agreed by agencies concerned to the Project.

Correlation between the Project Purpose and the Overall Goal:

The table below shows both the present conditions and conditions in 3-5 years of important assumptions from the Project Purpose to the Overall Goal. If both training programs and materials are prepared and training instructors are cultivated, important assumption 1 (Trainings are continuously implemented by DRVN) is likely to be fulfilled. Concerning the Important assumption 2 (Sufficient budges is allocate for road maintenance activities), DRVN has a difficulty in securing the budget, although DRVN has requested the state budget for MOT because development of roads seems to be more prioritized than road maintenance. On the other hand, the Road Maintenance Fund established is expected as a fund resource and it will contribute DRVN to secure the budget certainly. Concerning the important assumption 3 (Policies on road maintenance in Vietnam do not change drastically), as mentioned in Relevance, the Policies on road maintenance in Vietnam will not change drastically.

Ripple effects of the Project :

A positive impact has been observed through the interviews and the Project Report. Negative impacts have

not been found

<Impact on the political level>

- According to "Comprehensive innovation for management and maintenance of national highway network, No: 538/QD-BGTVT "issued as the Decision on March 2013, Degree is proposed to be developed for clarifying the regulations on road management and maintenance. "Recommendations" prepared through the project activity (WG4), which is expected to be utilized for preparing the Degree. According to the interview with C/P, the Recommendations will be useful and great inputs/ materials for preparing the Degree.

Sustainability	The sustainability of the Project is relatively high from four aspects as below.

Policy Aspects:

According to the interview with the DRVN, it is likely that the Government of Vietnam will remain the current policy and prioritize the human resources development for the road sector. Furthermore, the government recognizes that DRVN is expected to have an important role in road maintenance in Vietnam.

Technical Aspects :

Routine maintenance manual is expected to improve DRVN technical capacity in road maintenance.

The good relationship between UTC and DRVN built up during the Project is useful for DRVN to keep the assigned technology. DRVN is recommended to continue this relationship with UTC after the Project.

Organizational Aspects :

It can be said that the ownership of the Vietnamese side over the Project has been gradually cultivated. Furthermore, DRVN staff is becoming to consider a necessity on conducting the project activities with their own initiatives as the Project progressed.

The draft of "Revision and enhancement of roles and responsibilities on road maintenance/technical development/Training system" will be submitted to DRVN in October. It will clarify roles and responsibilities of organization concerned to the Project and as a result, each organizational function is expected to be strengthened.

Financial Aspect :

According to the interview with C/P, the annual budget provided to DRVN has not reached to the amount which DRVN has requested for last years, this is to say that DRVN has not spent enough budgets for road maintenance. However, So far DRVN has been submitting the national budget request, but since the fund for road operation and maintenance has been established, it has made DRVN highly possible to assure budgets from the fund to save enough budgets for the Project. As a considering point is to collect road use fees annually and utilize the fund based on the Decree of the road maintenance fund. Furthermore, DRVN has to formulate the budget plan for maintaining and operating roads properly based on the "Mid-term road maintenance plan".

6. Conclusion

In conclusion, C/P made great efforts to achieve the Project purpose together with the project experts. Concerning the evaluation by five criteria, relevance, efficiency and sustainability of the Project will reach satisfactory levels. On the other hand, effectiveness will not reach the level the project expected within the project period. Project Impact cannot be measured at the Terminal evaluation, as it is too hard to evaluate the possible achievement of the Overall goal.

Furthermore, it is observed that data input and development of the new database and PMS have been delayed compared to the schedule. It caused the delay of the part of project activities including the finalization of Manuals, guidelines and recommendations. In order to achieve the Project purpose and remaining the Project outputs, DRVN and the project team have to respond to the recommendations mentioned in Chapter 7.

7. Recommendations

I. A few months' extension of the project period

Delay of input of necessary data in the database could be a big obstacle for smooth implementation of the Project as a whole, affecting trainings most which are crucial for raising trainers for disseminating project outputs all over the country. According to current schedule, for instance, the run of PMS would be commenced in November 2013 due to delay of data preparation for PMS. Therefore, even if PMS is established within November, only limited period is left for training by the end of the Project.

Survey equipment for road pavement condition (Road condition survey vehicle) will be newly introduced in February 2014. This is a good opportunity for C/P to have an additional training on sequent road maintenance planning process from data collection to PMS application.

In this regard, a few months' extension of the project period is recommended for securing some time for affected activities such as trainers training and for additional trainings.

II. Actions to be completed by the end of the Project Period

1. There remain activities to be finalized within the project period by the Project team. Targeted main activities are:
   1) Completion of input of necessary data in the database with strong support from DRVN
   2) Completion of PMS development
   3) Implementation of training for mid-term road maintenance plans

2. In the Project, several recommendations/manuals were prepared or under preparation. Great effort should be made for authorization by DRVN by the end of the Project for those recommendations/manuals as follows:
   1) Manual of road routine maintenance work
   2) A Recommendation entitled as " Revision and enhancement of roles and responsibilities on road maintenance/technical development/training system"

III. Actions to be recommended after the Project

It is a long way to establish road maintenance system, and therefore continuous efforts are indispensable for achieving this work. Among other things, strong efforts are highly recommended for following tasks even after the end of the Project:

1) Dissemination of project outputs all over the country
2) Establishment of the complete road database
3) To review and revise/upgrade the road database, PMS and PMoS
4) Full utilization of Manual of road routine maintenance work

IV. Full coordination and lead by PMU

PMU is established to coordinate this project from the beginning of the Project. Though it was observed that PMU has played a very important role for smooth implementation of the Project, further coordination and

lead of PMU is highly expected toward successful end of the Project.

V. More initiative of C/P

Most important characteristic of the technical cooperation project is that initiative of the Project is in the hand of counterpart side. More positive participation of the counterparts in the rest of activities is highly recommended to produce fruitful results in the final stage of the Project.

8. Lesson Learned

There are many different expectations between Vietnamese side and Japanese side.
In order to bridge this gap,

1) Frequent monitoring is required (in this project, mid-term review should be implemented.)
2) Frequent meeting is required to solve questions / doubts quickly and easily (in this project, the project office should be in the same place of main C/Ps)

Annex 4

9. Others

DRVN's Deputy General Director, Mr. Nguyen Xuan Cuong, requested to attach his following comments to the Evaluation Report to secure the sustainability and to be practical.

1) Trial demonstration for road data collection, inputting and processing should be conducted for one national road section of about 100km for sufficient transferring the project outputs.
2) Among total road data items of around 700 items, classifying into groups is needed (into prioritized items, static inventory data items, dynamic data items). The prioritized data items of about 70 items need to be collected first using automatic data collection technology (specialized inspection car, like Pavement Inspection Car) to put into the new developed database system to make sure for sustainability of the system as well as to support DRVN's activity of road management & maintenance.

The evaluation mission stated that the second comment is totally out of the current scope of the Project but these above comments should be discussed in other opportunities including feasibility, technology, and implementation method.

添付　2. 延長期間の活動内容と成果

2.1 履行期間の変更

- （変更前）　　平成 25 年 3 月 29 日～平成 26 年 2 月 21 日
- （変更後）　　平成 25 年 3 月 29 日～平成 26 年 4 月 30 日

2.2 延長期間の活動内容と成果

表 2.1 契約延長期間の活動内容と成果

日時	活動内容	成果
2 月 24 日	定例会議の開催	
2 月 25 日～26 日	舗装路面性状調査　RRMB I, II, III 及び IV を対象とした研修の開催	RRMB I II, III, IV 及び RTC 1、2、3、4 から合計 16 名が参加し、測定技術及び解析技術の概要を研修した。
3 月 4 日～6 日	集中研修の開催 ① Database System ② PMS/PMoS データセットの作成 ③ ドル維持管理計画策定 ④ 道路施設点検技術 ⑤ 道路維持管理技術 ⑥ 舗装モニタリング PMoS	合計 108 名の研修生が参加し、3 日間午前午後の研修を実施した。
3 月 7 日	ワークショップの開催	道路局長出席のもと、プロジェクト成果報告のワークショップを開催。総勢 131 名が参加した。
3 月 10 日	MOT 副大臣(Mr. Dong)報告（プロジェクト開始時の道路局長）	プロジェクト成果の報告に加えて、世銀プロジェクトとの活動内容の重複が懸念されることから、重複回避の MOT 内の調整を依頼した。
3 月 14 日	TWG の開催	座長の Mr. Binh が欠席のため、PMU Mr. Phu が座長を代行し、開催した。各 WG リーダーが出席した。
3 月 21 日	JCC の開催	道路局長 Mr. Tang が座長を務め、MOT､JICA ベトナム事務所の出席のもと、開催。道路局長から世銀のプロジェクトとの重複を回避するとの説明があった。

日時	活動内容	成果
3 月 24 日	供与機材（舗装路面性状測定車両）引渡前検査	路面性状車両が保管されている RTC-Central において、豊田通商及びパスコ出席のもと、供与機材の引渡し前検査を実施した。全ての供与機材が、JICA と合意した仕様通りであることを確認した。
	MOT 副大臣(Mr. Truong)報告	プロジェクト成果の報告に加えて、世銀プロジェクトとの活動内容の重複が懸念されることから、重複回避の MOT 内の調整を依頼した。
3 月 25 日	供与機材（舗装路面性状測定車両）引渡式	DRVN に対し、供与機材が正式に引き渡されたことを確認した。
	世銀打合わせ	JICA ベトナム事務所とともに世銀ベトナム事務所を訪問し、事務局に本プロジェクトの DF レポートを手渡すとともに、世銀プロジェクトの活動が JICA プロジェクトと重複する可能性を指摘した。更に、重複回避のための調整を世銀に依頼した。

添付　3. ベトナム国道路維持管理能力強化プロジェクト（フェーズ２）に対する DRVN の要望

ベトナム国道路維持管理能力強化プロジェクト実施中に確認された同プロジェクト（フェーズ２）に対する DRVN の要望を、以下に取りまとめた。

DRVN の要望は、以下に示したイベント開催時に出された。以下に要望の概要を述べる。

3.1 終了時評価時のコメント（2013 年 9 月 27 日署名）

DRVN の副局長、Mr. Nguyen Xuan Cuong は以下の要望を、終了時評価の MM に記録することを希望した。

- 本プロジェクトで作成した道路アセットデータベースについて技術移転を確実にするため、国道約 100 km の区間を選定してデータ収集、データ入力及びデータ処理までの一連のプロセスのデモンストレーションを実施する。
- データベース全体の入力項目（700 項目）について、データ入力の優先順位付けを行う。この内の 70 項目について、データベースシステムを検証するため、自動データ収集技術（舗装路面性状調査車両に類似した機器）を用いてデータ収集を行う。
- 終了時評価ミッションは、２番目の要望は本プロジェクトのスコープ外であることから、別の機会（Phase-2 の案件形成時）に、技術の可能性や技術内容あるいは実施方法について意見交換することを提案した。

3.2 DRVN の副局長、Mr. Nguyen Xuan Cuong からの要望（2014 年 3 月 6 日面談時）

- RRMB II, III, IV 管内のデータベース入力に対する支援
- データベース入力に大きな労力が必要となっていることから、優先度の高い 70 項目について、RRMB II, III 及び IV 地域のデータ入力を支援してもらいたい。

3.3 JCC における DRVN の要望（2014 年 3 月 21 日開催）

JCC の席上、道路局長より JICA の継続的支援が要請された。

- 全活動（活動-1～活動-5）に対する JICA の継続的支援
- 本プロジェクト成果を普及させるためには、MOF/MPI/MOT など上級省の承認が必要なるものがある。上級省への説明・理解取得に協力してもらいたい。
- JICA のウエブページにおける本プロジェクト成果の広報

添付　4. 世銀プロジェクトとの活動調整

2014 年 2 月 20 日、DRVN から世銀プロジェクトの TOR を入手し、分析したところ、JICA プロジェクト“ベトナム国道路維持管理能力強化プロジェク”との活動の重複が懸念されたことから、JICA ベトナム事務所と打ち合わせを行い、対応を協議した。

4.1 世銀プロジェクトの件名

Vietnam Road Asset Management Project (VRAMP) Component A – Road Asset Management

