



**SEMINAR  
ON  
CONSULTATION OF STANDARD  
DRAWINGS AND REPORT OF  
TRAINING IN JAPAN FOR RIGHT OF  
WAY (ROW) MANAGEMENT**

**THE PROJECT FOR CAPACITY ENHANCEMENT ON  
ENVIRONMENTAL AND SOCIAL CONSIDERATIONS IN  
IMPLEMENTING AGENCY IN ROAD SECTOR IN CAMBODIA  
(CESCOR)**

**15<sup>TH</sup> MARCH, 2019**

**SUNWAY HOTEL, PHNOM PENH**



FOR MORE INFORMATION CONTACT: OFFICE +855(0)61-960-213

## AGENDA

Seminar on Consultation of Standard Drawings for Typical Cross Section of ROW  
and Report of Training in Japan for Right of Way (ROW) Management  
of  
The Project for Capacity Enhancement on Environmental and Social Considerations in  
Implementing Agency in Road Sector in Cambodia (CESCoR)

Sunway Hotel, Phnom Penh, 15<sup>th</sup> March 2019

<b>Time</b>	<b>Program</b>
08:45-09:00	Registration
09:00-09:05	<b>Cambodian National Anthem</b>
09:05-09:10	<b>Opening Remarks</b> Mr. Thou Samnang, Deputy Director General, General Directorate of Techniques, Ministry of Public Works and Transport (MPWT)
09:10-09:20	<b>Presentation on outline of “CESCoR”</b> Mr. Hok Angkearithvongsa, Officer, RID, MPWT
09:20-10:30	<b>Presentation on “Typical Roadway Cross Section (Stage Construction and ROW Management)”</b> Mr. Khuon Kompeak, Deputy Director, RID, MPWT
10:30-10:45	Coffee Break
10:45-11:05	<b>Presentation on Report for “Training in Japan”</b> Ms. Eam Sokchea, Deputy Chief Officer, Environment and Public Service office, Public Infrastructure Department, MPWT
11:05-11:25	<b>Presentation on “Pilot Project for Illegal Encroachment Prevention”</b> Mr. Chea Samnang, Chief Officer, ROW Management Office, RID, MPWT
11:25-11:45	<b>Closing Remarks</b> Mr. Thou Samnang, Deputy Director General, General Directorate of Techniques, Ministry of Public Works and Transport (MPWT)
11:45-13:30	<b>Luncheon</b>
13:30-16:00	<b>Taskforce Meeting for Pilot Project Implementation</b> Participants: Taskforce Members from MPWT and Pilot Project Taskforce Members from DPWTs

Note: All presentations will be provided in Khmer except. There are included Q&A session for each presentation.



6<sup>th</sup> SEMINAR MEETING MEMO

Date & Time :	March 15, 2019 from 9:00am – 12:00pm
Place	SUNWAY Hotel, Phnom Penh
Attendees :	Mr. Thou Samnang, Deputy Director General, General Directorate of Techniques, MPWT Mr. Khoun Kompheak, Deputy Director, RID/MPWT Mr. Chea Samnang, Chief of ROW Office, RID/MPWT Mr. Hay Chandara, Deputy Chief of ROW Office, RID MPWT Ms. Eam Runthearin, Deputy Director, ICD/MPWT Ms. Eam Sokchea, Deputy Chief of Environment and Public Service Office, PID/MPWT And Other MPWT officials and DPWT officials (see the attendant list in this memo)
Project Team :	Mr. Kumagai, Mr. Ochi, Mr. Watson, Mr. Robinson, Ms. Sophy, Mr. Soheat, Mr. Luch, Mr. Sereyvuth and Mr. Samon
Agenda / Discussion Points :	- To consult the typical roadway cross section (Stage Construction and ROW Management); - To report the training in Japan; and - To discuss the IEP approaches

**1- Opening Remark by Mr. Thou Samnang, Deputy Director General of Techniques, MPWT**

**2- Presentation on outline of “CESCOR” by Mr. Kumagai Takahiro**

Comments, Questions and Answers: None

**3- Presentation on “Typical Roadway Cross Section (Stage Construction and ROW Management)” by Mr. Khuon Kompheak**

Comments, Questions and Answers:

**- Opinion 1 from Mr. Chea Samnang:**

For the merits of Method 2, I would like to add one more merit. This method can reduce the traffic accident; especially during the night traffic.

Regarding the drawings, I would like to request to JICA project team to add the flyover or highway after the road construction completion.



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The DPWT officials and related officials should share your ideas in order to improve the drawings. We are going to add these drawings into the guidelines which will be used in the future.

**- Opinion 2 from Mr. Chea Samnang:**

For the method 3, I think in order to prevent the encroachment into the empty ROW, we should move the installation of utilities to that empty ROW.

**- Opinion 3 from Mr. Kompheak:**

If our participants have more comments or ideas, please share with us because after this project, we will use these drawings for MPWT.

**- Opinion 4 from Mr. Thou Samnang:**

I think we can add recommendation related to effectiveness of each method to the traffic movement with some indicators. Then, we can propose these drawings to the higher management class.

**Reply to Opinion 4 by Mr. Chea Samnang:**

Actually, during the 3<sup>rd</sup> JCC meeting of CESCoR, I have proposed the method 2 to H.E. Tauch Chankol, the project manager. We can build method 2 as sample for ROW management at any Bypass. However, we have not yet discussed with our higher management level at MPWT; while JICA side is ready to welcome our proposal.

**- Opinion 5 from Mr. Chea Samnang:**

Regarding the installation of utilities, I think MPWT should set the exact installing location for utilities companies in order to avoid the confliction of location selection among other utilities companies. Moreover, if one utility company cannot install their utility line due to some obstacles in the ground such as rock block, that company should inform to MPWT the problem and exact location of obstacle. Then, MPWT can inform or warn other utilities companies to avoid that location.

**- Question 1 from Mr. Thou Samnang:**

Based on the definition of expressway, expressway should not be in the conflict with other ways. However, based on the drawings shown here, it seems to be in the conflict with other ways.

**Answer 1 by Mr. Kompheak:**

Actually, MPWT and JICA Project team are thinking about that. We will consider this condition and update the drawings.

**- Question 2 from DPWT official (Kampong Chhnang):**

There is guideline for utilities such as electricity poles and cables. How about the big advertising board crossing the roads, and small advertising boards along the roads?

**Answer 2 by Mr. Kompheak:**





We will think about the location to install the advertising boards in the drawings.

**Added Answer by Mr. Chea Samnang:**

Related to the installation of advertising boards, I would like to share the ideas. We can follow the case in Thailand. All advertising boards should be installed outside the ROW. Some advertising boards are too attractive and have bad impacts; then they can cause the accidents because the drivers are too attracted by those advertising boards.

**- Question 3 from DPWT official (Pursat):**

Based on the sub-decree No.197, all utilities should be installed within 2m from the edge of ROW boundary? Is it fine to change to 6m from the edge of ROW boundary? Then will it be enough for the future development?

**Answer 3 by Mr. Kompheak:**

Yes, based on the sub-decree No.197, it is only 2m from the edge of ROW boundary. However, we will propose the new space with 6m from the edge of ROW boundary because 2m space is not enough even for the foundation of electricity poles. We will propose this new design with 6m from the edge of ROW boundary to be approved by higher management level.

**Added Answer by Mr. Chea Samnang:**

There is no concern about the space of 2m or 6m; however, we concern about the safety and the design of each utility installation. For legal document, we can revise or amend it based on the updated drawings.

As we have mentioned before, we will propose these drawings in the guidelines; therefore, we need the ideas from DPWTs and local officials (who are the practitioners) to improve these drawings.

**- Question 4 from DPWT official (Banteay Meanchey):**

We have discussed only drainage for roads? How about the drainage system from households?

**Answer 4 by Mr. Kompheak:**

I think it is out of our responsibility. It is related to other departments or ministries.

**Added Answer by Mr. Thou Samnang:**

I think in MPWT there is drainage and sewage department. We can work or discuss with them in order to improve the drawings.

**Added Answer by Mr. Chea Samnang:**

This time we didn't invite the officials from departments of techniques, machinery and sewage. We will discuss with CESCoR Project to invite related departments for the further discussion.



**Added Answer by Mr. Kompheak:**

If we have a look at the drawing again, there is actually drainage system in the drawing; but we have not elaborated it. We will discuss and update later.

**3- Presentation on Report for “Training in Japan” by Ms. Eam Sokchea**

Comments, Questions and Answers: None

**4- Presentation on “Pilot Project for Illegal Encroachment Prevention” by Mr. Chea Samnang**

Comments, Questions and Answers:

**- Question 1 from Mr. Chea Samnang:**

I would like to know the opinion from DPWT officials. Do you think we can install the continuous closed fence along the ROW without any complain from local people?

**- Question 2 from DPWT official (Banteay Meanchey):**

Do you mean the installation of fence at the Bypass? I think there is a problem and we will get complains because there will be new gas station or factories. If we install the closed fence, they will complain or ask to have the open fence.

**Answer 1 and 2 by Mr. Chea Samnang:**

Of course, even we install the closed fences. We can get the fence opened if people come to ask the permission from us. Then they need to make the agreement and follow the technical advice from MPWT in case they need to build the access road.

We can get benefits if the people follow our technical advice; we can use their access road for the future road development without spending our time to excavate the land, rebuild the road and our money to pay the compensation.



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IN THE KINGDOM OF CAMBODIA (CESCOR)





**Attendance List**

No	Name	Position	Department/Ministry	Phone
<b>MPWT-RID</b>				
1	Mr. Thou Samnang	Deputy Director General	General Directorate of Techniques, MPWT	
2	Mr. Khuon Kompheak	Deputy Director	RID/MPWT	
3	Mr. Chea Samnang	Chief of ROW Office	RID/MPWT	
4	Mr. Hay Chandara	Deputy Chief of ROW Office	RID/MPWT	
5	Mr. Ray Rom	Chief of Office	RID/MPWT	
6	Mr. Manh Vutha	Deputy Chief of Office	RID/MPWT	
7	Mr. Song Kimheng	Officer	RID/MPWT	
8	Mr. Ngel Sovanarith	Officer	RID/MPWT	
9	Mr. Hok Angkearithvongsa	Officer	RID/MPWT	
<b>MPWT-PID</b>				
10	Ms. Eam Sokchea	Deputy Chief of Office	PID/MPWT	
11	Mr. Ly Kimngorn	Officer	PID/MPWT	
12	Mr. Chheang Monin	Officer	PID/MPWT	
13	Mr. Kong Youreth	Chief of Office	PID/MPWT	
<b>MPWT-ICD</b>				
14	Ms. Eam Runthearin	Deputy Director	ICD/MPWT	

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Address: JICA Project Office, c/o International Cooperation Department, MPWT, Corner Norodom Blvd, Street 106, Phnom Penh, Tel: +855-(0)61 960 213



**DPWT-Pursat Province**

29	Mr. Chhang Hav	Deputy Director	DPWT	
30	Mr. Kang Kimchhun	Chief of Office	DPWT	
<b>Others</b>				
31	Mr. Nomg Chanrakmeng	Interpreter	FirstClass Company	
32	Yem Sakada	Student (intern at MPWT)	ITC	
33	Sok Chira	Student (intern at MPWT)	ITC	
34	Kim Seangveng	Student (intern at MPWT)	ITC	
35	Khoem Vanthay	Student (intern at MPWT)	ITC	
36	Say Noch	Student (intern at MPWT)	ITC	
<b>JICA Cambodia Office</b>				
37	Mr. Iwase Hideaki	Project Formulation Advisor	JICA Cambodia Office	
<b>JICA Project Team_CESCOR</b>				
38	Mr. Robinson Shrestha	Road Design Expert	JICA Project Team	
39	Mr. Kumagai Takahiro	Project Coordinator	JICA Project Team	
40	Mr. Ochi Masaki		JICA Project Team	
41	Mr. James Kazumori WATSON		JICA Project Team	

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**MPWT-DOP**

15	Mr. Eab Ngoun Heng	Chief of Office	DoP/MPWT	
<b>MPWT-Other Departments</b>				
16	Mr. Uk Chantharat	Deputy Chief of Office	Department of Finance/MPWT	
17	Mr. Khim Samet	Officer	Department of Finance/MPWT	
18	Mr. Kheang Yanath	Director	Department of Administration/MPWT	
19	Mr. Kheng Sometha	Chief of Office	MPWT	
20	Mr. Hinson Oudom	Deputy Chief of Office	MPWT	
21	Mr. Tauch Chentra	Officer	MPWT	
<b>DPWT-Battambang Province</b>				
22	Mr. Eap Visoth	Deputy Director	DPWT	
<b>DPWT-Banteay Meanchey Province</b>				
23	Mr. Chea Dararith	Officer	DPWT	
24	Mr. Kim Sovannchetra	Officer	DPWT	
25	Mr. Yong Vandt	Deputy Chief of Office	DPWT	
<b>DPWT-Kampong Chhnang Province</b>				
26	Mr. Ieng Huo	Chief of Public Works Office	DPWT	
27	Mr. Keo Voth	Chief of Office	DPWT	
28	Mr. Khut Khemra	Officer	DPWT	

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42	Ms. Ches Sophy	Project Assistant	JICA Project Team	
43	Mr. Penh Socheat	Technical Assistant	JICA Project Team	
44	Mrs. Keo Sam An	Project Assistant	JICA Project Team	
45	Mr. Bun Sereyvuth	Project Assistant	JICA Project Team	
46	Mr. Mut Samon	Assistant	JICA Project Team	
47	Mr. Preah Loch	Assistant	JICA Project Team	

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THE PROJECT FOR CAPACITY ENHANCEMENT ON ENVIRONMENTAL AND SOCIAL CONSIDERATIONS IN IMPLEMENTING AGENCY IN ROAD SECTOR IN THE KINGDOM OF CAMBODIA (CESCoR)



## Outline of "CESCoR"

1

6th Seminar on Consultation of Standard Drawings for Typical Cross Section of ROW and Report of Training in Japan for ROW Management

By: Mr. Hok Angkearithvongsa, RID, MPWT

SUNWAY Hotel, Phnom Penh  
15th March, 2019

## 5 Project Progress: Taskforce Meeting

- EIA/EMP Taskforce Meeting
  - Conducted 29 times from April 2017 to December 2018
  - Discussed to develop and update REG
  - Considered approval process of REG for MPWT's Decision
- ROW Management Taskforce Meeting
  - Conducted 35 times from May 2017 to March 2019
  - Discussed to develop RMG, RMM and RMD
  - Considering Inter-Ministerial Committee for ROW Management to accelerate for Illegal Encroachment Prevention

Note: EIA: Environmental Impact Assessment, EMP: Environmental Management Plan, REG: Road Environment Guidebook, ROW: Right of Way, RMS: ROW Management System,

## 2 Contents of Presentation

- Project Progress
- Japan Training
- Third Country Technical Exchange
- Seminar
- Pilot Project

## 6 Japan Training

- 1st Japan Training (EIA/EMP): June 13 - 22, 2017 **Completed**
- 2nd Japan Training (ROW Management): Feb 27 - Mar 8, 2018 **Completed**
- 3rd Japan Training (ROW Management): Feb 12 -22, 2019 - **Completed**



Note: EIA: Environmental Impact Assessment, EMP: Environmental Management Plan, ROW: Right of Way

## 3 Project Progress: Status

Overall Goal	ESC in road sector is implemented properly by MPWT.	
Project Purpose	Capacity of MPWT officials on ESC is enhanced through applying REG and RMS	
Output	Output 1	Implementation framework for the project is strengthened based on past experiences and present situation on ESC and ROW management. <b>[Status] Completed (100%)</b>
	Output 2	Implementation framework of EC related to EIA and EMP is strengthened. <b>[Status] Almost Completed (95%)</b>
	Output 3	Implementation framework of SC related to ROW management is strengthened by establishing RMS. <b>[Status] On going (80%)</b>
	Output 4	Capacity of SC required for ROW management is strengthened through OJT. <b>[Status] On going (50%)</b>

Note: REG: Road Environment Guidebook, RMS: ROW Management System, EIA: Environmental Impact Assessment, EMP: Environmental Management Plan



## 7 Third Country Technical Exchange

- 1st Third Country Technical Exchange (EIA/EMP): October 24 - 28, 2017 - **Completed**
- 2nd Third Country Technical Exchange (ROW Management): August to September 2018 - **Completed**
- 3rd Third Country Technical Exchange (IAIA): April 2019 - **Scheduled**



Note: EIA: Environmental Impact Assessment, EMP: Environmental Management Plan, ROW: Right of Way, IAIA: International Association for Impact Assessment

## 4 Project Progress Status: Specific Outcomes

- Output 2: Implementation Framework of Environmental Considerations is strengthened.
- Output 3: Implementation Framework of Social Considerations is strengthened.
- Output 4: Capacity of Social Considerations is strengthened.

Road Environmental Guidebook (REG) has been finalized and will be authorized the decision of MPWT.

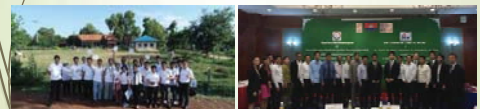


ROW Management System(RMS) is being developed through project activities.

\* RMS is consisted ROW Management Guidelines(RMG), ROW Management Map(RMM) and ROW Management Database(RMD).

## 8 Seminar

- 1st Seminar: May 4, 2017 - **Completed**
- 2nd Seminar: June 6, 2017 - **Completed**
- 3rd Seminar: February 6, 2018 - **Completed**
- 4th Seminar: September 27, 2018 - **Completed**
- 5th Seminar: November 13 2018 - **Completed**
- 6th Seminar: March 2019 - **Ongoing**
- 7th Seminar: July 2019 - **Scheduled**





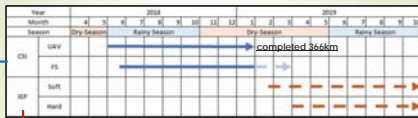
## Pilot Project: Overall

<b>Purpose:</b>	Capacity of Social Considerations (SC) required for ROW management is strengthened as a component of CESCOR Project, funded by JICA
<b>Activity:</b>	<b>Part 1. Current Status Identification (CSI)</b> -UAV Survey (taking aerial photos with UAV) -Office Work (Ortho Images and GIS processing) -Field Survey -Data finalization and Classification <b>Part 2. Illegal Encroachment Prevention (IEP)</b> -Plan for IEP Approaches (Soft and Hard) by Classification -Soft Approach (e.g. PCM and Patrol) -Hard Approach (e.g. ROW poles, Signboard, Fence and Growing tree)
<b>Term:</b>	May 2018 to Sep 2019
<b>Area:</b>	<b>Target Area along National Road No.5 in four Provinces:</b> 1) KAMPONG CHHNANG Province 2) PURSAT Province 3) BATTAMBANG Province 4) BANTEAY MEANCHEY Province



Hand Fan  
Illustration of ROW and Contacts

## Pilot Project :Progress and Area



**Pilot Project for CSI**  
 UAV Survey was completed taking aerial photo for NRS, 366km, from Kampong Chhnang to Banteay Meanchey.

Field Survey will be completed to collect existing encroachment information by April 2019.

**Pilot Project for IEP**  
 Soft and Hard Approaches will be started from March 2019

## Pilot Project: Activities



GIS Training



UAV Flight Training



Field Survey Training

Thank You for Your Attention!





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IN THE KINGDOM OF CAMBODIA (CESCOR)



# Typical Roadway Cross Section (Stage Construction and ROW Management)

1

SEMINAR  
Phnom Penh, 15<sup>th</sup> March, 2019

## 2 Contents of Presentation

- Background
- Purpose of the Presentation
- Development of Roadways
- Recommendation

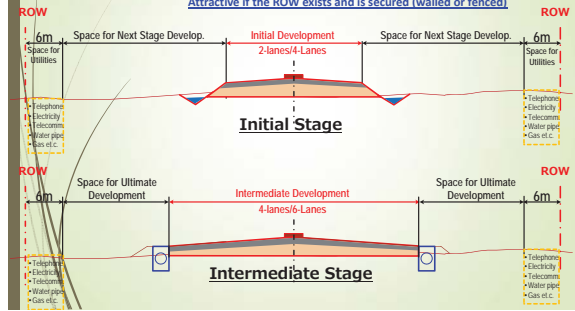
### Purpose of the Presentation

- To share information on the Standard Typical Cross Section
- To share General ideas on the sequential development of roadways (Typical Cross Sections) and management of ROW

## 5 Development of Roadways

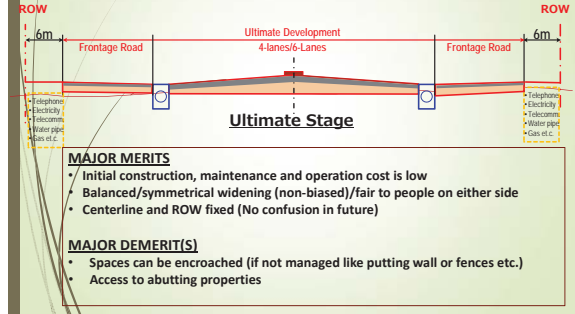
(1) **METHOD-1:** Construct initial stage at the middle of the ROW

Attractive if the ROW exists and is secured (walled or fenced)



## 6 Development of Roadways

(1) **METHOD-1:** Construct initial stage at the middle of the ROW



### MAJOR MERITS

- Initial construction, maintenance and operation cost is low
- Balanced/symmetrical widening (non-biased)/fair to people on either side
- Centerline and ROW fixed (No confusion in future)

### MAJOR DEMERIT(S)

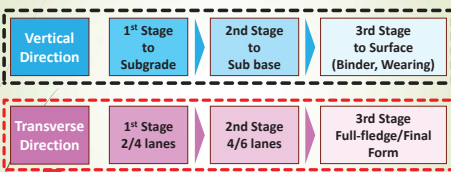
- Spaces can be encroached (if not managed like putting wall or fences etc.)
- Access to abutting properties

## 3 Introduction

- ROW Management (Encroachment) concern of developing countries
- Transportation agency responsible for ROW management
- Full-fledge development cost very high
- Ideal to construct road initially to a level sufficient to meet the immediate requirements of traffic and at a later date reconstruct to a higher standard/final form

## 4 Development of Roadways

Roadway Development (Stage construction)

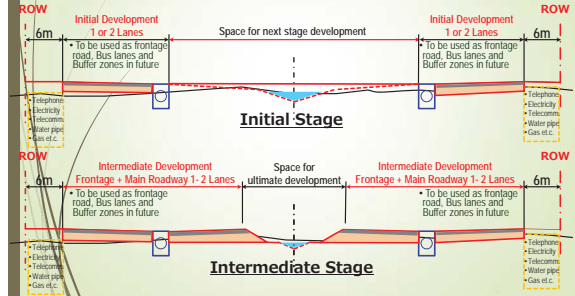


- METHOD-1:** Construct initial stage at the middle of the ROW
- METHOD-2:** Construct initial stage at each side of the ROW
- METHOD-3:** Construct initial stage at one side of the ROW

## 7 Development of Roadways

(1) **METHOD-2:** Construct initial stage at each side of the ROW

Attractive where ROW exists but is not secured (walled or fenced)



### MAJOR MERITS

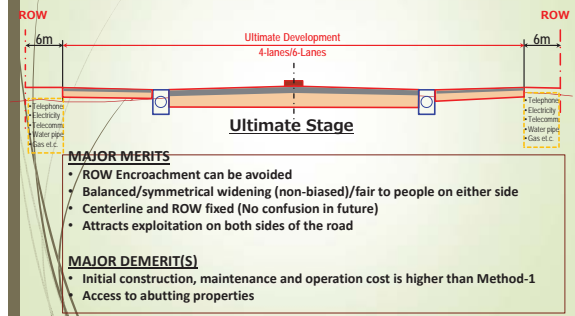
- ROW Encroachment can be avoided
- Balanced/symmetrical widening (non-biased)/fair to people on either side
- Centerline and ROW fixed (No confusion in future)
- Attracts exploitation on both sides of the road

### MAJOR DEMERIT(S)

- Initial construction, maintenance and operation cost is higher than Method-1
- Access to abutting properties

## 8 Development of Roadways

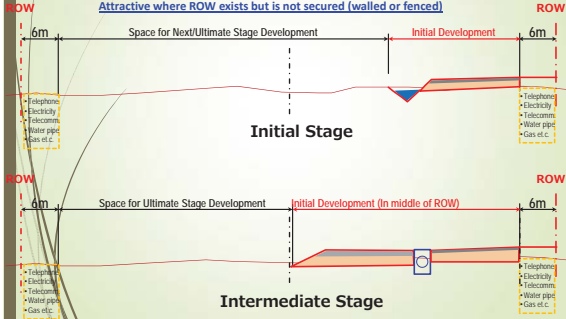
(1) **METHOD-2:** Construct initial stage at each side of the ROW



## 9 Development of Roadways

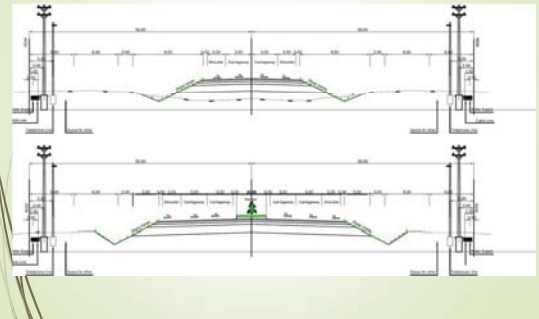
(3) Construct initial stage at one side of the ROW

Attractive where ROW exists but is not secured (walled or fenced)



## 13 Typical Cross Sections

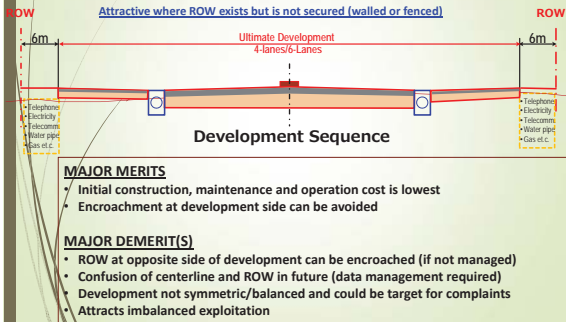
Highway : 60



## 10 Development of Roadways

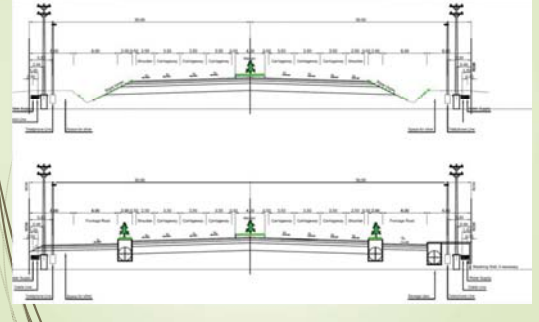
(3) Construct initial stage at one side of the ROW

Attractive where ROW exists but is not secured (walled or fenced)



## 14 Typical Cross Sections

Highway : 60



## 11 Development of Roadways

### Conclusion and Recommendation

- Cross section requirements for roadways vary according to the capacity, level of service to be provided and the alongside land use pattern
- Each roadway section must be individually analyzed and its cross section determined based on the volume and type of projected traffic, existing capacity, desired level of service
- All methods have both advantages and disadvantages. Selection of the optimum method should be done through comprehensive and in-depth study
- Standard Drawings of Typical Cross Sections for planning Expressways and Highways (60m, 50, and 40m) have been prepared under this project and can be referred for road development by MPWT in future. If approved, the drawings will be provided in the appendix of the Design Standard.

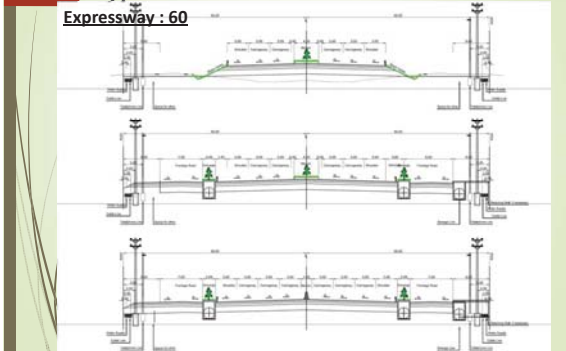
## 15 Development of Roadways

### General Consideration for Provision of Utilities

<b>SAFETY</b>	<ul style="list-style-type: none"> <li>should be provided at MPWT designated space</li> <li>Should not adversely affect roadway constructability, operations, maintenance, and safety</li> <li>All works including maintenance need permit from MPWT</li> </ul>
<b>DESIGN</b>	<ul style="list-style-type: none"> <li>Close coordination with relevant authorities (joint planning/development)</li> <li>Properly designed, installed, operated and maintained</li> <li>Consideration for possible impact on the roadway and its use</li> <li>Fulfill requirement policy of the MPWT</li> </ul>
<b>PLACE &amp; PRESERVENCE</b>	<ul style="list-style-type: none"> <li>Placed in designated location</li> <li>Appropriate measures for protection (erosion)</li> <li>Fulfill requirement policy of the MPWT</li> <li>Keep records and update</li> <li>Maintain visibility for easy identification</li> </ul>

## 12 Typical Cross Sections

Expressway : 60

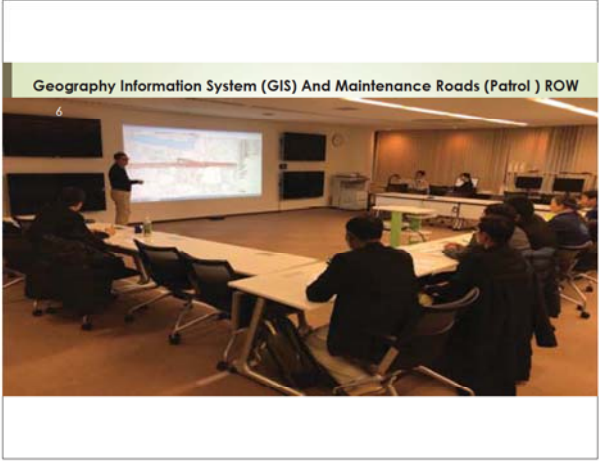


Thank You for Your Attention!

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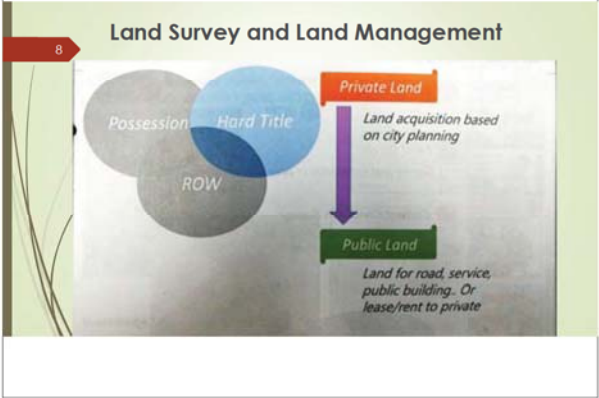
### 2 Content of Presentation

- Activities in Japan
- Lesson learned from the course
  1. Land Survey and Land Management
  2. Land Acquisition Work Flow
  3. ROW Status in Japan
  4. ROW Digitalized Management system (GIS)
  5. Legal Law-Regulation
- Expectations and converting from the cause



### 3 Activities in Japan

No.	Name	Position	Department
1	Mr. Takashi Aoki	Chief of Planning Dept.	Planning & Design Department
2	Mr. Hiroshi Imai	Chief of Surveying Dept.	Surveying & Design Department
3	Mr. Kenji Nakamura	Chief of Construction Dept.	Construction Department
4	Mr. Masahiro Sato	Chief of Maintenance Dept.	Maintenance Department
5	Mr. Tetsuya Tanaka	Chief of Safety Dept.	Safety Department
6	Mr. Yuki Yamamoto	Chief of Environment Dept.	Environment Department
7	Mr. Ryohei Kobayashi	Chief of Information Dept.	Information Department
8	Mr. Shota Matsuda	Chief of Legal Dept.	Legal Department
9	Mr. Daiki Nakagawa	Chief of Finance Dept.	Finance Department
10	Mr. Kaito Suzuki	Chief of General Affairs Dept.	General Affairs Department





## 9 LAND SURVEY

**OBJECTIVE:** determine public / private land boundary  
**DELIVERABLES:** Boundary pole, survey data, etc..

Sample Classification	Map Scale
Urban area	1/200, 1/250
Flat area	1/250, 1/300
Hilly area	1/300, 1/350

## 10 CONTROL POINTS

ORDER	IMAGE
C.O.R.S. Continuous Operating Reference Station	
1 <sup>st</sup> order GCP: 4km (8cm) BM: 150km (2.5mmV5)	
2 <sup>nd</sup> order GCP: 2km (10cm) BM: 150km (5mmV5)	
3 <sup>rd</sup> order GCP: 1.5km (XY10cm, Z30cm) BM: 50km (10mmV5)	

## 13 EFFICIENT MANAGEMENT - ENVIRONMENT

Example of surface assessment of road noise

## 14 EFFICIENT MANAGEMENT - COMPENSATION

Example of system management for right-of-way and building classifications

## LAND ACQUISITION WORK FLOW

- 1 City Planning
- 2 PCM
- 3 Land Survey  
Survey and installation of pole
- 4 Current Condition Survey  
Land, buildings, registration, etc..  
Land / building evaluation
- 5 Confirmation
- 6 Compensation and agreement  
Land sales price, lease title  
demolish price, resettlement price,  
land release price

Down pay: 80%  
Final: 20%

Public outsource  
Private

## Benefits of GIS Use for ROW Management

1. Integration of Various Sorts of Mapping Information
2. Easy Availability and Update of Digitalized Maps
3. Effective Legal ROW Management on Digitalized Maps
4. Easy Restoration of the Boundaries of ROW

## 12 EFFICIENT MANAGEMENT

When land has been transacted from private to public, the responsible body (gov. min, local gov..) should prepare hardware to prevent or make use of the empty land. And the following points should be considered.