4.2 プロジェクトの対比

JICA プロジェクトと世銀プロジェクトとの対比を**表-1** にまとめた。

4.3 確認された事項

表-2 に、活動の重複が懸念される点を示した。重複が懸念される点は、以下のとおりである。

(1)　データベース構築におけるフレームワーク作成とデータ入力

JICA プロジェクトで作成した道路アセットデータベースシステムの活用方法が明示されていない。

(2)　道路アセットマネジメントシステム（計画策定）の調達

JICA プロジェクトで作成した道路維持管理計画策定システム(PMS)及び橋梁維持管理システムの活用方法(VBMS)が示されていない。

4.4 協議調整

(1)　2014 年 3 月 6 日、DRVN, 副局長、Mr. Cuong に対し、重複回避の努力を要請する。（JICA ハノイ事務所及びプロジェクトチーム出席）

(2)　2014 年 3 月 10 日、前道路局長、Mr. Dong 副大臣に対し、重複回避の努力を要請する。（JICA ハノイ事務所及びプロジェクトチーム出席）

(3)　2014 年 3 月 21 日、JCC において道路局長、Mr. Tang より、重複を回避する旨の回答を得る。

(4)　2014 年 3 月 24 日、MOT 担当副大臣、Mr. Truong に、プロジェクト成果報告を行うとともに、重複回避の努力を要請（JICA ハノイ事務所及びプロジェクトチーム出席）

(5)　2014 年 3 月 25 日、世銀ベトナム事務所事務局に、重複回避の努力を要請（JICA ハノイ事務所及びプロジェクトチーム出席）。

表 4.1 JICA プロジェクトと世銀プロジェクトの対比表

プロジェクト	JICA 道路維持管理技プロ	世銀 Vietnam Road Asset Management Project (VRAMP)
Project Type	■ Collaboration Project ■ DRVN 職員と共同で、ベトナムの道路環境に適合したシステムを開発する（手作りのシステム）	■ Technical Assistance ■ コンサルタントワークを中心とした支援
Project Component	**(1)** 道路アセットデータベースの構築 **(2)** 道路維持管理計画システムの構築 **(3)** 日常管理技術マニュアルの作成 **(4)** 道路維持管理手続きの改善・組織体制強化に関する提案 **(5)** 研修計画の作成及び研修の実施	Component-A：道路アセットマネジメント Component-B：道路ネットワーク管理 Component-C：道路アセット改良 Component-D：組織強化
Counterpart	■ DRVN 本部	■ DRVN Information Center 外(RMU)
Project Period	■ Phase-1: 2011.9～2014.4 (32 か月) ■ Phase-2: 2014 年から 3 年間	■ 2014 年 1 月から 48 か月（4 年間）
Project Status	Phase-1：実施中 Phase-2：日本政府に要請中（2013 年 8 月、日本政府に申請）	Component-A：未公募(2014/3 頃か?) Component-B：公募済み Component-C：公募済み Component-D：未公募
Road Asset Database (DB)	**(1) DB フォーマットの作成 (Phase-1)** ■ **道路維持管理に係るデータベースの作成を支援する。** ■ **道路維持管理計画の作成に関わ DB に重点をおく。** ■ **データ入力支援システム・エラーチェックシステムを開発** **1) Road inventory DB（橋梁を除く 29 構造物用 DB）** **2) Road maintenance history DB** **3) Pavement Condition DB**	**Component-A：** **(1) 活動 A1** ■ **DRVN Management Information System (MIS) に係る DB の Framework（体系、要求性能、フォーマット、利用方法等の作成）** **1) Infrastructure management System** **2) Road Transport operations** **3) Vehicle and driver Licensing data** **4) Road construction investment data** **5) GIS for specialized mapping administration system**

プロジェクト	JICA 道路維持管理技プロ	世銀 Vietnam Road Asset Management Project (VRAMP)
	4) Traffic Volume DB **5) General Road Operation Management DB (DRVN が開発する予定)** **(2) DB フォーマットへの入力支援 (Phase-1)** ■ 入力は RRMU2 が分担 ■ DB へのデータ入力を監督する。 ■ データ入力は、道路維持管理計画の作成に関わデータの入力を優先して実施する。 **(3) データ入力方法の改善 (Phase-2)** ■ 入力優先順位の検討 ■ 優先度の高いデータのインターネットを活用した入力方法の開発 **(4) DB の全国展開支援 (Phase-2)** ■ 全国の機関によるデータ入力を支援する。 ■ データ入力は、DRVN の機関が担当する。	**data** **6) DRVN webpage and E Government service** **7) General administration data** **(2) 活動 A2** ■ 選定された DB を対象に、外注によりデータ収集を支援する。
道路アセットマネジメントシステム	(1) 道路維持管理計画策定システムの開発 (Phase-1) ■ DRVN の要求性能に適合したシステム ■ 少ないデータで計画ができるシステム ■ 職員が使いやすい、簡便なシステム。 ■ DB からのデータ変換プログラムを作成し、PMS データセットを作成 ■ RRMU2 管内路線(2,300km)をパイロット路線とし、道路維持管理計画を策定。 ■ 年度計画と中期計画 (3～5 年) (2) 道路維持管理計画策定システムを改良 ■ 全国路線への適合性の拡大	■ Road Asset Management System のフレームワークの構築 ■ 必要なシステムの確認 ■ 短期、中期、長期計画に対応できるシステム ■ システムの選定と要求性能のとりまとめ ■ Road Asset Management System の公募・購入 ■ 要求性能を基に、発注用仕様書を作成 ■ 公募手続きと募集 ■ 応募システムの評価・選定（調達）

	JICA 道路維持管理技プロ	世銀 Vietnam Road Asset Management Project (VRAMP)
相違点① ■ データベース構築	■ 道路維持管理に重要な DB を選定し、Format 及び Data Input System を作成 Road Inventory DB, Maintenance History DB, Pavement Condition DB, Traffic volume DB ■ 入力 Format の作成のみを支援（入力は DRVN が実施） ■ DRVN との共同開発	■ DRVN Management Information System (MIS)全体の DB を対象 ■ フレームワーク作成（入力 Format など）に加え、データ入力を実施（外注による）
相違点② ■ アセットマネジメントシステム構築	■ 技術開発プロセスを重視した協力 ■ DRVN の要求性能に適合し、少ないデータで計画ができ、職員が使いやすい、簡便なシステムを目指す（HDM-4 など他のシステムを否定するものではない。） ■ 年度計画と中期計画の策定に限定 ■ DB からのデータ変換ソフトを開発し、入力ミスを削減する。 ■ ブラックボックスがなく、DRVN がアルゴリズムの変更やシステムアップデートをすることが可能 ■ DRVN 職員、京都大学。UTC との共同開発	■ 成果品を重視した協力 ■ Road Asset Management System を購入する。 ■ 短期計画、中期計画、長期計画策定に対応するシステム ■ 要求性能の詳細は未確定

表 4.2 Potential of Activity Overlap between JICA and WB Project

JICA: Project for Capacity Enhancement in Road maintenance		**WB: Vietnam Road Asset Management Project (VRAMP) Component A – Road Asset Management**	
Activity 1		**Activity A1 & A2**	
Develop road asset database (Inventory database) for national roads		Overall framework development for road databases for national / local roads	Data Collection
(1) Develop database formats **・ Road asset database (Road inventory database)** **・ Road maintenance history database** **・ Pavement condition database** + Vietnam Bridge management System (On-going: Transport Sector Loan Project)	**Potential of overlap**	**(1) Develop framework-** **・ Road asset data** **・ Bridge data** ・ Other road asset data	(1) Select target database for data collection (2) Outsource data collection for the targeted database
(2) Develop data input and management software (3) Technology transfer by training courses (4) Monitor data input conducted by RRMB1		・ Road traffic data ・ Vehicle loading information (2) Select database for data collection (3) Develop work specification for outsourcing	
Activity 2		**Activity A3 & A4**	
Develop planning software for road pavement maintenance		Select and design road asset management System for short, medium and long term	Procure road asset management system
(1) Conduct pavement condition survey for RRMB1 road network in 2012 by pavement condition survey vehicle	**Potential of overlap**	**(1) Select and Design asset management system** **・ Pavement Management System (PMS)** **・ Bridge Management System (BMS)**	(1) Procure selected asset management system based on TOR.
(2) Develop road Pavement Management System (PMS) to formulate: **・ Annual road pavement maintenance plans** **・ Mid-term pavement maintenance plans**		・ Drainage Management System ・ Other asset data management system (2) Prepare TOR for procurement.	
(3) Technology transfer by training courses			

添付　5. 路面性状調査車両と機材

本プロジェクトにて供与した路面性状調査車両における文書と仕様書を以下に添付する。

表 5.1 路面性状調査車両と関連周辺機材に係る文書

	文書	日程	内容	添付
1	調査車両及び関連システムに関する仕様書案	2012 年 12 月 3 日	供与機材項目と 路面性状調査車車両仕様書案の確認願い	添付 5-1
2	仕様書合意文書	2012 年 12 月 20 日	DRVN よる仕様書合意文書	添付 5-2
3	車両と周辺機材への最終確認依頼	2013 年 5 月 21 日	DRVN への最終確認依頼文書	添付 5-3
4	車両と周辺機材に対する要望書	2013 年 5 月 31 日	DRVN からの要望書	添付 5-4
5	車両と機材維持管理責任者の指名文書	2013 年 6 月 4 日	RTC CENTRL より車両とと周辺機器の最終機材維持管理責任者を指名する文書を受領	添付 5-5
6	路面性状測定機材の仕様明細書		JICA 公示用の路面性状測定機材の仕様明細書	添付 5-6
7	路面性状測定車等調達技術者派遣計画			添付 5-7
8	路面性状基礎情報収集・確認調査・作業計画・派遣実績			添付 5-8

Project for Capacity Enhancement in Road Maintenance

Room 705, 7th Floor
Deaha Business Centre, Daewoo Hotel
360 Kim Ma Street, Ba Dinh District, Hanoi, Vietnam
Tel. 84-4-37245125

Ref.No.: DRVN
3rd of December, 2012

Mr. Nguyen Trong Phu,
Director, PMU TA
Directorate for Roads of Vietnam
Ministry of Transport

CC:
Mr. **Nguyen Xuan Cuong**
Deputy Director General
Directorate for Roads of Vietnam

Subject: Specifications for Road Condition Survey Vehicle

Dear Sir,

The JICA project team appreciates your contribution to the Project for Capacity Enhancement in Road Maintenance.

Following the LIST OF MACHINERY AND EQUIPMENT in ANNEX-III, RD of this Project, JICA is now planning to provide DRVN with one road condition survey vehicle equipped with survey equipment whose specifications are set and shown in the attachment-I and II of this letter.

DRVN is kindly requested to issue an "Agreement Letter" on these specifications before the JCC meeting on 21 December 2012. JICA will move into the procurement of this road condition survey vehicle including equipment, upon receiving the agreement letter. We hope procedures will move on well and handover can be made in around the second half of 2013.

With best regards

Tsuneo KATO
Team Leader
JICA Project for Capacity Enhancement in Road Maintenance

Project for Capacity Enhancement in Road Maintenance

Room 705, 7th Floor
Deaha Business Centre, Daewoo Hotel
360 Kim Ma Street, Ba Dinh District, Hanoi, Vietnam
Tel. 84-4-37245125

ATTACHMENT-I

CONTENTS LIST OF SPECIFICATIONS

The specifications for the survey vehicle including equipment are shown below and elaborated further in ATTACHMENT-II.