1. Indicate the boundary
2. Prevent accidents
3. Patrol
4. Public property registration DB

## 16 Legal Framework of Roads

### Legal Framework Of Roads

Road Structure Ordinance

Class 1



九州自動車道(福岡県)

Class 2



出典: 首都高HP

Class 3



Class 4



### Various Type of the "Right-Of-Way"(ROW)

21



On the River



Surface Road

### Field visit National Route 17, BP, Yono around JCT (Tokyo) Explainer: Metropolitan Expressway Company Limited

22



### ROW Status in Japan (Kumagaya BP)

19



### Various Type of the "Right-Of-Way"(ROW)

20

example: obtained (purchased) land



(Utilized as a parking lot)

### Study Tour @ Hanshin Expressway Company Maintenance Actual Patrols ROW Management

24





25 Study Tour @ Hanshin Expressway Company  
Store Document or Library



26 Tour Temple Change of culture



27 Expectations and converting from the training

- Adequate Legal framework and law enforcement mechanism
- Guideline ROW Management
- Patrolling Crews
- GIS Data base management
- Training DPWT Staff to Trainer
- Public awareness
- Install signboards and pilling boundaries
- Policy for ROW Width Extension

28







### 6th Seminar Pilot Project for Illegal Encroachment Prevention



15<sup>th</sup> March 2019  
Mr. Chea Samnang  
Chief Officer  
ROW Management Office,  
Road Infrastructure Department

1

### 3. Concept of Classification for IEP Approaches

- Set up three types of classification by condition of encroachment  
**(1) Populated, (2) Potential and (3) Non Dense**
- Classify areas for IEP plan based on the number of encroachments
- Classification by **Block unit**

Classification	Abstraction
Populated (Dense)	In many buildings and crowded area
Potential (Semi-Dense)	Some buildings in the block area, but the number of them are not many
Non Dense (Open, Few House)	Some buildings with the empty area between

5

### Contents of the Presentation

- Pilot Project Overall
- Pilot Project for Current Status Identification(CSI)
- Concept of Classification for Illegal Encroachment Prevention (IEP) Approaches
- Criteria for IEP Selection
- Pilot Project Plan for IEP Hard Approaches

2

### 4. Criteria for IEP Selection

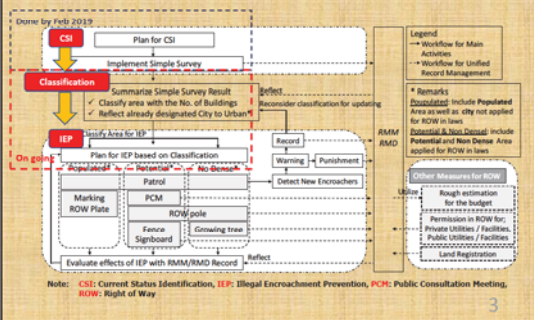
- In order to plan the pilot project for IEP, the Taskforce Member is considering how to;
- Set up "Criteria for IEP Selection" to classify priority area (1)High, (2) Middle and (3)Low
  - Select Priority Area for IEP Approaches.
  - Plan and Implement combination between soft and hard approaches. Record and update IEP Approaches to RMD
  - Consider and Develop the functions for RMD

Criteria 1	Criteria 2	Criteria 3	Criteria 4	Criteria 5
open area	4001	building	1001	wet land
bush	4050	cutting area	4000	rice field
At least 30%	N/A	N/A	N/A	N/A
N/A	At least 1	N/A	N/A	N/A
N/A	N/A	At least 60%	N/A	N/A
N/A	N/A	N/A	at least 80	N/A
N/A	N/A	N/A	N/A	At least 60%
N/A	N/A	N/A	N/A	N/A
	High		Middle	Low

Hard Approaches	ROW Pole, Fence, Signboard	ROW Pole	ROW Pole, ROW Marking Plate	ROW Pole, ROW Marking Plate, Guard Fence	Growing Tree
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6

### 1. Pilot Project Overall



3

### 5. Pilot Project Plan for IEP Hard Approaches

- For Criteria1(Open/Bush Area): Install ROW Pole, Fence and ROW Signboard



7

### 2. Pilot Project Progress for CSI

#### Progress Chart

UAV Survey: 366km, Completed  
Field Survey: 366km, Completed  
Data Encoding: On Going (for RMM and RMD)



#### ROW Management Map (RMM):

To identify Encroachment into ROW on Map

#### ROW Management Database (RMD):

To show Detailed Information of Encroachment  
To count Encroachments for Classification



8

Thank you  
for your attention

8





# WORKSHOP FOR PRACTICE OF ROW MANAGEMENT SYSTEM

THE PROJECT FOR CAPACITY ENHANCEMENT ON  
ENVIRONMENTAL AND SOCIAL CONSIDERATIONS IN  
IMPLEMENTING AGENCY IN ROAD SECTOR IN CAMBODIA  
(CESCOR)

31<sup>ST</sup> JULY, 2019

SUNWAY HOTEL, PHNOM PENH



FOR MORE INFORMATION CONTACT: OFFICE +855(0)61-960-213

## AGENDA

### Workshop for Practice of ROW Management System The Project for Capacity Enhancement on Environmental and Social Considerations in Implementing Agency in Road Sector in Cambodia (CESCoR)

SUNWAY Hotel, Phnom Penh, 31<sup>st</sup> July 2019

Target Participants: DPWTs in Kandal, Kampong Chhnang, Pursat, Battambang and Banteay Meanchey

Time	Program	Content
08:30-08:45	Registration	
08:45-08:50	<b>Cambodian National Anthem</b>	
08:50-08:55	<b>Opening Remarks</b> Mr. Thou Samnang, Deputy Director General of General Directorate of Techniques, MPWT	
08:55-09:25	<b>Presentation on Outline for ROW Management Methods</b> Mr. CHEA Samnang, Office Chief of ROW, RID, MPWT	1. Legal Framework, 2. Structure of CSI (RMD, RMM, UAV and Field survey), 3. Structure of IEP (Hard and Soft Approaches)
09:25-10:10	<b>Presentation on Field Survey for Current Status Identification (CSI)</b> Mr. KAING Theara, Official, RID, MPWT	1. Outline of Field Survey 2. Detailed Procedure for Field survey 3. Data collection and utilization by survey result (data analysis)
10:10-10:25	Coffee Break	
10:25-11:10	<b>Presentation on Type of Illegal Encroachment Prevention (IEP) Approaches</b> Mr. KHAI Saray, Deputy Office Chief of ROW, RID, MPWT	1. Type of IEP approaches (Soft and Hard approach including typical cross section for future development) 2. Procedure for Soft Approaches such as Conduct PCM, Patrol and Provide ROW usage permission
11:10-11:40	<b>Presentation on ROW Management Activity and Plan</b> Mr. CHEA Samnang, Office Chief of ROW, RID, MPWT	1. Priority Activities (CSI, PCM and ROW Pole Installation) 2. Future Development Plan
11:40-11:55	<b>Q&amp;A Session</b>	
11:55-12:00	<b>Closing Remarks</b> Mr. Thou Samnang, Deputy Director General of General Directorate of Techniques, MPWT	
12:00-13:30	<b>Luncheon</b>	
13:30-14:00	<b>Comprehension Test for Participants</b>	
14:00-14:30	<b>Presentation on Implementation of Field Survey (CSI) and Patrol (IEP)</b> JICA Project Team	1. Procedures for Field Survey 2. Procedures for Patrol 3. How to use Tablet App for Field survey and Patrol
14:30-15:00	<b>Result of Comprehension Test</b>	
15:00-16:30	<b>Field Practice for Field Survey and Patrol at MPWT South Gate, JICA Project Team</b>	

Note: All Presentations will be English, verbal speech in Khmer





**WORKSHOP FOR PRACTICE OF ROW MANAGEMENT SYSTEM**

**DISCUSSION MEMO**

Date & Time:	July 31, 2019 from 9:00am – 12:00pm
Place	SUNWAY Hotel, Phnom Penh
Attendees:	Mr. Thou Samnang, Deputy Director General, General Directorate of Techniques, MPWT Mr. Khoun Kompheak, Deputy Director, RID/MPWT Mr. Chea Samnang, Chief of ROW Office, RID/MPWT Mr. Hay Chandara, Deputy Chief of ROW Office, RID MPWT Ms. Oum Sokvasey, Deputy Chief Officer, ICD/MPWT Ms. Eam Sokchea, Deputy Chief of Environment and Public Service Office, PID/MPWT And Other MPWT officials and DPWT officials (see the attendant list in this memo)
Project Team:	Dr. Tsuchida, Mr. Kumagai, Mr. Watson, Mr. Kiyota, Ms. Sophy, Mr. Socheat, Mr. Luch, Mr. Sereyvuth and Mr. Samon
Agenda / Discussion Points:	- To train the DPWTs' Officials on ROW management System through the presentations from ROW TF members (MPWT's Officials); - To conduct the field practice for field survey and patrol.

**1- Opening Remark by Mr. Thou Samnang, Deputy Director General of Techniques, MPWT**

**2- Presentation on outline of ROW Management Methods by Mr. Chea Samnang**

Comments, Questions and Answers:

**- Opinion 1 from Deputy Director of Kandal DPWT:**

We have known that ROW is a hot issue. Each province has difficulties to deal with it. It is very hard for Kandal DPWT because Kandal surrounds the Phnom Penh city and has many National Roads such as No.1, 2, 3, 4,5, 6, etc. Also, Kandal has many belt roads from Phnom Penh city. If we use drone to capture the situation of ROW in Kandal province. You will see that ROW is full of buildings. Although we have a Master Plan classifying the type of land, it is still difficult to manage. Right now, we have many hotels from Chinese Investment. They use heavy equipment destroying the embankment of ROW. When we complain to them, they said that they have brought a lot of investment to this province, we should cooperate with them. On another hand, we have worked also



with local authorities to deal with illegal encroachment of ROW and land filling which its elevation is higher than the road's; but local authorities cannot touch the local people due to the impact on the election.

### 3- Presentation on Field Survey for Current Status Identification (CSI) by Mr. Kaing Theara

Comments, Questions and Answers:

**- Opinion 1 from Mr. Thou Samnang (Chairman):**

MPWT has the data of 360° Video of roads and buildings (including the GPS and central line). I am not sure if these data can be used with the database of project.

**- Opinion 2 from Mr. Kompheak:**

Regarding the determination of center lines (existing one), I hope the DPWT will cooperate with MPWT to determine the central lines in order to avoid any bad impact on the people living on road; specially when central line moves to only side of road.

**- Opinion 3 from Deputy Director of Kandal DPWT:**

DPWT does not have the data of the existing center lines. I think MPWT should have all of these data because MPWT has data of foreign projects.

We should have special sub-decree to mention the clear length of ROW in the city and outside the city. Local people don't know the law. They always say why the people in the city or urban areas can build the houses very close to the road; and they living in the rural areas need to build houses far from the road.

Additionally, we should have a law to fine or punish the illegal ROW users (I am not sure if we already have such kind of law).

**- Opinion 4 from Mr. Chea Samnang:**

We understand that DPWT has difficulties; we at this level also have difficulties. Talking about issuing the special sub-decree is too far from our competence. Most of projects have solved the compensation only inside the COI.

For our workshop today is only to make us aware of current situation, and illegal encroachment prevention. Based on these, we can make a report to our higher-ranking people.

**- Opinion 5 from Mr. Thou Samnang (Chairman):**

ROW is a hot issue and we have lost a lot of budget due to road damage. DPWT can prepare report and submit to MPWT. Only verbal complaint, MPWT does not know your effort. With the report, MPWT can be aware of this and will try to solve.





**- Opinion 6 from Mr. Chea Samnang:**

Actually, Kandal DPWT already submitted the report to MPWT. In the report, DPWT asked for the lawyer to solve the problem. MPWT already took this case.

**- Question 1 from Kampong Chhnang DPWT:**

Does the map include the record of compensation? So far, we have compensation only inside the COI (20m from central line). How about the another 10m, why there is no compensation?

**- Answer 1 by Mr. Kaing Theara:**

Regarding the compensation works, it is under MEF. Our work is only to capture the current status. Then, we can use it to compare the situation in the future.

**4- Presentation on Type of Illegal Encroachment Prevention (IEP) Approaches by Mr. Khai Saray:**

Comments, Questions and Answers: None

**5- Presentation on ROW Management Activity and Plan by Mr. Chea Samnang**

Comments, Questions and Answers:

**- Question 1 from Deputy Director of Kandal DPWT:**

It is hard to do regular Patrol because we do not have enough budget. Then, still new houses are inside the ROW. What is the process of Patrol? For the mapping, after we clear the COI then people start to come back. Do we have any committee to stop them?

**- Answer 1 from Mr. Chea Samnang:**

Our project has prepared the ROW Management Guidelines (RMG), within this year so we can use. The patrol process is also mentioned in the RMG. Of course, patrol requires a lot of money. In case of AZ company which took after the National Road No.4. They spent about 1.5million USD per year for patrol. If we propose such kind of among to higher level, I am sure this proposal will be rejected. My presentation here hopefully can reduce the compensation cost in the future.

For Mapping, we create it mainly for the management works; not for compensation. However, it is a good evidence to report to MEF to prepare the budget for resettlement and to our local authorities to take action to prevent the illegal encroachment.



**\*\*Afternoon session:**

**1- Comprehensive Test:**

**2- Presentation on Implementation of Field Survey (CSI) and Patrol (IEP) by JICA Team (Cam Info Service Company):**

Question and Answer:

**Participant:** Can we know distance between “Current Location” and “target CSI point”?

**JICA Team:** There is a measurement tool that we can estimate appreciate distance between “Current Location” and “target CSI point”.

**Participant:** Can surveyor upload photo into the application?

**JICA Team:** Application does not allow surveyor to upload photo into the application, the photo can be captured through Camera build-in application only.

**Participant:** Coordination system of captured photo is same with coordination of “Current Location”, it is not coordination system of CSI point, right?

**JICA Team:** No, it is not. Coordination system of captured photo is same with coordination of CSI point.

**Participant:** Can we track or get direction between our current location and CSI point?

**JICA Team:** We don’t have function to track or get direction between our current location and CSI point.

**Participant:** As the application can work offline, how can captured photo contain coordination system?

**JICA Team:** Captured photo has information of coordination system when we turn on GPS on tablet.



THE PROJECT FOR CAPACITY ENHANCEMENT  
ON ENVIRONMENTAL AND SOCIAL CONSIDERATIONS  
IN IMPLEMENTING AGENCY IN ROAD SECTOR  
IN THE KINGDOM OF CAMBODIA (CESCOR)



**Participant:** Why are there 4 times patrol in “IEP” tap? Is it possible to have more than 4 times patrol?

**JICA Team:** We will discuss with JICA team to clarify on this matter.

**3- Field Practice for Field Survey and Patrol at MPWT South Gate:**





**Date:** 31<sup>st</sup> July, 2019

**Time:** 8:30am-16:00pm

**Location:** at SUNWAY Hotel

**Topic:** The Workshop for Practice of ROW Management System

**Attendance List**

No	Name	Position	Department/Ministry	Phone
<b>MPWT-RID</b>				
1	Mr. Thou Samnang	Deputy Director General	General Directorate of Techniques, MPWT	
2	Mr. Khuon Kompeak	Deputy Director	RID/MPWT	
3	Mr. Chea Samnang	Chief of ROW Office	RID/MPWT	
4	Mr. Hay Chandara	Deputy Chief of ROW Office	RID/MPWT	
5	Mr. Khai Saray	Deputy Chief of ROW Office	RID/MPWT	
6	Mr. Sokun Piseth	Deputy Chief of Office	RID/MPWT	
7	Mr. Chak Borith	Chief Officer	RID/MPWT	
8	Mr. Kaing Theara	Officer	RID/MPWT	
9	Mr. Sao Premarak	Deputy Chief of Office	RID/MPWT	
10	Mr. Manh Vutha	Deputy Chief of Office	RID/MPWT	
11	Mr. Song Kimheng	Officer	RID/MPWT	
12	Mr. Sok Chandy	Officer	RID/MPWT	
13	Mr. Sour Keasithising	Officer	RID/MPWT	
<b>MPWT-PID</b>				
14	Ms. Eam Sokchea	Deputy Chief of Office	PID/MPWT	
15	Mr. Kong Youreth	Chief Officer	PID/MPWT	
16	Mr Oeng Kimhak	Deputy Chief Officer	PID/MPWT	

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CTI Engineering International Co., Ltd. (CTII) Environment and Social Infrastructure Consultant Co., Ltd. (ESIC) Hanshin Expressway Company Limited (HEX) Joint Venture

Address: JICA Project Office, c/o International Cooperation Department, MPWT, Corner Norodom Blvd, Street 106, Phnom Penh, Tel: +855-(0)61 960 213



<b>Cam Info Service</b>			
36	Mr. Sous Thidet	App developer	CIS
37	Mr. Sun Socheat	App Developer	CIS
38	Mr. Chek Sophal	App Developer	CIS
<b>JICA Project Team_CESCO</b>			
39	Dr. Tsuchida Takayuki	Team Leader	JICA Project Team
40	Mr. Kumagai Takahiro	Project Coordinator	JICA Project Team
41	Mr. Kiyota Daisaku		JICA Project Team
42	Mr. James Kazumori WATSON		JICA Project Team
43	Mr. Watanabe		
44	Ms. Ches Sophy	Project Assistant	JICA Project Team
45	Mr. Penh Socheat	Technical Assistant	JICA Project Team
46	Mr. Bun Sereyvuth	Project Assistant	JICA Project Team
47	Mr. Mut Samon	Assistant	JICA Project Team
48	Mr. Preah Loch	Assistant	JICA Project Team

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<b>MPWT-ICD</b>				
17	Ms. Oum Sokvasey	Chief Officer	ICD/MPWT	
18	Mr. Peang Samoeun	Chief Officer	ICD/MPWT	
<b>DPWT-Kandal Province</b>				
19	Mr. On Raksmeay	Deputy Director	DPWT	
20	Mr. Duong Vannak	Deputy Officer	DPWT	
<b>DPWT-Battambang Province</b>				
21	Mr. Eap Visoth	Deputy Director	DPWT	
22	Mr. San Sereisith	Chief Officer	DPWT	
<b>DPWT-Banteay Meanchey Province</b>				
23	Mr. Chea Dararith	Officer	DPWT	
24	Mr. Kim Sovannchetra	Officer	DPWT	
25	Mr. Ou Smith	Officer	DPWT	
<b>DPWT-Kampong Chhnang Province</b>				
26	Mr. Chhay Leaphea	Deputy Director	DPWT	
27	Mr. Ieng Huo	Chief of Public Works Office	DPWT	
28	Mr. Khut Khemra	Officer	DPWT	
29	Mr. Leng Ratha	Officer	DPWT	
<b>DPWT-Pursat Province</b>				
30	Mr. Sy Sereyvath	Officer	DPWT	
31	Mr. Kang Kimchhun	Chief of Office	DPWT	
32	Mr. Bun Soupheng	Officer	DPWT	
<b>Others</b>				
33	Ms. Kheng Chanchoronay	Student (intern at MPWT)	ITC	
34	Ms. Sreang Sreymom	Student (intern at MPWT)	ITC	
35	Mr. Hean Kongheng	Student (intern at MPWT)	ITC	

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# CESCOr PROJECT INTRODUCTION

THE PROJECT FOR CAPACITY ENHANCEMENT ON ENVIRONMENTAL AND SOCIAL CONSIDERATIONS IN IMPLEMENTING AGENCY IN ROAD SECTOR IN THE KINGDOM OF CAMBODIA

## Table of Contents

- CESCOr Project Introduction
- ROW Management
- Pilot Project

# PROJECT OUTLINE

<b>Overall Goal</b>	ESC in road sector is implemented properly by MPWT.
<b>Project Purpose</b>	Capacity of MPWT officials on ESC is enhanced through applying REG and RMS
<b>Output 1</b>	Implementation framework for the project is strengthened based on past experiences and present situation on ESC and ROW management.
<b>Output 2</b>	Implementation framework of EC related to EIA and EMP is strengthened.
<b>Output 3</b>	<b>Implementation framework of SC related to ROW management is strengthened by establishing RMS</b>
<b>Output 4</b>	Capacity of SC required for ROW management is strengthened through OJT.

Note: REG: Road Environment Guideline, RMS: ROW Management System, EIA: Environmental Impact Assessment, EMP: Environmental Management Plan

# OUTLINE

<b>Output 3:</b>	<b>Implementation framework of SC related to ROW management is strengthened by establishing RMS</b>
<b>PURPOSE:</b>	Capacity of Social Considerations (SC) required for ROW management is strengthened as a component of CESCOr Project, funded by JICA
<b>ACTIVITY:</b>	<ol style="list-style-type: none"> <li>1) Create RMG (ROW Management Guideline)</li> <li>2) Create RMM/RMD as a result of Pilot Project</li> <li>3) Create RMS-TP and Capacity building training to MPWT and DPWT</li> </ol>
<b>METHOD:</b>	Specify a area to implement a pilot project to study the feasibility of the system. The system will be applied to NR5 has been selected for the rapid development. Target Area along National Road No.5 in four Provinces:
<b>TARGET AREA:</b>	<ol style="list-style-type: none"> <li>1) KAMPONG CHHNANG Province</li> <li>2) PURSAT Province</li> <li>3) BATTAMBANG Province</li> <li>4) BANTEAY MEANCHHEY Province</li> </ol>

# CESCOr PROJECT INTRODUCTION

## PROJECT OUTPUTS

### Project Period:

The project has been funded from JICA committed for the period from Jan. 2017 to Dec. 2019.

### Project Goal:

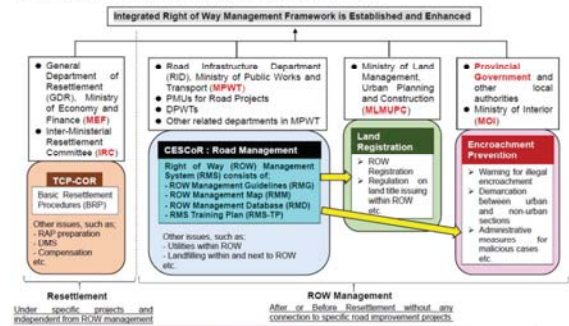
Environmental and Social Consideration (ESC) in road sector is implemented properly by MPWT.

### Project Purpose:

Capacity of MPWT officials on ESC is enhanced through applying Road Environmental Guidelines (REG) and Road Management System (RMS).

# INTEGRATED ROW MANAGEMENT FRAMEWORK

Chart: ROW Management and Target Area of CESCOr (including activities on EIA and EMP)



# ROW MANAGEMENT



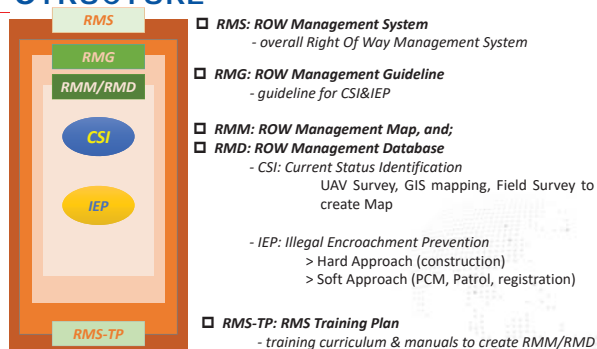
## LEGAL FRAMEWORK FOR RIGHT OF WAY(ROW)

Cambodia ROW means state land along the road with fixed distances from the centerline of existing roads for the future development.

Road level		ROW Dimensions	
		Ministerial Orders(※1)	Sub-Decree (※2)
1-digit Number National Roads	NR1, 4 and 5	30 m(※3)	30 m(※3)
	Others	25 m(※3)	
2-digits Number National Roads		25 m(※3)	25 m(※3)
Provincial roads		20 m(※3)	Not specified
Commune Roads		15m(※3)	Not specified

※1 Ministerial Orders No. 06, 1999,  
 ※2 Sub-Decree No.197, 2009, ※3 length from the centerline

## STRUCTURE



## CSI ROLE

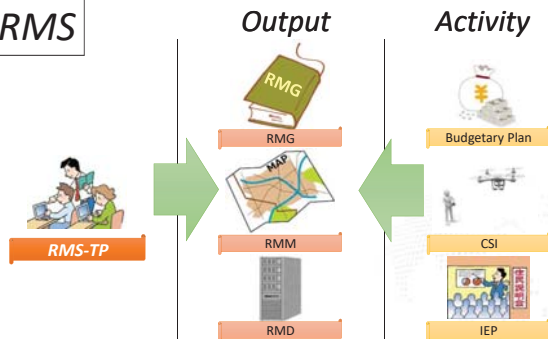
ITEM		MPWT	DPWT	LOCAL AUTHORITY
KICKOFF MTG	Arrangement	✓	✓	
	Implementation	✓	✓	✓
	Flight permission	✓	✓	✓
UAV SURVEY	Flight plan	✓		
	UAV survey	✓	✓	
	Supervision (for outsourcing)	✓		
OFFICE WORK	Image processing	✓		
	Mapping (data production)	✓		
FIELD SURVEY	FS permission	✓	✓	✓
	Field survey	✓	✓	
	Supervision	✓		
GIS	data finalization	✓		

## IEP ROLE

ITEM		MPWT	DPWT	Local Authority	MLMUPC	OTHER
Classification		✓				
Raise awareness	1) PCM	✓	✓	✓		
	2) High school / University	✓				✓
	3) Local government office	✓	✓	✓	✓	
Monitoring & intervention	1) Regular patrol	✓	✓	✓		
	2) Collaborating w/ local authorities	✓	✓	✓		
	3) Appealing to court	✓	✓	✓		✓
Permission & Registration	1) ROW permit	✓	✓	✓		
	2) ROW registration	✓	✓	✓	✓	
	3) Access road permit	✓	✓			✓
Supervision	1) Record of "raising awareness"	✓	✓			
	2) Record of "Monitoring"	✓	✓			
	3) Record of "Permission"	✓	✓			

## CONCEPT

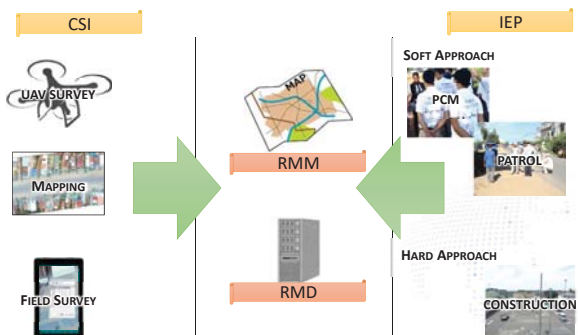
### RMS



## RMG

- GUIDELINE WHICH INDICATES...
  - Policy
  - Objectives
  - Scope of work
  - Related organizations
  - CSI work procedure and manual
  - IEP work procedure and manual
  - Outsourcing TOR
  - ROW development

## RMM & RMD



## RMS-TP AND TRAINING

- TRAINING PLAN WHICH INCLUDES...
  - Curriculum
  - schedule
  - Content of subject
- TRAINING FROM JICA TO MPWT
- TRAINING FROM MPWT TO DPWT...
  - Today

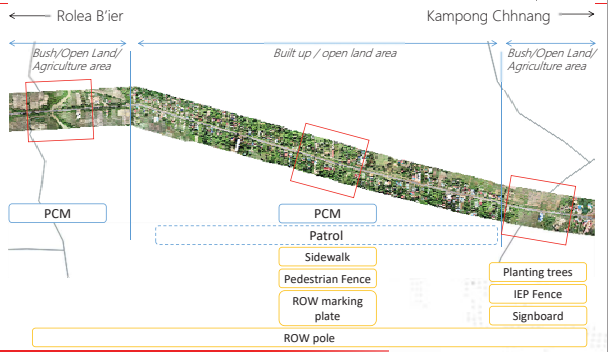


# PILOT PROJECT



17

# IEP TARGET AREA



# CSI TARGET AREA



# IEP WORK PROGRESS

		APRIL	MAY	JUNE	JULY	AUG	SEP
SOFT APPROACH	PCM 1	●					
	PCM 2		●				
	Patrol				●	■	■
HARD APPROACH	K/O MTG	●					
	Construction			■	■	■	■



# CSI WORK PROGRESS

**PROGRESS CHART**

- UAV Survey** 100%: 250 flights
- Image Processing** 100%: 36,600,000m<sup>2</sup>
- Data Production** 100%: 33625 points
- Field Survey** 100%: 25248 ground photos
- Data Finalization** 60%: correcting errors...

**ROW MANAGEMENT MAP (RMM):**  
To Identify Encroachment into ROW on Map

**ROW MANAGEMENT DATABASE (RMD):**  
To show Detailed Information of Encroachment  
To count Encroachments for Classification

# IEP TARGET AREA



THANK YOU! សូមអរគុណ



23

# FIELD SURVEY FOR CSI (CURRENT STATUS IDENTIFICATION)

THE PROJECT FOR CAPACITY ENHANCEMENT ON ENVIRONMENTAL AND SOCIAL CONSIDERATIONS IN IMPLEMENTING AGENCY IN ROAD SECTOR IN THE KINGDOM OF CAMBODIA

## OUTLINE

2

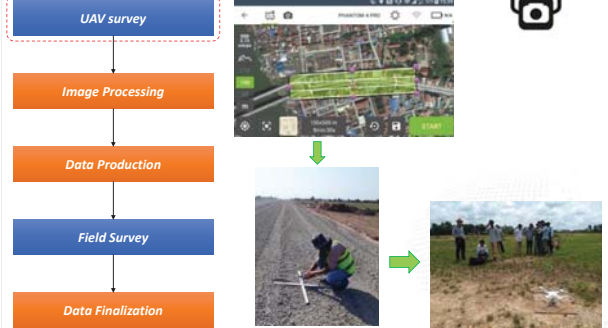
## CSI WORK CONTENTS

### Kick-off Meeting

- To explain the work purpose, content and schedule to the local authorities.



## CSI WORK CONTENTS



## GENERAL

- Current Status Identification (CSI) focuses on data collection related to situation of right of way along national roads and provincial roads across the country in order to creating right of way maps and database as baseline for effective right of way management.
- The purpose of CSI is to study on a current situation of ROW management and developing a ROW current situation map as a baseline so that appropriate measures can be applied for effective ROW management and encroachment prevention.
- The CSI work covers on all national roads under management of MPWT. A primary focus for the CSI is 1-digit national roads of which information is to be compiled on a ROW management map. After the completion of the map for the 1-digit national roads, 2-digit national roads will be targeted.

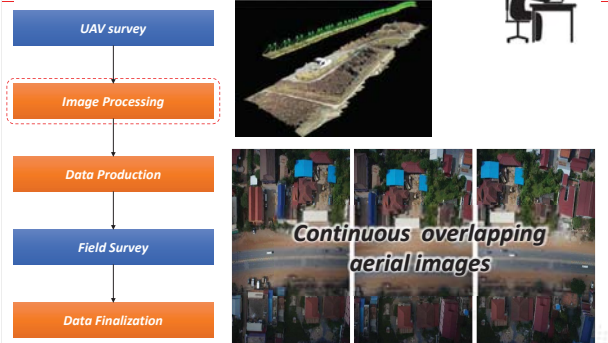
## ORGANIZATION

Main contents of CSI are:

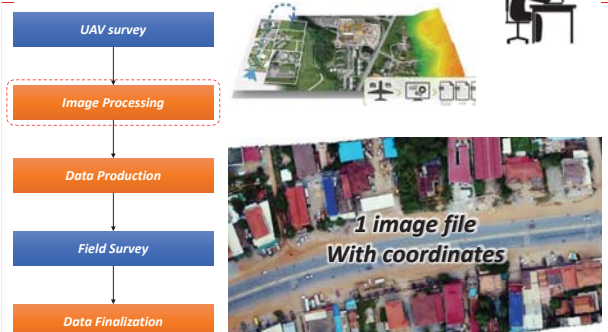
- 1) UAV survey,
- 2) data processing and
- 3) field survey, which is consisted data processing for Map and preparing survey sheet.

RID & DPWT should understand roles and collaborate with each organization to collect basic information through the surveys.

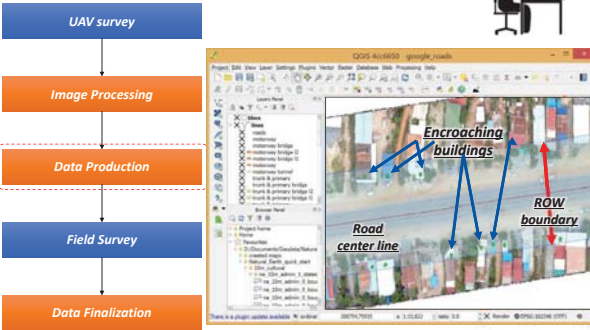
## CSI WORK CONTENTS



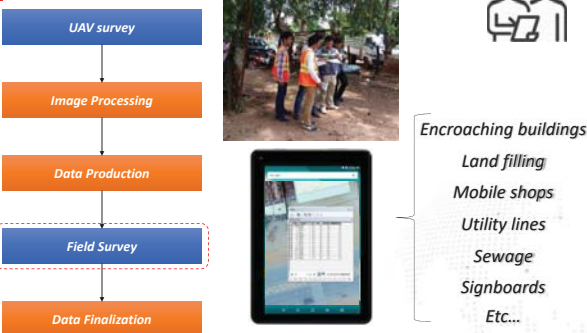
## CSI WORK CONTENTS



## CSI WORK CONTENTS



## CSI WORK CONTENTS



## CSI WORK CONTENTS



## CSI ROLE

	ITEM	MPWT	DPWT	LOCAL AUTHORITY
KICKOFF MTG	Arrangement	✓	✓	
	Implementation	✓	✓	✓
UAV SURVEY	Flight permission	✓	✓	✓
	Flight plan	✓		
	UAV survey	✓	✓	
OFFICE WORK	Supervision (for outsourcing)	✓		Support
	Image processing	✓		
FIELD SURVEY	Mapping (data production)	✓		
	FS permission	✓	✓	✓
GIS	Field survey	✓	✓	
	Supervision	✓		
	data finalization	✓		

## PREPARATION FOR FIELD SURVEY



## PERMISSIONS - SAMPLE -

Request from JICA project to MPWT

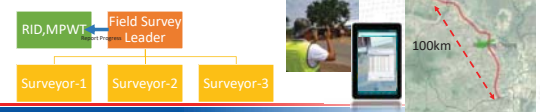
Request for Drone survey from MPWT

Permission from Provincial Office

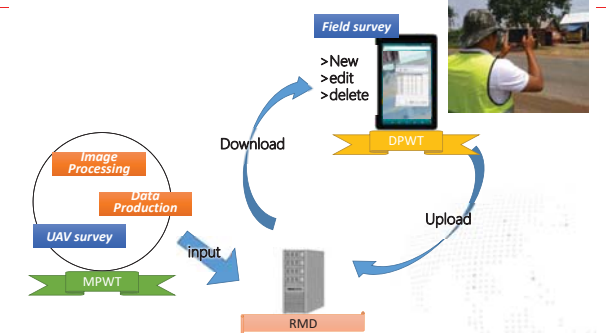
## SURVEY TEAM ARRANGEMENT

About team arrangement for Field Survey, the assumption has been considered based on the result of pilot project.

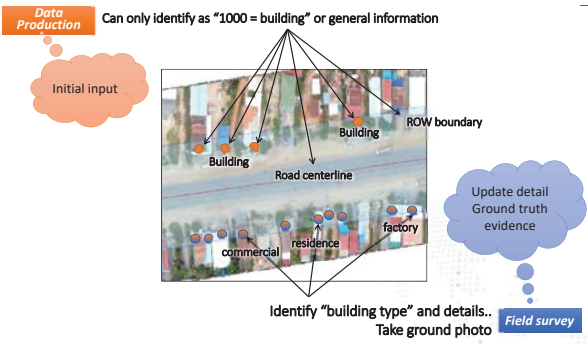
- Field Survey Leader: **1 person** will be assigned to manage Field Survey Team from MPWT or DPWT.
- Field Surveyors: **3 persons** for 1 team will be assigned to implement Field Survey from DPWT. The team could complete 100km within 3 months.
- Team arrangement could be considered depend on scale and priority of road improvement project.



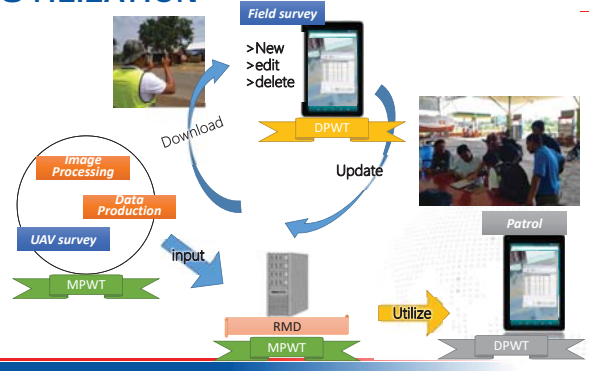
## SYSTEM



# CONCEPT



# UTILIZATION



# CSI DATA COLLECTION LIST

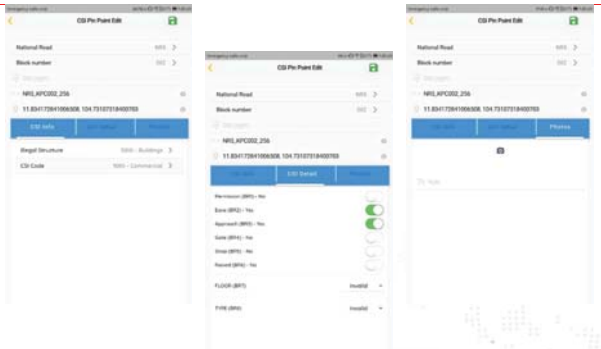
Data Production	Field Survey																																																																																																																																																										
<p>CSI point data code list</p> <table border="1"> <tr><td>1000</td><td>Building</td></tr> <tr><td>6000</td><td>City Center</td></tr> <tr><td>6100</td><td>1st digit NR</td></tr> <tr><td>6110</td><td>1st digit NR Bypass</td></tr> <tr><td>6200</td><td>2nd digit NR</td></tr> <tr><td>6210</td><td>2nd digit NR Bypass</td></tr> <tr><td>6300</td><td>3rd digit NR</td></tr> <tr><td>6310</td><td>3rd digit NR Bypass</td></tr> <tr><td>6999</td><td>Other</td></tr> <tr><td>8000</td><td>NO USE</td></tr> <tr><td>8001</td><td>Flight block</td></tr> <tr><td>8003</td><td>Station block</td></tr> <tr><td>8004</td><td>ROW boundary</td></tr> <tr><td>8004</td><td>CDI boundary</td></tr> <tr><td>8500</td><td>Commune boundary</td></tr> <tr><td>8510</td><td>Province boundary</td></tr> <tr><td>8511</td><td>International boundary</td></tr> <tr><td>8999</td><td>Other</td></tr> </table> <p>CSI line &amp; area data code list</p> <table border="1"> <tr><td>1000</td><td>Residence</td></tr> <tr><td>1000</td><td>Residence/Commercial</td></tr> <tr><td>1000</td><td>Commercial</td></tr> <tr><td>1000</td><td>Shed</td></tr> <tr><td>1000</td><td>Temporary shop</td></tr> <tr><td>1000</td><td>Building under construction</td></tr> <tr><td>1000</td><td>Factory</td></tr> <tr><td>1000</td><td>Petro station</td></tr> <tr><td>1000</td><td>Public office</td></tr> <tr><td>1010</td><td>School public</td></tr> <tr><td>1010</td><td>School private</td></tr> <tr><td>1010</td><td>Pagoda</td></tr> <tr><td>1010</td><td>Health center</td></tr> <tr><td>1010</td><td>Mobile cart</td></tr> <tr><td>1999</td><td>Other</td></tr> <tr><td>2000</td><td>Approach to building</td></tr> <tr><td>2000</td><td>Access Road</td></tr> <tr><td>2000</td><td>Land filling</td></tr> <tr><td>2000</td><td>Open Area</td></tr> <tr><td>2000</td><td>Parking</td></tr> <tr><td>2999</td><td>Other</td></tr> <tr><td>3100</td><td>Signboard public</td></tr> <tr><td>3110</td><td>Signboard private</td></tr> <tr><td>3200</td><td>Street Light</td></tr> <tr><td>3300</td><td>Pylon L</td></tr> <tr><td>3310</td><td>Pylon R</td></tr> <tr><td>3400</td><td>Cemetery</td></tr> <tr><td>3500</td><td>Private drainage</td></tr> <tr><td>3600</td><td>Well</td></tr> <tr><td>3700</td><td>KM post</td></tr> <tr><td>3800</td><td>PCW pole</td></tr> <tr><td>3910</td><td>CDI pole</td></tr> <tr><td>3990</td><td>Control point (GCP)</td></tr> <tr><td>3910</td><td>Benchmark (BM)</td></tr> <tr><td>3999</td><td>Other</td></tr> <tr><td>4000</td><td>Post in remarks</td></tr> <tr><td>4599</td><td>Other</td></tr> <tr><td>5000</td><td>PCM</td></tr> <tr><td>5100</td><td>CP hard approach</td></tr> <tr><td>5999</td><td>Post in remarks</td></tr> <tr><td>5999</td><td>Other</td></tr> </table>	1000	Building	6000	City Center	6100	1st digit NR	6110	1st digit NR Bypass	6200	2nd digit NR	6210	2nd digit NR Bypass	6300	3rd digit NR	6310	3rd digit NR Bypass	6999	Other	8000	NO USE	8001	Flight block	8003	Station block	8004	ROW boundary	8004	CDI boundary	8500	Commune boundary	8510	Province boundary	8511	International boundary	8999	Other	1000	Residence	1000	Residence/Commercial	1000	Commercial	1000	Shed	1000	Temporary shop	1000	Building under construction	1000	Factory	1000	Petro station	1000	Public office	1010	School public	1010	School private	1010	Pagoda	1010	Health center	1010	Mobile cart	1999	Other	2000	Approach to building	2000	Access Road	2000	Land filling	2000	Open Area	2000	Parking	2999	Other	3100	Signboard public	3110	Signboard private	3200	Street Light	3300	Pylon L	3310	Pylon R	3400	Cemetery	3500	Private drainage	3600	Well	3700	KM post	3800	PCW pole	3910	CDI pole	3990	Control point (GCP)	3910	Benchmark (BM)	3999	Other	4000	Post in remarks	4599	Other	5000	PCM	5100	CP hard approach	5999	Post in remarks	5999	Other	<p>CSI point data code list</p> <table border="1"> <tr><td>1000</td><td>Building</td></tr> <tr><td>6000</td><td>City Center</td></tr> <tr><td>6100</td><td>1st digit NR</td></tr> <tr><td>6110</td><td>1st digit NR Bypass</td></tr> <tr><td>6200</td><td>2nd digit NR</td></tr> <tr><td>6210</td><td>2nd digit NR Bypass</td></tr> <tr><td>6300</td><td>3rd digit NR</td></tr> <tr><td>6310</td><td>3rd digit NR Bypass</td></tr> <tr><td>6999</td><td>Other</td></tr> <tr><td>8000</td><td>NO USE</td></tr> <tr><td>8001</td><td>Flight block</td></tr> <tr><td>8003</td><td>Station block</td></tr> <tr><td>8004</td><td>ROW boundary</td></tr> <tr><td>8004</td><td>CDI boundary</td></tr> <tr><td>8500</td><td>Commune boundary</td></tr> <tr><td>8510</td><td>Province boundary</td></tr> <tr><td>8511</td><td>International boundary</td></tr> <tr><td>8999</td><td>Other</td></tr> </table>	1000	Building	6000	City Center	6100	1st digit NR	6110	1st digit NR Bypass	6200	2nd digit NR	6210	2nd digit NR Bypass	6300	3rd digit NR	6310	3rd digit NR Bypass	6999	Other	8000	NO USE	8001	Flight block	8003	Station block	8004	ROW boundary	8004	CDI boundary	8500	Commune boundary	8510	Province boundary	8511	International boundary	8999	Other
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THANK YOU FOR YOUR ATTENTION!!

# DATA COLLECTION



# DATA COLLECTION





# IEP (ILLEGAL ENCROACHMENT PREVENTION) APPROACHES

THE PROJECT FOR CAPACITY ENHANCEMENT  
ON ENVIRONMENTAL AND SOCIAL CONSIDERATIONS  
IN IMPLEMENTING AGENCY IN ROAD SECTOR  
IN THE KINGDOM OF CAMBODIA

## OUTLINE

# APPROACH METHODS

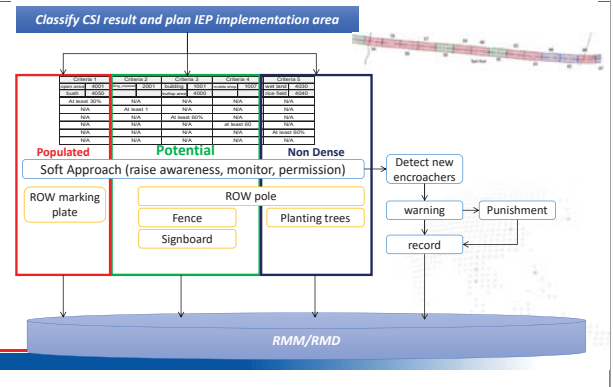
## SOFT & HARD APPROACH

Hard Approach			Soft Approach		
New Road Design	Installing Facilities	Permission and Registration	Monitoring and Intervention	Raising awareness	
Constructing sub-road as ROW boundary	Digging channels as ROW boundary Pole Signboard	ROW marking plate Access road permit	Appealing to the court ROW use permit	Local governmental official Regular patrol activities	Local people High school and university students
Road from the edge of ROW boundary and keep empty space in the middle	Fence Growing Tree	ROW registration	Collaborating with local authorities		

## GENERAL

- ROW management map is developed using the data collection activities from CSI. Based on densities of ROW encroachments pointed on the ROW map, ROW areas shall be classified into populated, potential and non-dense areas. IEP shall be implemented properly according to classification of areas on ROW management map in order not to allow any illegal or inappropriate land uses in ROW.
- IEP approaches aim to prevent new encroachment in the ROW and to regulate temporary use of ROW with permission so as to manage and maintain the land secured for road development.

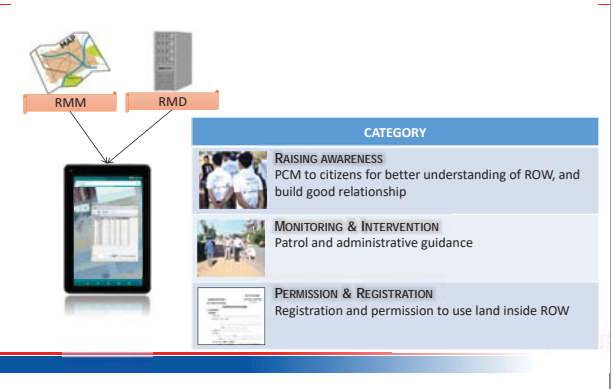
## IEP METHOD CLASSIFICATION



## ORGANIZATION

- According to Law on Road, MPWT is the road control authority in charge of construction, maintenance and management of all national roads in Cambodia. Also, Road Infrastructure Department (RID) of MPWT is a main actor in charge of ROW management of all national roads. Additionally, there are also other agencies/ministries involved in the ROW management such as Ministry of Interior, Ministry of Land Management, Urban Planning and Construction and Ministry of Education, Youth and Sport. MPWT is responsible for coordination, implementation, maintenance of the necessary records on the ROW and expenditure management and preparation of budgetary provisions.

## IEP SOFT APPROACH



# IEP HARD APPROACH

- 1. ROW POLE
- 2. IEP FENCE
- 3. SIGNBOARD
- 4. ROW MARKING PLATE
- 5. PEDESTRIAN FENCE
- 6. GROWING TREE

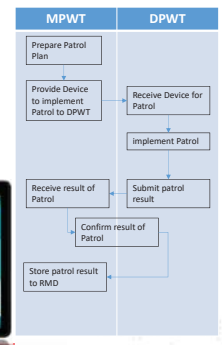


# SOFT APPROACH-2

## Monitoring and Intervention

MPWT and DPWT should collaborate to implement "Patrol" to collect the evidence from resident and to provide "Warning" for Illegal Encroachment.

- Patrol
- Administrative Guidance (To be Considered)



# ROLES & PROCEDURES



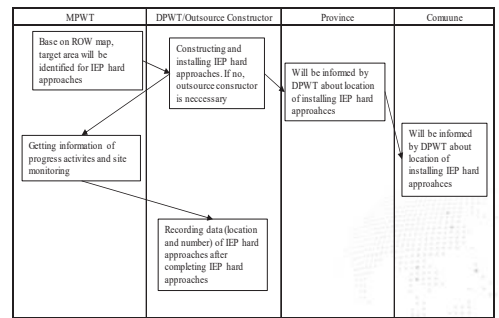
# IEP HARD APPROACH ROLE

ITEM	MPWT	DPWT	Local Authority	MLMUPC	OTHER
Classification	✓				
Raise awareness (PCM)	1) Citizen ✓ 2) High school / University ✓ 3) Local government office ✓	✓	✓	✓	✓
Monitoring & intervention	1) Regular patrol ✓ 2) Collaborating w/ local authorities ✓ 3) Appealing to court ✓	✓	✓	✓	✓
Permission & Registration	1) ROW permit ✓ 2) ROW registration ✓ 3) Access road permit ✓	✓	✓	✓	✓
Supervision	1) Record of "raising awareness" ✓ 2) Record of "Monitoring" ✓ 3) Record of "Permission" ✓	✓	✓		

# IEP SOFT APPROACH ROLE

ITEM	MPWT	DPWT	Local Authority	MLMUPC	OTHER
Classification	✓				
Raise awareness (PCM)	1) Citizen ✓ 2) High school / University ✓ 3) Local government office ✓	✓	✓	✓	✓
Monitoring & intervention	1) Regular patrol ✓ 2) Collaborating w/ local authorities ✓ 3) Appealing to court ✓	✓	✓	✓	✓
Permission & Registration	1) ROW permit ✓ 2) ROW registration ✓ 3) Access road permit ✓	✓	✓	✓	✓
Supervision	1) Record of "raising awareness" ✓ 2) Record of "Monitoring" ✓ 3) Record of "Permission" ✓	✓	✓		

# HARD APPROACH

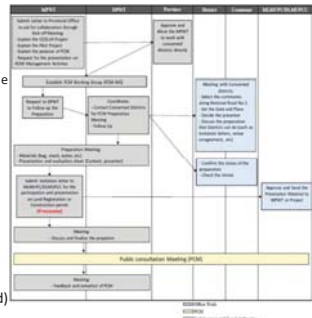


# SOFT APPROACH-1

## Raising awareness

Relevant organizations such as MPWT, DPWT and Local Authority should collaborate to provide "Consultation Meeting" to local people and relevant governments to ensure better understanding of ROW, and build good relationship

- Raising local people's awareness
- Raising relevant government officials' awareness
- Integrating ROW concept into school curriculum (To be Considered)



# ផលវិជ្ជមាន និងផលអវិជ្ជមាន នៃការរំលោភដីចំណីផ្លូវ

## ផលវិជ្ជមាន នៃការរំលោភដីចំណីផ្លូវ

- កាត់បន្ថយការចំណាយរបស់ រដ្ឋាភិបាលទៅលើការដោះស្រាយផលប៉ះពាល់នៅពេលអភិវឌ្ឍផ្លូវ
- ងាយស្រួលក្នុងការអភិវឌ្ឍន៍បរិក្ខារផ្លូវផ្សេងៗដូចជា លូ ផ្លាកសញ្ញាពេចពណ៌
- កាត់បន្ថយដីលោះរាងរដ្ឋ និងប្រជាពលរដ្ឋ
- កាត់បន្ថយគ្រោះថ្នាក់ចរាចរ (គ្មានអ្នករស់នៅភ្ញៀវផ្លូវ, អ្នកបើកបរមើលឃើញស្ថានភាពផ្លូវច្បាស់)
- ធ្វើឱ្យផ្លូវប្រើប្រាស់បានយូរ មិនងាយខូច (ដោយសារមានគ្មានការបាក់ដីខ្ពស់ជាងផ្លូវមានប្រព័ន្ធរំលោភដីផ្លូវគ្រប់គ្រាន់)
- ផ្លូវមានសោភ័ណភាព

## ផលវិជ្ជមាន និងផលអវិជ្ជមាន នៃការរំលោភដីចំណីផ្លូវ

### ផលអវិជ្ជមាន នៃការរំលោភដីចំណីផ្លូវ

- រដ្ឋចំណាយច្រើនទៅលើការដោះស្រាយផលប៉ះពាល់ គម្រោងពង្រីកផ្លូវ
- ធ្វើឲ្យផ្លូវឆាប់ខូច (ដោយសារការរស់នៅជាប់ផ្លូវ, ចាក់ដីខ្ពស់ជាងផ្លូវ)
- រួមចំណែក បង្កគ្រោះថ្នាក់ចរាចរ ដោយសារការចូលមករស់នៅក្នុងដីចំណីផ្លូវជាឧបសគ្គធ្វើឲ្យអ្នកបើកបរមើលមិនច្បាស់
- ផ្លូវគ្មានសោភ័ណភាព

THANK YOU FOR YOUR ATTENTION!

អរគុណសម្រាប់ការយកចិត្តទុកដាក់ស្តាប់

## PRIORITY ACTIVITIES

### Advantages of ROW Management

- Illegal occupation of state land makes implementation of resettlement procedure much more complicated and that management doesn't work effectively.
- And, resettlement cost will be higher in the future without adequate ROW management.
- Adequate ROW management can
  - **Minimize the resettlement cost,**
  - **lead to smooth project implementation** related to the road construction without delay of land issue.
- CSI and IEP activities contribute to prevent the illegal encroachment to the ROW on national road and to reduce the resettlement in the future.

## ROW MANAGEMENT ACTIVITY AND PLAN

THE PROJECT FOR CAPACITY ENHANCEMENT ON ENVIRONMENTAL AND SOCIAL CONSIDERATIONS IN IMPLEMENTING AGENCY IN ROAD SECTOR IN THE KINGDOM OF CAMBODIA

### Contents

- Priority Activities
- Future Development Plan

### Estimation Cost for ROW Management

Total length of all 1digit & 2digit National Road: 8,055km

#### <Priority Activities>

- CSI on the all 1digit & 2digit NR: USD 917,000
- PCM for 50 places: USD 100,000 for every year
- Patrol on all 1digit & 2digit NR: USD 73,000 for every year
- New ROW Pole on 1digit & 2digit NR (for 2,675km): USD 3,530,000
- Other Hard approaches is implemented in the national/international road project.

	1 <sup>st</sup> phase (1Y~3Y)	2 <sup>nd</sup> phase (4Y~6Y)	3 <sup>rd</sup> phase (7Y~9Y)
CSI	All 1digit & 2digit NR		Map update
PCM	50 places/year	50 places/year	50 places/year
Patrol	All 1digit & 2digit NR	All 1digit & 2digit NR	All 1digit & 2digit NR
ROW Pole	for 150km	for 600km	for 1,925km

### First Phase Target for 3years

- CSI: Half of all 1digit & 2digit NR(3,472km): USD 462,000
- PCM for 50 places (2time in each province): USD 300,000
- Patrol on all 1digit & 2digit NR: USD 73,000
- New ROW Pole for 150km is installed: USD 198,000

Approaches	1 <sup>st</sup> year	2 <sup>nd</sup> year	3 <sup>rd</sup> year	3 years total	Remarks
CSI	Progress	1,142km	1,142km	1,142km	3,427km Half of 1 & 2 digit NR
	UAV	\$111,600	\$109,000	\$111,400	\$332,000 (Outsource) 38.9MM
	Office	\$35,300	\$4,400	\$4,400	\$44,100 90.3MM
	FS	\$30,200	\$25,900	\$30,200	\$86,300 321.7MM
	Total	\$177,000	\$139,000	\$146,000	\$462,000
IEP	PCM	\$100,000	\$100,000	\$100,000	\$300,000 50 places / year
	Patrol	\$72,600	\$72,600	\$72,600	\$217,800 All 1 & 2 digit NR
	ROW Pole	\$66,000	\$66,000	\$66,000	\$198,000 For 150 km
	Total	\$239,000	\$239,000	\$239,000	\$717,000
<b>Total</b>	<b>\$416,000</b>	<b>\$378,000</b>	<b>\$385,000</b>	<b>\$1,179,000</b>	

# FUTURE DEVELOPMENT PLAN



## Development Plan

- NR #1            Total Length    162.00Km
- NR #2 + 22    Total Length    120.00Km
- NR #4           Total Length    230.00Km
- NR #31+33+3 Total Length    150.00Km
- NR #8           Total Length    130.00Km
- NR #48        Total Length    150.00Km



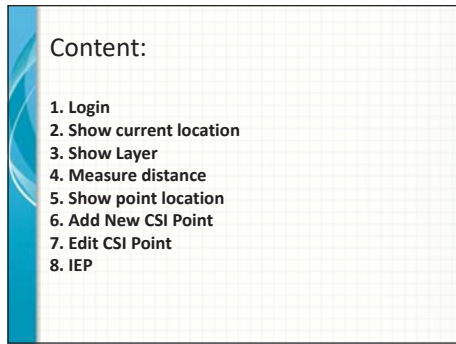
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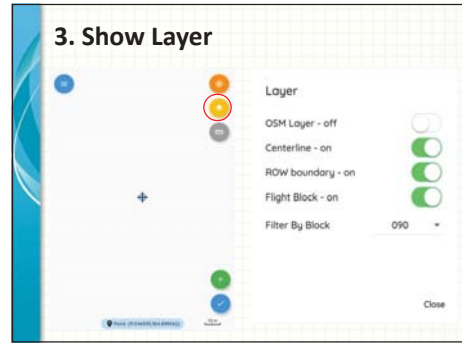


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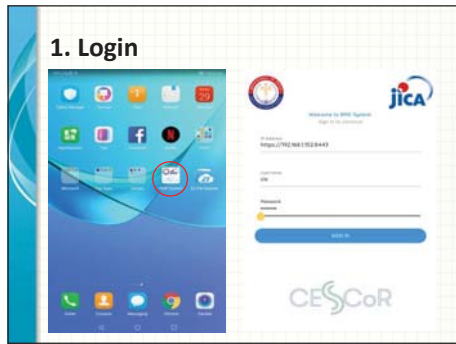


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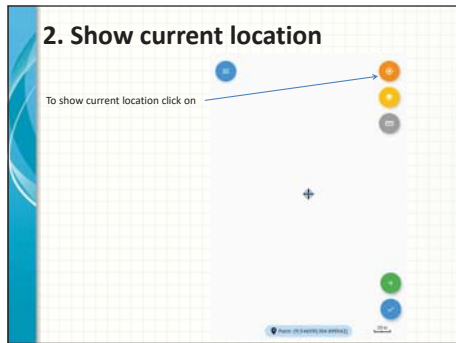


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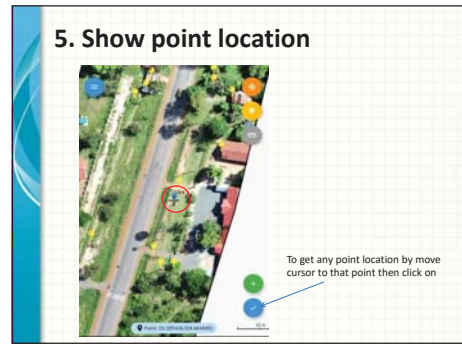


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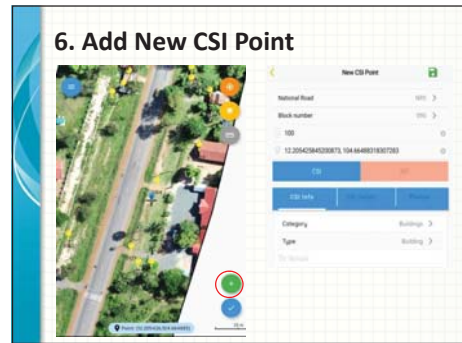


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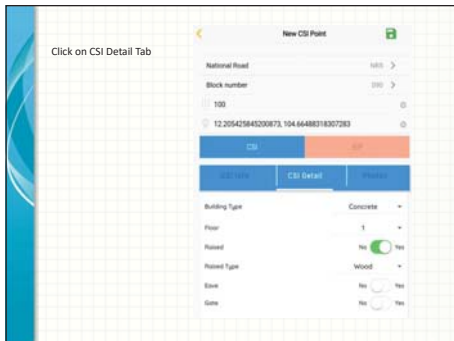


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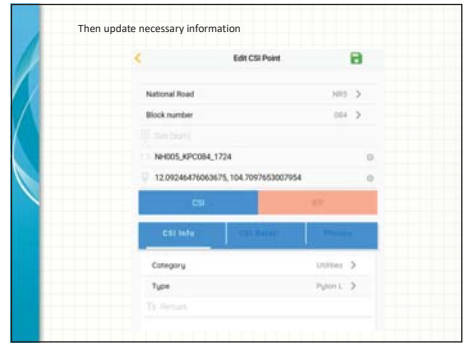


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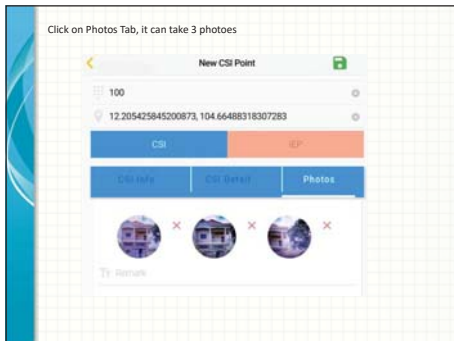


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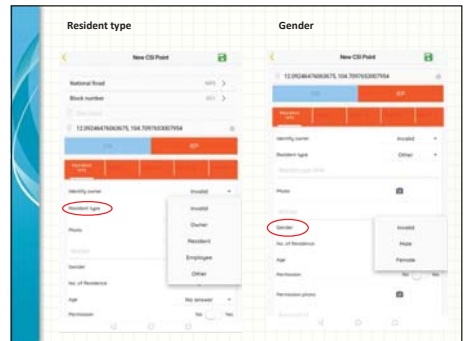


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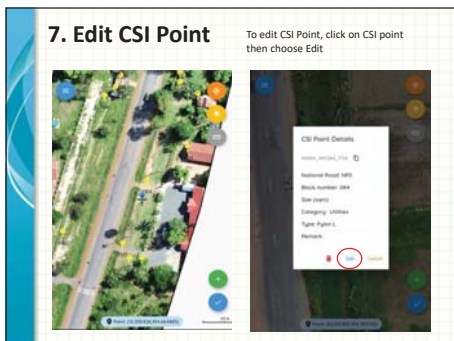
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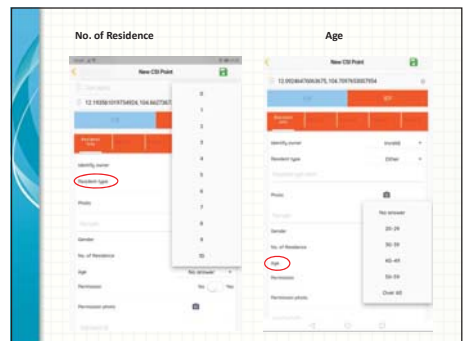


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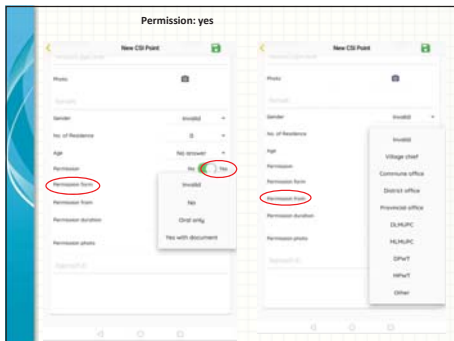
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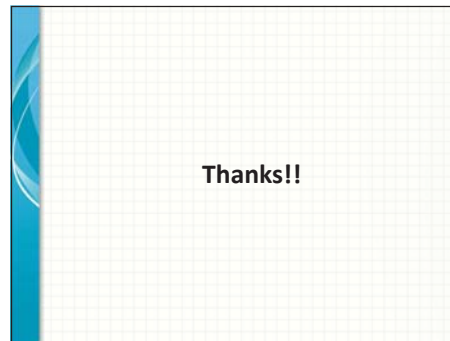


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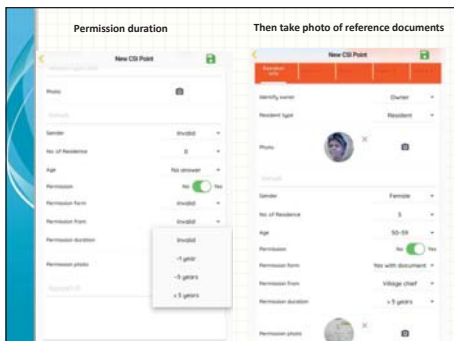
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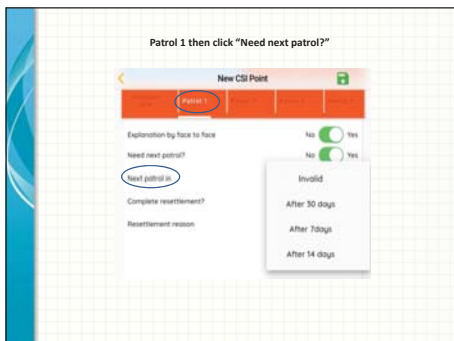
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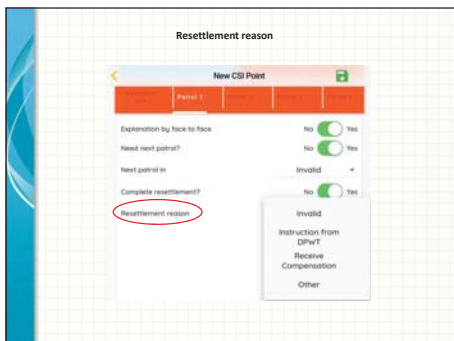
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NAME (ឈ្មោះ): \_\_\_\_\_

ORG (អង្គការ): \_\_\_\_\_

### WORKSHOP សិក្ខាសាលា COMPREHENSION TEST តេស្តសមត្ថភាព

THE PROJECT FOR CAPACITY ENHANCEMENT  
ON ENVIRONMENTAL AND SOCIAL CONSIDERATIONS IN  
IMPLEMENTING AGENCY IN ROAD SECTOR  
IN THE KINGDOM OF CAMBODIA

គម្រោងពង្រឹងសមត្ថភាពលើការពិចារណាផ្នែកបរិស្ថាន និងសង្គមក្នុង  
អង្គការប្រតិបត្តិលើវិស័យផ្លូវថ្នល់ក្នុងប្រទេសកម្ពុជា

#### Q: PURPOSE OF ROW MANAGEMENT សំណួរ៖ គោលបំណងនៃការគ្រប់គ្រងដីចំណីផ្លូវ

1P

► Select 1 **wrong** answer

សូមជ្រើសរើស ចម្លើយ ១ ដែលខុស

- To sustain public land  
ដើម្បីធ្វើឱ្យទិញនិរន្តរភាពផ្លូវសាធារណៈ
- To prevent illegal encroachment  
ដើម្បីការពារការទម្រានដីចំណីផ្លូវខុសច្បាប់
- To optimize construction  
ដើម្បីធ្វើឱ្យប្រសើរឡើងនូវការសាងសង់
- To enhance road facility management  
ដើម្បីធ្វើឱ្យប្រសើរឡើងនូវការគ្រប់គ្រងបរិក្ខារផ្លូវថ្នល់
- To punish illegal users  
ដើម្បីពិន័យ និងដាក់ទោសអ្នកដែលប្រើប្រាស់ដីចំណីផ្លូវខុសច្បាប់

#### Q: ROLE FOR EACH ACTIVITY IN CSI សំណួរ៖ តួនាទីសម្រាប់សកម្មភាពនីមួយៗក្នុងការងារCSI

6P

► Fill [✓] for correct authority for DPWT role សូមគុណ [✓] សម្រាប់សមត្ថកិច្ចត្រឹមត្រូវសម្រាប់មន្ទីរ

ITEM ប្រភេទ	MPWT ក្រសួង	DPWT មន្ទីរ	LOCAL AUTHORITY អាជ្ញាធរមូលដ្ឋាន
KICKOFF MTG (កិច្ចប្រជុំចាប់ផ្តើម)	Arrangement ការរៀបចំ	✓ [ ]	[ ]
	Implementation ការអនុវត្ត	✓ [ ]	✓
UAV SURVEY (ការស្រាវជ្រាវ UAV)	Flight permission ការអនុញ្ញាតឱ្យបើកយន្តហោះ	✓ [ ]	✓
	Flight plan ផែនការបោះពុម្ពផ្សាយ	✓ [ ]	[ ]
	UAV survey ការស្រាវជ្រាវដោយយន្តហោះ	✓ [ ]	[ ]
	Supervision (for outsourcing) ការត្រួតពិនិត្យ (ឧបត្ថម្ភការងារ)	✓ [ ]	[ ]
OFFICE WORK (ការងារការិយាល័យ)	Image processing ការកែច្នៃរូបភាព	✓ [ ]	[ ]
	Mapping (data production) ការធ្វើទិន្នន័យ (ផលិតទិន្នន័យ)	✓ [ ]	[ ]
FIELD SURVEY (ការចាតុប្រតិបត្តិ)	FS permission ការអនុញ្ញាតឱ្យចាតុប្រតិបត្តិ	✓ [ ]	✓
	Field survey ការចាតុប្រតិបត្តិ	[ ]	[ ]
	Supervision ការត្រួតពិនិត្យ	✓ [ ]	[ ]
GIS	data finalization ការបញ្ចប់ទិន្នន័យ	✓ [ ]	[ ]

#### Q: PURPOSE OF IEP សំណួរ៖ គោលបំណងនៃវិធីសាស្ត្រការពារការទម្រានដីចំណីផ្លូវខុសច្បាប់

1P

► Select 1 **wrong** answer

សូមជ្រើសរើស ចម្លើយ ១ ដែលខុស

- To select most suitable area for bridge construction  
ដើម្បីជ្រើសរើសតំបន់ដែលសមស្របបំផុតសម្រាប់សាងសង់ស្ពាន
- To classify population inside Right Of Way  
ដើម្បីចាត់ថ្នាក់ចំនួនប្រជាជនដែលរស់នៅក្នុងដីចំណីផ្លូវ
- To prevent new encroachment  
ដើម្បីការពារការទម្រានដីចំណីផ្លូវថ្មី
- To manage and maintain public land  
ដើម្បីគ្រប់គ្រង និងថែទាំដីសាធារណៈ

#### Q: FULL TITLE OF RMS COMPONENT សំណួរ៖ ចំណងជើងពេញនៃសមាធាតុ RMS

6P

► Write the full name of each abbreviation

សូមសរសេរពាក្យពេញនៃពាក្យកាត់ខាងក្រោម (ជាអង់គ្លេស ឬខ្មែរ)

- RMS:
- RMG:
- CSI:
- IEP:
- RMM:
- RMD:

#### Q: ROLE FOR EACH ACTIVITY IN IEP សំណួរ៖ តួនាទីសម្រាប់សកម្មភាពនីមួយៗក្នុងការងារការពារការទម្រានដីចំណីផ្លូវខុសច្បាប់ (អង់គ្លេស)

4P

► Fill [✓] for correct authority for DPWT role

ITEM	MPWT	DPWT	Local Authority	MUMUPC	OTHER
Classification	✓ [ ]	[ ]			
Raise awareness	1) PCM ✓ [ ]	2) High school / University ✓ [ ]	3) Local government office ✓ [ ]	✓	✓
Monitoring & intervention	1) Regular patrol ✓ [ ]	2) Collaborating w/ local authorities [ ]	3) Appealing to court ✓ [ ]	✓	✓
Permission & Registration	1) ROW permit ✓ [ ]	2) ROW registration ✓ [ ]	3) Access road permit ✓ [ ]	✓	✓
Supervision	1) Record of "raising awareness" ✓ [ ]	2) Record of "Monitoring" ✓ [ ]	3) Record of "Permission" ✓ [ ]		

#### Q: PURPOSE OF CSI សំណួរ៖ គោលបំណងនៃការកំណត់ស្ថានភាពបច្ចុប្បន្ន

1P

► Select 1 **wrong** answer

សូមជ្រើសរើស ចម្លើយ ១ ដែលខុស

- To identify current situation  
ដើម្បីកំណត់ស្ថានភាពបច្ចុប្បន្ន
- To create Right Of Way Management Map  
ដើម្បីបង្កើតផែនទីគ្រប់គ្រងដីចំណីផ្លូវ
- To create baseline for IEP classification  
ដើម្បីកំណត់គោលការណ៍មូលដ្ឋាន (Baseline) សម្រាប់ការធ្វើចំណាត់ថ្នាក់វិធីសាស្ត្រការពារការទម្រានដីចំណីផ្លូវខុសច្បាប់
- To construct sustainable infrastructure  
ដើម្បីសាងសង់ហេដ្ឋារចនាសម្ព័ន្ធដែលមានទិរន្តរភាព

#### Q: ROLE FOR EACH ACTIVITY IN IEP សំណួរ៖ តួនាទីសម្រាប់សកម្មភាពនីមួយៗក្នុងការងារការពារការទម្រានដីចំណីផ្លូវខុសច្បាប់ (ភាសាខ្មែរ)

4P

► សូមគុណ [✓] សម្រាប់សមត្ថកិច្ចត្រឹមត្រូវសម្រាប់មន្ទីរ

ប្រភេទ	ក្រសួង	មន្ទីរ	អាជ្ញាធរ	ក្រសួងដែនដី	ផ្សេងៗ
ចំណាត់ថ្នាក់	✓ [ ]	[ ]			
ការលើកកម្ពស់ការយល់ដឹង	1) កិច្ចប្រជុំតម្រូវឲ្យដឹង 2) វិទ្យាល័យ/បឋមវិទ្យាល័យ 3) ការណែនាំដល់ប្រជាជន	✓ [ ]	✓ [ ]	✓	✓
ការត្រួតពិនិត្យ និងការអនុវត្ត	1) ការស្រាវជ្រាវ 2) ការសហការជាមួយអាជ្ញាធរមូលដ្ឋាន	✓ [ ]	[ ]	✓	✓
ការអនុញ្ញាត និងការចុះបញ្ជី	1) ការអនុញ្ញាតប្រើប្រាស់ដីចំណីផ្លូវ 2) ការចុះបញ្ជីដីចំណីផ្លូវ 3) ការអនុញ្ញាតសាងសង់ផ្លូវថ្នល់ប្រភេទ	✓ [ ]	✓ [ ]	✓	✓
ការត្រួតពិនិត្យ	1) ការត្រួតពិនិត្យដីចំណីផ្លូវ 2) ការត្រួតពិនិត្យផែនទី 3) ការត្រួតពិនិត្យការអនុញ្ញាត	✓ [ ]	✓ [ ]		



Q: WHAT IS THE TABLET & APP FOR?