No.	Item
A. Vehicle for Road Condition Survey	
1	New Vehicle
2	Equipment of measuring longitudinal profile for IRI(Profile type)
3	IMU(Inertial Measurement Unit) for IRI
4	Laser Scanner of measuring Rutting depth
5	3CCD (Charge Coupled Device) Camera for recording the front view images of road
6	CCD (Charge Coupled Device) Camera for recording pavement surface images
7	GPS(Global Positioning System)
8	UPS(Uninterruptible Power Supply)
9	Equipment for checking, recording and saving data in the Vehicle
10	Equipment for rigging(inside/outside Vehicle
B. Equipment for processing, analyzing, calculating and outputting data collected on the Road Condition Survey.	
1	Hardware and peripherals for data processing, analysis, calculation and outputting
2	Software for data processing, analysis, calculation and outputting

Draft Specifications of Road Condition Survey Vehicle and relevant systems

December 3rd, 2012

JICA Project for Capacity Enhancement in Road Maintenance

Contents

1. General information

- Equipment which composes Survey Vehicle

(1) New Vehicle

(2) Equipment of measuring longitudinal profile for IRI(Profile type)

(3) IMU (Inertial Measurement Unit) for IRI

(4) Laser Scanner of measuring Rutting depth

(5) CCD Camera (3 Charge Coupled Devices) for recording the front view images of road

(6) CCD Camera (Charge Coupled Device) for recording pavement surface images

(7) GPS (Global Positioning System)

(8) Uninterruptible power supply

(9) Equipment for checking, recording and saving data in the Vehicle

(10) Equipment for rigging(inside/outside Vehicle)

- Equipment which is composed of relevant systems

(1) Hardware and peripherals for data processing, analysis, calculation and outputting

(2) Software for data processing, analysis, calculation and outputting

2. Specifications of Survey Vehicle

- Specifications of Survey Vehicle
  - ✓ Common Specifications
    - ・DRVN should confer with JICA on the owning car expenses and maintaining systems within this project through the medium of JICA project team.
    - ・DRVN has to secure any expenses after this project is completed.
    - ・The warranty period of every equipment for Road condition Survey is valid for one year after purchasing
    - ・User’s guide/manual giving the explanation of basic maintenance method and troubleshooting in Vietnamese is attached to each equipment.
    - ・Basically, JICA will provide the equipment having equivalent functions to PASCO Team’s Inspection Car (Real Mini Car) that is on use for the Project in Vietnam.
- Road Condition Survey Vehicle

(1) New Vehicle

- ・JICA will purchase a new vehicle which is shaped “van or minivan type”

・ Engine displacement of new vehicle will be equal to 2,000 cubic centimeters.
・ JICA intends to provide New vehicle made by Japanese Manufacturer.

(2) Equipment of measuring longitudinal profile for IRI(Profile type)

・ PASCO's equipment satisfies the accuracy of "Class2", which is stipulated in the "Handbook for pavement Survey and Text Methods, Japan Road Association". The existing equipment in RTC, which is called "MiniROMDAS", satisfies the accuracy of "Class3". "Class2" is superior to "Class3" on the measuring accuracy.
・ This equipment can measure each Longitudinal profile at interval of 25cm in the direction of road length.

(3) IMU (Inertial Measurement Unit) for IRI

・ IMU is the equipment that measures angular velocity and acceleration in the three dimensions used for locomotion. IMU is used with GPS to measure longitudinal profile of pavement for IRI.

(4) Laser Scanner of measuring Rutting depth

・ This equipment satisfies the accuracy to within ±6mm for actual values measured in the cross-sectional profile graphs.
・ This equipment can measure each rutting depth at interval of 20m in the direction of road length.
・ This equipment can measure cross-sectional rutting depth in a width of 3m.
・ This equipment can collect the shape of road surface with the equal intervals independent of the velocity of Survey Vehicle.
・ Measurement method of Rutting Depth should be pursuant to "Handbook for pavement Survey and Test Methods, Japan Road Association".

(5) CCD Camera (3 Charge Coupled Devices) for recording the front view images of road

・ Single CCD camera was used to record the front view of road on the Road Condition Survey by PASCO in Vietnam. As a result of this survey, we decided to change single CCD camera to Three CCD camera. This is superior to single CCD camera regarding the light quality of being reproducible.
・ This equipment should have a resolution of over two million pixels.
・ CCD Camera (3 Charge Coupled Devices) for recording front view the road
・ This equipment should be able to record the front view images of road at interval of 5m in the direction of road length in operation.

(6) CCD Camera (Charge Coupled Devices) for recording pavement surface images

・ This equipment was also used on the PASCO's Survey. There was no problem to detect the cracks and analyze the cracking rate, therefore, we decided to adopt the equal quality of

PASCO's CCD camera.

- This equipment should have the function which can detect a crack of about 2mm width.
- This equipment can collect the road surface images consecutively to analyze crack ratio/index.

(7) GPS(Global Positioning System)

- GPS can record and save the positioning data of latitude, longitude and altitude while driving the Survey Vehicle.

(8) UPS(Uninterruptible power supply)

- When the supply of electricity to the Survey Equipment in the Survey Vehicle is shut down in case of engine stall etc., this equipment can supply electricity instead of the battery for about fifteen minutes.
- It is requested for UPS with self-charging capacity from solar or wind energy like PASCO's inspection car.

(9) Equipment for collecting, processing and saving data in the Survey Vehicle

- We require a complete set of machineries and equipment to collect, process and save the road condition data, to observe the pavement condition through the display in the car. Consist of following items:

(a) Desktop or Laptop Personal Computers (Windows7) Capacity : Data-handling Capacity and Capacity of Hard disk unit of PC must be adequate for conducting Road condition Survey uninterruptedly.

(b) External Hard Disks (Capacity : Ditto of ①)

(c) Software to transfer the collected data from PC to External Hard Disks

(d) Other peripheral devices of PC

(10) Rigging Equipment (inside/outside Vehicle)

- All equipment which is shown above{Road Condition Survey Vehicle from 2} to 9}} should be set in/on a New Vehicle which is shown above 1) by Manufacturer.
- A set of tool to rig the equipment(screwdriver, spanner etc.) and to inspect the measuring equipment.

3. Specifications of relevant systems

➢ Systems for data processing, analysis, calculation and outputting

✓ Common Specifications

- The warranty period of each system/equipment is valid for one year after purchasing.
- User's guide/manual giving the explanation of basic maintenance method and troubleshooting

in Vietnamese is attached to each system.

- The language which is displayed on the PC screen is English.
- Analysis method of Cracking Ratio/index should be pursuant to “Handbook for pavement Survey and Text Methods, Japan Road Association”.
- DRVN should confer with JICA on the software license fees within this project through the JICA Project Team.
- DRVN has to secure any expense related to license fee after completion this Project.

(1) Hardware and peripherals for data processing, analysis, calculation and outputting

✓ JICA will provide following hardware to DRVN.

- 10 Desktop PCs(8PCs for data analysis and calculation, 2PCs for data processing and outputting)
- 2 Additional Monitors

(2) Software for data processing, analysis, calculation and outputting

✓ JICA will provide all essential software to process, analyze, calculate and output data which will be collected on the Road Condition Survey.

✓ The license will be valid for 1 year after provision. After this project, DRVN’s activity of renewing the license should comply with their “After Sales Contract” with the manufacturer.

✓ Software Functions

- To be possible that Longitudinal profile and cross-sections, pavement surface images and front view of the Survey Vehicle are displayed on the PC screen simultaneously.
- To be possible that collected data is replayed simultaneously according to its measured distance.
- To be possible that the each Origin-Destination point for analysis of each data item is set based on pavement surface images.
- To be possible to divide road into sections/segments with collected data
- To be possible to input additional information (Ex. Bridge or facilities names).

➢ Outputs

✓ Output data items

- IRI (Each interval is 100m)
- Rutting depth (Each interval is 100m)
- Crack ratio/index (Each interval is 100m)
- Other data items(See attached “APPENDIX 1)

4. Dispatch of Engineers

➢ Dispatch of Engineers

- ✓ JICA will dispatch the engineers to rig out the new car with all equipment for Road Condition Survey.
- ✓ JICA will also dispatch the engineers to set the PCs and systems for data processing, analysis, calculation and outputting in DRVN.
- ✓ Therefore, DRVN doesn't have to set all equipment and systems by itself. All necessary works will be done by manufacturer.

5. Technical Support/Transfer

- ➢ Technical Support/Transfer
  - ✓ PASCO is implementing "Technical Transfer" to DRVN now, and JICA Project Team will also conduct it during the provision of the inspection car (tentatively in 2013). Therefore, there will be no additional technical supports/transfer from JICA to DRVN after this Project.
  - ✓ If DRVN needs "Technical Support" after completing this project, you should confer with the manufacturer in accordance with "After sales contract" which will be contracted between DRVN and Manufacturer.
  - ✓ JICA can't secure any expenses after completing this project.
  - ✓ JICA and JICA project team cannot explain the detailed contents anymore because the manufacturer hasn't decided yet. More detailed contents of "After sales contract", "Technical Support" and other issues will be discussed after tendering to select the official manufacturer.

6. Cost/Work Items of Survey

- ➢ Cost/Work Items of Road Condition Survey
  - ✓ Based on DRVN's request in the WG on Aug.17, we asked PASCO team to inform us the cost/work items based on PASCO's Road Condition Survey.
  - ✓ We received the information from PASCO team, thus we'd like to provide the cost/work items to DRVN. Please see attached "APPENDIX 2".

7. Schedule of Procurement

- ➢ Schedule of procurement
  - ✓ According to the JICA and manufacturer, it will take nearly 10 months (JICA's Procedure; 2.5 months, Delivery by manufacturer; 7.5 months) to deliver the Survey Vehicle and relevant systems to DRVN.
  - ✓ Based on the previous provisions of information related to the inspection car to you, DRVN is kindly requested to issue an "Agreement Letter" on these specifications before the JCC meeting on 21 December 2012. JICA will move into the procurement of this road pavement condition

survey vehicle including equipment, upon receiving the agreement letter.

- ✓ According to this schedule, JICA will provide them in the second half year of 2013 at the earliest.

MINISTRY OF TRANSPORT
DIRECTORATE FOR ROADS of VIETNAM
No. 5331/TCDBVN-BQLDAHTKT
On Agreement receiving Technical Specifications of the Pavement Condition Survey Car and Equipments within the framework of "JICA Project for Capacity Enhancement in Road Maintenance"

SOCIALIST REPUBLIC OF VIETNAM
Independence – Freedom – Happiness

Hanoi, December 20, 2012

To: Vietnam JICA Office

DRVN had received Letter No. DRVN-PMU-06 issued on 3rd December 2012 from JICA Project Team on Tentative Provision Plan to DRVN one Road Pavement Condition Survey Car and equipments within the framework of "JICA Project for Capacity Enhancement in Road Maintenance".

After studying Specification documents of the car and enclosed equipments, DRVN agrees to receive the Road Pavement Condition Survey Car and equipments as mentioned above.

To make it convenient for operation, maintenance the car and equipments, we kindly request JICA and manufacturers to allow our management-operation unit of the Road Pavement Condition Survey Car to have long-term licence of utilization the enclosed softwares for data collection and processing and to provide user's guidelines/manuals for utilization, maintenance and troubleshootings of damages and technical problems if occur.

We kindly request JICA to consider and make decision to handle the work.

Yours sincerely,

To:
- *As above*
- *DRVN's General Director*
- *DRVN's Deputy General Directors*
- *Mr. Tsuneo KATO, JICA Project Team Leader*

On behalf of DRVN's General Director

DRVN's Deputy General Director

Nguyen Xuan CUONG

BỘ GIAO THÔNG VẬN TẢI
TỔNG CỤC ĐƯỜNG BỘ VIỆT NAM

Số: 5331 /TCĐBVN-BQLDAHTKT
V/v đồng ý tiếp nhận Tiêu chuẩn kỹ thuật Xe và bộ thiết bị khảo sát tình trạng mặt đường trong khuôn khổ dự án "Tăng cường năng lực bảo trì đường bộ".

CỘNG HOÀ XÃ HỘI CHỦ NGHĨA VIỆT NAM
Độc lập - Tự do - Hạnh phúc

Hà Nội, ngày 20 tháng 12 năm 2012

Kính gửi: Văn phòng đại diện JICA tại Việt Nam

Tổng cục Đường bộ Việt Nam nhận được Thư số DRVN-PMU-06 03/12/2012 của Đoàn Tư vấn JICA về dự kiến kế hoạch cung cấp cho Tổng Cục đường bộ Việt Nam một xe và bộ thiết bị khảo sát tình trạng mặt đường trong khuôn khổ dự án "Tăng cường năng lực bảo trì đường bộ".

Sau khi nghiên cứu các tài liệu Tiêu chuẩn kỹ thuật của xe và bộ thiết bị kèm theo, Tổng cục Đường bộ Việt Nam đồng ý tiếp nhận xe khảo sát tình trạng mặt đường với các thiết bị nêu trên.

Để thuận tiện cho việc vận hành, bảo dưỡng xe và bộ thiết bị này, đề nghị Tổ chức JICA và Hãng sản xuất cho phép đơn vị quản lý, khai thác sau này được sử dụng lâu dài bản quyền phần mềm thu thập xử lý số liệu khảo sát kèm theo thiết bị và cung cấp các tài liệu hướng dẫn sử dụng, bảo dưỡng và xử lý, khắc phục hư hỏng, lỗi kỹ thuật có thể xảy ra.

Kính đề nghị Tổ chức JICA xem xét, giải quyết.

Xin trân trọng cám ơn./.

Nơi nhận:
- Như trên;
- Tổng Cục trưởng (để b/c);
- Các Phó TCT;
- Ngài Tsuneo KATO, Trưởng Đoàn TV JICA;
- Lưu: VT, Ban QLDAHTKT.

KT.TỔNG CỤC TRƯỞNG
PHÓ TỔNG CỤC TRƯỞNG

Nguyễn Xuân Cường

Project for Capacity Enhancement in Road Maintenance

Room 705, 7th Floor
Deaha Business Centre, Daewoo Hotel
360 Kim Ma Street, Ba Dinh District, Hanoi, Vietnam
Tel. 84-4-37245125

Ref.No.: DRVN-PMU-13
21st May 2013

Mr. Nguyen Xuan Cuong,

Deputy General Director of DRVN
Directorate for Roads of Vietnam
Ministry of Transport

Subject: Request of DRVN's Comment on the Procurement of Pavement Condition Survey Equipment

Dear Sir,

The JICA Project team sincerely appreciates your contribution to the progress of the Project for Capacity Enhancement in Road Maintenance in Vietnam.

In this project, JICA is now preparing for the procurement of pavement condition survey equipment. Upon completion of the procedures, JICA will provide a unit of pavement condition survey equipment to DRVN. In conjunction with this procurement, DRVN is kindly requested to issue comments on this procurement to JICA before completion of the procedures. We hope that JICA takes them into account in the procurement of the equipment.

With best regards,

Tsuneo KATO
Team Leader/ Road Maintenance Planning
JICA Project for Capacity Enhancement in Road Maintenance

CC:
Mr. **Nguyen Trong Phu** - PMU TA Director

Project for Capacity Enhancement in Road Maintenance

Room 705, 7th Floor
Deaha Business Centre, Daewoo Hotel
360 Kim Ma Street, Ba Dinh District, Hanoi, Vietnam
Tel. 84-4-37245125

Thư số: DRVN-PMU-13
Ngày 21 tháng 5 năm 2013

Ông Nguyễn Xuân Cường,

Phó Tổng cục trưởng TCĐBVN
Tổng cục Đường Bộ Việt Nam
Bộ GTVT

Vv: Yêu cầu Tổng cục ĐBVN cho ý kiến về việc mua sắm thiết bị khảo sát tình trạng mặt đường

Thưa ông,

Đoàn dự án JICA xin chân thành cảm ơn sự đóng góp của ông đối với Dự án Tăng cường Năng lực bảo trì Đường bộ tại Việt Nam.

Trong dự án này, JICA hiện tại đang chuẩn bị mua sắm thiết bị khảo sát tình trạng mặt đường. Sau khi hoàn thiện thủ tục mua sắm, JICA sẽ cung cấp 1 bộ thiết bị khảo sát tình trạng mặt đường cho Tổng cục ĐBVN. Vì vậy, kính yêu cầu Tổng cục ĐBVN đề xuất ý kiến với JICA về việc mua sắm trước khi hoàn thiện các thủ tục mua sắm. Chúng tôi hy vọng rằng JICA sẽ xem xét các ý kiến từ phía Tổng cục ĐBVN trong việc mua sắm trang thiết bị này.

Kính thư,

Tsuneo KATO
Trưởng đoàn/ Lập kế hoạch bảo trì đường bộ
Dự án JICA về tăng cường năng lực bảo trì đường bộ

Đồng kính gửi:
Ông Nguyễn Trọng Phú – Giám đốc Ban Quản lý Dự án

MINISTRY OF TRANSPORT
DIRECTORATE FOR ROADS of VIETNAM
No.2288/TCDBVN-PMUTA
Proposal idea on Equipment of pavement condition survey vehicle that will be provided to DRVN by JICA

SOCIALIST REPUBLIC OF VIETNAM
Independence – Freedom – Happiness

Hanoi, 31st May, 2013

To: JICA Vietnam Office

After consideration JICA Project Team's letter No.DRVN-PMU-13 dated on 21st May, 2013 on request to DRVN's comment on the Procurement of Pavement Condition Survey Equipment within the JICA project for Capacity enhancement in Road maintenance; DRVN would like to propose following comments:

In 2012, engineering staffs in DRVN headquarters, RRMU2 and RTCs were already received training and guidance from JICA Project Team on practicing of pavement condition survey technology for 2360km of national roads under RRMU2 jurisdiction.

To facilitate for DRVN's engineering staffs for quick taking-over of technology transfer to manage as well as operate such special equipment by ourselves, we kindly request JICA to consider, select and provide DRVN the equipment with the same functions, specifications as those once of the equipment used in 2012 under the above pavement condition survey for the national road network under RRMU2 jurisdiction.

Sincerely yours,

To:
- *As above*
- *DRVN's General Director*
- *Filed: Office, PMU TA*

On behalf of DRVN's General Director

DRVN's Deputy General Director

Nguyen Xuan CUONG

BỘ GIAO THÔNG VẬN TẢI **TỔNG CỤC ĐƯỜNG BỘ VIỆT NAM**	**CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM** **Độc lập - Tự do - Hạnh phúc**
Số: 2288 /TCĐBVN-PMUTA	*Hà Nội, ngày 31 tháng 5 năm 2013*
V/v Ý kiến đề xuất về loại hình thiết bị xe khảo sát tình trạng mặt đường mà JICA dự kiến cung cấp cho Tổng cục ĐBVN.	

Kính gửi: Văn phòng JICA tại Việt Nam

Sau khi xem xét Văn bản số DRVN-PMU-13 ngày 21/5/2013 của Đoàn dự án JICA về việc đề nghị Tổng cục Đường bộ VN cho ý kiến đề xuất để Cơ quan JICA triển khai các thủ tục mua sắm, cung cấp 01 xe chuyên dụng để khảo sát, thu thập dữ liệu về tình trạng mặt đường trong khuôn khổ dự án "Tăng cường năng lực bảo trì đường bộ"; Tổng Cục đường bộ VN có ý kiến đề xuất như sau:

Trong năm 2012, các cán bộ kỹ thuật của Tổng cục ĐBVN, Khu QLĐB II và Trung tâm kỹ thuật đường bộ đã được Đoàn dự án JICA đào tạo, hướng dẫn thực hành công nghệ khảo sát tình trạng mặt đường của 2360 km quốc lộ thuộc địa phận Khu QLĐB II quản lý.

Để tạo điều kiện thuận lợi cho cán bộ kỹ thuật của Tổng cục ĐBVN nhanh chóng tiếp nhận được công nghệ và có thể tự quản lý, vận hành, khai thác thiết bị xe chuyên dụng này, kính đề nghị Cơ quan JICA xem xét, lựa chọn và cung cấp cho Tổng cục ĐBVN loại xe khảo sát có tính năng, tiêu chuẩn kỹ thuật tương tự như loại xe đã sử dụng thu thập dữ liệu của các tuyến quốc lộ thuộc địa phận Khu QLĐB II quản lý trong năm 2012.

Xin trân trọng cám ơn./.

Nơi nhận:
- Như trên;
- Tổng Cục trưởng (để b/c);
- Ngài Tsuneo KATO Trưởng đoàn DA;
- Lưu: VP, PMUTA.

KT. TỔNG CỤC TRƯỞNG
PHÓ TỔNG CỤC TRƯỞNG

BỘ GIAO THÔNG VẬN TẢI ★ TỔNG CỤC ĐƯỜNG BỘ VIỆT NAM ★

Nguyễn Xuân Cường

DIRECTORATE FOR ROADS OF VIETNAM
ROAD TECHNICAL CENTER

SOCIALIST REPUBLIC OF VIETNAM
Independence – Freedom - Happiness

No. 215/TTKTĐB-KT

On provision Basic information for procurement of Road Condition Survey Vehicle and Equipment

Hanoi, June 04th, 2013

To:

- **Directorate for Roads of Vietnam;**
- **JICA Project Team**
  (The Project for Capacity Enhancement in Road Maintenance)

Based upon the letter No.4374/TCĐBVN-BQLDAHTKT on October 30th, 2012 of Directorate for Roads of Vietnam about assignment to Road Technical Center-Central (RTC-Central) to receive, manage and operate the Road Condition Survey Vehicle and Equipment that will be provided from JICA through the Project for Capacity Enhancement in Road Maintenance;

Based upon the requirement of JICA Project Team (The Project for Capacity Enhancement in Road Maintenance) made in the meeting on June 3th, 2013 at RTC-Central regarding to the request to RTC-Central to provide Basic information for procurement of Road Condition Survey Vehicle and equipment;

RTC-Central would like to submit the basic information for finalization the specification documents for public announcement in Japan as the requirement of JICA Project Team (See the Attachment).

With best regards,

Road Technical Center-Central
Director

Le Khac Anh

C/c:
- *DRVN's Science-Technology Department*
- *DRVN's PMUTA;*
- *RTC-Central's Leading Board*
- *RTC-Central's Divisions: Lab,Technical Verification, Planning, Administration.*
- *Files.*

<Attachment >

Basic information for finalizing the specification documents for public announcement in Japan (Attachmented with the letter No. 215/TTKTĐB-KT dated on June 04th, 2013)

No.	Contents
C. "Road Condition Survey Vehicle" (Confirmed)	
1	Information of the person who has responsibility of receiving "Road Condition Survey Vehicle": ***Name: Mr. Lê Khắc Ánh,*** ***Position: Director,*** ***Organization Name: Road Technical Center-Central, Directorate for Roads of Vietnam, Ministry of Transport*** ***Telephone number: 04 35666868*** ***Facsimile number: 04 35682855***
2	Information of delivery place including organization name, address ***Organization name: Road Technical Center-Central, Directorate for Roads of Vietnam*** ***Address: No 108, Khương Trung, Thanh Quân District, Hà Nội***
D. Equipment for processing, analyzing, calculating and outputting data(10 desktop personal computers, 2 additional monitors and peripheral equipment(Mouse, Keyboard)	
1	Information of person who has responsibility of receiving "Equipment for processing, analyzing, calculating and outputting data: ***Name: Mr. Lê Khắc Ánh,*** ***Organization Name: Road Technical Center-Central, Directorate for Roads of Vietnam, Ministry of Transport*** ***Telephone number: 04 35666868*** ***Facsimile number: 04 35682855***
2	Information of the place to set up and install the equipment including organization name, address ***Organization name: Road Technical Center-Central, Directorate for Roads of Vietnam*** ***Address: No 108, Khương Trung, Thanh Quân District, Hà Nội***
3	■ Information about electrical power source in a room which all equipment will be installed (Under lines). ■ ***Single phase AC 220 Voltage, 50Hertz, Capacity= 15000 Watt*** ■ ***Third phase AC 380 Voltage, 50Hertz, Capacity= 15000 Watt***

MINISTRY OF TRANSPORT
DIRECTORATE FOR ROADS OF VIETNAM
No.4374/TCĐBVN-BQLDAHTKT
Re: Assignment to receive, manage and Operate the Road Condition Survey Vehicle and Equipment from The Project for Capacity Enhancement in Road Maintenance

SOCIALIST REPUBLIC OF VIETNAM
Independence – Freedom – Happiness

Hanoi, October 30th, 2012

To: Road Technical Center-Central

After considering the proposal of Road Technical Center - Central (RTC-Central) at the letter No. 177/TTKTĐB-KHTC dated on October 22th, 2012 about request for receiving Road Condition Survey Vehicle and equipment from The Project for Capacity Enhancement in Road Maintenance, followings are opinions of Directorate for Roads of Vietnam (DRVN):

1. RTC-Central is approved to receive, manage and operate the Road Condition Survey Vehicle and equipment from The Project for Capacity Enhancement in Road Maintenance under JICA's funding (consist of Vehicle and relevant equipments) after project completion.
2. RTC-Central is requested to continue to send staffs to collaborate with Project Teams (Especially PASCO Team), to receive and deeply master technologies of road survey, data collection, data analyzing & processing to meet and satisfy the demands on road maintenance & management in the future.
3. PMUTA is assigned to cooperate with relevant functional departments and Project Teams for finalization necessary procedures related to asset handing over & transferring at project completion according to current regulations.