សំណួរល្អៗ តើ TABLET និង APP សម្រាប់ធ្វើការងារអ្វី?

1P

► Select 1 wrong answer

សូមជ្រើសរើស ចម្លើយ ១ ដែលខុស

- 1. For CSI UAV survey  
សម្រាប់ការងារស្រាវជ្រាវបង្ហាញរូបភាពដីឡើងវិញកំណត់ស្ថានភាពបច្ចុប្បន្ន
- 2. For CSI field survey  
សម្រាប់ការងារចុះស្រាវជ្រាវដីឡើងវិញកំណត់ស្ថានភាពបច្ចុប្បន្ន
- 3. For IEP patrol  
សម្រាប់ការងារល្បាតដីឡើងវិញការពារការទម្រង់ដីចំណីផ្លូវខុសច្បាប់
- 4. For IEP activity record  
សម្រាប់កត់ត្រាសកម្មភាពការពារការទម្រង់ដីចំណីផ្លូវខុសច្បាប់



END OF THE TEST!!

ចុងបញ្ចប់នៃបញ្ជីសំណួរ

សូមអរគុណ!!!







# WORKSHOP FOR PRACTICE OF ROW MANAGEMENT SYSTEM

THE PROJECT FOR CAPACITY ENHANCEMENT ON  
ENVIRONMENTAL AND SOCIAL CONSIDERATIONS IN  
IMPLEMENTING AGENCY IN ROAD SECTOR IN CAMBODIA  
(CESCOR)

29<sup>TH</sup> AUGUST, 2019

PHNOM PENH HOTEL, PHNOM PENH



FOR MORE INFORMATION CONTACT: OFFICE +855(0)61-960-213

## AGENDA

### Workshop for Practice of ROW Management System The Project for Capacity Enhancement on Environmental and Social Considerations in Implementing Agency in Road Sector in Cambodia (CESCoR)

PHNOM PENH Hotel, Phnom Penh, 29<sup>th</sup> August 2019

Target Participants: DPWTs in Kampong Cham, Kampong Thom, Siem Reap, Oddor Meanchey and Preah Vihear

Time	Program	Content
08:30-08:45	Registration	
08:45-08:50	<b>Cambodian National Anthem</b>	
08:50-08:55	<b>Opening Remarks</b> H.E. NOU Vaddhanak, Under Secretary of State, MPWT	
08:55-09:25	<b>Presentation on Outline for ROW Management Methods</b> Mr. CHEA Samnang, Office Chief of ROW, RID, MPWT	1. Legal Framework, 2. Structure of CSI (RMD, RMM, UAV and Field survey), 3. Structure of IEP (Hard and Soft Approaches)
09:25-10:10	<b>Presentation on Field Survey for Current Status Identification (CSI)</b> Mr. KHOUN Kompheak, Deputy Director of RID, MPWT	1. Outline of Field Survey 2. Detailed Procedure for Field survey 3. Data collection and utilization by survey result (data analysis)
10:10-10:25	Coffee Break	
10:25-11:10	<b>Presentation on Type of Illegal Encroachment Prevention (IEP) Approaches</b> Mr. KAING Theara, Official, RID, MPWT	1. Type of IEP approaches (Soft and Hard approach including typical cross section for future development) 2. Procedure for Soft Approaches such as Conduct PCM, Patrol and Provide ROW usage permission
11:10-11:40	<b>Presentation on ROW Management Activity and Plan</b> Mr. HAY Chandara, Deputy Office Chief of ROW, RID, MPWT	1. Priority Activities (CSI, PCM and ROW Pole Installation) 2. Future Development Plan
11:40-11:55	<b>Q&amp;A Session</b>	
11:55-12:00	<b>Closing Remarks</b> H.E. NOU Vaddhanak, Under Secretary of State, MPWT	
12:00-13:30	<b>Luncheon</b>	
13:30-14:00	<b>Comprehension Test for Participants</b>	
14:00-14:30	<b>Presentation on Implementation of Field Survey (CSI) and Patrol (IEP)</b> JICA Project Team	1. Procedures for Field Survey 2. Procedures for Patrol 3. How to use Tablet App for Field survey and Patrol
14:30-15:00	<b>Result of Comprehension Test</b>	
15:00-16:30	<b>Field Practice for Field Survey and Patrol at PHNOM PENH Hotel, JICA Project Team</b>	

Note: All Presentations will be English, verbal speech in Khmer





## WORKSHOP FOR PRACTICE OF ROW MANAGEMENT SYSTEM

### DISCUSSION MEMO

Date & Time:	August 29 <sup>th</sup> , 2019 from 8:30am to 4:00pm
Place	PHNOM PENH Hotel, Phnom Penh
Attendees:	H.E. Nou Vaddhanak, Under Secretary of State, MPWT Mr. Khoun Kompheak, Deputy Director, RID/MPWT Mr. Chea Samnang, Chief of ROW Office, RID/MPWT Mr. Hay Chandara, Deputy Chief of ROW Office, RID MPWT Mr. Sok Ly, Deputy Director, ICD/MPWT Ms. Eam Sokchea, Deputy Chief of Environment and Public Service Office, PID/MPWT And Other MPWT officials and DPWT officials from Kampong Cham, Kampong Thom, Siem Reap and Oddor Meanchey (see the attendant list in this memo)
Project Team:	Mr. Yamashita, Mr. Kumagai, Ms. Nomura, Ms. Sophy, Mr. Soheat, Mr. Luch, Mr. Sereyvuth and Mr. Samon
Agenda / Discussion Points:	- To train the DPWTs' Officials on ROW management System through the presentations from ROW TF members (MPWT's Officials); - To conduct the field practice for field survey and patrol.

#### **1- Opening Remark by H.E. Nou Vaddhanak, Under Secretary of State, MPWT**

#### **2- Presentation on outline of ROW Management Methods by Mr. Chea Samnang**

Comments, Questions and Answers:

##### **- Question 1 from H.E. Nou Vaddhanak:**

Thank you for your good presentation. For the drone flight, I understood that we submitted the letter to ask the permission. However, I have wondered if we have ever received the reply from the local authority?

##### **- Answer 1 by Mr. Chea Samnang:**

Mostly we received the reply and got the permission from local authorities orally. However, we did receive the official reply by letter from one local authority. We will show the letter in the next presentation.



**- Comment 1 by H.E. Nou Vaddhanak:**

From this project, we have studied to get experiences and knowledge as tool to implement the ROW Management in Future. However, who will implement the ROW management? We know that General Directorate of Public Works manages the Public Works and road construction but based on Prakas, only Road Infrastructure Department has ROW office. Importantly, we need to learn and upgrade the knowledge first; especially the DWPT officials. We need to modify the role to implement the ROW management; although the budget for ROW is under the General Directorate of Public Works.

**- Comment 2 by H.E. Nou Vaddhanak:**

I would like to kindly remind the DPWT officials that based on the Sub-decree, some provincial roads had been upgraded to National Road 2-digits. Therefore, the ROW is 25m from the central line both sides. Regarding this, we should have data on original central line (GPS) because some roads have been expanded only one side; then without original or existing central line, people will confuse and it causes the trouble during the resettlement. To solve these problems, we need to register the ROW with the Hard Title.

**- Question 2 from Siem Reap DPWT:**

Thank you for your good presentation. I have understood that this project has studied the National Road No.5. It would be great if the project can continue to National Road No.6. On another hand, I would like to ask the question on ROW Management. How do we define the ROW in urban area? We don't have data on the boundary between the urban and non-urban areas.

**- Answer 2 by Mr. Chea Samnang:**

This project will finish at the end of this year. There is no extension to another National Road. However, DPWT can request for the National Budget to implement the ROW Management. MPWT can support because we have ideas. For the definition of non-urban areas, we also do not know.

**- Added by H.E. Nou Vaddhanak:**

MPWT submitted letters to Ministry of Interior (MoI) and Ministry of Land Management, Urban Planning and Construction to give us the clear definition and boundary between urban and non-urban areas. However, until now we have not yet received any clear answer. We cannot stop the expansion of urban areas. Therefore, in order to prevent the illegal encroachment, we need to apply our own mechanism. Our solution is to install the ROW poles at the rural areas first before the urban areas get expanded. We hope that installing ROW poles can prevent the encroachment. Gov't have spent a lot of money on Resettlement. In some cases, Gov't decided to build the Bypass because the resettlement



cost is too high. During the ROW Pole installation, we need to take photos as evidence; when people encroach the ROW, we can use the photos as evidence to show them.

**- Question 3 from H.E. Nou Vaddhanak:**

Regarding the IEP at Chrey Bak. I want to know whether there is the side drainage and outlet or not.

**- Answer 3 by Mr. Chea Samnang:**

We are going to build the side drainage and use the existing outlet.

**- Comment 3 by H.E. Nou Vaddhanak:**

We need to consider about the outlet even we have drainage. If we do not have outlet, we need to dig the pond or reservoir to store water from drainage. Regarding this matter, I would like to request that with the road distance of 1km or 2km, there should be one outlet or reservoir to store water released from the roads. Also, we need to encourage and explain the people not to fill land with higher elevation than the roads' elevation.

**3- Presentation on Field Survey for Current Status Identification (CSI) by Mr. Khoun Kompheak:**

Comments, Questions and Answers:

**- Question 1 from H.E. Nou Vaddhanak:**

Thank you for your good presentation. I would like to know whether photos taken by drone on the map have correct GPS or not. Can we open it like Avenza and it will show us the exact location at the field? And each photo has the summarized information or not if we click on that Pin Point?

**- Answer 1 by Mr. Kompheak:**

Yes, we can open it like Avenza with the location. It might be a bit bias of the location; however, we can find the exact location. Each Pin Point or photo has the data or information.

**- Comment 1 by H.E. Nou Vaddhanak:**

Based on the photo shown in the presentation, I think it is the urban areas because it is very crowded. Then, I do not think it is correct to offset the ROW 30m both sides.

**- Question 2 from Siem Reap DPWT:**

What kind of drone did you use? How did you set the height for flight and GCP?



**- Answer 2 by Mr. Kompheak:**

We used the Phantom 4 Drone. The height for the flight was 100m. We did check the wind condition with wind meter. For the GCP we set by using handy GPS. In order to avoid the error, we overlapped the photos for 80% with the angle of 90 degree.

**- Comment 2 by H.E. Nou Vaddhanak:**

This CSI and database are like the inventory source. We can use this data for other purposes (not only for ROW). We can use it to count the bridges, make drawing, or design the location for traffic safety, etc. Therefore, DPWTs' officials need to learn from this workshop. Although it is just the pilot project, we need to update ourselves. We can use the National Budget to implement these activities by ourselves.

**4- Presentation on Type of Illegal Encroachment Prevention (IEP) Approaches by Mr. Kaing Theara:**

Comments, Questions and Answers:

**- Comment 1 by H.E. Nou Vaddhanak:**

For the Monitoring and Patrol, can we do it by flying the drone to capture the visual image? We keep those photos as evidences. We can fly the drone again after 1 or 2years to compare. If we find the encroachment, we can go to that place directly.

**- Comment 2 by H.E. Nou Vaddhanak:**

For the permission on ROW usage based on Article No. 36 in Road Law, the procedure to use ROW is set by Joint Prakas between Ministry of Public Works and Transport and Ministry of Rural Development. However, so far, we have not yet prepared this Joint Prakas. Can we (General Directorate of Public Works or our ROW TF members) do anything on this administrative works? We need to develop technical typical standard drawing (Cross section) on road utilities with detailed design then others (DPWTs and Private Construction Company) can learn.

**- Comment 3 by H.E. Nou Vaddhanak:**

In Thailand, they construct the road from the edge of ROW. But for us, due to limited budget, we build the road from the middle space. Then, the free space has been encroached; so, it is difficult to solve and manage ROW. However, we have to make sure that those encroaching structures are just the soft or temporary structures.





**5- Presentation on ROW Management Activity and Plan by Mr. Hay Chandara:**

Comments, Questions and Answers:

**- Comment by H.E. Nou Vaddhanak:**

For the last slide, the length of National Road No.1 is 162km from Kbal Thnol to Bavet only. The full length of National Road No.1 (168km) is from Wat Phnom. So, please add the clear note for this. Same thing goes for the National Road No. 48.



**6- Closing Remark by H.E. Nou Vaddhanak**

**\*\*Afternoon session:**

**1- Comprehensive Test:**

**2- Presentation on Implementation of Field Survey (CSI) and Patrol (IEP) by JICA Team (Mr. Bun SereyVuth):**

Question and Answer:

- **Q1 from DPWT:** in the Tablet, there are 1st Patrol, 2nd Patrol, etc. Can we check the history of our patrol?

- **A1:** Yes, we can check the history of previous patrol. This App can work offline at the site. Data will be automatically updated with internet connection. For each patrol, we can record and take photos up to 3 photos.



- **Q2 from DPWT:** You said each function can take photos up to 3 times, but actually for IEP function, only one photo can be taken. CSI can do it up to 3 photos.

- **A2:** Thank you for your comment. We will check and consider about it. Actually, because of the limited database space, we limit the number of photos.

- **Q3 from DPWT:** For the function on Next Patrol, why the options are only up to 30 days? How about more than 30 days?

- **A3:** 1st, DPWT can request to MPWT to change the date or add more function. 2nd: you can take note on the paper, take photo; then upload in the Tablet.

- **Q4 from DPWT:** Why there is no Khmer Version?

- **A4:** Yes, we will have Khmer Version. Now, we have only English version for testing and asking for any comment for improvement.

- **Q5 from MPWT-ICD:** For Next Patrol, can the App Sort the date for the Next Patrol? For Example, next patrol on the same date, we will have 5 locations to go, Can the App show those 5 locations?

- **A5:** That is good idea. We will discuss with our ROW TF members and JICA team on this matter.

- **Q6 from DPWT:** Can the App summarize the patrol as report? Can we know the length of encroachment (from central line) from the App?

- **A6:** If DPWT has the form as report, you can share us. Then, we will consider about this in the App. We have set all the information such as Name of structure's owner, type of structure, patrol date, but didn't think of the length of encroachment from central line or from COI.

- **Q7 from DPWT:** There are format for Patrol 1 and Patrol 2, how about the Patrol 3 and 4?

- **A7:** The format of Patrol 3 and Patrol 4 are same as Patrol 1 and 2. We have not yet finished developing the App. This workshop is to share the information and ask for the comment.

- **Q8 from DPWT:** For Patrol information, can we add more people of patrol group such as local authority?

- **A8:** Actually, we have another form to record the surveyor names, date and interviewee. You can take photo from that form and upload to App as evidence. There is a form in App and another form on Paper. Sometimes, it is difficult to input the data in App, so you can input on the paper, take the photo and upload to the App.

### 3- Practice for Field Survey and Patrol at Phnom Penh Hotel:



Demonstration by DPWTs’ officials on using the Tablet:



- **Comments from App user:** App is easy to use but I think in reality, local people don’t cooperate well because they are busy with their business. They just say that they will move out when gov’t needs the land.

- **Replies from Mr. Samnang:** I know it is difficult to deal with local people. We need the art of speaking. We should not say directly to them that they encroach the ROW but it is better telling them that we come to collect the information on ROW usage. Before we go to meet the people, we need to inform the authority first.

If during the patrol, you find the construction is on-going. Sure, you can ask them if they already got the permission. If no permission, you can explain and ask them to stop the construction. Or take further action to report to local authority.

- **Comments from App user:** Has the project applied this App on National Road No.5?

- **Replies from JICA Team:** For CSI, from the beginning we used only paper with Tablet to take photo. Then, we used Avanza. That’s why we have workshop to transfer the knowledge and to get comment to update the App.

- **Comments from Mr. Samnang:** The demo we did mainly focused on IEP. For CSI, there is no interview. But we have permission to take photo of building and fly the drone.



THE PROJECT FOR CAPACITY ENHANCEMENT  
ON ENVIRONMENTAL AND SOCIAL CONSIDERATIONS  
IN IMPLEMENTING AGENCY IN ROAD SECTOR  
IN THE KINGDOM OF CAMBODIA (CESCOR)



**Date:** 29<sup>th</sup> August 2019

**Time:** 8:30am-16:00pm

**Location:** at Phnom Penh Hotel

**Topic:** The Workshop for Practice of ROW Management System

**Attendance List**

No	Name	Position	Department/Ministry	Phone
<b>MPWT-RID</b>				
1	H.E. Nou Vaddhanak	Under Secretary of State	MPWT	
2	Mr. Khuon Kompheak	Deputy Director	RID/MPWT	
3	Mr. Chea Samnang	Chief of ROW Office	RID/MPWT	
4	Mr. Hay Chandara	Deputy Chief of ROW Office	RID/MPWT	
5	Mr. Khai Saray	Deputy Chief of ROW Office	RID/MPWT	
6	Mr. Sokun Piseth	Deputy Chief of Office	RID/MPWT	
7	Mr. Kaing Theara	Officer	RID/MPWT	
8	Mr. Nob Keilarith	Deputy Chief of Office	RID/MPWT	
9	Mr. Sao Premarak	Deputy Chief of Office	RID/MPWT	
10	Ms. Chhai Chariya	Deputy Chief of Office	RID/MPWT	
11	Ms. Thou Saovary	Deputy Chief of Office	RID/MPWT	
<b>MPWT-PID</b>				
12	Mr. Kong Youreth	Chief Officer	PID/MPWT	
13	Mr. Phat Vanthy	Chief Officer	PID/MPWT	
14	Ms. Eam Sokchea	Deputy Chief of Office	PID/MPWT	
<b>MPWT-ICD</b>				
15	Mr. Sok Ly	Deputy Director	ICD/MPWT	
16	Mr. Peang Samoeun	Chief Officer	ICD/MPWT	
17	Ms. Oum Sokvasey	Chief Officer	ICD/MPWT	
18	Mr. An Menghour	Officer	ICD/MPWT	
<b>DPWT-Kampong Cham Province</b>				
19	Mr. Sao Pharith	Chief of Public Works Office	MPWT	





THE PROJECT FOR CAPACITY ENHANCEMENT  
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IN IMPLEMENTING AGENCY IN ROAD SECTOR  
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20	Mr. Sen Sopheak	Deputy Chief of Technical Office	MPWT	
21	Mr. Chea Sovan	Deputy Chief of Technical Office	MPWT	
<b>DPWT-Kampong Thom Province</b>				
22	Mr. Houy Pouthearith	Deputy Chief of Technical Office	DPWT	
23	Mr. Kouern Molika	Officer	DPWT	
24	Mr. Heng Karona	Officer	DPWT	
<b>DPWT-Siem Reap Province</b>				
25	Mr. Tan Kimang	Chief of Order Office	DPWT	
26	Mr. Nhel Poutnin	Officer of Order Office	DPWT	
<b>DPWT-Oddar Meanchey Province</b>				
27	Mr. Hoeun Sengtin	Officer	DPWT	
28	Mr. Jen Ranakroth	Officer	DPWT	
29	Mr. Louem Raxmey	Chief Officer	DPWT	
30	Mr. Kouy Vibol	Officer	DPWT	
<b>Others</b>				
31	Ms. Lim Sopokhem	Assistant Professor	Waseda University	
<b>JICA Project Team_CESCoR</b>				
32	Mr. Akira Yamashita	Team Leader	JICA Project Team	
33	Mr. Kumagai Takahiro	Project Coordinator	JICA Project Team	
34	Ms. Sakiko Nomura	Intern	JICA Project Team	
35	Ms. Ches Sophy	Project Assistant	JICA Project Team	
36	Mr. Penh Socheat	Technical Assistant	JICA Project Team	
37	Mr. Bun Sereyvuth	Project Assistant	JICA Project Team	
38	Mr. Mut Samon	Assistant	JICA Project Team	
39	Mr. Preah Loch	Assistant	JICA Project Team	

# CESCOr PROJECT INTRODUCTION

THE PROJECT FOR CAPACITY ENHANCEMENT ON ENVIRONMENTAL AND SOCIAL CONSIDERATIONS IN IMPLEMENTING AGENCY IN ROAD SECTOR IN THE KINGDOM OF CAMBODIA

## Table of Contents

- CESCOr Project Introduction
- ROW Management
- Pilot Project

# PROJECT OUTLINE

<b>Overall Goal</b>	ESC in road sector is implemented properly by MPWT.
<b>Project Purpose</b>	Capacity of MPWT officials on ESC is enhanced through applying REG and RMS
<b>Output 1</b>	Implementation framework for the project is strengthened based on past experiences and present situation on ESC and ROW management.
<b>Output 2</b>	Implementation framework of EC related to EIA and EMP is strengthened.
<b>Output 3</b>	<b>Implementation framework of SC related to ROW management is strengthened by establishing RMS</b>
<b>Output 4</b>	Capacity of SC required for ROW management is strengthened through OJT.

Note: REG: Road Environment Guideline, RMS: ROW Management System, EIA: Environmental Impact Assessment, EMP: Environmental Management Plan

# OUTLINE

<b>Output 3:</b>	<b>Implementation framework of SC related to ROW management is strengthened by establishing RMS</b>
<b>PURPOSE:</b>	Capacity of Social Considerations (SC) required for ROW management is strengthened as a component of CESCOr Project, funded by JICA
<b>ACTIVITY:</b>	<ol style="list-style-type: none"> <li>1) Create RMG (ROW Management Guideline)</li> <li>2) Create RMM/RMD as a result of Pilot Project</li> <li>3) Create RMS-TP and Capacity building training to MPWT and DPWT</li> </ol>
<b>METHOD:</b>	Specify a area to implement a pilot project to study the feasibility of the system. The system will be applied to NR5 has been selected for the rapid development. Target Area along National Road No.5 in four Provinces:
<b>TARGET AREA:</b>	<ol style="list-style-type: none"> <li>1) KAMPONG CHHNANG Province</li> <li>2) PURSAT Province</li> <li>3) BATTAMBANG Province</li> <li>4) BANTEAY MEANCHHEY Province</li> </ol>

# CESCOr PROJECT INTRODUCTION

## PROJECT OUTPUTS

### Project Period:

The project has been funded from JICA committed for the period from Jan. 2017 to Dec. 2019.

### Project Goal:

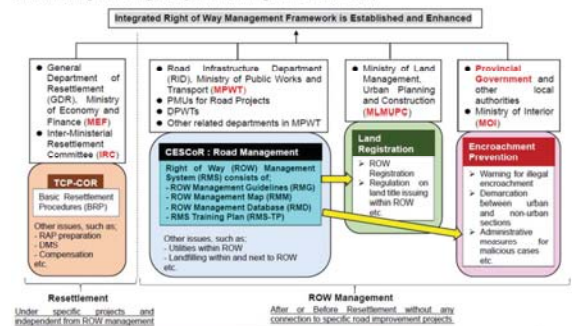
Environmental and Social Consideration (ESC) in road sector is implemented properly by MPWT.

### Project Purpose:

Capacity of MPWT officials on ESC is enhanced through applying Road Environmental Guidelines (REG) and Road Management System (RMS).

# INTEGRATED ROW MANAGEMENT FRAMEWORK

Chart: ROW Management and Target Area of CESCOr (including activities on EIA and EMP)



# ROW MANAGEMENT

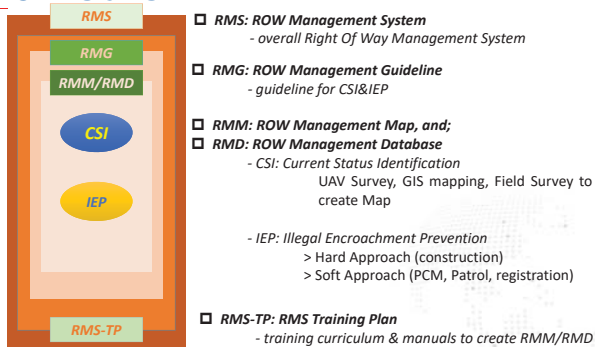
## LEGAL FRAMEWORK FOR RIGHT OF WAY(ROW)

Cambodia ROW means state land along the road with fixed distances from the centerline of existing roads for the future development.

Road level		ROW Dimensions	
		Ministerial Orders(※1)	Sub-Decree (※2)
1-digit Number National Roads	NR1, 4 and 5	30 m(※3)	30 m(※3)
	Others	25 m(※3)	
2-digits Number National Roads		25 m(※3)	25 m(※3)
Provincial roads		20 m(※3)	Not specified
Commune Roads		15m(※3)	Not specified

※1 Ministerial Orders No. 06, 1999,  
 ※2 Sub-Decree No.197, 2009, ※3 length from the centerline

## STRUCTURE



## CSI ROLE

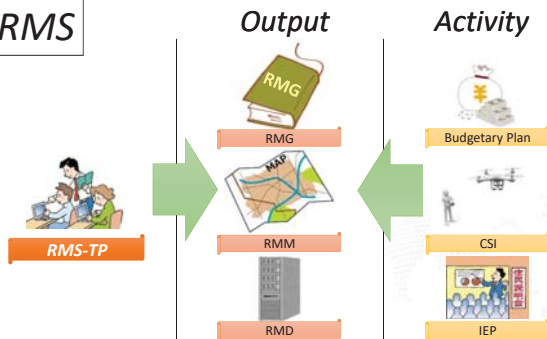
ITEM		MPWT	DPWT	LOCAL AUTHORITY
KICKOFF MTG	Arrangement	✓	✓	
	Implementation	✓	✓	✓
UAV SURVEY	Flight permission	✓	✓	✓
	Flight plan	✓		
	UAV survey	✓	✓	
OFFICE WORK	Supervision (for outsourcing)	✓		
	Image processing	✓		
FIELD SURVEY	Mapping (data production)	✓		
	FS permission	✓	✓	✓
GIS	Field survey	✓	✓	
	Supervision	✓		
	data finalization	✓		

## IEP ROLE

ITEM		MPWT	DPWT	Local Authority	MLMUPC	OTHER
Classification		✓				
Raise awareness	1) PCM	✓	✓	✓		
	2) High school / University	✓				✓
	3) Local government office	✓	✓	✓	✓	
Monitoring & intervention	1) Regular patrol	✓	✓	✓		
	2) Collaborating w/ local authorities	✓	✓	✓		
	3) Appealing to court	✓	✓	✓		✓
Permission & Registration	1) ROW permit	✓	✓	✓		
	2) ROW registration	✓	✓	✓	✓	
	3) Access road permit	✓	✓			✓
Supervision	1) Record of "raising awareness"	✓	✓			
	2) Record of "Monitoring"	✓	✓			
	3) Record of "Permission"	✓	✓			

## CONCEPT

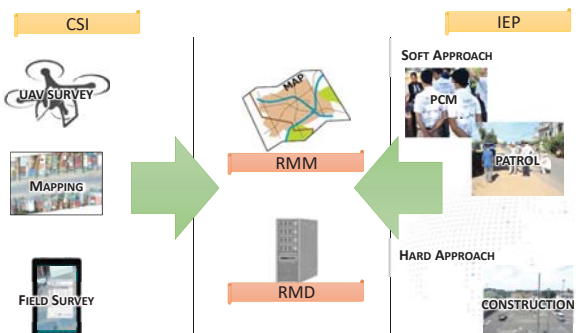
### RMS



## RMG

- GUIDELINE WHICH INDICATES...
  - Policy
  - Objectives
  - Scope of work
  - Related organizations
  - CSI work procedure and manual
  - IEP work procedure and manual
  - Outsourcing TOR
  - ROW development

## RMM & RMD



## RMS-TP AND TRAINING

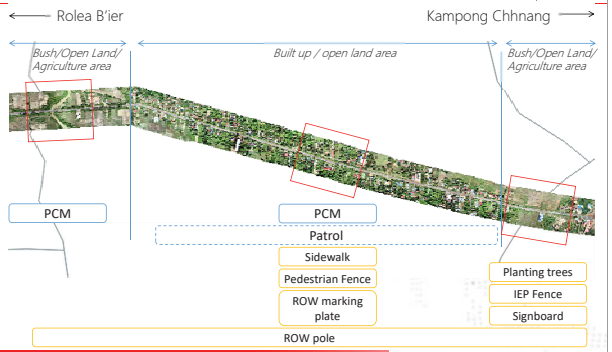
- TRAINING PLAN WHICH INCLUDES...
  - Curriculum
  - schedule
  - Content of subject
- TRAINING FROM JICA TO MPWT
  - Today
- TRAINING FROM MPWT TO DPWT...
  - Today

# PILOT PROJECT



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# IEP TARGET AREA



# CSI TARGET AREA



# IEP WORK PROGRESS

		APRIL	MAY	JUNE	JULY	AUG	SEP
SOFT APPROACH	PCM 1	●					
	PCM 2	●					
	Patrol				●	■	■
HARD APPROACH	K/O MTG	●					
	Construction			■	■	■	■



# CSI WORK PROGRESS

**PROGRESS CHART**

- UAV Survey** 100%: 250 flights
- Image Processing** 100%: 36,600,000m<sup>2</sup>
- Data Production** 100%: 33625 points
- Field Survey** 100%: 25248 ground photos
- Data Finalization** 60%: correcting errors...

**ROW MANAGEMENT MAP (RMM):**  
To Identify Encroachment into ROW on Map

**ROW MANAGEMENT DATABASE (RMD):**  
To show Detailed Information of Encroachment  
To count Encroachments for Classification

# IEP TARGET AREA



THANK YOU! សូមអរគុណ



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# FIELD SURVEY FOR CSI (CURRENT STATUS IDENTIFICATION)

THE PROJECT FOR CAPACITY ENHANCEMENT ON ENVIRONMENTAL AND SOCIAL CONSIDERATIONS IN IMPLEMENTING AGENCY IN ROAD SECTOR IN THE KINGDOM OF CAMBODIA

## OUTLINE

2

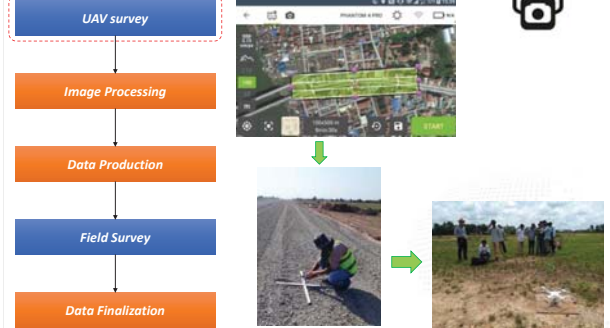
## CSI WORK CONTENTS

### Kick-off Meeting

- To explain the work purpose, content and schedule to the local authorities.



## CSI WORK CONTENTS



## GENERAL

- Current Status Identification (CSI) focuses on data collection related to situation of right of way along national roads and provincial roads across the country in order to creating right of way maps and database as baseline for effective right of way management.
- The purpose of CSI is to study on a current situation of ROW management and developing a ROW current situation map as a baseline so that appropriate measures can be applied for effective ROW management and encroachment prevention.
- The CSI work covers on all national roads under management of MPWT. A primary focus for the CSI is 1-digit national roads of which information is to be compiled on a ROW management map. After the completion of the map for the 1-digit national roads, 2-digit national roads will be targeted.

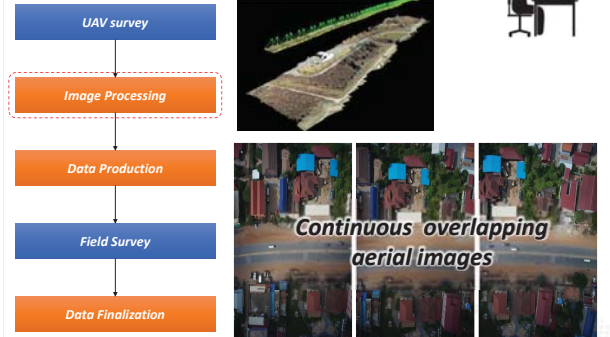
## ORGANIZATION

Main contents of CSI are:

- 1) UAV survey,
- 2) data processing and
- 3) field survey, which is consisted data processing for Map and preparing survey sheet.

RID & DPWT should understand roles and collaborate with each organization to collect basic information through the surveys.

## CSI WORK CONTENTS

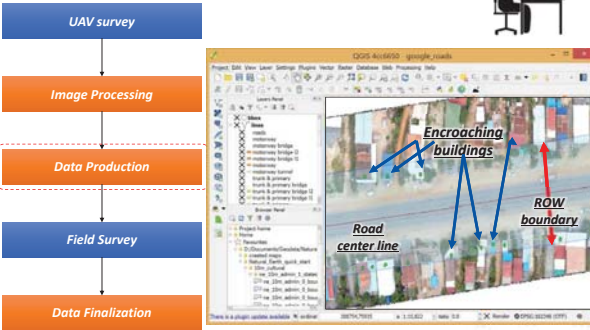


## CSI WORK CONTENTS

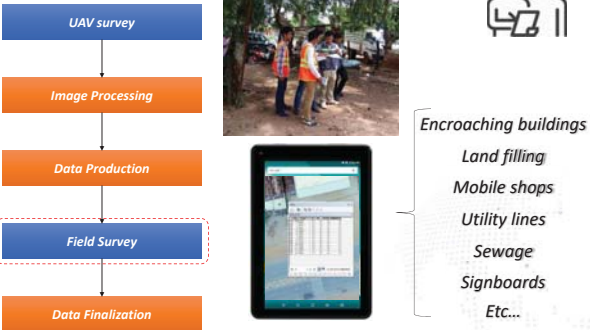




# CSI WORK CONTENTS



# CSI WORK CONTENTS



# PREPARATION FOR FIELD SURVEY



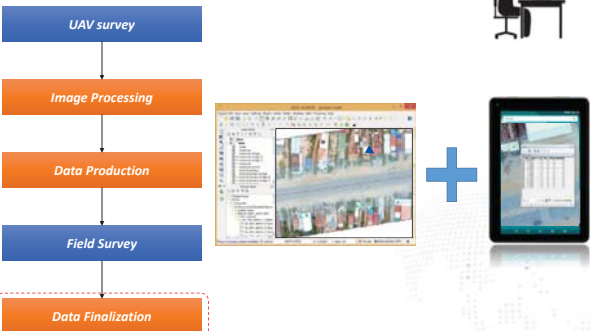
# PERMISSIONS - SAMPLE -

Request from JICA project to MPWT

Request for Drone survey from MPWT

Permission from Provincial Office

# CSI WORK CONTENTS



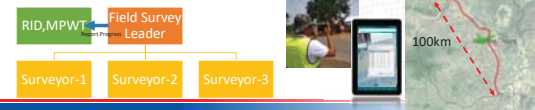
# CSI ROLE

	ITEM	MPWT	DPWT	LOCAL AUTHORITY
KICKOFF MTG	Arrangement	✓	✓	
	Implementation	✓	✓	✓
UAV SURVEY	Flight permission	✓	✓	✓
	Flight plan	✓		
	UAV survey	✓	✓	
OFFICE WORK	Supervision (for outsourcing)	✓		Support
	Image processing	✓		
FIELD SURVEY	Mapping (data production)	✓		
	FS permission	✓	✓	✓
GIS	Field survey	✓	✓	
	Supervision	✓		
	data finalization	✓		

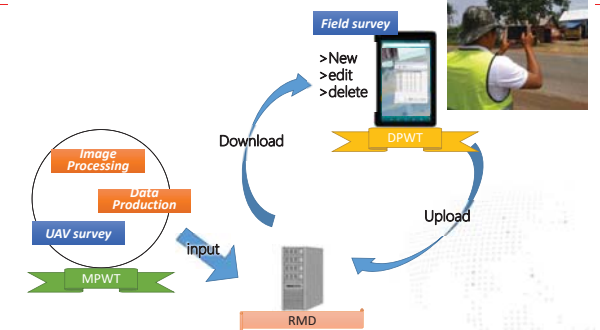
# SURVEY TEAM ARRANGEMENT

About team arrangement for Field Survey, the assumption has been considered based on the result of pilot project.

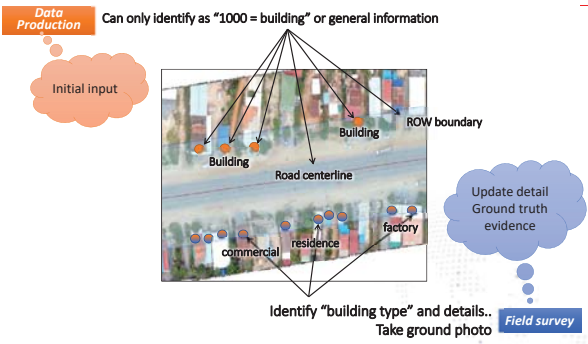
- Field Survey Leader: **1 person** will be assigned to manage Field Survey Team from MPWT or DPWT.
- Field Surveyors: **3 persons** for 1 team will be assigned to implement Field Survey from DPWT. The team could complete 100km within 3 months.
- Team arrangement could be considered depend on scale and priority of road improvement project.



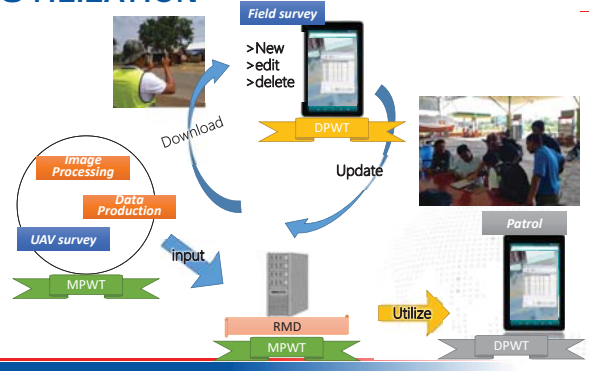
# SYSTEM



# CONCEPT



# UTILIZATION

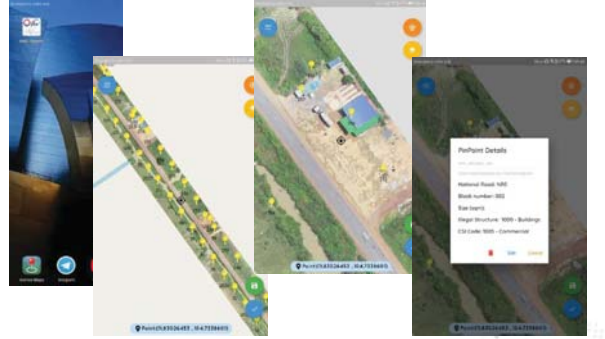


# CSI DATA COLLECTION LIST

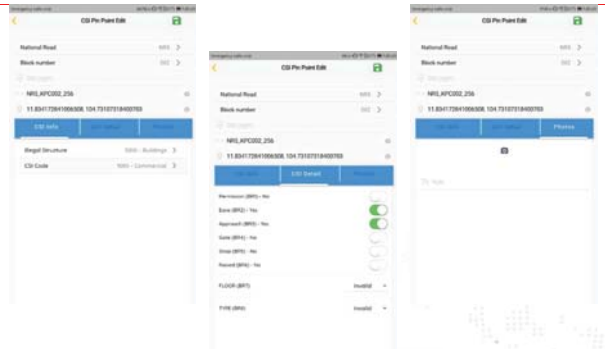
Data Production	Field Survey
1000 Building	1000 Residence
1001 1st digit NR	1001 Residence/Commercial
1010 1st digit NR Bypass	1002 Commercial
1020 2nd digit NR	1003 Shed
1030 2nd digit NR Bypass	1004 Temporary shop
1040 3rd digit NR	1005 Building under construction
1050 3rd digit NR Bypass	1006 Factory
1060 4th digit NR	1007 Petro station
1070 4th digit NR Bypass	1008 Public office
1080 5th digit NR	1009 School public
1090 5th digit NR Bypass	1010 School private
1100 6th digit NR	1011 Pagoda
1110 6th digit NR Bypass	1012 Health center
1120 7th digit NR	1013 Mobile cart
1130 7th digit NR Bypass	1014 Other
1140 8th digit NR	1015 Other
1150 8th digit NR Bypass	1016 Approach to building
1160 9th digit NR	1017 Access Road
1170 9th digit NR Bypass	1018 Land filling
1180 10th digit NR	1019 Open Area
1190 10th digit NR Bypass	1020 Parking
1200 11th digit NR	1021 Other
1210 11th digit NR Bypass	3100 Signboard public
1220 12th digit NR	3110 Signboard private
1230 12th digit NR Bypass	3200 Street Light
1240 13th digit NR	3300 Pylon L
1250 13th digit NR Bypass	3310 Pylon R
1260 14th digit NR	3400 Cemetery
1270 14th digit NR Bypass	3500 Private drainage
1280 15th digit NR	3600 Well
1290 15th digit NR Bypass	3700 KM post
1300 16th digit NR	3800 P/W pole
1310 16th digit NR Bypass	3910 C/I pole
1320 17th digit NR	3990 Control point (GCP)
1330 17th digit NR Bypass	3910 Benchmark (BM)
1340 18th digit NR	3999 Other
1350 18th digit NR Bypass	4000 post in remarks
1360 19th digit NR	4599 Other
1370 19th digit NR Bypass	5000 PCM
1380 20th digit NR	5100 CP hard approach
1390 20th digit NR Bypass	5999 post in remarks
1400 21st digit NR	5999 post in remarks
1410 21st digit NR Bypass	5999 Other
1420 22nd digit NR	
1430 22nd digit NR Bypass	
1440 23rd digit NR	
1450 23rd digit NR Bypass	
1460 24th digit NR	
1470 24th digit NR Bypass	
1480 25th digit NR	
1490 25th digit NR Bypass	
1500 26th digit NR	
1510 26th digit NR Bypass	
1520 27th digit NR	
1530 27th digit NR Bypass	
1540 28th digit NR	
1550 28th digit NR Bypass	
1560 29th digit NR	
1570 29th digit NR Bypass	
1580 30th digit NR	
1590 30th digit NR Bypass	
1600 31st digit NR	
1610 31st digit NR Bypass	
1620 32nd digit NR	
1630 32nd digit NR Bypass	
1640 33rd digit NR	
1650 33rd digit NR Bypass	
1660 34th digit NR	
1670 34th digit NR Bypass	
1680 35th digit NR	
1690 35th digit NR Bypass	
1700 36th digit NR	
1710 36th digit NR Bypass	
1720 37th digit NR	
1730 37th digit NR Bypass	
1740 38th digit NR	
1750 38th digit NR Bypass	
1760 39th digit NR	
1770 39th digit NR Bypass	
1780 40th digit NR	
1790 40th digit NR Bypass	
1800 41st digit NR	
1810 41st digit NR Bypass	
1820 42nd digit NR	
1830 42nd digit NR Bypass	
1840 43rd digit NR	
1850 43rd digit NR Bypass	
1860 44th digit NR	
1870 44th digit NR Bypass	
1880 45th digit NR	
1890 45th digit NR Bypass	
1900 46th digit NR	
1910 46th digit NR Bypass	
1920 47th digit NR	
1930 47th digit NR Bypass	
1940 48th digit NR	
1950 48th digit NR Bypass	
1960 49th digit NR	
1970 49th digit NR Bypass	
1980 50th digit NR	
1990 50th digit NR Bypass	

THANK YOU FOR YOUR ATTENTION!!

# DATA COLLECTION



# DATA COLLECTION



# IEP (ILLEGAL ENCROACHMENT PREVENTION) APPROACHES

THE PROJECT FOR CAPACITY ENHANCEMENT  
ON ENVIRONMENTAL AND SOCIAL CONSIDERATIONS  
IN IMPLEMENTING AGENCY IN ROAD SECTOR  
IN THE KINGDOM OF CAMBODIA

## OUTLINE

# APPROACH METHODS

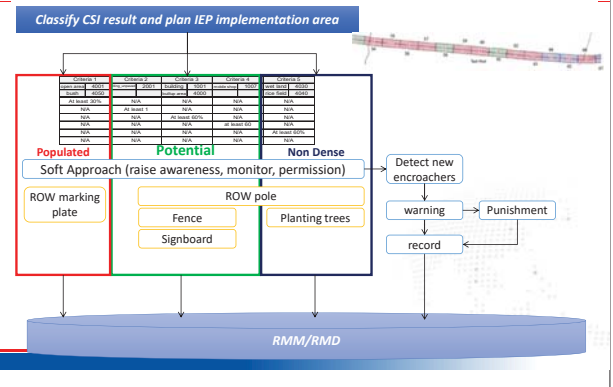
## SOFT & HARD APPROACH

Hard Approach			Soft Approach		
New Road Design	Installing Facilities	Permission and Registration	Monitoring and Intervention	Raising awareness	
Constructing sub-road as ROW boundary	Digging channels as ROW boundary Pole Signboard	ROW marking plate Access road permit	Appealing to the court ROW use permit	Local governmental official Regular patrol activities	Local people High school and university students
Road from the edge of ROW boundary and keep empty space in the middle	Fence Growing Tree	ROW registration	Collaborating with local authorities		

## GENERAL

- ROW management map is developed using the data collection activities from CSI. Based on densities of ROW encroachments pointed on the ROW map, ROW areas shall be classified into populated, potential and non-dense areas. IEP shall be implemented properly according to classification of areas on ROW management map in order not to allow any illegal or inappropriate land uses in ROW.
- IEP approaches aim to prevent new encroachment in the ROW and to regulate temporary use of ROW with permission so as to manage and maintain the land secured for road development.

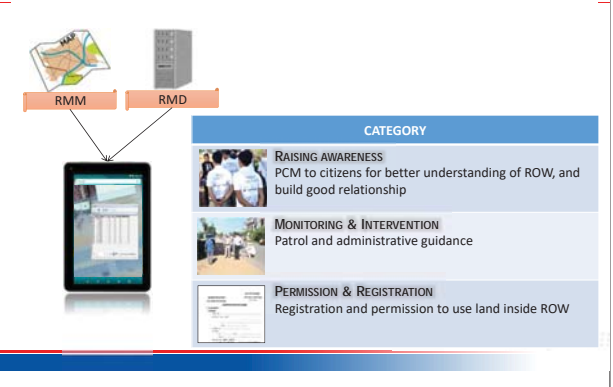
## IEP METHOD CLASSIFICATION



## ORGANIZATION

- According to Law on Road, MPWT is the road control authority in charge of construction, maintenance and management of all national roads in Cambodia. Also, Road Infrastructure Department (RID) of MPWT is a main actor in charge of ROW management of all national roads. Additionally, there are also other agencies/ministries involved in the ROW management such as Ministry of Interior, Ministry of Land Management, Urban Planning and Construction and Ministry of Education, Youth and Sport. MPWT is responsible for coordination, implementation, maintenance of the necessary records on the ROW and expenditure management and preparation of budgetary provisions.

## IEP SOFT APPROACH



# IEP HARD APPROACH

- 1. ROW POLE
- 2. IEP FENCE
- 3. SIGNBOARD
- 4. ROW MARKING PLATE
- 5. PEDESTRIAN FENCE
- 6. GROWING TREE

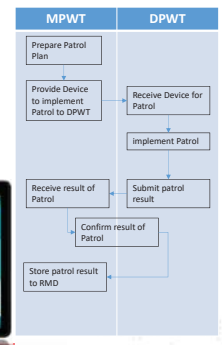


# SOFT APPROACH-2

## Monitoring and Intervention

MPWT and DPWT should collaborate to implement "Patrol" to collect the evidence from resident and to provide "Warning" for Illegal Encroachment.

- Patrol
- Administrative Guidance (To be Considered)



# ROLES & PROCEDURES



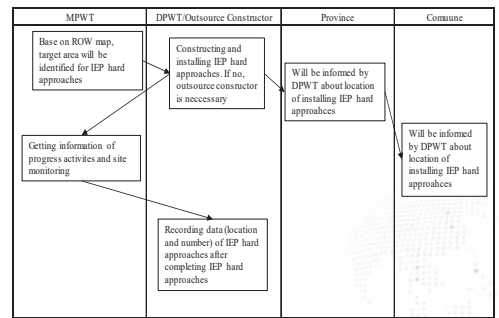
# IEP HARD APPROACH ROLE

ITEM	MPWT	DPWT	Local Authority	MLMUPC	OTHER
Classification	✓				
Raise awareness (PCM)	1) Citizen	✓	✓		
	2) High school / University	✓			✓
	3) Local government office	✓	✓	✓	
Monitoring & intervention	1) Regular patrol	✓	✓	✓	
	2) Collaborating w/ local authorities		✓	✓	
	3) Appealing to court	✓	✓	✓	✓
Permission & Registration	1) ROW permit	✓	✓	✓	
	2) ROW registration	✓	✓	✓	
	3) Access road permit	✓	✓		✓
Supervision	1) Record of "raising awareness"	✓	✓		
	2) Record of "Monitoring"	✓	✓		
	3) Record of "Permission"	✓	✓		

# IEP SOFT APPROACH ROLE

ITEM	MPWT	DPWT	Local Authority	MLMUPC	OTHER
Classification	✓				
Raise awareness (PCM)	1) Citizen	✓	✓		
	2) High school / University	✓			✓
	3) Local government office	✓	✓	✓	
Monitoring & intervention	1) Regular patrol	✓	✓	✓	
	2) Collaborating w/ local authorities		✓	✓	
	3) Appealing to court	✓	✓	✓	✓
Permission & Registration	1) ROW permit	✓	✓	✓	
	2) ROW registration	✓	✓	✓	
	3) Access road permit	✓	✓		✓
Supervision	1) Record of "raising awareness"	✓	✓		
	2) Record of "Monitoring"	✓	✓		
	3) Record of "Permission"	✓	✓		

# HARD APPROACH

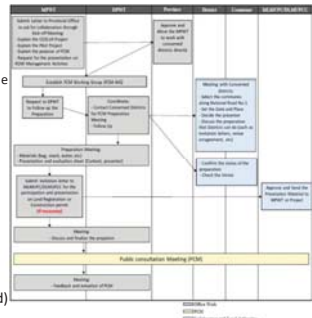


# SOFT APPROACH-1

## Raising awareness

Relevant organizations such as MPWT, DPWT and Local Authority should collaborate to provide "Consultation Meeting" to local people and relevant governments to ensure better understanding of ROW, and build good relationship

- Raising local people's awareness
- Raising relevant government officials' awareness
- Integrating ROW concept into school curriculum (To be Considered)



# ផលវិជ្ជមាន និងផលអវិជ្ជមាន នៃការរំលោភដីចំណីផ្លូវ

## ផលវិជ្ជមាន នៃការរំលោភដីចំណីផ្លូវ

- កាត់បន្ថយការចំណាយរបស់ រដ្ឋាភិបាលទៅលើការដោះស្រាយផលប៉ះពាល់នៅពេលអភិវឌ្ឍផ្លូវ
- ងាយស្រួលក្នុងការអភិវឌ្ឍន៍បរិក្ខារផ្លូវផ្សេងៗដូចជា លូ ផ្លាកសញ្ញាពេចពណ៌
- កាត់បន្ថយដីលោះរាងរដ្ឋ និងប្រជាពលរដ្ឋ
- កាត់បន្ថយគ្រោះថ្នាក់ពេច (គ្មានអ្នករស់នៅភ្ញៀវផ្លូវ, អ្នកបើកបរមើលឃើញស្ថានភាពផ្លូវច្បាស់)
- ធ្វើឱ្យផ្លូវប្រើប្រាស់បានយូរ មិនងាយខូច (ដោយសារមានគ្មានការបាក់ដីខ្ពស់ជាងផ្លូវមានប្រព័ន្ធរំលោះទឹកចេញពីផ្លូវគ្រប់គ្រាន់)
- ផ្លូវមានសោភ័ណភាព

## ផលវិជ្ជមាន និងផលអវិជ្ជមាន នៃការរំលោភដីចំណីផ្លូវ

### ផលអវិជ្ជមាន នៃការរំលោភដីចំណីផ្លូវ

- រដ្ឋចំណាយច្រើនទៅលើការដោះស្រាយផលប៉ះពាល់ គម្រោងពង្រីកផ្លូវ
- ធ្វើឱ្យផ្លូវឆាប់ខូច (ដោយសារការរស់នៅជាប់ផ្លូវ, ចាក់ដីខ្ពស់ជាងផ្លូវ)
- រួមចំណែក បង្កគ្រោះថ្នាក់ចរាចរ ដោយសារការចូលមករស់នៅក្នុងដីចំណីផ្លូវជាឧបសគ្គធ្វើឱ្យអ្នកបើកបរមើលមិនច្បាស់
- ផ្លូវគ្មានសោភ័ណភាព

THANK YOU FOR YOUR ATTENTION!

អរគុណសម្រាប់ការយកចិត្តទុកដាក់ស្តាប់

## PRIORITY ACTIVITIES

### Advantages of ROW Management

- Illegal occupation of state land makes implementation of resettlement procedure much more complicated and that management doesn't work effectively.
- And, resettlement cost will be higher in the future without adequate ROW management.
- Adequate ROW management can
  - **Minimize the resettlement cost,**
  - **lead to smooth project implementation** related to the road construction without delay of land issue.
- CSI and IEP activities contribute to prevent the illegal encroachment to the ROW on national road and to reduce the resettlement in the future.

## ROW MANAGEMENT ACTIVITY AND PLAN

THE PROJECT FOR CAPACITY ENHANCEMENT ON ENVIRONMENTAL AND SOCIAL CONSIDERATIONS IN IMPLEMENTING AGENCY IN ROAD SECTOR IN THE KINGDOM OF CAMBODIA

### Contents

- Priority Activities
- Future Development Plan

### Estimation Cost for ROW Management

Total length of all 1digit & 2digit National Road: 8,055km

#### <Priority Activities>

- CSI on the all 1digit & 2digit NR: USD 917,000
- PCM for 50 places/year: USD 100,000 for every year
- Patrol on all 1digit & 2digit NR: USD 73,000 for every year
- New ROW Pole on 1digit & 2digit NR (for 2,675km): USD 3,530,000
- Other Hard approaches is implemented in the national/international road project.

	1 <sup>st</sup> phase (1Y-3Y)	2 <sup>nd</sup> phase (4Y-6Y)	3 <sup>rd</sup> phase (7Y-9Y)
CSI	All 1digit & 2digit NR		Map update
PCM	50 places/year	50 places/year	50 places/year
Patrol	All 1digit & 2digit NR for 150km	All 1digit & 2digit NR for 600km	All 1digit & 2digit NR for 1,925km

### First Phase Target for 3years

- CSI: Half of all 1digit & 2digit NR(3,472km): USD 462,000
- PCM for 50 places (2time in each province): USD 300,000
- Patrol on all 1digit & 2digit NR: USD 73,000
- New ROW Pole for 150km is installed: USD 198,000

Approaches	1 <sup>st</sup> year	2 <sup>nd</sup> year	3 <sup>rd</sup> year	3 years total	Remarks
CSI	Progress	1,142km	1,142km	1,142km	3,427km Half of 1 & 2 digit NR
	UAV	\$111,600	\$109,000	\$111,400	\$332,000 (Outsource) 38.9MM
	Office	\$35,300	\$4,400	\$4,400	\$44,100 90.3MM
	FS	\$30,200	\$25,900	\$30,200	\$86,300 321.7MM
	Total	\$177,000	\$139,000	\$146,000	\$462,000
IEP	PCM	\$100,000	\$100,000	\$100,000	\$300,000 50 places / year
	Patrol	\$72,600	\$72,600	\$72,600	\$217,800 All 1 & 2 digit NR
	ROW Pole	\$66,000	\$66,000	\$66,000	\$198,000 For 150 km
	Total	\$239,000	\$239,000	\$239,000	\$717,000
<b>Total</b>	<b>\$416,000</b>	<b>\$378,000</b>	<b>\$385,000</b>	<b>\$1,179,000</b>	

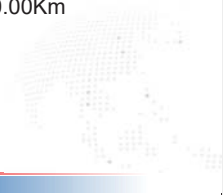


# FUTURE DEVELOPMENT PLAN



## Development Plan

- NR #1            Total Length    162.00Km
- NR #2 + 22    Total Length    120.00Km
- NR #4           Total Length    230.00Km
- NR #31+33+3 Total Length    150.00Km
- NR #8           Total Length    130.00Km
- NR #48         Total Length    150.00Km



Thank you!!!



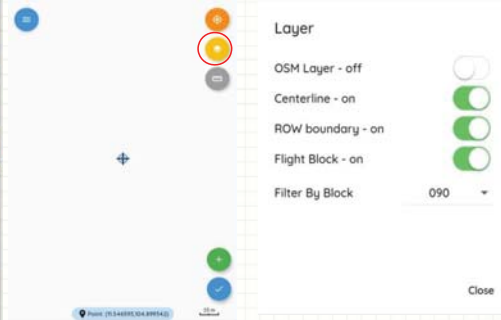
# RMD System APP Training



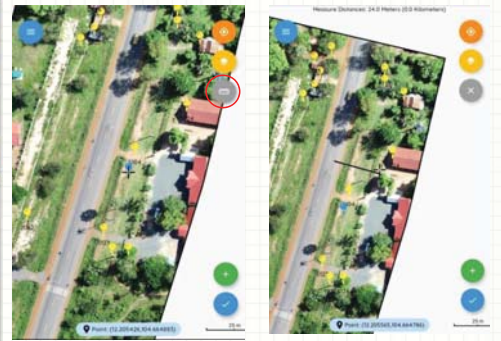
## Content:

1. Login
2. Show current location
3. Show Layer
4. Measure distance
5. Show point location
6. Add New CSI Point
7. Edit CSI Point
8. IEP

## 3. Show Layer



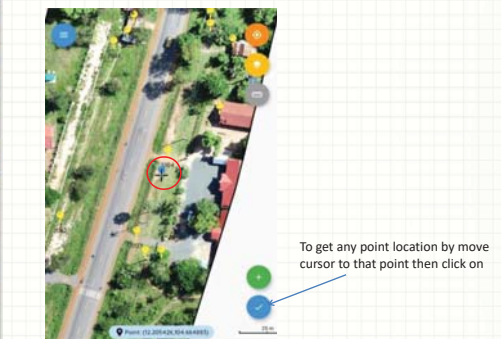
## 4. Measure distance



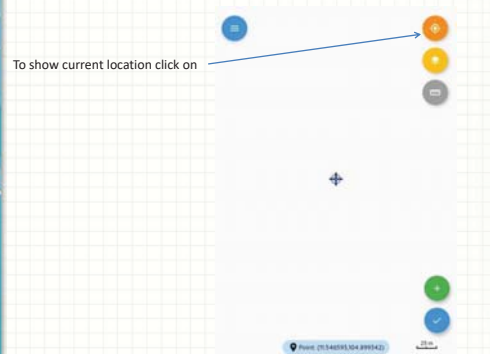
## 1. Login



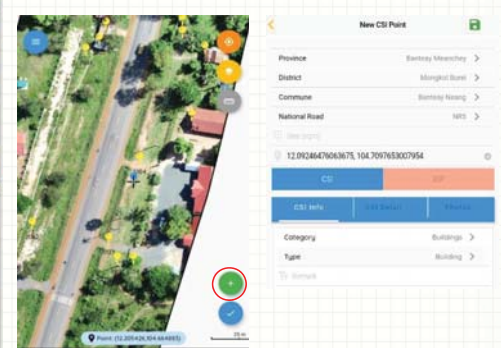
## 5. Show point location



## 2. Show current location



## 6. Add New CSI Point



Click on Category then select relevant CSI Category



Click on Type the choose

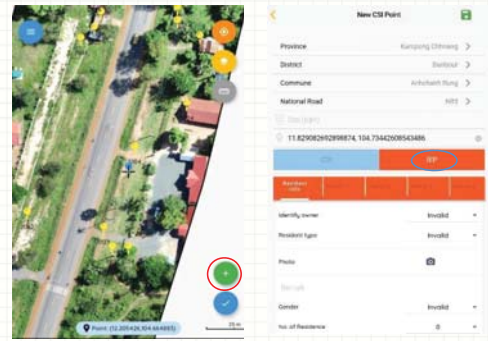
Then update necessary information



Click on CSI Detail Tab



## 8. IEP

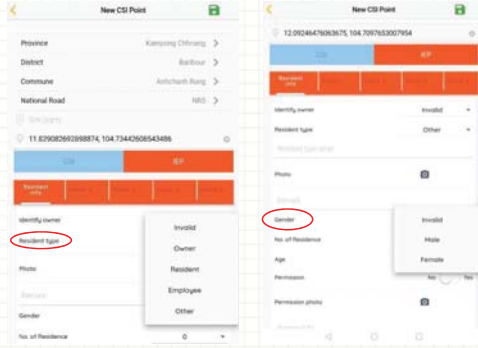


Click on Photos Tab, it can take 3 photos



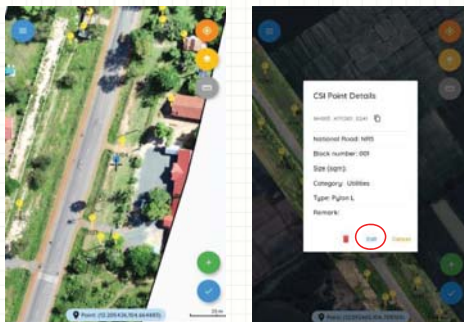
Resident type

Gender



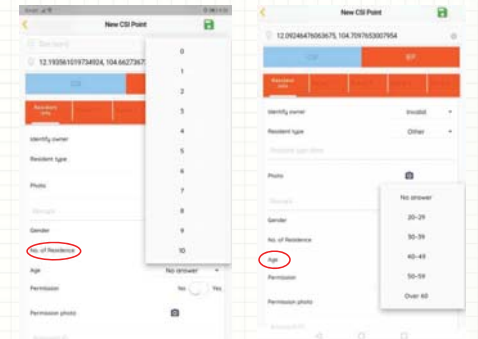
## 7. Edit CSI Point

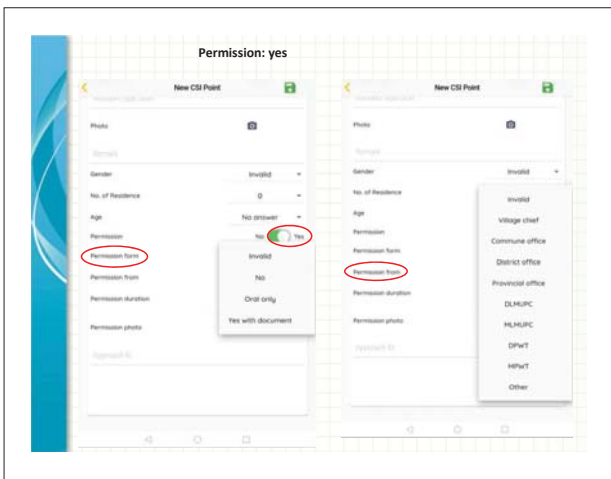
To edit CSI Point, click on CSI point then choose Edit



No. of Residence


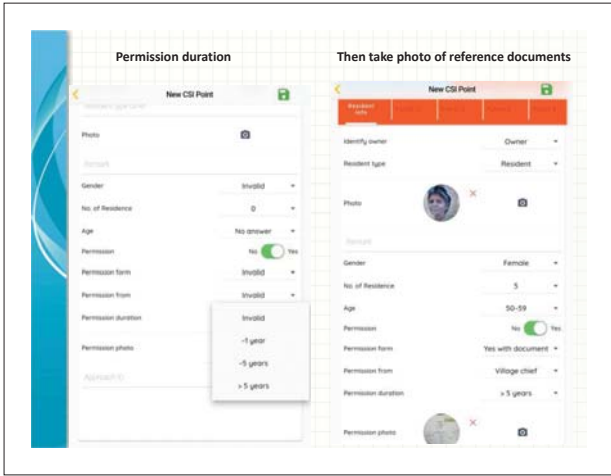
Age



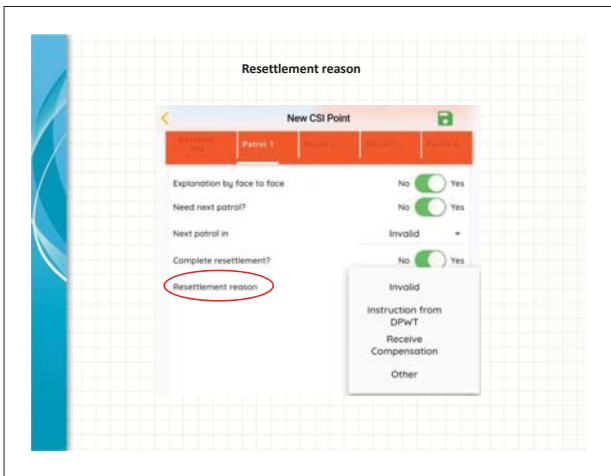
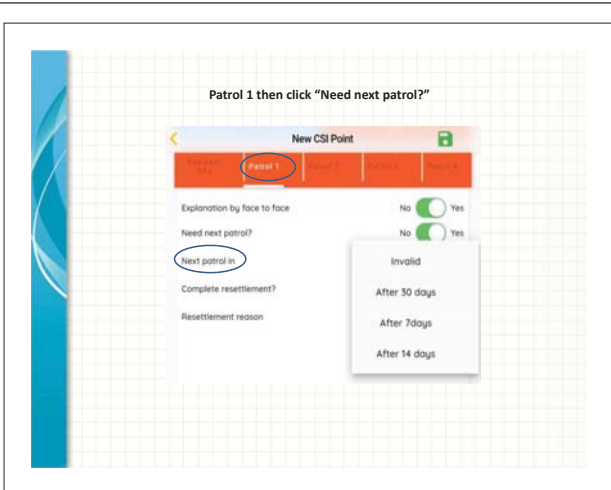


## Field Practice at Phnom Penh Hotel

- **Update CSI Point(CSI) :**  
Category, Type, Picture
- **Add New CSI Point :**  
New Point, Category, Type, Picture
- **Update CSI Point (IEP) :**  
Resident Info, Patrol