C/c:
- *General Director*
- *Personal & Organization Department*
- *Project Teams*
- *PMUTA*
- *Files.*

DIRECTORATE FOR ROADS OF VIETNAM
On behalf of General Director
DEPUTY GENERAL DIRECTOR

Nguyen Xuan CUONG

TỔNG CỤC ĐƯỜNG BỘ VIỆT NAM
TRUNG TÂM KỸ THUẬT ĐƯỜNG BỘ

Số: 215 /TTKTĐB-KT
V/v cung cấp thông tin cơ bản phục vụ việc mua sắm cung cấp thiết bị và xe khảo sát tình trạng mặt đường

CỘNG HOÀ XÃ HỘI CHỦ NGHĨA VIỆT NAM
Độc lập - Tự do - Hạnh phúc

Hà Nội, ngày 04 tháng 6 năm 2013

Kính gửi:
- Tổng cục Đường bộ Việt Nam;
- Đoàn chuyên gia JICA (DA Tăng cường năng lực bảo trì đường bộ)

Căn cứ công văn số 4374/TCĐBVN-BQLDAHTKT ngày 30/10/2012 của Tổng cục ĐBVN về việc giao Trung tâm KTĐB tiếp nhận, quản lý, sử dụng bộ thiết bị khảo sát đường bộ chuyên dụng từ dự án Tăng cường năng lực bảo trì đường bộ;

Theo yêu cầu của Đoàn chuyên gia JICA (dự án Tăng cường năng lực bảo trì đường bộ) tại buổi làm việc chiều ngày 03/6/2013 tại Trung tâm KTĐB về việc đề nghị Trung tâm KTĐB cung cấp các thông tin cơ bản cho việc mua sắm cung cấp thiết bị và xe khảo sát tình trạng mặt đường;

Trung tâm KTĐB xin cung cấp các thông tin cơ bản để hoàn tất các tài liệu tiêu chuẩn kỹ thuật phục vụ việc công bố mời thầu ở Nhật Bản theo yêu cầu của Đoàn chuyên gia JICA (Chi tiết như biểu đính kèm).

Trân trọng ./.

Nơi nhận:
- Như trên;
- Vụ KHCN;
- Ban QLDA HTKT;
- Ban GĐ;
- Phòng TN, KĐ, KH, TH;
- Lưu VT, KT.

GIÁM ĐỐC

BỘ GIAO THÔNG VẬN TẢI
TRUNG TÂM KỸ THUẬT ĐƯỜNG BỘ
TỔNG CỤC ĐƯỜNG BỘ VIỆT NAM

Lê Khắc Ánh

THÔNG TIN CƠ BẢN
ĐỂ HOÀN TẤT CÁC TÀI LIỆU TIÊU CHUẨN KỸ THUẬT PHỤC VỤ VIỆC CÔNG BỐ MỜI THẦU Ở NHẬT BẢN
(Kèm theo công văn số 215 /TTKTĐB-KT ngày 04/6/2013)

TT	Nội dung
C.	**"Xe khảo sát tình trạng mặt đường"**
1.	***Thông tin về người chịu trách nhiệm nhận "Xe khảo sát tình trạng mặt đường":*** - Tên: Lê Khắc Ánh - Chức vụ : Giám đốc. - Cơ quan: Trung tâm Kỹ thuật đường bộ, Tổng cục Đường bộ Việt Nam, Bộ Giao thông Vận tải - Số điện thoại: 043.5666868 - Số fax: 043.5682855
2.	***Thông tin về địa điểm chuyển thiết bị đến:*** - Cơ quan: Trung tâm Kỹ thuật đường bộ, Tổng cục Đường bộ Việt Nam, Bộ Giao thông Vận tải - Địa chỉ: Số 108, Khương Trung, Thanh Quân, Hà Nội
D.	**Thiết bị để xử lý, phân tích, tính toán và đưa ra dữ liệu (10 bộ máy tính, 2 màn hình bổ sung và phụ kiện (chuột, bàn phím))**
1.	***Thông tin về người chịu trách nhiệm nhận "thiết bị để xử lý, phân tích, tính toán và đưa ra dữ liệu":*** - Tên: Lê Khắc Ánh - Cơ quan: Trung tâm Kỹ thuật đường bộ, Tổng cục Đường bộ Việt Nam, Bộ Giao thông Vận tải - Số điện thoại: 043.5666868 - Số fax: 043.5682855
2.	***Thông tin về địa điểm lắp đặt và cài thiết bị đến gồm:*** - Cơ quan: Trung tâm Kỹ thuật đường bộ, Tổng cục Đường bộ Việt Nam, Bộ - Giao thông Vận tải - Địa chỉ: Số 108, Khương Trung, Thanh Quân, Hà Nội
3.	***Thông tin về nguồn điện trong phòng chứa các thiết bị*** - Đơn pha AC 220V, 50Hz, công suất: 15.000 W - Ba pha AC 380V, 50Hz, công suất: 15.000W

BỘ GIAO THÔNG VẬN TẢI
TỔNG CỤC ĐƯỜNG BỘ VIỆT NAM

Số: 4374/TCĐB/TN-BQLDAHTKT
V/v: giao tiếp nhận, quản lý, sử dụng bộ thiết bị khảo sát đường bộ chuyên dụng từ dự án Tăng cường năng lực bảo trì đường bộ.

CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM
Độc lập - Tự do - Hạnh phúc

Hà Nội, ngày 30 tháng 10 năm 2012

TRUNG TÂM KỸ THUẬT ĐƯỜNG BỘ
CÔNG VĂN ĐẾN
582
Ngày 31 tháng 10 năm 2012

Kính gửi: Trung tâm Kỹ thuật đường bộ

Sau khi xem xét đề nghị của Trung tâm Kỹ thuật đường bộ tại văn bản số 177/TTKTĐB-KHTC ngày 22/10/2012 về việc xin được tiếp nhận bộ thiết bị khảo sát đường bộ chuyên dụng từ Dự án Tăng cường năng lực bảo trì đường bộ, Tổng Cục Đường bộ Việt Nam có ý kiến như sau:

1. Chấp thuận giao cho Trung tâm Kỹ thuật đường bộ tiếp nhận, quản lý và sử dụng bộ thiết bị khảo sát đường bộ chuyên dụng từ Dự án Tăng cường năng lực bảo trì đường bộ do JICA tài trợ (Bao gồm xe ôtô và các thiết bị khảo sát đường bộ chuyên dụng đi kèm) sau khi kết thúc dự án.

2. Trung tâm Kỹ thuật đường bộ tiếp tục cử cán bộ phối hợp với Tư vấn thực hiện dự án (đặc biệt là Tư vấn PASCO) để tiếp nhận, nắm vững công nghệ khảo sát, thu thập, phân tích dữ liệu đường bộ nhằm phục vụ tốt các yêu cầu của công tác quản lý khai thác đường bộ sau này.

3. Giao Ban QLDA HTKT phối hợp với các Vụ chức năng có liên quan và Tư vấn thực hiện dự án hoàn tất thủ tục bàn giao tài sản khi kết thúc dự án theo quy định hiện hành./.

Nơi nhận:
- Như trên;
- Tổng Cục trưởng (để b/c);
- Vụ TC;
- Tư vấn thực hiện Dự án;
- Lưu VT, BQLDA HTKT.

KT. TỔNG CỤC TRƯỞNG
PHÓ TỔNG CỤC TRƯỞNG

Nguyễn Xuân Cường

2013.●.●公示分(http://www.jica.go.jp/chotatsu/kizai/ippan/koji2013.html)

機材仕様明細書

（機材仕様書付属書１）

ベトナム国　道路維持管理能力強化プロジェクト向け機材

番　号	機　　材　　名	仕　　様	参考銘柄 （メーカー名等）	数量
0	総則	1）電源に交流電源を使用する場合は、ベトナム国の現地電源		
		AC220V、単相に対応させること。		
		2）電源プラグの形状は日本国内仕様でよい。		
		3）現地にて車両艤装、試験測定のために技術者派遣を必要とする。		
1	舗装路面性状調査用測定用機材	（仕様）		1式
		［用途］		
		舗装路面性状データ（国際ラフネス指数IRI、わだち掘れ量、ひび割		
		れ率）と車両前方映像を連続的に収集する。		
		［一般構成］		
		1)日本国内において、路面性状調査（IRI、わだち掘れ量、ひび割れ率		
		データの取得）実績がある調査機器を用いること。		
		2)本仕様には、機材取付用車両本体は含まないが、別途JICAベトナム		
		事務所が現地で調達する車両への艤装作業を含むものとする。		
		艤装対象車両は、2700cc相当の四輪車（新車）で、ワンボックス		
		バン型とする。（TOYOTA HIACE, 2.7L, 15 STR AC DLX を予定）		
		上記車両と本調達機材とが一体となってその機能を果たすよう、機		
		器･機材の艤装及び設置、調整、動作確認を行うこととする。		
		［構成詳細］		
		調達機材は、以下の機材から構成される。		
		1)路面縦断プロファイル（IRI算出用）計測機器		1式
		2)わだち掘れ量計測機材		1式
		3)CCD(前方画像撮影用)カメラ		1式

2013.●.●公示分(http://www.jica.go.jp/chotatsu/kizai/ippan/koji2013.html)

機材仕様明細書

（機材仕様書付属書１）

ベトナム国　道路維持管理能力強化プロジェクト向け機材

番　号	機　　材　　名	仕　　様	参考銘柄 （メーカー名等）	数量
1	舗装路面性状調査用測定用機材	4)CCD(舗装ひびわれ確認用)カメラ		1式
	つづき	5)GPS(Global Positioning System)		1式
		6)補助電源装置		1式
		7)各測定器の制御・測定データ記録・確認・処理・保存用機器		1式
		8)トリップメータ		2セット
		9)上記1～8の車両への艤装用機材		1式
		車両天井の艤装可能範囲は、寸法=L3.50m×W1.70m、路面高さ=1.98m		
		（参考値）とする。		
		［仕様詳細］		
		各機材の対応・表示言語は英語版とする。		
		各測定器は　7)舗装路面性状測定データ処理･解析･計算･出力用機器		
		に示すシステムに適合し、制御･処理･計算･出力されること。		
		1)路面縦断プロファイル（IRI算出用）計測機器		1式
		・測定精度　縦断プロファイルを測定する装置がクラス2の計測精度を		
		満足すること。		
		・測定間隔　道路延長に対し、25cm以内の間隔とする。		
		・測定値は舗装調査･試験法便覧(社)日本道路協会 S032Tに準じる。		
		2)わだち掘れ量計測機材		1式
		・測定精度 横断プロフィルグラフの測定値に対し、±6mm以内の誤差		
		であること。		
		・測定間隔 道路延長に対し、20m間隔		
		・計測範囲 幅員3mまで計測可能であること。		

2013.●.●公示分(http://www.jica.go.jp/chotatsu/kizai/ippan/koji2013.html)

機材仕様明細書

（機材仕様書付属書１）

ベトナム国　道路維持管理能力強化プロジェクト向け機材

番　号	機　材　名	仕　様	参考銘柄 （メーカー名等）	数量
1	舗装路面性状調査用測定用機材	・計測時の車両速度に依存せずに等距離間隔で路面形状を取得出来る		
	つづき	こと。		
		・測定値は舗装調査･試験法便覧(社)日本道路協会 S030に準じること。		
		3)CCD（前方画像撮影用）カメラ		1式
		・性能 200万画素相当以上で3CCDカメラであること		
		・撮影間隔 測定時に道路前方画像記録が可能であるものとし、道路		
		延長に対して5m間隔で静止画の撮影が可能なもの。		
		・5m間隔で取得した道路映像データを路線毎に編集し、GPSデータと		
		の関連付けを行うことが出来ること。		
		4)CCD（舗装ひびわれ確認用）カメラ		1式
		・性能 1ピクセル当り2mm程度の解像度を有すること(CCDカメラが複		
		数の場合、合成後の画像が上記解像度を有すること)ひびわれ幅認		
		識精度は、2mm以上とする。ひびわれ率解析のため、路面画像を連		
		続取得出来ること。		
		・ひび割れ率算出のために必要となる路面画像を提供出来るもので		
		あること。		
		5)GPS (Global Positioning System)		1式
		・性能 水平･垂直精度＞0.5m以内程度(通信状態が最良の場合)測定		
		中の車両位置データ(緯度･経度･高度)を記録･保存可能であること。		
		6)補助電源装置		1式
		・性能 車両トラブル等に伴うバッテリー使用不可の際に、計測機器		

2013.●.●公示分(http://www.jica.go.jp/chotatsu/kizai/ippan/koji2013.html)