**Thanks!!**



NAME (ឈ្មោះ): \_\_\_\_\_

ORG (អង្គការ): \_\_\_\_\_

# WORKSHOP សិក្ខាសាលា COMPREHENSION TEST តេស្តសមត្ថភាព

THE PROJECT FOR CAPACITY ENHANCEMENT  
ON ENVIRONMENTAL AND SOCIAL CONSIDERATIONS IN  
IMPLEMENTING AGENCY IN ROAD SECTOR  
IN THE KINGDOM OF CAMBODIA

គម្រោងពង្រឹងសមត្ថភាពលើការពិចារណាផ្នែកបរិស្ថាន និងសង្គមក្នុង  
អង្គការប្រតិបត្តិលើវិស័យផ្លូវថ្នល់ក្នុងប្រទេសកម្ពុជា

## Q1: PURPOSE OF ROW MANAGEMENT

សំណួរ៖ គោលបំណងនៃការគ្រប់គ្រងដីចំណីផ្លូវ

▶ Select 1 **wrong** answer

សូមជ្រើសរើស ចម្លើយ ១ ដែលខុស

- To sustain public land  
ដើម្បីធ្វើឱ្យទិរន្តរភាពផ្លូវសាធារណៈ
- To prevent illegal encroachment  
ដើម្បីការពារការទម្រានដីចំណីផ្លូវខុសច្បាប់
- To optimize construction  
ដើម្បីធ្វើឱ្យប្រសើរឡើងនូវការសាងសង់
- To enhance road facility management  
ដើម្បីធ្វើឱ្យប្រសើរឡើងនូវការគ្រប់គ្រងបរិក្ខារផ្លូវថ្នល់
- To punish illegal users  
ដើម្បីពិន័យ និងដាក់ទោសអ្នកដែលប្រើប្រាស់ដីចំណីផ្លូវខុសច្បាប់

1P

## Q4: ROLE FOR EACH ACTIVITY IN CSI

សំណួរ៖ តួនាទីសម្រាប់សកម្មភាពនីមួយៗក្នុងការងារCSI

▶ Fill [✓] for correct authority for DPWT role សូមគុណ [✓] សម្រាប់សមត្ថកិច្ចត្រឹមត្រូវសម្រាប់មន្ទីរ

6P

ITEM ប្រភេទ	MPWT ប្រសូង	DPWT មន្ទីរ	LOCAL AUTHORITY អាជ្ញាធរមូលដ្ឋាន
KICKOFF MTG (កិច្ចប្រជុំចាប់ផ្តើម)	Arrangement ការរៀបចំ	✓ [ ]	[ ]
	Implementation ការអនុវត្ត	✓ [ ]	✓ [ ]
UAV SURVEY (ការស្រាវជ្រាវ UAV)	Flight permission ការអនុញ្ញាតឱ្យបើកយានយន្តប្រយោជន៍	✓ [ ]	✓ [ ]
	Flight plan ផែនការបោះពុម្ពផ្សាយ	✓ [ ]	[ ]
	UAV survey ការស្រាវជ្រាវយានយន្តប្រយោជន៍	✓ [ ]	[ ]
OFFICE WORK (ការងារការិយាល័យ)	Supervision (for outsourcing) ការត្រួតពិនិត្យ (ឧបត្ថម្ភសេវាខាងក្រៅ)	✓ [ ]	[ ]
	Image processing ការដំណើរការរូបភាព Mapping (data production) ការធ្វើទិន្នន័យ (ផលិតទិន្នន័យ)	✓ [ ]	[ ]
FIELD SURVEY (ការចាតុប្រតិបត្តិការ)	FS permission ការអនុញ្ញាតឱ្យចាតុប្រតិបត្តិការ	✓ [ ]	[ ]
	Field survey ការចាតុប្រតិបត្តិការ	[ ]	[ ]
	Supervision ការត្រួតពិនិត្យ	✓ [ ]	[ ]
GIS	data finalization ការបញ្ចប់ទិន្នន័យ	✓ [ ]	[ ]

## Q5: PURPOSE OF IEP

សំណួរ៖ គោលបំណងនៃវិធីសាស្ត្រការពារការទម្រានដីចំណីផ្លូវខុសច្បាប់

▶ Select 1 **wrong** answer

សូមជ្រើសរើស ចម្លើយ ១ ដែលខុស

- To select most suitable area for bridge construction  
ដើម្បីជ្រើសរើសតំបន់ដែលសមស្របបំផុតសម្រាប់សាងសង់ស្ពាន
- To classify population inside Right Of Way  
ដើម្បីចាត់ថ្នាក់ចំនួនប្រជាជនដែលរស់នៅក្នុងដីចំណីផ្លូវ
- To prevent new encroachment  
ដើម្បីការពារការទម្រានដីចំណីផ្លូវថ្មី
- To manage and maintain public land  
ដើម្បីគ្រប់គ្រង និងថែទាំដីសាធារណៈ

1P

## Q2: FULL TITLE OF RMS COMPONENT

សំណួរ៖ ចំណងជើងពេញនៃសមាធាតុ RMS

▶ Write the full name of each abbreviation

សូមសរសេរពាក្យពេញនៃពាក្យកាត់ខាងក្រោម (ជាអង់គ្លេស ឬខ្មែរ)

- RMS:
- RMG:
- CSI:
- IEP:
- RMM:
- RMD:

6P

## Q3: PURPOSE OF CSI

សំណួរ៖ គោលបំណងនៃការកំណត់ស្ថានភាពបច្ចុប្បន្ន

▶ Select 1 **wrong** answer

សូមជ្រើសរើស ចម្លើយ ១ ដែលខុស

- To identify current situation  
ដើម្បីកំណត់ស្ថានភាពបច្ចុប្បន្ន
- To create Right Of Way Management Map  
ដើម្បីបង្កើតផែនទីគ្រប់គ្រងដីចំណីផ្លូវ
- To create baseline for IEP classification  
ដើម្បីកំណត់គោលការណ៍មូលដ្ឋាន (Baseline) សម្រាប់ការធ្វើចំណាត់ថ្នាក់  
វិធីសាស្ត្រការពារការទម្រានដីចំណីផ្លូវខុសច្បាប់
- To construct sustainable infrastructure  
ដើម្បីសាងសង់ហេដ្ឋារចនាសម្ព័ន្ធដែលមានទិរន្តរភាព

1P

## Q6: ROLE FOR EACH ACTIVITY IN IEP

សំណួរ៖ តួនាទីសម្រាប់សកម្មភាពនីមួយៗក្នុងការងារការពារការទម្រានដីចំណីផ្លូវខុសច្បាប់ (អង់គ្លេស)

▶ Fill [✓] for correct authority for DPWT role

4P

ITEM	MPWT	DPWT	Local Authority	MUMUPC	OTHER
Classification	✓ [ ]	[ ]			
Raise awareness	1) PCM	✓ [ ]	✓ [ ]		
	2) High school / University	✓ [ ]	[ ]		✓ [ ]
	3) Local government office	✓ [ ]	[ ]	✓ [ ]	
Monitoring & intervention	1) Regular patrol	✓ [ ]	✓ [ ]		
	2) Collaborating w/ local authorities	[ ]	[ ]	✓ [ ]	
	3) Appealing to court	✓ [ ]	✓ [ ]		✓ [ ]
Permission & Registration	1) ROW permit	✓ [ ]	✓ [ ]		
	2) ROW registration	✓ [ ]	[ ]	✓ [ ]	
	3) Access road permit	✓ [ ]	[ ]		✓ [ ]
Supervision	1) Record of "raising awareness"	✓ [ ]	[ ]		
	2) Record of "Monitoring"	✓ [ ]	[ ]		
	3) Record of "Permission"	✓ [ ]	[ ]		

## Q6: ROLE FOR EACH ACTIVITY IN IEP

សំណួរ៖ តួនាទីសម្រាប់សកម្មភាពនីមួយៗក្នុងការងារការពារការទម្រានដីចំណីផ្លូវខុសច្បាប់ (ភាសាខ្មែរ)

▶ សូមគុណ [✓] សម្រាប់សមត្ថកិច្ចត្រឹមត្រូវសម្រាប់មន្ទីរ

4P

ប្រភេទ	ប្រសូង	មន្ទីរ	អាជ្ញាធរ	ក្រសួង/អង្គការ	ផ្សេងៗ
ចំណាត់ថ្នាក់	✓ [ ]	[ ]			
ការលើកកម្ពស់ការយល់ដឹង	1) កិច្ចប្រជុំ/ប្រារព្ធនានា	✓ [ ]	✓ [ ]		
	2) វិទ្យាល័យ/បណ្ឌិត្យាល័យ	✓ [ ]	[ ]		✓ [ ]
	3) ការងារយល់ដឹងក្នុងសហគមន៍	✓ [ ]	[ ]	✓ [ ]	✓ [ ]
ការត្រួតពិនិត្យ និងការអនុវត្ត	1) ការស្រាវជ្រាវ	✓ [ ]	✓ [ ]		
	2) សហការជាមួយអាជ្ញាធរមូលដ្ឋាន	[ ]	[ ]	✓ [ ]	
	3) បណ្តុះបណ្តាល	✓ [ ]	[ ]	✓ [ ]	✓ [ ]
ការអនុញ្ញាត និងការចុះបញ្ជី	1) ការអនុញ្ញាតប្រើប្រាស់ដីចំណីផ្លូវ	✓ [ ]	✓ [ ]		
	2) ការចុះបញ្ជីដីចំណីផ្លូវ	✓ [ ]	[ ]	✓ [ ]	✓ [ ]
	3) ការអនុញ្ញាតសាងសង់ផ្លូវថ្នល់ប្រយោជន៍	✓ [ ]	[ ]		✓ [ ]
ការត្រួតពិនិត្យ	1) ការត្រួតពិនិត្យដីចំណីផ្លូវសាធារណៈ	✓ [ ]	[ ]		
	2) ការត្រួតពិនិត្យផ្លូវថ្នល់	✓ [ ]	[ ]		
	3) ការត្រួតពិនិត្យការអនុវត្ត	✓ [ ]	[ ]		



**Q7: WHAT IS THE TABLET & APP FOR?**

**សំណួរលេខ ៧ តើ TABLET និង APP សម្រាប់ធ្វើការងារអ្វី?**

1P

► Select 1 **wrong** answer

**សូមជ្រើសរើស ចម្លើយ ១ ដែលខុស**

- 1. For CSI UAV survey  
សម្រាប់ការងារស្រាវជ្រាវបង្ហាញរូបភាពដីឡើងវិញកំណត់ស្ថានភាពបច្ចុប្បន្ន
- 2. For CSI field survey  
សម្រាប់ការងារចុះស្រាវជ្រាវដីឡើងវិញកំណត់ស្ថានភាពបច្ចុប្បន្ន
- 3. For IEP patrol  
សម្រាប់ការងារល្បាតដីឡើងវិញការពារការទម្រង់ដីចំណីផ្លូវខុសច្បាប់
- 4. For IEP activity record  
សម្រាប់កត់ត្រាសកម្មភាពការពារការទម្រង់ដីចំណីផ្លូវខុសច្បាប់



**END OF THE TEST!!**

**ចុងបញ្ចប់នៃបញ្ជីសំណួរ**

**សូមអរគុណ!!!**





# WORKSHOP FOR PRACTICE OF ROW MANAGEMENT SYSTEM

THE PROJECT FOR CAPACITY ENHANCEMENT ON  
ENVIRONMENTAL AND SOCIAL CONSIDERATIONS IN  
IMPLEMENTING AGENCY IN ROAD SECTOR IN CAMBODIA  
(CESCOR)

**30<sup>TH</sup> AUGUST, 2019**

**PHNOM PENH HOTEL, PHNOM PENH**



FOR MORE INFORMATION CONTACT: OFFICE +855(0)61-960-213

## AGENDA

### Workshop for Practice of ROW Management System The Project for Capacity Enhancement on Environmental and Social Considerations in Implementing Agency in Road Sector in Cambodia (CESCoR)

PHNOM PENH Hotel, Phnom Penh, 30<sup>th</sup> August 2019

Target Participants: DPWTs in Kampong Speu, Takeo, Kampot, Kep, Sihanoukville and Koh Kong

Time	Program	Content
08:30-08:45	Registration	
08:45-08:50	<b>Cambodian National Anthem</b>	
08:50-08:55	<b>Opening Remarks</b> Mr. Khoun Kompheak, Deputy Director, RID, MPWT	
08:55-09:25	<b>Presentation on Outline for ROW Management Methods</b> Mr. CHEA Samnang, Office Chief of ROW, RID, MPWT	1. Legal Framework, 2. Structure of CSI (RMD, RMM, UAV and Field survey), 3. Structure of IEP (Hard and Soft Approaches)
09:25-10:10	<b>Presentation on Field Survey for Current Status Identification (CSI)</b> Mr. KHAI Saray, Deputy Office Chief of ROW, RID, MPWT	1. Outline of Field Survey 2. Detailed Procedure for Field survey 3. Data collection and utilization by survey result (data analysis)
10:10-10:25	Coffee Break	
10:25-11:10	<b>Presentation on Type of Illegal Encroachment Prevention (IEP) Approaches</b> Mr. KAING Theara, Official, RID, MPWT	1. Type of IEP approaches (Soft and Hard approach including typical cross section for future development) 2. Procedure for Soft Approaches such as Conduct PCM, Patrol and Provide ROW usage permission
11:10-11:40	<b>Presentation on ROW Management Activity and Plan</b> Mr. HAY Chandara, Deputy Office Chief of ROW, RID, MPWT	1. Priority Activities (CSI, PCM and ROW Pole Installation) 2. Future Development Plan
11:40-11:55	<b>Q&amp;A Session</b>	
11:55-12:00	<b>Closing Remarks</b> Mr. Khoun Kompheak, Deputy Director, RID, MPWT	
12:00-13:30	<b>Luncheon</b>	
13:30-14:00	<b>Comprehension Test for Participants</b>	
14:00-14:30	<b>Presentation on Implementation of Field Survey (CSI) and Patrol (IEP)</b> JICA Project Team	1. Procedures for Field Survey 2. Procedures for Patrol 3. How to use Tablet App for Field survey and Patrol
14:30-15:00	<b>Result of Comprehension Test</b>	
15:00-16:30	<b>Field Practice for Field Survey and Patrol at PHNOM PENH Hotel, JICA Project Team</b>	

Note: All Presentations will be English, verbal speech in Khmer



**WORKSHOP FOR PRACTICE OF ROW MANAGEMENT SYSTEM**

**DISCUSSION MEMO**

Date & Time:	August 30 <sup>th</sup> , 2019 from 8:30am to 4:00pm
Place	PHNOM PENH Hotel, Phnom Penh
Attendees:	Mr. Khoun Kompheak, Deputy Director, RID/MPWT Mr. Chea Samnang, Chief of ROW Office, RID/MPWT Mr. Hay Chandara, Deputy Chief of ROW Office, RID MPWT Ms. Eam Sokchea, Deputy Chief of Environment and Public Service Office, PID/MPWT And Other MPWT officials and DPWT officials from Kampong Speu, Koh Kong, Takeo, Kep, Kampot and Preah Vihear (see the attendant list in this memo)
Project Team:	Mr. Yamashita, Mr. Kumagai, Ms. Nomura, Ms. Sophy, Mr. Soheat, Mr. Luch, Mr. Sereyvuth and Mr. Samon
Agenda / Discussion Points:	- To train the DPWTs' Officials on ROW management System through the presentations from ROW TF members (MPWT's Officials); - To conduct the field practice for field survey and patrol.

**1- Opening Remark by Mr. Khoun Kompheak, Deputy Director of RID, MPWT**

**2- Presentation on outline of ROW Management Methods by Mr. Chea Samnang**

Comments, Questions and Answers:

**- Question 1 from Mr. Kompheak:**

based on the Order No.6 and Sub-decree No.197, there were updated or upgraded Provincial Roads to National Road 2-digits. So, the length of ROW moved from 20m both sides to 25m both sides. Are there any problems or complaints from people?

**- Answer 1 by Mr. Chea Samnang:**

We do have problem with people after some roads have been upgraded because some people have the hard title. It is difficult to solve since we have only the law on the update on the road but no solution. I think Takeo DPWT can share us their experiences.

**- Added by Takeo DPWT:**



For National Road No.2, we just install the ROW Poles. So far, we have no serious problem. However, we have some problems on National Road No.23 (before it was the provincial road with ROW length of 20m). To solve this misunderstanding, our officials have tried to explain the people that the road was upgraded and we explained them that we do not ask them to re-locate. We just install the ROW pole to set new boundary.

**- Question 2 from Takeo DPWT:**

Can you share any guidelines on Patrol for temporary building?

**- Answer 2 by Mr. Chea Samnang:**

Actually, this project has prepared the Guidelines on ROW Management; including the Patrol as well. Based on this Guidelines, All DPWTs will follow. Besides the guidelines, we will have form, Tablets for Patrol. DPWT can share information and store in Database in MPWT.

**- Question 3 from Kep DPWT:**

Resettlement along National Road No.33 was already done for 15m from the central line. However, people come to encroach by building the temporary structures within another 10m from the boundary of 15m. Can you share any solution or recommendation to solve this problem?

**- Answer 3 by Mr. Chea Samnang:** Did you report to the provincial office or local authority?

**- Replies from Kep DPWT:** Yes, we did report but no solution.

**- Replies from Mr. Samnang:** That is the problem because the provincial office and local authority ignore this matter. We are just DPWT officials, we have only right to explain the people but no right to pull-down the structure.

**- Added by Mr. Kompheak:** The compensation for 15m was for only within the COI (Corridor of Impact) because of the limited budget. We need to explain the people; especially the local authority to understand this matter. Because we lack of information sharing, we have organized the PCM to explain the people and local authority to understand the condition of ROW management.

**- Question 4 from DPWT:**

Because of the economic growth, some areas become crowded. Then, the ROW in urban areas is only 15m both sides from Central line. Related to this, I would like to ask whether we have any legal or official document to define the urban and non-urban areas.

**- Answer 4 by Mr. Chea Samnang:**





DPWT works closely with Provincial Department of Land Management, Urban Planning, Construction and Cadastral (PDLMUPCC). You need to ask them to show you the legal document proving the length of ROW in urban and non-urban areas. How can they say that this is the urban area! If it is really urban area. We need more space for Road due to the number of cars and other road utilities based on the technical standard.

**- Replies added by Mr. Kompheak and Mr. Saray:**

MPWT has submitted letter to MoI to ask about the definition of urban and non-urban areas. However, we have not yet received any clear answer. So, as Mr. Samnang already explained based on the technical standard, urban areas should need more space for road construction and utilities.

**3- Presentation on Field Survey for Current Status Identification (CSI) by Mr. Khai Saray:**

Comments, Questions and Answers:

**- Question 1 from DPWT:**

Based on the Drone flight with the offset of 30m both sides, then there was field survey, so I think there might be some errors with the distance?

**- Answer 1 by Mr. Saray:**

In order to correct the coordinate, we use GCP (2 GCPs for one flight) and process the image.

**- Added by Mr. Hay Chandara:**

CSI is just the inventory on ROW but the flight of each photo has the Geometric information. We corrected the coordinate with GPS from GCP then during the image processing, we overlapped the photos for 80%. Then, we have only very small bias/error in our data. Additionally, we conducted the field survey to update our CSI data. In the next presentation, we will explain the Field Survey for the Patrol (IEP) to update the information.

**- Added by Mr. Kompheak:**

What we have is the base map as evidence to deal with illegal encroachment. Moreover, based on this, we can drafty estimate the resettlement cost. We need to update this database with the help from our DPWT.

**- Added by Mr. Saray:**



If CSI and IEP can be implemented, we can smoothly manage ROW with the cooperation from DPWTs.

#### **4- Presentation on Type of Illegal Encroachment Prevention (IEP) Approaches by Mr. Kaing Theara:**

Comments, Questions and Answers:

- **Added from Mr. Kompheak:** There are two types of IEP: Soft and hard approaches. These two approaches should be implemented together. CESCoR Project mainly implements the soft approaches. However, project also applies the hard approaches (IEP) at Chrey Bak as the sample. If we have our own budget, we can follow this model at other places.

- **Added by Mr. Kompheak:** Explained again on the IEP Method Classification. Do you have other ideas to add?

- **Replies from Mr. Samnang:** I think when we talk about the prevention, we always say we do not have money. But we always have money for the resettlement. Actually, if we can prevent the encroachment, we can save a lot of money. For example, if we apply IEP fence, we can get (1) good safety for people; and (2) no resettlement cost.

- **Added by DPWT:** For IEP Fence, I would like to raise the case from one Farm. That farm grew the bamboo tree as boundary of ROW because it is cheap than installing the fence. However, after some times, those bamboo trees block the access roads to other people's houses. So, I think growing Tree is better.

- **Added by Mr. Samnang:** I think growing bamboo tree is better (it is cheap and people can benefit from the bamboo tree). However, we need to be flexible based on the location.

#### **5- Presentation on ROW Management Activity and Plan by Mr. Hay Chandara:**

Comments, Questions and Answers:

- **Comment from Soheat:** I would like to take the chance to reply to our participants who raised the question about the ROW management plan. This presentation explained the Budget Plan for ROW Management for the future.



- **Comment from Mr. Samnang:** Our DPWT can prepare the proposal to ask for Budget on ROW management for 1st year, 2nd year or 5th year. Our MPWT also has 3-year moving plan. The project can implement CSI and IEP only for National Road No.5. And this workshop is to transfer knowledge from MPWT and DPWT. Then, we need to work in the future.



**6- Closing Remark by Mr. Khoun Kompheak, Deputy Director of RID, MPWT**

**\*\*Afternoon session:**

**1- Comprehensive Test:**

**2- Presentation on Implementation of Field Survey (CSI) and Patrol (IEP) by JICA Team (Mr. Bun SereyVuth):**

Question and Answer:

After presentation, there is a practice on desk of participants. Participants need to add update CSI point, add new CSI point and Update CSI Point (IEP). Assistants assist the participants directly.

- **Q1:** For the new point, who will approve those points?

- **A1:** the updated points will be approved by Server in MPWT, they will check the photo, point and the code before approval.

- **Q2:** Will the photo size be reduced after we upload it to the system?

- **A2:** No, the original size will be kept. The quality and size of photo depends on the device. The App can work offline; so, it is okay with the internet connection, the photo and data will be automatically uploaded.



- **Q3:** The information will be stored in Tablet during offline. So, how can we send the data to server when we have an internet connection?

- **A3:** With the internet connection, there will be button “update or upload” then we can click on it. All data will be sent and checked by server in MPWT.

- **Q4:** There is no App in the Play Store. So, if we have an available app on Smart Phone (some smart phone has better function than Tablet). If MPWT can share us the ID and Password, we can use on our smart phone.

- **A4 from Mr. Kompheak:** Actually, MPWT can share the ID and Password to DPWT with the requested numbers. So, we can know who will use the App or update the information. Therefore, those who have ID and Password will be responsible for any action.

- **Replies added by Mr. Socheat:** Additionally, even you can use on your smart phone, the MPWT allows you to access only to specific Block.

- **Q5:** can we connect to Desktop or transfer data from Tablet to Desktop? Because it is easy to check or make report.

- **A5:** We cannot transfer data to personal computer. After we upload or update, the data will be stored in Database. If you want to check the data, you just can log-in and check data. If you transfer data to personal desktop, you can see only the number no specific information. Regarding this matter, we have never thought of it. However, MPWT can allow the scope of access to database to DPWT based on the discussion.

- **Replies added by Mr. Samnang:** We have also proposed to developers to have function to get the report from Database. As we discussed yesterday, we also want to know the distance of encroachment from central line. We also want to get this information for making report. From database, we can know the size of building although it is not really exact but it can help the draft estimation for the resettlement.

### 3- Practice for Field Survey and Patrol at Phnom Penh Hotel:

- Demonstration on IEP (Patrol) by using Tablet by Mr. Socheat and Mr. Vuth.

- Then, explained another form (IEP\_Patrol) by Mr. Socheat.

- **Added by Mr. Kompheak:** Tablet can store the data for long time, Paper is difficult to be found if the person in charge has gone. However, we still need the paper works to support our works. Based on the RMD and Guidelines that we will have, we will apply to all DPWTs. We need your ideas to improve our system and guidelines.



THE PROJECT FOR CAPACITY ENHANCEMENT  
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- **Added by Mr. Chea Samnang:** This workshop is also kind of training. All the works explained here will become your works (DPWT). So, if you can share your works, it will be good and proper for your works.
- **Question from DPWT:** CSI recorded the encroaching buildings, how about the advertising signboard? To install the big signboard, need to get the approval from Provincial hall. So, what kind of signboard approved by DPWT?
- **Answer by Mr. Chea Samnang:** Based on the law, all signboards on National Roads need the approval from MPWT or DPWT but Provincial Office now takes this work because we have not yet had the Joint Prakas on ROW Usage. However, if the signboards on roads in city are under the local authority’s permission.
- **Question from DPWT:** So, on the Tablet, can we add another option for “small signboard” such beer signboards etc.?
- **Answer by Mr. Chea Samnang:** We can add on the Paper Form but not to server. It is difficult. Or DPWT can request to provincial hall to remove those beer advertising signboards.
- **Question from DPWT:** For the IEP ROW Permission, people never ask to DPWT; also, we do not have any form. People always get oral permission from local authority. But no one check the technical works during the construction.
- **Answer from Mr. Chea Samnang:** DPWT needs to talk with local authority to follow the road law and follow the technical works.







THE PROJECT FOR CAPACITY ENHANCEMENT  
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IN THE KINGDOM OF CAMBODIA (CESCOR)



**Date:** 30<sup>th</sup> August 2019

**Time:** 8:30am-16:00pm

**Location:** at Phnom Penh Hotel

**Topic:** The Workshop for Practice of ROW Management System

**Attendance List**

No	Name	Position	Department/Ministry	Phone
<b>MPWT-RID</b>				
1	Mr. Khuon Kompheak	Deputy Director	RID/MPWT	
2	Mr. Chea Samnang	Chief of ROW Office	RID/MPWT	
3	Mr. Hay Chandara	Deputy Chief of ROW Office	RID/MPWT	
4	Mr. Khai Saray	Deputy Chief of ROW Office	RID/MPWT	
5	Mr. Sokun Piseth	Deputy Chief of Office	RID/MPWT	
6	Mr. Kaing Theara	Officer	RID/MPWT	
7	Mr. Nob Keilarith	Deputy Chief of Office	RID/MPWT	
8	Mr. Sao Premarak	Deputy Chief of Office	RID/MPWT	
9	Ms. Touch Kimsan	Officer	RID/MPWT	
<b>MPWT-PID</b>				
10	Ms. Eam Sokchea	Deputy Chief of Office	PID/MPWT	
11	Mr. Yeam Vesna	Officer	PID/MPWT	
<b>MPWT-ICD</b>				
12	Mr. Peang Samoeun	Chief Officer	ICD/MPWT	
<b>DPWT-Kampong Speu Province</b>				
13	Mr. Reth Ratanak	Deputy Chief of Office	MPWT	
14	Mr. Rueng Narot	Officer	MPWT	
15	Mr. Chan Virak	Officer	MPWT	
<b>DPWT-Takeo Province</b>				
16	Mr. Chhim Chanchhaya	Deputy Chief of Order Office	DPWT	
17	Mr. Oum Chanthong	Chief of Technical Office	DPWT	
18	Mr. Chea Hong	Deputy Director	DPWT	
<b>DPWT-Kampot Province</b>				



THE PROJECT FOR CAPACITY ENHANCEMENT  
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19	Mr. Lim Tara	Deputy Chief of Office	DPWT	
20	Mr. Yi Hokleang	Officer	DPWT	
21	Mr. Kong Raksmeay	Officer	DPWT	
<b>DPWT-Kep Province</b>				
22	Mr. Lim Chatong	Chief Officer	DPWT	
23	Mr. Din Virak	Chief of Technical Office	DPWT	
24	Mr. To Tara	Technical Officer	DPWT	
<b>DPWT-Koh Kong Province</b>				
25	Mr. Tay Chhaiya	Officer	DPWT	
26	Mr. Kheng Seiha	Officer	DPWT	
27	Mr. Va Vantith	Officer	DPWT	
<b>DPWT-Preah Vihear Province</b>				
28	Mr. Ry Sotheary	Deputy Chief of Office	DPWT	
<b>JICA Project Team_CESCoR</b>				
29	Mr. Akira Yamashita	Team Leader	JICA Project Team	
30	Mr. Kumagai Takahiro	Project Coordinator	JICA Project Team	
31	Ms. Sakiko Nomura	Intern	JICA Project Team	
32	Ms. Ches Sophy	Project Assistant	JICA Project Team	
33	Mr. Penh Socheat	Technical Assistant	JICA Project Team	
34	Mr. Bun Sereyvuth	Project Assistant	JICA Project Team	
35	Mr. Mut Samon	Assistant	JICA Project Team	
36	Mr. Preah Loch	Assistant	JICA Project Team	

# CESCOr PROJECT INTRODUCTION

THE PROJECT FOR CAPACITY ENHANCEMENT ON ENVIRONMENTAL AND SOCIAL CONSIDERATIONS IN IMPLEMENTING AGENCY IN ROAD SECTOR IN THE KINGDOM OF CAMBODIA

## Table of Contents

- CESCOr Project Introduction
- ROW Management
- Pilot Project

# PROJECT OUTLINE

<b>Overall Goal</b>	ESC in road sector is implemented properly by MPWT.
<b>Project Purpose</b>	Capacity of MPWT officials on ESC is enhanced through applying REG and RMS
<b>Output 1</b>	Implementation framework for the project is strengthened based on past experiences and present situation on ESC and ROW management.
<b>Output 2</b>	Implementation framework of EC related to EIA and EMP is strengthened.
<b>Output 3</b>	<b>Implementation framework of SC related to ROW management is strengthened by establishing RMS</b>
<b>Output 4</b>	Capacity of SC required for ROW management is strengthened through OJT.

Note: REG: Road Environment Guideline, RMS: ROW Management System, EIA: Environmental Impact Assessment, EMP: Environmental Management Plan

# OUTLINE

<b>Output 3:</b>	<b>Implementation framework of SC related to ROW management is strengthened by establishing RMS</b>
<b>PURPOSE:</b>	Capacity of Social Considerations (SC) required for ROW management is strengthened as a component of CESCOr Project, funded by JICA
<b>ACTIVITY:</b>	<ol style="list-style-type: none"> <li>1) Create RMG (ROW Management Guideline)</li> <li>2) Create RMM/RMD as a result of Pilot Project</li> <li>3) Create RMS-TP and Capacity building training to MPWT and DPWT</li> </ol>
<b>METHOD:</b>	Specify a area to implement a pilot project to study the feasibility of the system. The system will be applied to NR5 has been selected for the rapid development. Target Area along National Road No.5 in four Provinces:
<b>TARGET AREA:</b>	<ol style="list-style-type: none"> <li>1) KAMPONG CHHNANG Province</li> <li>2) PURSAT Province</li> <li>3) BATTAMBANG Province</li> <li>4) BANTEAY MEANCHHEY Province</li> </ol>

# CESCOr PROJECT INTRODUCTION

## PROJECT OUTPUTS

### Project Period:

The project has been funded from JICA committed for the period from Jan. 2017 to Dec. 2019.

### Project Goal:

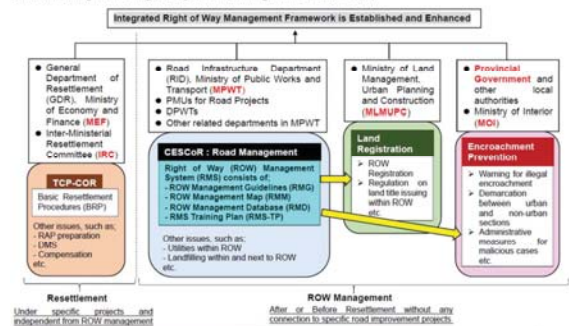
Environmental and Social Consideration (ESC) in road sector is implemented properly by MPWT.

### Project Purpose:

Capacity of MPWT officials on ESC is enhanced through applying Road Environmental Guidelines (REG) and Road Management System (RMS).

# INTEGRATED ROW MANAGEMENT FRAMEWORK

Chart: ROW Management and Target Area of CESCOr (including activities on EIA and EMP)



# ROW MANAGEMENT

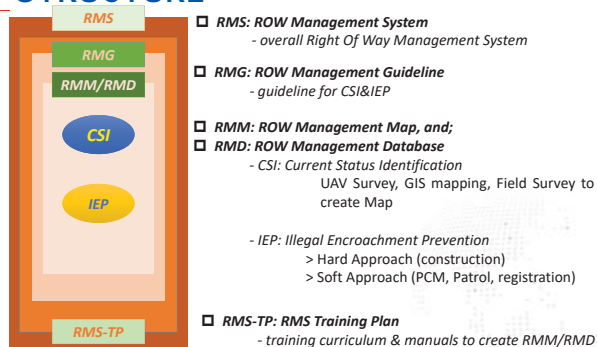
## LEGAL FRAMEWORK FOR RIGHT OF WAY(ROW)

Cambodia ROW means state land along the road with fixed distances from the centerline of existing roads for the future development.

Road level		ROW Dimensions	
		Ministerial Orders(※1)	Sub-Decree (※2)
1-digit Number National Roads	NR1, 4 and 5	30 m(※3)	30 m(※3)
	Others	25 m(※3)	
2-digits Number National Roads		25 m(※3)	25 m(※3)
Provincial roads		20 m(※3)	Not specified
Commune Roads		15m(※3)	Not specified

※1 Ministerial Orders No. 06, 1999,  
 ※2 Sub-Decree No.197, 2009, ※3 length from the centerline

## STRUCTURE



## CSI ROLE

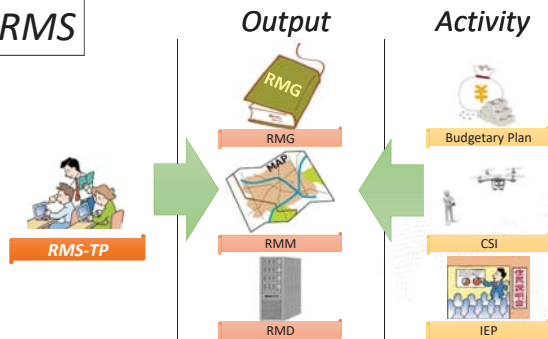
ITEM		MPWT	DPWT	LOCAL AUTHORITY
KICKOFF MTG	Arrangement	✓	✓	
	Implementation	✓	✓	✓
UAV SURVEY	Flight permission	✓	✓	✓
	Flight plan	✓		
	UAV survey	✓	✓	
OFFICE WORK	Supervision (for outsourcing)	✓		
	Image processing	✓		
FIELD SURVEY	Mapping (data production)	✓		
	FS permission	✓	✓	✓
GIS	Field survey	✓	✓	
	Supervision	✓		
	data finalization	✓		

## IEP ROLE

ITEM		MPWT	DPWT	Local Authority	MLMUPC	OTHER
Classification		✓				
Raise awareness	1) PCM	✓	✓	✓		
	2) High school / University	✓				✓
	3) Local government office	✓	✓	✓	✓	
Monitoring & intervention	1) Regular patrol	✓	✓	✓		
	2) Collaborating w/ local authorities	✓	✓	✓		
	3) Appealing to court	✓	✓	✓		✓
Permission & Registration	1) ROW permit	✓	✓	✓		
	2) ROW registration	✓	✓	✓	✓	
	3) Access road permit	✓	✓			✓
Supervision	1) Record of "raising awareness"	✓	✓			
	2) Record of "Monitoring"	✓	✓			
	3) Record of "Permission"	✓	✓			

## CONCEPT

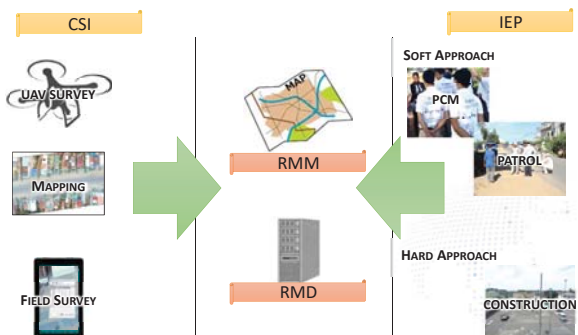
### RMS



## RMG

- GUIDELINE WHICH INDICATES...
  - Policy
  - Objectives
  - Scope of work
  - Related organizations
  - CSI work procedure and manual
  - IEP work procedure and manual
  - Outsourcing TOR
  - ROW development

## RMM & RMD



## RMS-TP AND TRAINING

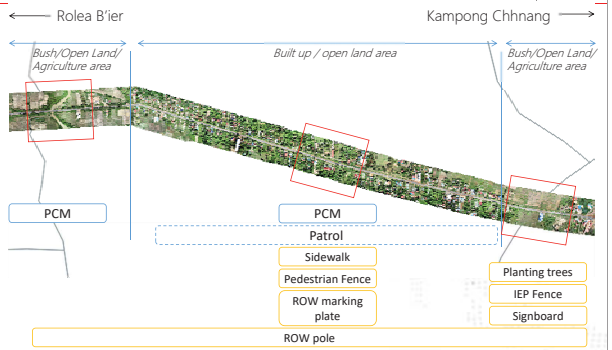
- TRAINING PLAN WHICH INCLUDES...
  - Curriculum
  - schedule
  - Content of subject
- TRAINING FROM JICA TO MPWT
  - Today
- TRAINING FROM MPWT TO DPWT...
  - Today

# PILOT PROJECT



17

# IEP TARGET AREA



# CSI TARGET AREA



# IEP WORK PROGRESS

		APRIL	MAY	JUNE	JULY	AUG	SEP
SOFT APPROACH	PCM 1	●					
	PCM 2		●				
	Patrol				●	■	■
HARD APPROACH	K/O MTG	●					
	Construction			■	■	■	■



# CSI WORK PROGRESS

**PROGRESS CHART**

- UAV Survey** 100%: 250 flights
- Image Processing** 100%: 36,600,000m<sup>2</sup>
- Data Production** 100%: 33625 points
- Field Survey** 100%: 25248 ground photos
- Data Finalization** 60%: correcting errors...

**ROW MANAGEMENT MAP (RMM):**  
To Identify Encroachment into ROW on Map

**ROW MANAGEMENT DATABASE (RMD):**  
To show Detailed Information of Encroachment  
To count Encroachments for Classification

# IEP TARGET AREA



THANK YOU! សូមអរគុណ

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# FIELD SURVEY FOR CSI (CURRENT STATUS IDENTIFICATION)

THE PROJECT FOR CAPACITY ENHANCEMENT ON ENVIRONMENTAL AND SOCIAL CONSIDERATIONS IN IMPLEMENTING AGENCY IN ROAD SECTOR IN THE KINGDOM OF CAMBODIA

## OUTLINE

2

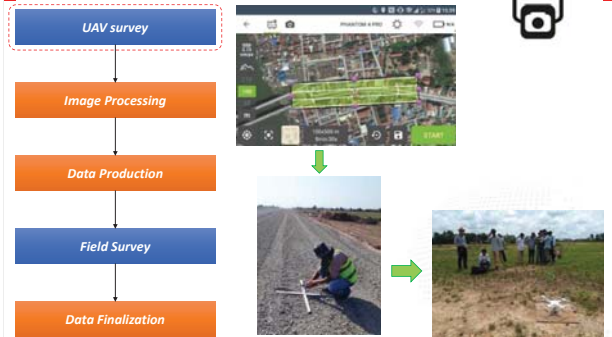
## CSI WORK CONTENTS

### Kick-off Meeting

- To explain the work purpose, content and schedule to the local authorities.



## CSI WORK CONTENTS



## GENERAL

- Current Status Identification (CSI) focuses on data collection related to situation of right of way along national roads and provincial roads across the country in order to creating right of way maps and database as baseline for effective right of way management.
- The purpose of CSI is to study on a current situation of ROW management and developing a ROW current situation map as a baseline so that appropriate measures can be applied for effective ROW management and encroachment prevention.
- The CSI work covers on all national roads under management of MPWT. A primary focus for the CSI is 1-digit national roads of which information is to be compiled on a ROW management map. After the completion of the map for the 1-digit national roads, 2-digit national roads will be targeted.

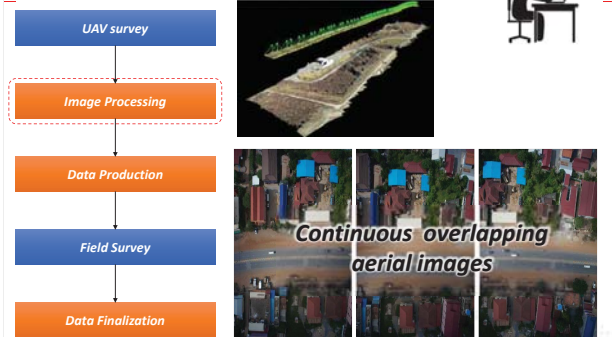
## ORGANIZATION

Main contents of CSI are:

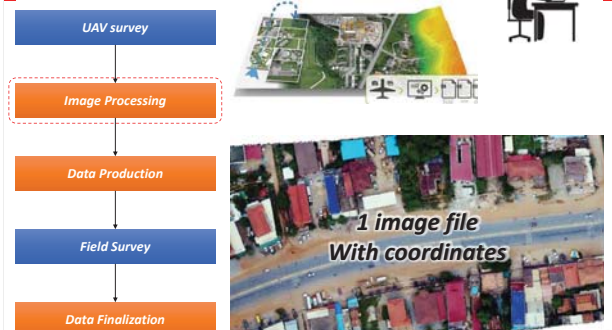
- 1) UAV survey,
- 2) data processing and
- 3) field survey, which is consisted data processing for Map and preparing survey sheet.

RID & DPWT should understand roles and collaborate with each organization to collect basic information through the surveys.

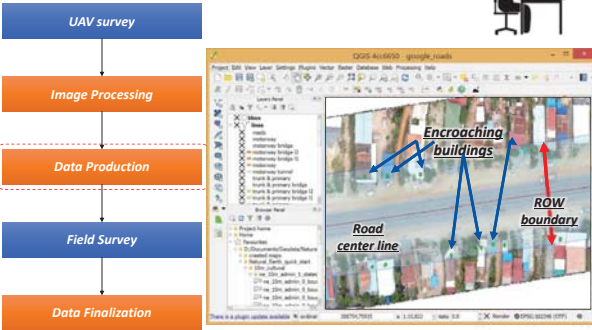
## CSI WORK CONTENTS



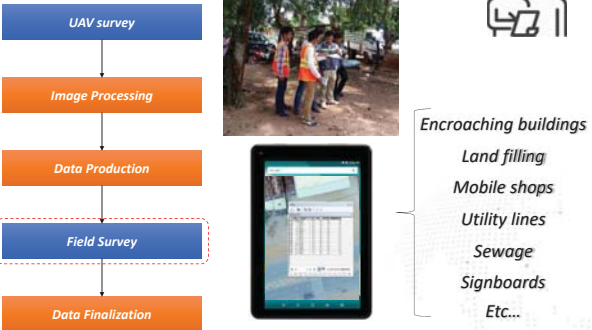
## CSI WORK CONTENTS



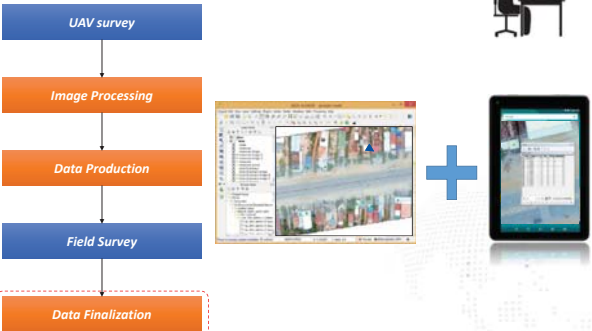
# CSI WORK CONTENTS



# CSI WORK CONTENTS



# CSI WORK CONTENTS



# CSI ROLE

	ITEM	MPWT	DPWT	LOCAL AUTHORITY
KICKOFF MTG	Arrangement	✓	✓	
	Implementation	✓	✓	✓
UAV SURVEY	Flight permission	✓	✓	✓
	Flight plan	✓		
	UAV survey (for outsourcing)	✓	✓	Support
OFFICE WORK	Image processing	✓		
	Mapping (data production)	✓		
FIELD SURVEY	FS permission	✓	✓	✓
	Field survey	✓	✓	
GIS	Supervision	✓		
	data finalization	✓		

# PREPARATION FOR FIELD SURVEY



# PERMISSIONS - SAMPLE -

Request from JICA project to MPWT

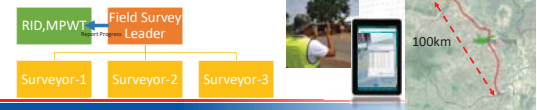
Request for Drone survey from MPWT

Permission from Provincial Office

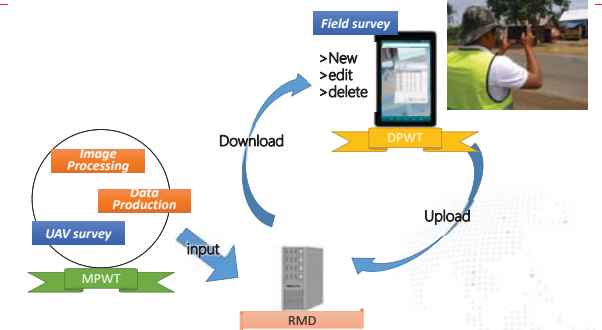
# SURVEY TEAM ARRANGEMENT

About team arrangement for Field Survey, the assumption has been considered based on the result of pilot project.

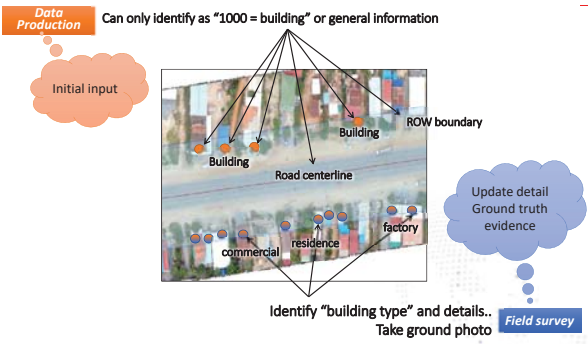
- Field Survey Leader: **1 person** will be assigned to manage Field Survey Team from MPWT or DPWT.
- Field Surveyors: **3 persons** for 1 team will be assigned to implement Field Survey from DPWT. The team could complete 100km within 3 months.
- Team arrangement could be considered depend on scale and priority of road improvement project.



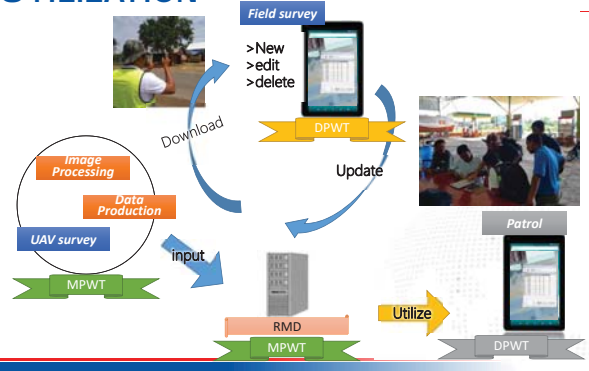
# SYSTEM



# CONCEPT



# UTILIZATION



# CSI DATA COLLECTION LIST

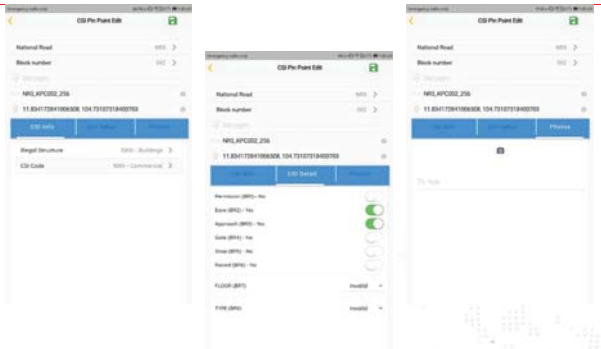
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THANK YOU FOR YOUR ATTENTION!!

# DATA COLLECTION



# DATA COLLECTION



# IEP (ILLEGAL ENCROACHMENT PREVENTION) APPROACHES

THE PROJECT FOR CAPACITY ENHANCEMENT  
ON ENVIRONMENTAL AND SOCIAL CONSIDERATIONS  
IN IMPLEMENTING AGENCY IN ROAD SECTOR  
IN THE KINGDOM OF CAMBODIA

## OUTLINE

# APPROACH METHODS

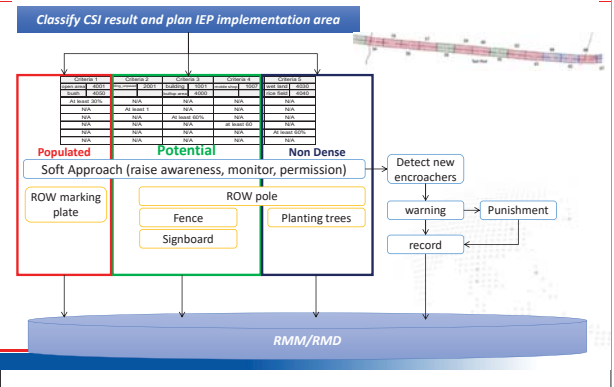
## SOFT & HARD APPROACH

Hard Approach			Soft Approach		
New Road Design	Installing Facilities	Permission and Registration	Monitoring and Intervention	Raising awareness	
Constructing sub-road as ROW boundary	Digging channels as ROW boundary Pole Signboard	ROW marking plate Access road permit	Appealing to the court ROW use permit	Local governmental official Regular patrol activities	Local people High school and university students
Road from the edge of ROW boundary and keep empty space in the middle	Fence Growing Tree	ROW registration	Collaborating with local authorities		

## GENERAL

- ROW management map is developed using the data collection activities from CSI. Based on densities of ROW encroachments pointed on the ROW map, ROW areas shall be classified into populated, potential and non-dense areas. IEP shall be implemented properly according to classification of areas on ROW management map in order not to allow any illegal or inappropriate land uses in ROW.
- IEP approaches aim to prevent new encroachment in the ROW and to regulate temporary use of ROW with permission so as to manage and maintain the land secured for road development.

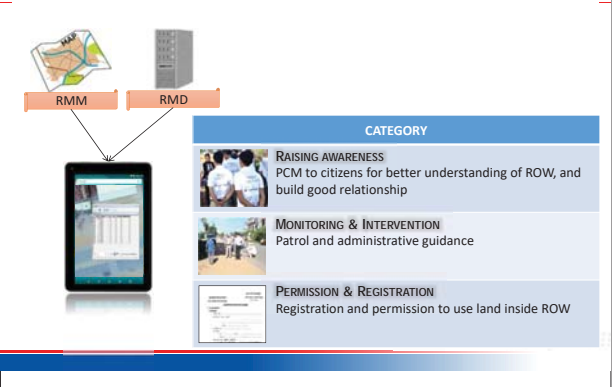
## IEP METHOD CLASSIFICATION



## ORGANIZATION

- According to Law on Road, MPWT is the road control authority in charge of construction, maintenance and management of all national roads in Cambodia. Also, Road Infrastructure Department (RID) of MPWT is a main actor in charge of ROW management of all national roads. Additionally, there are also other agencies/ministries involved in the ROW management such as Ministry of Interior, Ministry of Land Management, Urban Planning and Construction and Ministry of Education, Youth and Sport. MPWT is responsible for coordination, implementation, maintenance of the necessary records on the ROW and expenditure management and preparation of budgetary provisions.

## IEP SOFT APPROACH



# IEP HARD APPROACH

- 1. ROW POLE
- 2. IEP FENCE
- 3. SIGNBOARD
- 4. ROW MARKING PLATE
- 5. PEDESTRIAN FENCE
- 6. GROWING TREE

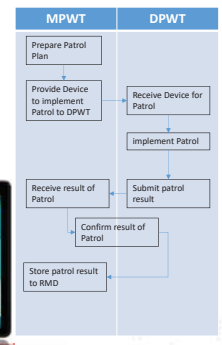


# SOFT APPROACH-2

## Monitoring and Intervention

MPWT and DPWT should collaborate to implement "Patrol" to collect the evidence from resident and to provide "Warning" for Illegal Encroachment.

- Patrol
- Administrative Guidance (To be Considered)



# ROLES & PROCEDURES



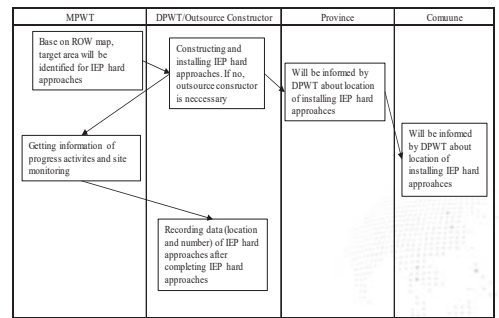
# IEP HARD APPROACH ROLE

ITEM	MPWT	DPWT	Local Authority	MLMUPC	OTHER
Classification	✓				
Raise awareness (PCM)	1) Citizen ✓ 2) High school / University ✓ 3) Local government office ✓	✓	✓	✓	✓
Monitoring & intervention	1) Regular patrol ✓ 2) Collaborating w/ local authorities ✓ 3) Appealing to court ✓	✓	✓	✓	✓
Permission & Registration	1) ROW permit ✓ 2) ROW registration ✓ 3) Access road permit ✓	✓	✓	✓	✓
Supervision	1) Record of "raising awareness" ✓ 2) Record of "Monitoring" ✓ 3) Record of "Permission" ✓	✓	✓		

# IEP SOFT APPROACH ROLE

ITEM	MPWT	DPWT	Local Authority	MLMUPC	OTHER
Classification	✓				
Raise awareness (PCM)	1) Citizen ✓ 2) High school / University ✓ 3) Local government office ✓	✓	✓	✓	✓
Monitoring & intervention	1) Regular patrol ✓ 2) Collaborating w/ local authorities ✓ 3) Appealing to court ✓	✓	✓	✓	✓
Permission & Registration	1) ROW permit ✓ 2) ROW registration ✓ 3) Access road permit ✓	✓	✓	✓	✓
Supervision	1) Record of "raising awareness" ✓ 2) Record of "Monitoring" ✓ 3) Record of "Permission" ✓	✓	✓		

# HARD APPROACH

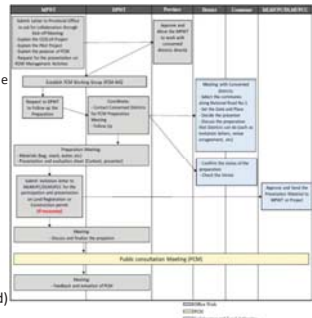


# SOFT APPROACH-1

## Raising awareness

Relevant organizations such as MPWT, DPWT and Local Authority should collaborate to provide "Consultation Meeting" to local people and relevant governments to ensure better understanding of ROW, and build good relationship

- Raising local people's awareness
- Raising relevant government officials' awareness
- Integrating ROW concept into school curriculum (To be Considered)



# ផលវិជ្ជមាន និងផលអវិជ្ជមាន នៃការរំលោភដីចំណីផ្លូវ

## ផលវិជ្ជមាន នៃការរំលោភដីចំណីផ្លូវ

- កាត់បន្ថយការចំណាយរបស់ រដ្ឋាភិបាលទៅលើការដោះស្រាយផលប៉ះពាល់នៅពេលអភិវឌ្ឍផ្លូវ
- ងាយស្រួលក្នុងការអភិវឌ្ឍន៍បរិក្ខារផ្លូវផ្សេងៗដូចជា លូ ផ្លាកសញ្ញាពេចពណ៌
- កាត់បន្ថយដីលោះរាងរដ្ឋ និងប្រជាពលរដ្ឋ
- កាត់បន្ថយគ្រោះថ្នាក់ចរាចរ (គ្មានអ្នករស់នៅភ្ញាក់ផ្អើល, អ្នកបើកបរមើលឃើញស្ថានភាពផ្លូវច្បាស់)
- ធ្វើឱ្យផ្លូវប្រើប្រាស់បានយូរ មិនងាយខូច (ដោយសារមានគ្មានការបាក់ដីខ្ពស់ជាងផ្លូវមានប្រព័ន្ធរំលោភដីផ្លូវគ្រប់គ្រាន់)
- ផ្លូវមានសោភ័ណភាព



## ផលវិជ្ជមាន និងផលអវិជ្ជមាន នៃការរំលោភដីចំណីផ្លូវ

### ផលអវិជ្ជមាន នៃការរំលោភដីចំណីផ្លូវ

- រដ្ឋចំណាយច្រើនទៅលើការដោះស្រាយផលប៉ះពាល់ គម្រោងពង្រីកផ្លូវ
- ធ្វើឱ្យផ្លូវឆាប់ខូច (ដោយសារការរស់នៅជាប់ផ្លូវ, ចាក់ដីខ្ពស់ជាងផ្លូវ)
- រួមចំណែក បង្កគ្រោះថ្នាក់ចរាចរ ដោយសារការចូលមករស់នៅក្នុងដីចំណីផ្លូវជាឧបសគ្គធ្វើឱ្យអ្នកបើកបរមើលមិនច្បាស់
- ផ្លូវគ្មានសោភ័ណភាព

THANK YOU FOR YOUR ATTENTION!

អរគុណសម្រាប់ការយកចិត្តទុកដាក់ស្តាប់

## PRIORITY ACTIVITIES

### Advantages of ROW Management

- Illegal occupation of state land makes implementation of resettlement procedure much more complicated and that management doesn't work effectively.
- And, resettlement cost will be higher in the future without adequate ROW management.
- Adequate ROW management can
  - **Minimize the resettlement cost,**
  - **lead to smooth project implementation** related to the road construction without delay of land issue.
- CSI and IEP activities contribute to prevent the illegal encroachment to the ROW on national road and to reduce the resettlement in the future.

## ROW MANAGEMENT ACTIVITY AND PLAN

THE PROJECT FOR CAPACITY ENHANCEMENT ON ENVIRONMENTAL AND SOCIAL CONSIDERATIONS IN IMPLEMENTING AGENCY IN ROAD SECTOR IN THE KINGDOM OF CAMBODIA

### Contents

- Priority Activities
- Future Development Plan

### Estimation Cost for ROW Management

Total length of all 1digit & 2digit National Road: 8,055km

#### <Priority Activities>

- CSI on the all 1digit & 2digit NR: USD 917,000
- PCM for 50 places: USD 100,000 for every year
- Patrol on all 1digit & 2digit NR: USD 73,000 for every year
- New ROW Pole on 1digit & 2digit NR (for 2,675km): USD 3,530,000
- Other Hard approaches is implemented in the national/international road project.

	1 <sup>st</sup> phase (1Y~3Y)	2 <sup>nd</sup> phase (4Y~6Y)	3 <sup>rd</sup> phase (7Y~9Y)
CSI	All 1digit & 2digit NR		Map update
PCM	50 places/year	50 places/year	50 places/year
Patrol	All 1digit & 2digit NR	All 1digit & 2digit NR	All 1digit & 2digit NR
ROW Pole	for 150km	for 600km	for 1,925km

### First Phase Target for 3years

- CSI: Half of all 1digit & 2digit NR(3,472km): USD 462,000
- PCM for 50 places (2time in each province): USD 300,000
- Patrol on all 1digit & 2digit NR: USD 73,000
- New ROW Pole for 150km is installed: USD 198,000

Approaches	1 <sup>st</sup> year	2 <sup>nd</sup> year	3 <sup>rd</sup> year	3 years total	Remarks
CSI	Progress	1,142km	1,142km	1,142km	3,427km Half of 1 & 2 digit NR
	UAV	\$111,600	\$109,000	\$111,400	\$332,000 (Outsource) 38.9MM
	Office	\$35,300	\$4,400	\$4,400	\$44,100 90.3MM
	FS	\$30,200	\$25,900	\$30,200	\$86,300 321.7MM
	Total	\$177,000	\$139,000	\$146,000	\$462,000
IEP	PCM	\$100,000	\$100,000	\$100,000	\$300,000 50 places / year
	Patrol	\$72,600	\$72,600	\$72,600	\$217,800 All 1 & 2 digit NR
	ROW Pole	\$66,000	\$66,000	\$66,000	\$198,000 For 150 km
	Total	\$239,000	\$239,000	\$239,000	\$717,000
<b>Total</b>	\$416,000	\$378,000	\$385,000	\$1,179,000	

# FUTURE DEVELOPMENT PLAN



## Development Plan

- NR #1            Total Length    162.00Km
- NR #2 + 22    Total Length    120.00Km
- NR #4           Total Length    230.00Km
- NR #31+33+3   Total Length    150.00Km
- NR #8           Total Length    130.00Km
- NR #48          Total Length    150.00Km



Thank you!!!



# RMD System APP Training



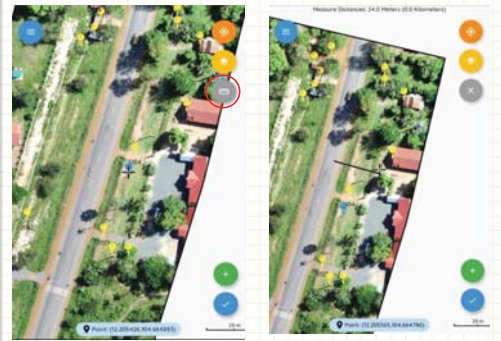
## Content:

1. Login
2. Show current location
3. Show Layer
4. Measure distance
5. Show point location
6. Add New CSI Point
7. Edit CSI Point
8. IEP

## 3. Show Layer



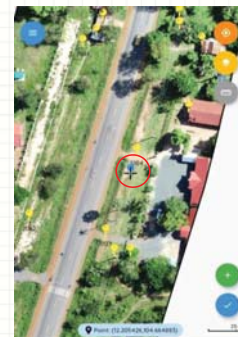
## 4. Measure distance



## 1. Login



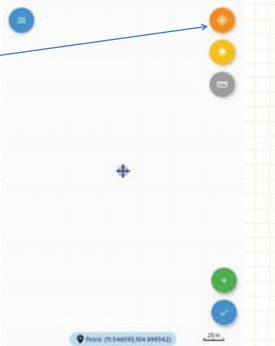
## 5. Show point location



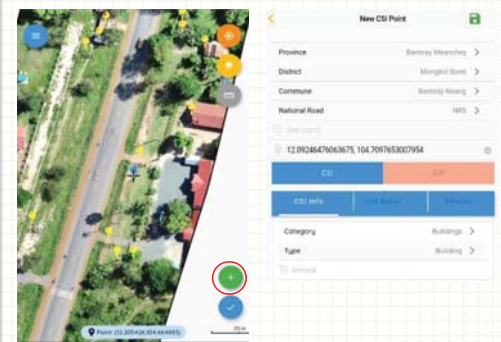
To get any point location by move cursor to that point then click on

## 2. Show current location

To show current location click on



## 6. Add New CSI Point



Click on Category then select relevant CSI Category



Click on Type the choose

Then update necessary information



Click on CSI Detail Tab



## 8. IEP

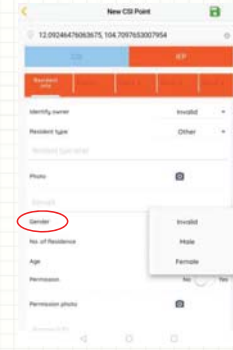
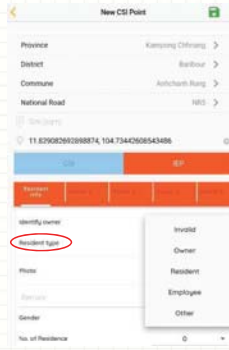


Click on Photos Tab, it can take 3 photos



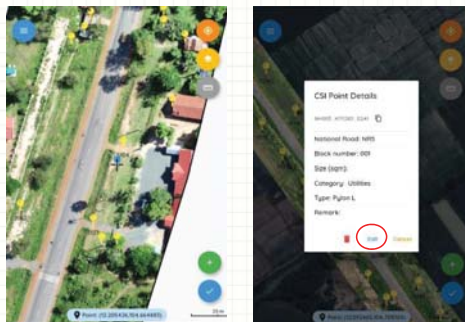
Resident type

Gender



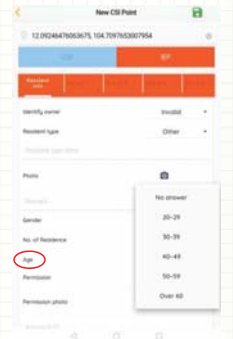
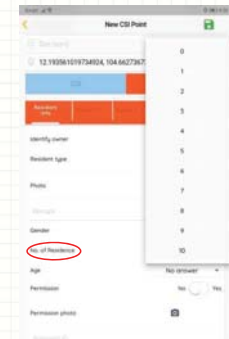
## 7. Edit CSI Point

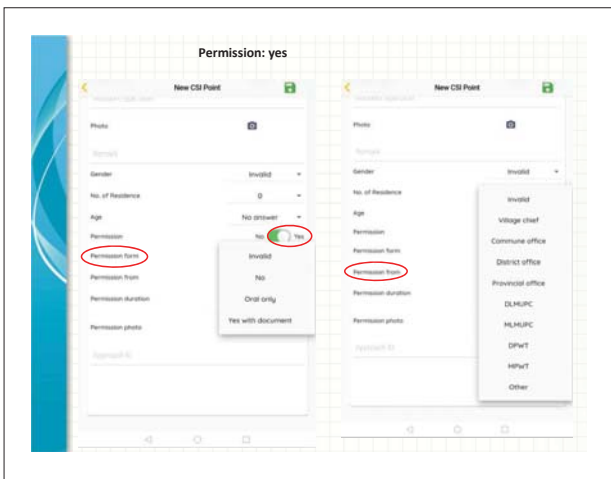
To edit CSI Point, click on CSI point then choose Edit



No. of Residence


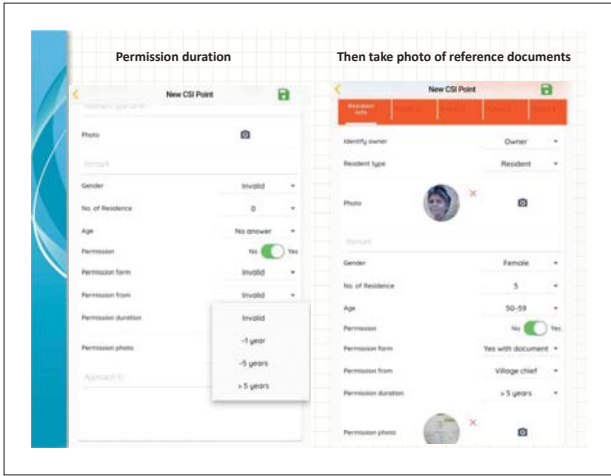
Age



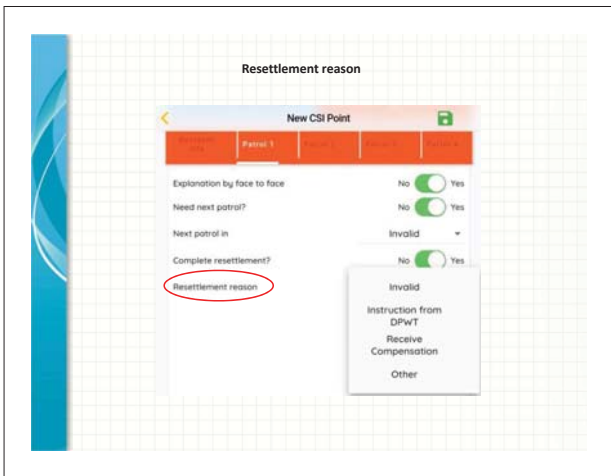
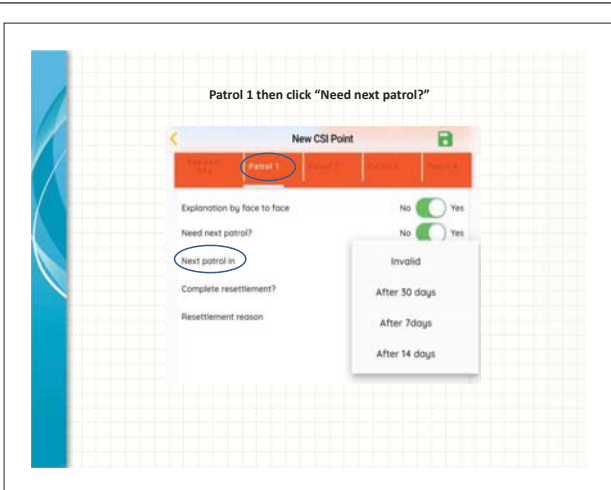


## Field Practice at Phnom Penh Hotel

- **Update CSI Point(CSI) :**  
Category, Type, Picture
- **Add New CSI Point :**  
New Point, Category, Type, Picture
- **Update CSI Point (IEP) :**  
Resident Info, Patrol

Thanks!!