機材仕様明細書

（機材仕様書付属書１）

ベトナム国　道路維持管理能力強化プロジェクト向け機材

番　号	機　材　名	仕　様	参考銘柄 （メーカー名等）	数量
1	舗装路面性状調査用測定用機材	全体の機能について、概ね15分間程度電源を確保出来るものとする。		
	つづき	また、自然エネルギー（風力、太陽光等）に基づき補助充電可能な		
		機構を有すること。		
		7)各測定器の制御・測定データ記録・確認・処理・保存用機器		1式
		・各測定機器と接続され、制御・測定データ記録のため、適切な		
		インターフェース類が搭載されていること。		
		・データ確認・処理・保存用として車両内に固定され、下記仕様に		
		適合すること。		
		OS：Windows 7（英語版）		
		CPU：インテル(R) Core(TM) i7 プロセッサー相当		
		電源仕様：AC100 ～ 240V±10%、周波数50/60Hz		
		ハードディスク：路面性状測定データ(特に画像データ）を連続		
		保存していくために支障にならない容量・速度とすること。		
		処理･解析のために、PCハードディスクに貯蓄したデータを別途		
		外付ハードディスク等に転送する必要がある場合には、その容量		
		は1日で調査可能な距離のデータを充分に保存出来る容量とする		
		こと。		
		取得データ容量が大きく、転送に時間を要する場合には、転送専		
		用機器を導入する等、測定作業に支障の出ないよう措置を講じる		
		こと。		
		8)トリップメータ		2セット
		・測定精度　実道路延長に対し、±0.5%以内であること。		
		・道路延長を計測し、表示及び記録が出来ること。		
		9)車両への上記1)～8)の艤装用機材		1式

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番　号	機　　材　　名	仕　　様	参考銘柄 （メーカー名等）	数量
1	舗装路面性状調査用測定用機材	・上記の機器を本仕様書　1.舗装路面性状調査用測定機器		
	つづき	［一般構成］2）　に示す車両に艤装するために必要となる全て		
		の工具･機材･材料をいう。		
		艤装に必要な全ての工具（ドライバー、スパナ他）及び測定機		
		材（CCDカメラ等）の調整に要する工具を収めた工具箱もこれに		
		含むものとする。		
		［付属品］		
		・取扱説明書はベトナム語、保証書は英語版とする。		
		・取扱説明書：メンテナンス方法、トラブルシューティングを含む。		
		記載言語はベトナム語とする。		
		部数は2部（活用版：1部＋保存版：1部）とする。		
		・保証書：保証期間を1年間とし、記載言語はベトナム語または英語		
		とする。		
		指定銘柄①　☆特注製品のためモデル番号はない	株式会社パスコ	
2	舗装路面性状測定データ処理・	（仕様）		1式
	解析・計算・出力用機器	［用途］		
		上記の1.舗装路面性状調査用測定用機材　で得られたデータを屋内		
		にて処理・解析し、国際ラフネス指数(IRI)、わだち掘れ量、ひびわ		
		れ率を所定の様式（別紙1）に保存・出力する。		
		［一般構成］		
		1)測定データ処理･解析･計算･出力用ハードウェア及び周辺機器		
		2)測定データ処理･解析･計算･出力用ソフトウェア		

2013.●.●公示分(http://www.jica.go.jp/chotatsu/kizai/ippan/koji2013.html)

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ベトナム国　道路維持管理能力強化プロジェクト向け機材

番　号	機　　材　　名	仕　　様	参考銘柄 （メーカー名等）	数量
2	舗装路面性状測定データ処理・	［構成詳細］		
	解析・計算・出力用機器	1)測定データ処理･解析･計算･出力用ハードウェア及び周辺機器		
	つづき	・デスクトップ型PC（データ処理・出力用）		2セット
		・デスクトップ型PC（データ解析・計算用）		8セット
		・拡大モニター（追加分）		2セット
		OS：Windows 7		
		CPU：インテル(R) Core(TM) i7 プロセッサー相当		
		RAM：8GB 以上		
		モニター：24inch　以上		
		電源仕様：AC100 ～ 240V±10%、周波数50/60Hz		
		周辺機器（キーボード、マウスその他必要機器）		
		2)測定データ処理･解析･計算･出力用ソフトウェア		10セット
		国際ラフネス指数(IRI)、わだち掘れ量、ひびわれ率の算出及び下記		
		に記載したデータ項目を処理･解析･計算･出力するもの。		
		本仕様書　1.舗装路面性状調査用測定機材　により取得されたデータ		
		を別紙1に示すデータ項目について処理･解析･計算･出力できること。		
		・縦断形状、横断形状、路面画像、前方映像の一括表示		
		・距離に同期した処理・出力		
		・データの一括再生、路面画像に基づく各計測データの解析、起終		
		点設定距離標に基づくデータ区切りの設定		
		・構造物情報（名称など）の入力		
		［出力］		
		当該機器を使用して得られる成果・出力結果は、以下の通りとする。		

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ベトナム国　道路維持管理能力強化プロジェクト向け機材

番　号	機　　材　　名	仕　　様	参考銘柄 （メーカー名等）	数量
2	舗装路面性状測定データ処理・	1)IRI(国際ラフネス指数)		
	解析・計算・出力用機器	100mを基本とする単位で算出。		
	つづき	算出方法は、舗装調査･試験法便覧(日本道路協会)S032Tとする。		
		2)わだち掘れ量		
		100mを基本とする単位で算出。		
		算出方法は、舗装調査･試験法便覧(日本道路協会)」S030とする。		
		3)ひび割れ率		
		100mを基本とする単位で算出。		
		なお、算出方法は舗装調査･試験法便覧(日本道路協会)」S029とする。		
		メッシュ法による判読作業は、当該機器を使用してのマニュアル判読		
		によるものとするが、その他作業（取得画像のメッシュ分割、判読結		
		果の処理・計算・出力）については、自動処理されるものとする。		
		また、上記に準じて「ポットホール率」を出力すること。		
		指定銘柄①　☆特注製品のためモデル番号はない	株式会社パスコ	
		［付属品］		
		・取扱説明書はベトナム語、保証書は英語版とする。		
		・取扱説明書：メンテナンス方法、トラブルシューティングを含む。		
		記載言語はベトナム語とする。		
		部数は11部（活用版：10部＋保存版：1部）とする。		
		・保証書：保証期間を1年間とし、記載言語はベトナム語または英語		
		とする。		

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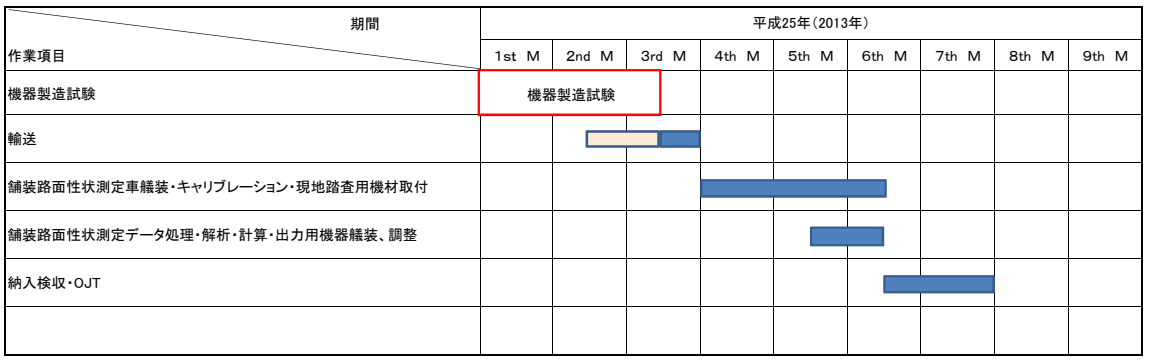
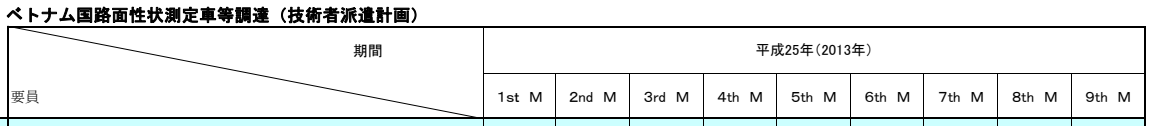
番　号	機　　材　　名	仕　　様	参考銘柄 （メーカー名等）	数量
4	その他補足事項	1)借用機材の取扱いについて		
		JICAベトナム事務所が調達する車両への艤装作業にあたって、本仕様書		
		で定める作業が完了するまでは、受注者がJICAベトナム事務所より借用		
		のうえ実施する（名義人はJICA VN事務所）。艤装作業が完了するまで		
		の期間、受注者の責任において車両を保管、管理すること。なお、車両		
		保管については、車両納品先のカウンターパートと協議すること。		
		2)引渡しについて		
		受注者は、路面性状測定車及び解析機器のキャリブレーションが全て		
		完了した段階で、速やかにJICAへ報告するとともに、カウンターパート		
		側へ譲渡するものとする。		
		4）適用基準		
		上記1）～3）の実施にあたっては、「委託契約等における機材調達・		
		管理ガイドライン（平成24年4月）」に準じるものとする。		
		5）作業オフィスについて		
		当業務を実施するための作業オフィスについては、解析用PCを納品		
		する事務室の使用を想定している（RTC-Central内）。		

様式－２

様式-２　ベトナム国路面性状測定車等調達（仮称）



様式-３　ベトナム国路面性状測定車等調達（技術者派遣計画）



用務日数の根拠	派遣日数(日) (渡航日含む)	渡航回数	【技術者派遣人員】	
実績派遣人員１用務日数（29日）の1/3を想定 16日(派遣日数15.6日)=9.7日(平日)+3.9日(土日) +2日(渡航1回) 9.7日 (平日) =29日(実績) /3 3.9日(土日)=9.7日(平日)/5日×2(土日)	16	1	総括	・C/Pへの業務説明、および合意 ・機材受け入れ ・艤装業者選定
実績派遣人員1.2用務日数（1日),実績派遣人員1.3用務日数（6日）の計7日を想定 12日(派遣日数11.8日)=7日(平日)+2.8日(土日) +2日(渡航1回) 7日 (平日) =7日(実績) 2.8日(土日)=7日(平日)/5日×2(土日)	12	1	〃	・OJT検収終了確認 ・納品物の受け渡し確認
実績派遣人員2.1用務日数（48日の1/5,9.6日),実績派遣人員4.用務日数（10日）の計19.6日を想定 30日(派遣日数29.4日)=19.6日(平日)+7.8日(土日) +2日(渡航1回) 19.6日 (平日) =19.6日(実績) 7.8日(土日)=19.6日(平日)/5日×2(土日)	30	1	艤装技術者1	測定機器艤装指示・確認(主として、ベ国での製造品)
実績派遣人員2用務日数（42日の1/2,21日)を想定 30日(派遣日数30.4日)=21日(平日)+8.4日(土日) +1日(渡航0.5回) 21日 (平日) =21日(実績) 8.4日(土日)=21日(平日)/5日×2(土日)	30.5	0.5	艤装技術者2	・C/Pへ納品物の説明 ・機材受け入れ ・艤装業者へ艤装内容の説明等
実績派遣人員4.1用務日数（33日の2/3,22日)を想定,[製品化改造] 31日(派遣日数30.8日)=22日(平日)+8.8日(土日) +0日(渡航0回) 10.5日 (平日) =22日(実績) 8.8日(土日)=22日(平日)/5日×2(土日)	31	0	〃	・測定機器艤装指示(主として、輸出機器の艤装)
実績派遣人員4.1用務日数（33日の1/3,11日)を想定 17日(派遣日数16.4日)=11日(平日)+4.4日(土日) +1日(渡航0.5回) 11日 (平日) =11日(実績) 4.4日(土日)=11日(平日)/5日×2(土日)	16.5	0.5	〃	・キャリブレーション/踏査用機材取付
実績派遣人員5.1用務日数（20日)を想定 30日(派遣日数30日)=20日(平日)+8日(土日) +2日(渡航1.0回) 20日 (平日) =20日(実績) 8日(土日)=20日(平日)/5日×2(土日)	30	1	データ解析機器艤装	・調達PCの説明 ・データ解析機器艤装、調整
実績派遣人員8.1用務日数（64日の1/3,21.3日)を想定 32日(派遣日数31.8日)=21.3日(平日)+8.5日(土日) +2日(渡航1.0回) 10日 (平日) =21.3日(実績) 8.5日(土日)=21.3日(平日)/5日×2(土日)	32	1	試験測定・解析技術者1	・キャリブレーション ・OJT検収(測定装置)
実績派遣人員6.用務日数（42日の3/4,31.5日)を想定 47日(派遣日数46.1日)=31.5日(平日)+12.6日(土日) +2日(渡航1.0回) 31.5日 (平日) =31.5日(実績) 12.6日(土日)=31.5日(平日)/5日×2(土日)	47	1	試験測定・解析技術者2	OJT検収(解析・データ処理)
実績派遣人員9.用務日数（42日の3/4,31.5日)を想定 47日(派遣日数46.1日)=31.5日(平日)+12.6日(土日) +2日(渡航1.0回) 31.5日 (平日) =31.5日(実績) 12.6日(土日)=31.5日(平日)/5日×2(土日)	47	1	試験測定・解析技術者3	OJT検収(解析・データ処理)
実績派遣人員5.1用務日数（20日の1/2,10日),実績派遣人員7.用務日数（21日の1/2,10.5日)を想定　合計20.5日 31日(派遣日数30.7日)=20.5日(平日)+8.2日(土日) +2日(渡航1.0回) 20.5日 (平日) =20.5日(実績) 8.2日(土日)=20.5日(平日)/5日×2(土日)	31	1	業務調整	・艤装会社契約 ・調達PC契約 ・通訳契約 ・移動車契約 ・保険契約
実績派遣人員7.3用務日数（40日の1/4,10日),実績派遣人員10.2用務日数（15日の1/3,5日)を想定　合計15日 23日(派遣日数23日)=15日(平日)+6日(土日) +2日(渡航1.0回) 15日 (平日) =15日(実績) 6日(土日)=15日(平日)/5日×2(土日)	23	1	〃	・艤装会社契約解除 ・調達PC契約解除 ・通訳契約解除 ・移動車契約解除 ・保険契約解除 ・納品物の引き渡し手続き ・貸与事務所撤収処理
用務日数の根拠	**用務日数（平日）**		**【現地雇員】**	
下記技術者の通訳を想定 総括：[(9.7)+7] 艤装技術者１：[(20.5)] 艤装技術者２：54日[21+22+(11)] 試験測定・解析技術者１[21.3]　合計　７１．３日　（　）は、同時業務により合計より除外	72		通訳1(総括、艤装技術者1/2、試験測定・解析技術者1の通訳)	
下記技術者の通訳を想定 データ解析機器艤装：[20] 試験測定・解析技術者2/3：[31.5]　合計　５１．５日	52		通訳2(データ解析機器艤装技術者、試験測定・解析技術者2/3の通訳)	
支給時期を４ｔｈ初日、納入を７ｔｈ末と想定（３ヶ月間） 78日（従事日数）＝(4ヶ月×20日/月-2)	78		運転手1(貸与車両の運転手)	
下記技術者の移動を想定　移動区間は、ホテルと事務所間、および事務所と艤装工場・C/Pを想定 総括、艤装技術者１/2、試験測定・解析技術者１、通訳１ 78日（従事日数）＝(4ヶ月×20日/月-2)	78		移動車両借上1(総括、艤装技術者1/2、試験測定・解析技術者1、通訳1の移動車両)	
下記技術者の移動を想定　移動区間は、ホテルと事務所間、および機器調達等を想定 データ解析機器艤装技術者、試験測定・解析技術者2/3、通訳２ 48日（従事日数）＝(2.5ヶ月×20日/月-2)	48		移動車両借上2(データ解析機器艤装技術者、試験測定・解析技術者2/3、通訳2の移動車両)	
			事務所借上げ(C/Pの解析機器設置部屋の借用を想定)	
			備品(インターネット設備、プリンター、机等)は、上記同様、C/P供与を想定	

凡例　：日本国内作業　：ベトナム国内作業　：C/P供与

様式－２]

様式-２　ベトナム国路面性状基礎情報収集・確認調査　作業計画

作業項目（提案書節番号） ＼ 期間					平成23年（2012年）												平成24年（2013年）		
					1月	2月	3月	4月	5月	6月	7月	8月	9月	10月	11月	12月	1月	2月	3月
2.2.1.インセプションレポートの作成						△調査計画													
2.2.2.インセプションレポートの説明および調査計画・準備																			
2.2.3.現地踏査						資料確認													
2.2.4.現地踏査概要報告										現地調査結果概要報告									
2.2.5.路面性状測定																			
2.2.5 1).測定車のセットアップ・キャリブレーション																			
・測定車運行トレーニング（対C/P）																			
2.2.5 2).路面性状調査(4,606km)																			
2.2.6.計測データ抽出・解析																			
・抽出・解析トレーニング（対C/P）																			
・抽出・解析の実施（4,606km）																			
2.2.7.路面性状データファイルの作成																			
2.2.8.一連の作業に関するベトナム政府技術者との協同作業																			
2.2.9.ワークショップの実施																			
2.2.10.調査報告書作成																			△

様式-３　ベトナム国路面性状基礎情報収集・確認調査　派遣実績

更新:2013/6/26

要員 ＼ 期間		渡航期間		渡航日数（旅行日含む）	用務日数（渡航・土日を除く）	平成23年（2012年）												平成24年（2013年）			
						1月	2月	3月	4月	5月	6月	7月	8月	9月	10月	11月	12月	1月	2月	3月	
【派遣人員】	担当業務	自	至	日	日																
1. 国府　豊	総括/調査計画	05/03/2012	14/04/2012	41	29			3/5 4/14	・インセプションレポートの説明　・調査計画、および説明　・調査車両の受け入れ調査 ・7回の打ち合わせを実施(C/P,Projet for Capacity Enhancement in Road Maintenance)												
1. 1　〃		22/05/2012	17/06/2012	27	18						5/22 6/17	・Field Recnnassance Report作成、および説明									
1. 2　〃		01/02/2013	05/02/2013	5	1													2/1 2/5	・Survey Report作成、および指示 ・Work shopの準備、指示		
1. 3　〃		21/02/2013	03/03/2013	11	6													2/21	3/3 納品	・Work shopの準備、実施	
2. 相馬　幸六	調査・計測1	05/03/2012	03/05/2012	60	42			3/5	5/3	・調査(Field Recnnassance)計画書作成、および説明　・調査車両の受け入れ調査/艤装工場の調査 ・調査補助員の雇用計画　・調査用具の調達計画											
2. 1　〃		22/05/2012	30/07/2012	70	48					5/22	7/30	・調査(Field Survey)計画書作成、および説明　・艤装キャリブレーション ・調査補助員の雇用計画　・調査用具の調達計画									
2. 2　〃		15/10/2012	13/11/2012	30	20										10/15	11/13	・調査数量/解析数量確認 ・路面性状データファイルの確認				
2. 3　〃		01/02/2013	03/03/2013	31	20													2/1	3/3	・Survey Report作成御補助 ・Work shopの準備	
3. 土屋　善靖	調査・計測2	05/03/2012	17/06/2012	105	74			3/5	6/17	・既存資料の確認　・調査用具の調達　・OJTトレーニング ・調査(Field Recnnassance)の実施　・Field Recnnassance Report作成、および説明											
3. 1　〃		22/08/2012	04/12/2012	105	73								8/22				12/4	・調査(Field Survey)の実施 ・OJTトレーニング			
3. 2　〃		20/01/2013	17/03/2013	57	40													1/20		3/17	・Survey Report作成御補助 ・Survry Manualの更新　・Work shopの
4. 黒須　秀明	測定車設計技術者	03/06/2012	16/06/2012	14	10						6/3 6/16	・車両への艤装確認									
4. 1前田　近邦	車輌セットアップ・キャリブレーシ	22/05/2012	08/07/2012	48	33					5/22	7/8	・艤装作業打ち合わせ　・艤装指示 ・動作確認/キャリブレーション									
4. 2　〃		03/03/2013	17/03/2013	15	10															3/3 3/17	・測定車解体・搬送
5. ジョエル　クルーズ	解析/データ作成1	29/02/2012	14/03/2012	15	9		2/29	3/14	・初動事務所の調査　・電子機器販売会社の調査 ・移動車両の調達　・ソフトウエア販売会社の調査												
5. 1　〃		31/05/2012	29/06/2012	30	20						5/31 6/29	・データ処理計画　・電子機器の調達 ・ソフトウエアの調達　・機器の設置									
5. 2　〃		17/08/2012	30/09/2012	45	30								8/17	9/30	・GIS/映像データ処理						
5. 3　〃		14/11/2012	13/12/2012	30	20											11/14	12/13	・データ処理結果の確認			
5. 4　〃		01/02/2013	15/02/2013	15	9													2/1 2/15	・Work shopの準備、実施		
6. 酒井　浩平	解析/データ作成2	01/07/2012	29/08/2012	60	42							7/1	8/29	・解析指導　・ソフトウエアのインストール調整							
6. 1　〃		15/10/2012	25/12/2012	72	50										10/15		12/25	・データ処理の実施			
7. 青木　一也	業務調整/計画補助	27/02/2012	28/03/2012	31	21		2/27	3/28	・初動事務所の契約 ・移動車両の契約												
7. 1　〃		07/06/2012	05/07/2012	29	19						6/7	7/5	・解析補助員契約　・機器調達補助 ・ソフトウエア調達補助								
7. 2　〃		09/12/2012	25/12/2012	17	11												12/9 12/25	・データ処理結果の確認			
7. 3　〃		20/01/2013	17/03/2013	57	40													1/20 ワークショップ		3/17	・Work shopの準備、実施 ・Survey Report作成
8. 北川　翔一	調査・計測2補助	01/04/2012	17/06/2012	78	55				4/1	6/17	・調査用具の調達 ・調査(Field Recnnassance)の実施										
8. 1　〃		01/07/2012	28/09/2012	90	64							7/1	9/28	・調査(Field Survey)の実施 ・キャリブレーション							
9. 齊藤　岳	解析/データ作成2補助	19/08/2012	17/10/2012	60	42								8/19	10/17	・解析指導						
10. 木村　謙介	業務調整/業務管理	05/03/2012	03/04/2012	30	20			3/5	4/3	・事務所契約　・事務所備品契約(電話・インターネット、机)　・艤装契約											
10. 1　〃		11/06/2012	10/07/2012	30	20						6/11	7/10	・電子機器契約　・ソフトウエア契約								
10. 2　〃		22/02/2013	17/03/2013	24	15														2/22	3/17	・契約解除/撤収

凡例:　□ : 日本国作業　■ : 艤装・検収以外の作業　■ : 測定機器・解析機器艤装、及び検収（OJT)を含む作業

添付　6. その他供与機材

本プロジェクトにて供与したその他の機材にかかわる文書を以下に添付する。

表 6.1 その他の機材に係る文書

	文書	日程	内容	添付
1	供与機材の設置先部署に関する文書	2013 年 2 月 18 日	プロジェクト修了後の各供与機材の設置先部門	添付 6-1
2	供与機材の受領書	2013 年 3 月 25 日	供与機材受領	添付 6-2

Mr. Nguyen Xuan Cuong

Deputy Director General
Directorate for Roads of Vietnam
Ministry of Transport

Ref. No. DRVN-01
24th March 2014

SUBJECT: Submission of Equipment

Dear Sir,

I would like to express my sincere appreciation to your cooperation with the Project.

I would like to submit the equipment supplied by JICA Project for Capacity Enhancement in Road Maintenance, which have been placed at the JICA Project Team office during the project term for the development of project activities. The equipment has already moved to DRVN for continuing and utilizing the activities of project outputs. The list of submitted equipment is attached.

Look forward for your cooperation in this regard.

Sincerely yours,

_____

Tsuneo Kato
Team Leader, Project for Capacity Enhancement in Road Maintenance

CC:
Dr. Nguyen Trong Phu
Director of PMU TA, DRVN

Attachment 1

List of Items

	Items	Detail	Installed Location (Organization, Department, Unit)
1	Colour Printer	Epson STYLUS PHOTO 1390 (model B321C)	Department of Planning and Investment (DPI), DRVN
2	Desktop Computer 1	CPU: HP Compaq Elite 8300 SFF (intel (R) Core i7 3770 RAM: 4GB OS: Windows 7 Monitor: HP W1972a Monitor (17 inches) MS-Office: MS-Office 2013 Professional Antivirus Software: Kaspersky Key Board: English UPS: SANTAK 1200W Others: Mouse, Cables	Road Maintenance and Management Department, DRVN
3	Desktop Computer 2	CPU: HP Compaq Elite 8300 SFF (intel (R) Core i7 3770 RAM: 4GB OS: Windows 7 Monitor: HP W1972a Monitor (17 inches) MS-Office: MS-Office 2013 Professional Anti-Virus Software: Kaspersky Key Board: English UPS: SANTAK 1200W Others: Mouse, Cables	Information Center, DRVN
4	Desktop Computer 3	CPU: DELL Vostro 470 (intel (R) Core i7 3770 RAM: 8GB OS: Windows 7 Professional Monitor: Dell U22312HM Monitor (23 inches) MS-Office: MS-Office 2010 Professional Visual Studio: 2012 Professional Antivirus Software: Norton Key Board: English UPS: SANTAK 1400W Other: Mouse, Cables	Department of Planning and Investment (DPI), DRVN
5	Desktop Computer 4	CPU: DELL Vostro 470 (intel (R) Core i7 3770 RAM: 8GB OS: Windows 7 Professional Monitor: Dell U22312HM Monitor (23 inches) MS-Office: MS-Office 2010 Professional Visual Studio: 2012 Professional Antivirus Software: Norton Key Board: English UPS: SANTAK, 1400W Other: Mouse, Cables	Department of Planning and Investment (DPI), DRVN
6	Projector	Epson EB 905	Science, Technology, and International Cooperation Department, DRVN
7	Projector Screen	Tripod Model 84x 84 (Size 213 x 213 cm)	Science, Technology, and International Cooperation Department, DRVN

TỔNG CỤC ĐƯỜNG BỘ VIỆT NAM
BAN QUẢN LÝ DỰ ÁN HTKT

Số:13/Thư-PMUTA

V/v xác nhận đơn vị tiếp nhận một số trang. thiết bị do Đoàn dự án JICA cung cấp

CỘNG HOÀ XÃ HỘI CHỦ NGHĨA VIỆT NAM
Độc lập - Tự do - Hạnh phúc

Hà Nội, ngày 18 tháng 02 năm 2014

Kính gửi: Ngài Tsuneo Kato, Trưởng Đoàn Dự án
Dự án Tăng cường năng lực bảo trì đường bộ.

Phúc đáp đề nghị của Đoàn dự án JICA tại Văn bản số DRVN-WG5-16 ngày 12/02/2014 về việc xác nhận đơn vị tiếp nhận một số máy tính, thiết bị do phía Đoàn Dự án JICA cung cấp khi kết thúc dự án "Tăng cường năng lực bảo trì đường bộ". Theo chỉ đạo của Lãnh đạo Tổng cục Đường bộ Việt Nam, Ban QLDA HTKT là đơn vị tiếp nhận máy tính, thiết bị nêu trên và dự kiến sẽ chuyển giao cho cơ quan, đơn vị quản lý, khai thác sau khi Dự án kết thúc (Cụ thể trong Phụ lục kèm theo).

Sau khi kết thúc dự án, Lãnh đạo Tổng cục ĐBVN sẽ xem xét, điều chuyển cho cơ quan, đơn vị phù hợp để quản lý, khai thác trang thiết bị nêu trên.

Trân trọng cám ơn./.

Nơi nhận:
- Như trên;
- PTCT Nguyễn Xuân Cường (để b/c);
- Lưu: PMUTA.

GIÁM ĐỐC

BỘ GIAO THÔNG VẬN TẢI ★ TỔNG CỤC ĐƯỜNG BỘ VIỆT NAM

Nguyễn Trọng Phú

Danh sách thiết bị

TT	Tên thiết bị	Thông số kỹ thuật	Đơn vị tiếp nhận *(Cơ quan, Vụ/phòng, đơn vị)*
1	Máy in mầu	Máy in mầu Epson STYLUS PHOTO 1390 (model B321C)	Vụ Kế hoạch Đầu tư (Tổng cục ĐBVN)
2	Máy vi tính để bàn 1	CPU: HP Compaq Elite 8300 SFF (intel (R) Core i7 3770 RAM: 4GB Hệ điều hành: Windows 7 Màn hình: HP W1972a Monitor (17 inches) MS-Office: MS-Office 2013 Professional Phần mềm diệt vi rút: Kaspersky Key Board: bản tiếng Anh. Bộ lưu điện UPS: SANTAK 1200W Khác: Chuột, Cáp	Vụ Quản lý bảo trì Đường bộ (Tổng cục ĐBVN)
3	Máy vi tính để bàn 2	CPU: HP Compaq Elite 8300 SFF (intel (R) Core i7 3770 RAM: 4GB Hệ điều hành: Windows 7 Màn hình: HP W1972a Monitor (17 inches) MS-Office: MS-Office 2013 Professional Phần mềm diệt vi rút: Kaspersky Bàn phím: bản tiếng Anh. Bộ lưu điện UPS: SANTAK 1200W Khác: Chuột, Cáp	Trung tâm công nghệ thông tin (Tổng cục ĐBVN)
4	Máy vi tính để bàn 3	CPU: DELL Vostro 470 (intel (R) Core i7 3770 RAM: 8GB Hệ điều hành: Windows 7 Professional Màn hình: Dell U2312HM Monitor (23 inches) MS-Office: MS-Office 2010 Professional Phần mềm Visual Studio: 2012 Professional Phần mềm diệt vi rút: Norton Bàn phím: bản tiếng Anh. Bộ lưu điện UPS: SANTAK 1400W Khác: Chuột, Cáp	Vụ Kế hoạch Đầu tư (Tổng cục ĐBVN)
5	Máy vi tính để bàn 4	CPU: DELL Vostro 470 (intel (R) Core i7 3770 RAM: 8GB Hệ điều hành: Windows 7 Professional Màn hình: Dell U2312HM Monitor (23 inches) MS-Office: MS-Office 2010 Professional Phần mềm Visual Studio: 2012 Professional Phần mềm diệt vi rút: Norton Bàn phím: bản tiếng Anh. Bộ lưu điện UPS: SANTAK 1400W Khác: Chuột, Cáp	Vụ Kế hoạch Đầu tư (Tổng cục ĐBVN)
6	Máy chiếu	Máy chiếu Epson EB 905	Vụ KHCN, MT & HTQT (Tổng cục ĐBVN)
7	Màn chiếu	Màn chiếu Model 84x 84 (Kích cỡ 213 x 213 cm)	Vụ KHCN, MT & HTQT (Tổng cục ĐBVN)

ACKNOWLEDGEMENT OF RECEIPT

We hereby acknowledge the receipt of the following equipment upon the completion of the project at the end of March 2014.

Equipment supplied by JICA Project for Capacity Enhancement in Road Maintenance, have been placed at the JICA Project Team office during the project term for the development of project activities, and have moved to DRVN for continuing and utilizing the activities of project outputs.

DESCRIPTION OF EQUIPMENT

List of Equipment

	Items	Detail	Installed Location (Organization, Department, Unit)
1	Color Printer	Epson STYLUS PHOTO 1390 (model B321C)	Department of Planning and Investment (DPI), DRVN
2	Desktop Computer 1	CPU: HP Compaq Elite 8300 SFF (intel (R) Core i7 3770 RAM: 4GB OS: Windows 7 Monitor: HP W1972a Monitor (17 inches) MS-Office: MS-Office 2013 Professional Antivirus Software: Kaspersky Key Board: English UPS: SANTAK 1200W Others: Mouse, Cables	Road Maintenance and Management Department, DRVN
3	Desktop Computer 2	CPU: HP Compaq Elite 8300 SFF (intel (R) Core i7 3770 RAM: 4GB OS: Windows 7 Monitor: HP W1972a Monitor (17 inches) MS-Office: MS-Office 2013 Professional Anti-Virus Software: Kaspersky Key Board: English UPS: SANTAK 1200W Others: Mouse, Cables	Information Center, DRVN
4	Desktop Computer 3	CPU: DELL Vostro 470 (intel (R) Core i7 3770 RAM: 8GB OS: Windows 7 Professional	Department of Planning and Investment (DPI)

		Monitor: Dell U22312HM Monitor (23 inches) MS-Office: MS-Office 2010 Professional Visual Studio: 2012 Professional Antivirus Software: Norton Key Board: English UPS: SANTAK 1400W Other: Mouse, Cables	
5	Desktop Computer 4	CPU: DELL Vostro 470 (intel (R) Core i7 3770 RAM: 8GB OS: Windows 7 Professional Monitor: Dell U22312HM Monitor (23 inches) MS-Office: MS-Office 2010 Professional Visual Studio: 2012 Professional Antivirus Software: Norton Key Board: English UPS: SANTAK, 1400W Other: Mouse, Cables	Department of Planning and Investment (DPI), DRVN
6	Projector	Epson EB 905	Science, Technology, and International Cooperation Department, DRVN
7	Projector Screen	Tripod Model 84x 84 (Size 213 x 213 cm)	Science, Technology, and International Cooperation Department, DRVN

Signature:

Mr. Nguyen Xuan Cuong

Deputy Director General of DRVN

Date: March, 2014

XÁC NHẬN BÀN GIAO

Chúng tôi xác nhận đã nhận các thiết bị dưới đây khi kết thúc dự án vào cuối tháng 3/2014.

Các thiết bị do Dự án tăng cường năng lực bảo trì đường bộ cung cấp (những thiết bị này đã được đặt tại văn phòng của Đoàn dự án JICA để phục vụ các hoạt động trong thời gian thực hiện dự án) đã được chuyển sang TCĐBVN để tiếp tục sử dụng cho các hoạt động về kết quả dự án.

MÔ TẢ THIẾT BỊ

Danh sách thiết bị

	Các hạng mục	Chi tiết	Địa điểm bố trí (Cơ quan/ đơn vị, phòng/ ban)
1	Máy in màu	Epson STYLUS PHOTO 1390 (model B321C)	Vụ Kế hoạch Đầu tư (DPI), TCĐBVN
2	Máy tính để bàn 1	CPU: HP Compaq Elite 8300 SFF (intel (R) Core i7 3770 RAM: 4GB OS: Windows 7 Monitor: HP W1972a Monitor (17 inches) MS-Office: MS-Office 2013 Professional Phần mềm chống virus: Kaspersky Bàn phím: tiếng anh UPS: SANTAK 1200W Trang thiết bị khác: Chuột, cáp	Vụ Quản lý bảo trì Đường bộ, TCĐBVN
3	Máy tính để bàn 2	CPU: HP Compaq Elite 8300 SFF (intel (R) Core i7 3770 RAM: 4GB OS: Windows 7 Monitor: HP W1972a Monitor (17 inches) MS-Office: MS-Office 2013 Professional Phần mềm chống virus: Kaspersky Bàn phím: Tiếng anh	Trung Tâm Thông Tin, TCĐBVN

		UPS: SANTAK 1200W Trang thiết bị khác: Chuột, cáp	
4	Máy tính để bàn 3	CPU: DELL Vostro 470 (intel (R) Core i7 3770 RAM: 8GB OS: Windows 7 Professional Monitor: Dell U22312HM Monitor (23 inches) MS-Office: MS-Office 2010 Professional Visual Studio: 2012 Professional Phần mềm chống virus: Norton Bàn phím: Tiếng anh UPS: SANTAK 1400W Trang thiết bị khác: Chuột, cáp	Vụ Kế hoạch Đầu tư (DPI), TCĐBVN
5	Máy tính để bàn 4	CPU: DELL Vostro 470 (intel (R) Core i7 3770 RAM: 8GB OS: Windows 7 Professional Monitor: Dell U22312HM Monitor (23 inches) MS-Office: MS-Office 2010 Professional Visual Studio: 2012 Professional Phần mềm chống virus: Norton Bàn phím: Tiếng anh UPS: SANTAK 1400W Trang thiết bị khác: Chuột, cáp	Vụ Kế hoạch Đầu tư (DPI), TCĐBVN
6	Máy chiếu	Epson EB 905	Vụ Khoa học công nghệ và hợp tác quốc tế, TCĐBVN
7	Màn hình máy chiếu	Tripod Model 84x 84 (Size 213 x 213 cm)	Vụ Khoa học công nghệ và hợp tác quốc tế, TCĐBVN

Ký tên

Ông Nguyễn Xuân Cường

Phó Tổng cục trưởng, TCĐBVN

Ngày: /3/2014