NAME (ឈ្មោះ): \_\_\_\_\_

ORG (អង្គការ): \_\_\_\_\_

### WORKSHOP សិក្ខាសាលា COMPREHENSION TEST តេស្តសមត្ថភាព

THE PROJECT FOR CAPACITY ENHANCEMENT  
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IMPLEMENTING AGENCY IN ROAD SECTOR  
IN THE KINGDOM OF CAMBODIA

គម្រោងពង្រឹងសមត្ថភាពលើការពិចារណាផ្នែកបរិស្ថាន និងសង្គមក្នុង  
អង្គការប្រតិបត្តិលើវិស័យផ្លូវថ្នល់ក្នុងប្រទេសកម្ពុជា

#### Q1: PURPOSE OF ROW MANAGEMENT

សំណួរ៖ គោលបំណងនៃការគ្រប់គ្រងដីចំណីផ្លូវ

▶ Select 1 **wrong** answer

សូមជ្រើសរើស ចម្លើយ ១ ដែលខុស

- To sustain public land  
ដើម្បីធ្វើឱ្យទិរន្តរភាពផ្លូវសាធារណៈ
- To prevent illegal encroachment  
ដើម្បីការពារការទម្រានដីចំណីផ្លូវខុសច្បាប់
- To optimize construction  
ដើម្បីធ្វើឱ្យប្រសើរឡើងនូវការសាងសង់
- To enhance road facility management  
ដើម្បីធ្វើឱ្យប្រសើរឡើងនូវការគ្រប់គ្រងបរិក្ខារផ្លូវថ្នល់
- To punish illegal users  
ដើម្បីពិន័យ និងដាក់ទោសអ្នកដែលប្រើប្រាស់ដីចំណីផ្លូវខុសច្បាប់

1P

#### Q4: ROLE FOR EACH ACTIVITY IN CSI

សំណួរ៖ តួនាទីសម្រាប់សកម្មភាពនីមួយៗក្នុងការងារCSI

▶ Fill [✓] for correct authority for DPWT role សូមគុណ [✓] សម្រាប់សមត្ថកិច្ចត្រឹមត្រូវសម្រាប់មន្ទីរ

6P

ITEM ប្រភេទ	MPWT ប្រសូង	DPWT មន្ទីរ	LOCAL AUTHORITY អាជ្ញាធរមូលដ្ឋាន
KICKOFF MTG (កិច្ចប្រជុំចាប់ផ្តើម)	Arrangement ការរៀបចំ	✓ [ ]	[ ]
	Implementation ការអនុវត្ត	✓ [ ]	✓ [ ]
UAV SURVEY (ការស្រាវជ្រាវ UAV)	Flight permission ការអនុញ្ញាតឱ្យបើកយានយន្តប្រយោជន៍	✓ [ ]	✓ [ ]
	Flight plan ផែនការបោះពុម្ពផ្សាយ	✓ [ ]	[ ]
	UAV survey ការស្រាវជ្រាវយានយន្តប្រយោជន៍	✓ [ ]	[ ]
OFFICE WORK (ការងារការិយាល័យ)	Supervision (for outsourcing) ការត្រួតពិនិត្យ (ឧបត្ថម្ភសេវាខាងក្រៅ)	✓ [ ]	[ ]
	Image processing ដំណើរការរៀបចំរូបភាព Mapping (data production) ការធ្វើទិន្នន័យ (ផលិតទិន្នន័យ)	✓ [ ]	[ ]
FIELD SURVEY (ការចាតុប្រតិបត្តិ)	FS permission ការអនុញ្ញាតឱ្យចាតុប្រតិបត្តិ	✓ [ ]	[ ]
	Field survey ការចាតុប្រតិបត្តិ	[ ]	[ ]
	Supervision ការត្រួតពិនិត្យ	✓ [ ]	[ ]
GIS	data finalization ការបញ្ចប់ទិន្នន័យ	✓ [ ]	[ ]

#### Q5: PURPOSE OF IEP

សំណួរ៖ គោលបំណងនៃវិធីសាស្ត្រការពារការទម្រានដីចំណីផ្លូវខុសច្បាប់

▶ Select 1 **wrong** answer

សូមជ្រើសរើស ចម្លើយ ១ ដែលខុស

- To select most suitable area for bridge construction  
ដើម្បីជ្រើសរើសតំបន់ដែលសមស្របបំផុតសម្រាប់សាងសង់ស្ពាន
- To classify population inside Right Of Way  
ដើម្បីចាត់ថ្នាក់ចំនួនប្រជាជនដែលរស់នៅក្នុងដីចំណីផ្លូវ
- To prevent new encroachment  
ដើម្បីការពារការទម្រានដីចំណីផ្លូវថ្មី
- To manage and maintain public land  
ដើម្បីគ្រប់គ្រង និងថែទាំដីសាធារណៈ

1P

#### Q2: FULL TITLE OF RMS COMPONENT

សំណួរ៖ ចំណងជើងពេញនៃសមាធាតុ RMS

▶ Write the full name of each abbreviation

សូមសរសេរពាក្យពេញនៃពាក្យកាត់ខាងក្រោម (ជាអង់គ្លេស ឬខ្មែរ)

- RMS:
- RMG:
- CSI:
- IEP:
- RMM:
- RMD:

6P

#### Q3: PURPOSE OF CSI

សំណួរ៖ គោលបំណងនៃការកំណត់ស្ថានភាពបច្ចុប្បន្ន

▶ Select 1 **wrong** answer

សូមជ្រើសរើស ចម្លើយ ១ ដែលខុស

- To identify current situation  
ដើម្បីកំណត់ស្ថានភាពបច្ចុប្បន្ន
- To create Right Of Way Management Map  
ដើម្បីបង្កើតផែនទីគ្រប់គ្រងដីចំណីផ្លូវ
- To create baseline for IEP classification  
ដើម្បីកំណត់គោលការណ៍មូលដ្ឋាន (Baseline) សម្រាប់ការធ្វើចំណាត់ថ្នាក់  
វិធីសាស្ត្រការពារការទម្រានដីចំណីផ្លូវខុសច្បាប់
- To construct sustainable infrastructure  
ដើម្បីសាងសង់ហេដ្ឋារចនាសម្ព័ន្ធដែលមានទិរន្តរភាព

1P

#### Q6: ROLE FOR EACH ACTIVITY IN IEP

សំណួរ៖ តួនាទីសម្រាប់សកម្មភាពនីមួយៗក្នុងការងារការពារការទម្រានដីចំណីផ្លូវខុសច្បាប់ (អង់គ្លេស)

▶ Fill [✓] for correct authority for DPWT role

4P

ITEM	MPWT	DPWT	Local Authority	MUMUPC	OTHER
Classification	✓ [ ]	[ ]			
Raise awareness	1) PCM	✓ [ ]	✓ [ ]		
	2) High school / University	✓ [ ]	[ ]		✓ [ ]
	3) Local government office	✓ [ ]	[ ]	✓ [ ]	
Monitoring & intervention	1) Regular patrol	✓ [ ]	✓ [ ]		
	2) Collaborating w/ local authorities	[ ]	[ ]	✓ [ ]	
	3) Appealing to court	✓ [ ]	✓ [ ]		✓ [ ]
Permission & Registration	1) ROW permit	✓ [ ]	✓ [ ]		
	2) ROW registration	✓ [ ]	[ ]	✓ [ ]	
	3) Access road permit	✓ [ ]	[ ]		✓ [ ]
Supervision	1) Record of "raising awareness"	✓ [ ]	[ ]		
	2) Record of "Monitoring"	✓ [ ]	[ ]		
	3) Record of "Permission"	✓ [ ]	[ ]		

#### Q6: ROLE FOR EACH ACTIVITY IN IEP

សំណួរ៖ តួនាទីសម្រាប់សកម្មភាពនីមួយៗក្នុងការងារការពារការទម្រានដីចំណីផ្លូវខុសច្បាប់ (ភាសាខ្មែរ)

▶ សូមគុណ [✓] សម្រាប់សមត្ថកិច្ចត្រឹមត្រូវសម្រាប់មន្ទីរ

4P

ប្រភេទ	ប្រសូង	មន្ទីរ	អាជ្ញាធរ	ក្រសួង/អង្គការ	ផ្សេងៗ
ចំណាត់ថ្នាក់	✓ [ ]	[ ]			
ការលើកកម្ពស់ការយល់ដឹង	1) កិច្ចប្រជុំ/ប្រារព្ធនានា	✓ [ ]	✓ [ ]		✓ [ ]
	2) វិទ្យាល័យ/សាលា/ស្ថាប័ន	✓ [ ]	[ ]		
	3) ការងារយល់ដឹងផ្ទាល់មាត់	✓ [ ]	[ ]	✓ [ ]	✓ [ ]
ការត្រួតពិនិត្យ និងការអនុវត្ត	1) ការស្រាវជ្រាវ	✓ [ ]	✓ [ ]		
	2) សហការជាមួយអាជ្ញាធរមូលដ្ឋាន	[ ]	[ ]	✓ [ ]	
	3) បណ្តុះបណ្តាល	✓ [ ]	[ ]	✓ [ ]	✓ [ ]
ការអនុញ្ញាត និងការចុះបញ្ជី	1) ការអនុញ្ញាតប្រើប្រាស់ដីចំណីផ្លូវ	✓ [ ]	✓ [ ]		
	2) ការចុះបញ្ជីដីចំណីផ្លូវ	✓ [ ]	[ ]	✓ [ ]	✓ [ ]
	3) ការអនុញ្ញាតសាងសង់ផ្លូវថ្នល់ប្រយោជន៍	✓ [ ]	[ ]		✓ [ ]
ការត្រួតពិនិត្យ	1) ការត្រួតពិនិត្យដីចំណីផ្លូវ	✓ [ ]	[ ]		
	2) ការត្រួតពិនិត្យការអនុវត្ត	✓ [ ]	[ ]		
	3) ការត្រួតពិនិត្យការអនុញ្ញាត	✓ [ ]	[ ]		

**Q7: WHAT IS THE TABLET & APP FOR?**  
**សំណួរលេខ ៧: តើ TABLET និង APP សម្រាប់ធ្វើការងារអ្វី?**

1P

► Select 1 **wrong** answer

**សូមជ្រើសរើស ចម្លើយ ១ ដែលខុស**

- 1. For CSI UAV survey  
សម្រាប់ការងារស្រាវជ្រាវបង្ហាញរូបភាពដីឡើងវិញកំណត់ស្ថានភាពបច្ចុប្បន្ន
- 2. For CSI field survey  
សម្រាប់ការងារចុះស្រាវជ្រាវដីឡើងវិញកំណត់ស្ថានភាពបច្ចុប្បន្ន
- 3. For IEP patrol  
សម្រាប់ការងារល្បាតដីឡើងវិញការពារការទម្រង់ដីចំណីផ្លូវខុសច្បាប់
- 4. For IEP activity record  
សម្រាប់កត់ត្រាសកម្មភាពការពារការទម្រង់ដីចំណីផ្លូវខុសច្បាប់



**END OF THE TEST!!**

**ចុងបញ្ចប់នៃបញ្ជីសំណួរ**

**សូមអរគុណ!!!**





**TECHNICAL SEMINAR  
ON  
STANDARD DRAWINGS AND PILOT  
PROJECT HARD APPROACHES**

**THE PROJECT FOR CAPACITY ENHANCEMENT ON  
ENVIRONMENTAL AND SOCIAL CONSIDERATIONS IN  
IMPLEMENTING AGENCY IN ROAD SECTOR IN CAMBODIA  
(CESCOR)**

**2<sup>ND</sup> OCTOBER, 2019**

**SUNWAY HOTEL, PHNOM PENH**



FOR MORE INFORMATION CONTACT: OFFICE +855(0)61-960-213

## AGENDA

### Technical Seminar for Standard Drawings and Pilot Project Hard Approaches The Project for Capacity Enhancement on Environmental and Social Considerations in Implementing Agency in Road Sector in Cambodia (CESCoR)

**SUNWAY Hotel, Phnom Penh, 2<sup>nd</sup> October, 2019**

Target Participants: TF Members from MPWT

<b>Time</b>	<b>Program</b>	<b>Content</b>
08:30-08:45	Registration	
08:45-08:50	<b>Cambodian National Anthem</b>	
08:50-08:55	<b>Opening Remarks</b> H.E. Nou Vaddhanak, Under Secretary of State, MPWT	
08:55-09:35	<b>Presentation on Standard Drawings</b> Mr. Khuon Kompheak, Deputy Director of RID, MPWT	1. Specification on Road Designs 2. Standard Drawings for Cross-section for Future Development
09:35-10:00	<b>Q&amp;A Sessions</b>	
10:00-10:25	<b>Coffee Break</b>	
10:25-11:25	<b>Presentation on Pilot Project Hard Approaches</b> 1. Mr. Chea Samnang, Chief of ROW Office, RID, MPWT 2. IKEE Company 3. Omura Company	1. Pilot Project Hard Approaches 2. <b>DBST Material (by IKEE Company)</b> 3. <b>Inter-Locking Block (by Omura Company)</b>
11:25-11:50	<b>Q&amp;A Session</b>	
11:50-12:00	<b>Closing Remarks</b> H.E. Nou Vaddhanak, Under Secretary of State, MPWT	
12:00-13:30	<b>Luncheon</b>	

Note: All Presentations will be English, verbal speech in Khmer



**Technical Seminar on Standard Drawings and Pilot Project IEP Hard Approaches**

**DISCUSSION MEMO**

Date & Time:	2 <sup>nd</sup> August, 2019 from 8:30 to 12:00
Place	SUNWAY Hotel, Phnom Penh
Attendees:	H.E. Nou Vaddhanak, Under Secretary of State, MPWT Mr. Chanthy Sochiva, Deputy Director General of General Directorate of Public Works Mr. Thou Samnang, Deputy Director General, General Directorate of Techniques, MPWT Mr. Chhim Phalla, Director, RID/MPWT Mr. Chao Sopheak Phibal, Director, SMCD (Sewage Management and Construction Department)/MPWT Mr. Khoun Kompheak, Deputy Director, RID/MPWT Mr. Chea Samnang, Chief of ROW Office, RID/MPWT Mr. Hay Chandara, Deputy Chief of ROW Office, RID MPWT And Other MPWT Officials, and officials from MEF and MLMUPC (see the attendant list in this memo)
Project Team:	Dr. Tsuchida, Mr. Yamashita, Mr. Kumagai, Mr. Robinson, Mr. Ochi, Ms. Sophy, Mr. Socheat, Mr. Sereyvuth and Mr. Samon
Agenda / Discussion Points:	- To present the standard drawings on specification on Road Design and cross-section for future development; and - To report the Pilot Project Hard Approaches

**1- Opening Remark by H.E. Nou Vaddhanak, Under Secretary of State, MPWT**

**2- Presentation on Standard Drawings on Specification of Road Design and Cross-section for Future Development by Mr. Khuon Kompheak, Deputy Director of RID**

Comments, Questions and Answers:

- **Q1 from Office Chief from SMCD/MPWT:** According to Slide No.8, 9, and 10, there is an open canal in the middle during the initial and intermediate stages. How does that canal connect to sewage pipes located both sides of road? When we reach the ultimate stage, we fill-up the canal, so where is water gone?





- **A1 from Mr. Kompheak:** That canal in the middle is like the natural canal with the slops both sides that collects the water from the road. The water will flow to lower elevation until it reaches the cross-drainage; . If it is deep it is not safe for road users. If the canal is big, we can build the cross-drainage. If it is small, we can fill it up completely. As you mentioned, we need to study the size of canal again.

- **Q2 from Director of Urban Planning Department/MLMUPC:** Regarding the Slide No.14, you explained that the size of road can be changed? Can the width of road be changed? For Example, can Express Way with 2 lanes change to Express Way with 1 lane?

- **A2 from Mr. Kompheak:** I apologized for that maybe my explanation was not clear. Allow me to clarify it again. The size or width of Express Way cannot be changed. However, size of National Road can be changed. For Example, from Phnom Penh to Kampong Speu Province, NR No.4 has 6 lanes, but from Kampong Speu forward has only 3 or 2 lanes at some sections. This case depends on the volume of traffic at urban or rural areas. And it also depends on level of service.

- **Q3 from Director of Road Maintenance Department/MPWT:** Are they new standard drawings added to the old one? Or they are just new ideas for new projects in the future because we have never built the road from the edge of ROW? How about the waste water facility? Is it inside the 6m for the edge of ROW boundary or elsewhere?

- **A3 from Mr. Chhim Phalla:** As the deputy manager of this project, I would like to clarify this matter. MPWT already has the standard drawings. CESCoR project mainly focuses on the capacity development of ROW management. We have added new concept on ROW Encroachment prevention. We have requested to JICA to help us to develop the standard drawings for ROW because we have learnt from National Road No.1 where the new encroachments keep coming. This CESCoR has prepared the legal document (guidelines) including the new standard drawings. The guidelines (including the standard drawings) will be submitted to MPWT for illegal ROW encroachment prevention. For the public utilities are allowed within 6m from edge of ROW, we do not care about the case of National Road 1 digit or 2 digits.

- **Comment 1 from Mr. Thou Samnang, DDG of Techniques:** I think these drawings can be applied in Sihanouk Ville province for some new roads such as Ream Road (National Road No. 45) and Road No. 1452, etc. as the pilot project to prevent the ROW and stop the encroachment because the cost of compensation will be more than the cost of new development. It is also for sustainability.



- **Q4 from Office Chief from SMCD/MPWT:** Referring the slide No. 15, 16 and 17, this typical cross-section (surface or underground) should be shared and discussed among the relevant agencies on the installation of the pipes for the cable, electricity and waste water for the future development. For the sewage pipe or line, why is there only one at one side of road? We should add the pipes crossing the road in order to avoid any new construction on the existing road. Let think about the number of pipes within the distance of 20km, for example.

- **A5 from Mr. Kompheak:** For the waste water pipe or sewage pipe is inside the 6m length from the edge of ROW. There is only one sewage pipe or line on the left or one the right. This sewage pipe is main trunk. We do not need to think of the number of pipes crossing the road. If those public utilities companies can provide us the information on the location. We can discuss and set the location for them based on their technical requirement. This typical cross-section mainly covers the condition of National roads and urban areas. Therefore, it is a bit different from your works mainly focus on the city areas.

- **Comment 2 from Director of SMCD:** I understood that you explained the stage of construction consisting of initial, intermediate and ultimate stages. And you also explained some key terms such as road capacity and level of service. I think these drawings are not yet completed; therefore, before submitting these drawings, need to mention the level of capacity and service and mention clearly on the volume of waste water and rainfall in urban and rural areas.

- **Comment 3 from Mr. Thou Samnang:** I think we do need to decide on the level of service. This level of service is related to the speed, flow and some obstacles.

- **Replies from Mr. Kompheak:** We can check our MPWT standard on level of service.

- **Final comments and requests from H.E. Nou Vaddhanak:** Thank you all for your comments and inputs. Actually, MPWT also has the standard drawings but they are not connected to ROW. However, these drawings mainly focus on ROW and Public utilities. I think it is good because those public utilities companies can understand based on these drawings. **Therefore, I would like to request to JICA Project Team to detail only the drawings for Utilities. Those drawings indicate clearly the length from the edge of ROW.** It is fine not to mention about the depth because it depends on those companies' detail technical designs.

Moreover, we need to think of the size or diameter of main sewage along the road, in case of combined system because our drawings are the separated system. If it is outside the urban, it is fine. However,



if inside the urban it is difficult because those main sewage is for the discharge from road and buildings. These drawings are only for National Roads, and Provincial Roads crossing the urban areas. They do not completely reflect to the guidelines of MLMUPC.

Regarding the Central line, if the road construction from both sides, central line is fine. However, constructing the road from one side is the problem to identify the central line. Therefore, we need to have policy to record the central lines (as GPS) and report those data to MLMUPC. MLMUPC can keep this GPS information; so, it is easy for them to issue the hard titles to people. Then, I think we need to record the central lines (GPS) all over the country. If possible, I would like to request to JICA to help us for this work.

Constructing the road from the edge of ROW is good because it can prevent the encroachment. As right now we are facing the illegal encroachment because we have constructed the roads from the middle or only from one side. However, constructing from the edge, it costs a lot and we need to think about the extra road for the U-Turn like in Thailand. Still, constructing road from the edge of ROW is good to save budget for compensation.

It is just our initial inputs for MPWT. We can learn from Thailand. They have their own standard drawings. We can revise and modify those standard drawings to become ours. Our MPWT's standard drawings are not yet completed. They are just criteria based on the geometric. They are just the parameters for the engineers (from MPWT, Rural Development Ministry and Local Authorities). We have referred to the speed to determine the type of roads. We can ask our JICA expert, Mr. Robinson to teach us how to deeply understand Geometric and how to calculate the level of service and road capacity.

### 3- Presentation on Pilot Project Hard Approaches by Mr. Chea Samnang, Chief of ROW Office

Comments, Questions and Answers:

- **Comments and Requests from H.E. Nou Vaddhanak:** Our Request to MEF, please include the budget for the drainage in the budget of road construction. We have only budget for road construction but no budget for the drainage. If there is no drainage along the road, road will be damaged by water or rain. This will cost another budget for repair. Moreover, due to the urban expansion, people move to live along the roads and fill up the land with elevation higher than road's elevation. After the road damaged, we build the drainage. Then, people complain why we build the drainage after the road construction completed. That is nonsense. People do not understand our situation (lacking of budget).



THE PROJECT FOR CAPACITY ENHANCEMENT  
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IN IMPLEMENTING AGENCY IN ROAD SECTOR  
IN THE KINGDOM OF CAMBODIA (CESCOR)



Regarding the Pilot Project, construction of IEP Hard approaches are good model to local authorities and people. They are also good to prevent the illegal ROW Encroachment. If we have budget, we can use this model applied to other places. I think in order to improve this model, we should provide more options (cases) based on the real situation. For example, with the canal and fence on both sides, how can people access to road? So, please provide more options or cases which people can access to roads from their homes.

**4- Presentations on DBST materials and Inter-Locking Block by IKEE and Omura; respectively.**

(The discussions are noted by them).



**Attendance List**

No	Name	Position	Department/Ministry	Phone
<b>MPWT</b>				
1	H.E. Nou Vaddhanak	Under Secretary of State	MPWT	
2	Mr. Thou Samnang	Deputy Director General of Technique	MPWT	
3	Mr. Chanthy Sochiva	Deputy Director General of Public Works	MPWT	



MPWT-RID			
4	Mr. Chhim Phalla	Director	RID/MPWT
5	Mr. Khoun Kompheak	Deputy Director	RID/MPWT
6	Mr. Chea Samnang	Chief Office	RID/MPWT
7	Mr. Chak Borith	Chief Office	RID/MPWT
8	Mr. Ros Sreng	Deputy Chief Officer	RID/MPWT
9	Mr. Leng Chheng	Deputy Chief Officer	RID/MPWT
10	Mr. Nop Kilarith	Deputy Chief Officer	RID/MPWT
11	Mr. Mom Rotha	Deputy Chief Officer	RID/MPWT
12	Mr. Hay Chandara	Deputy Chief Officer	RID/MPWT
13	Mr. Sokun Piseth	Deputy Chief Officer	RID/MPWT
14	Mr. Hok Angkearithvongsa	Officer	RID/MPWT
15	Mr. Nut Sovanneth	Officer	RID/MPWT
16	Mr. Chhouk Sochea	Officer	RID/MPWT
17	Mr. Long Davuth	Officer	RID/MPWT
18	Mr. Kaing Theara	Officer	RID/MPWT
19	Mr. Sok Chandy	Officer	RID/MPWT
MPWT-PID			
20	Mr. Kim Saran	Deputy Director	PID/MPWT
21	Mr. Saray Puthera	Deputy Chief Officer	PID/MPWT
22	Mr. Chen Dara	Officer	PID/MPWT
MPWT-ICD			

6

CTI Engineering International Co., Ltd. (CTII) Environment and Social Infrastructure Consultant Co., Ltd. (ESIC) Hanshin Expressway Company Limited (HEX) Joint Venture

Address: JICA Project Office, c/o International Cooperation Department, MPWT, Corner Norodom Blvd, Street 106, Phnom Penh, Tel: +855-(0)61 960 213



39	Mr. Yong Sy	Chief Office	MEF
MLMUPC			
40	Mr. Sao Vary	Director	MLMUPC
41	Mr. Sek Sothirith	Director	MLMUPC
IKEE			
42	Mr. Bun Sereyvathanak	Sale Manager	IKEE
43	Ms. Miwa Yamada	Sale Manager	IKEE
OMURA			
44	Mr. Sreang Try	Sale Interpreter	OMURA
45	Mr. Hon Hiroya	Sale Manager	OMURA
JICA Project Team_CESCoR			
46	Dr. Tsuchida Takayuki	Team Leader	JICA Project Team
47	Mr. Akira Yamashita	Deputy Team Leader	JICA Project Team
48	Mr. Kumagai Takahiro	Project Coordinator	JICA Project Team
49	Mr. Ochi Masaki		JICA Project Team
50	Mr. Robinson Shrestha		JICA Project Team
51	Ms. Ches Sophy	Project Assistant	JICA Project Team
52	Mr. Penh Socheat	Technical Assistant	JICA Project Team
53	Mr. Bun Sereyvuth	Project Assistant	JICA Project Team
54	Mr. Mut Samon	Assistant	JICA Project Team

8

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23	Mr. Peang Samoem	Chief Office	ICD/MPWT
24	Mr. An Menghour	Officer	ICD/MPWT
25	Mr. Sar Vathnak	Officer	ICD/MPWT
MPWT-DERC			
26	Mr. Kang Pharith	Director	DERC/MPWT
27	Mr. Heng Sokneary	Officer	DERC/MPWT
28	Mr. Cheam Kimphor	Officer	DERC/MPWT
MPWT-EXMID			
29	Mr. Eang Ratha	Deputy Director	EXMID/MPWT
30	Mr. Net Radin	Chief Office	EXMID/MPWT
MPWT-PWTTD			
31	Mr. Tep Virith	Deputy Director	PWTTD/MPWT
32	Mr. Theng Socheat	Officer	PWTTD/MPWT
33	Mr. Sem Chanseyha	Officer	PWTTD/MPWT
MPWT-RMD			
34	Mr. Hinson Oudom	Deputy Chief Officer	RMD/MPWT
35	Mr. By Banvilla	Director	RMD/MPWT
MPWT-SMCD			
36	Mr. Chao Sopheak Phibal	Director	SMCD/MPWT
37	Mr. Chheng Sovanndy	Chief Office	SMCD/MPWT
38	Mr. Huon Sopanha	Officer	SMCD/MPWT
MEF			

7

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THE PROJECT FOR CAPACITY ENHANCEMENT  
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IN IMPLEMENTING AGENCY IN ROAD SECTOR  
IN THE KINGDOM OF CAMBODIA (CESCoR)



# Typical Roadway Cross Section (Stage Construction and ROW Management)

Presented by: Mr. Khoun Kompheak  
Deputy Director, RID, MPWT  
SEMINAR  
Phnom Penh, 2<sup>nd</sup> October, 2019

## 2 Contents of Presentation

- Background
- Purpose of the Presentation
- Development of Roadways
- Recommendation

### Purpose of the Presentation

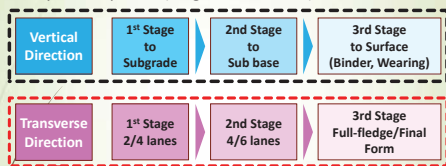
- To share information on the Standard Typical Cross Section
- To share General ideas on the sequential development of roadways (Typical Cross Sections) and management of ROW

## 3 Introduction

- ROW Management (Encroachment) concern of developing countries
- Transportation agency responsible for ROW management
- Full-fledge development cost very high
- Ideal to construct road initially to a level sufficient to meet the immediate requirements of traffic and at a later date reconstruct to a higher standard/final form

## 4 Development of Roadways

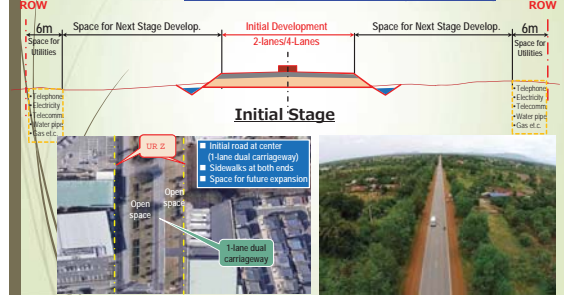
Roadway Development (Stage construction)



- METHOD-1:** Construct initial stage at the middle of the ROW
- METHOD-2:** Construct initial stage at each side of the ROW
- METHOD-3:** Construct initial stage at one side of the ROW

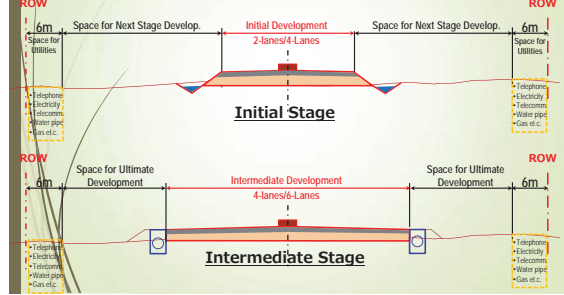
## 5 Development of Roadways

- METHOD-1:** Construct initial stage at the middle of the ROW  
Attractive if the ROW exists and is secured (walled or fenced)



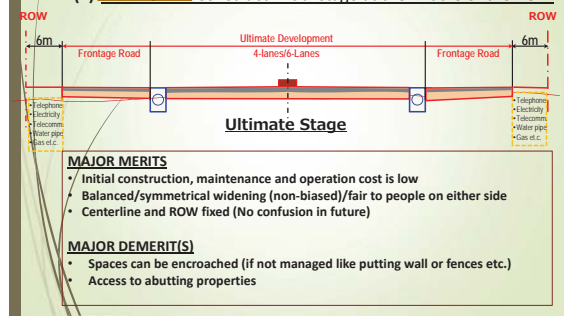
## 6 Development of Roadways

- METHOD-1:** Construct initial stage at the middle of the ROW  
Attractive if the ROW exists and is secured (walled or fenced)



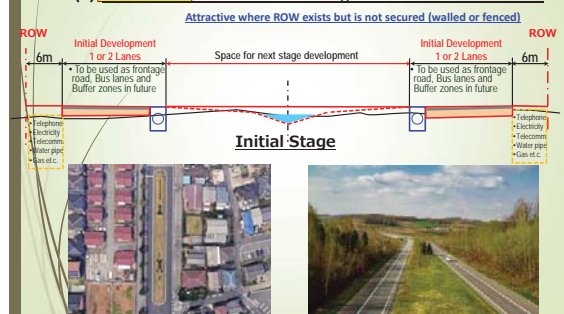
## 7 Development of Roadways

- METHOD-1:** Construct initial stage at the middle of the ROW



## 8 Development of Roadways

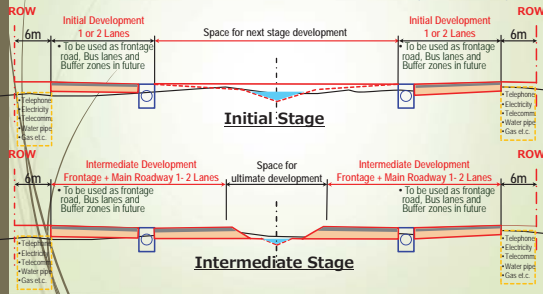
- METHOD-2:** Construct initial stage at each side of the ROW  
Attractive where ROW exists but is not secured (walled or fenced)



## 9 Development of Roadways

### (1) METHOD-2: Construct initial stage at each side of the ROW

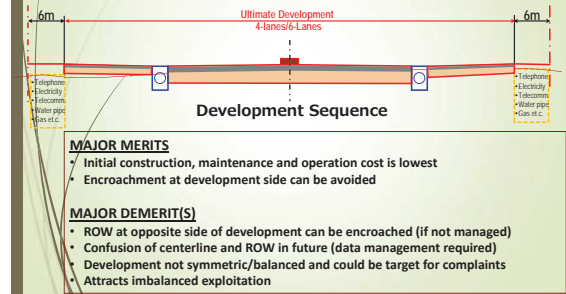
Attractive where ROW exists but is not secured (walled or fenced)



## 13 Development of Roadways

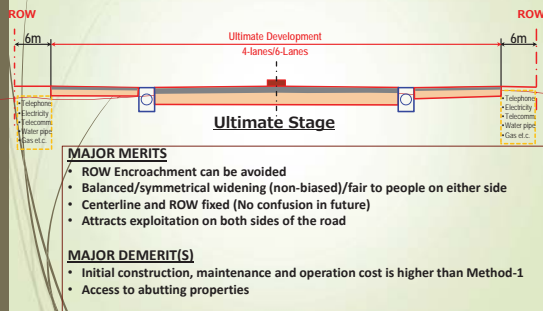
### (3) Construct initial stage at one side of the ROW

Attractive where ROW exists but is not secured (walled or fenced)



## 10 Development of Roadways

### (1) METHOD-2: Construct initial stage at each side of the ROW



## 14 Development of Roadways

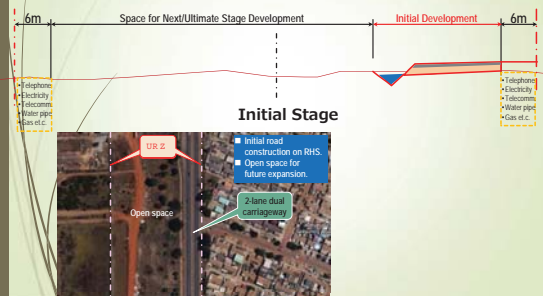
### Conclusion and Recommendation

- Cross section requirements for roadways vary according to the capacity, level of service to be provided and the alongside land use pattern
- Each roadway section must be individually analyzed, and its cross section determined based on the volume and type of projected traffic, existing capacity, desired level of service
- All methods have both advantages and disadvantages. Selection of the optimum method should be done through comprehensive and in-depth study
- Standard Drawings of Typical Cross Sections for planning Expressways and Highways (60m, 50, and 40m) have been prepared under this project and can be referred for road development by MPWT in future. If approved, the drawings will be provided in the appendix of the Design Standard.

## 11 Development of Roadways

### (3) Construct initial stage at one side of the ROW

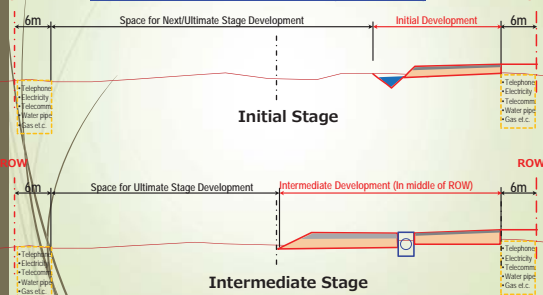
Attractive where ROW exists but is not secured (walled or fenced)



## 12 Development of Roadways

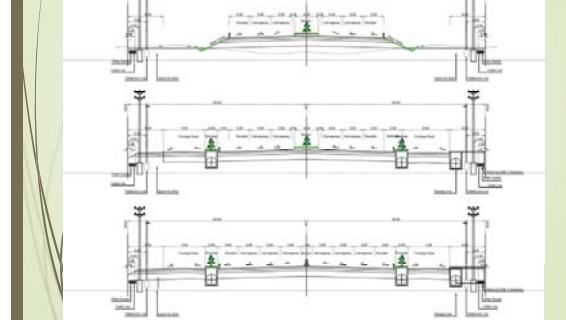
### (3) Construct initial stage at one side of the ROW

Attractive where ROW exists but is not secured (walled or fenced)



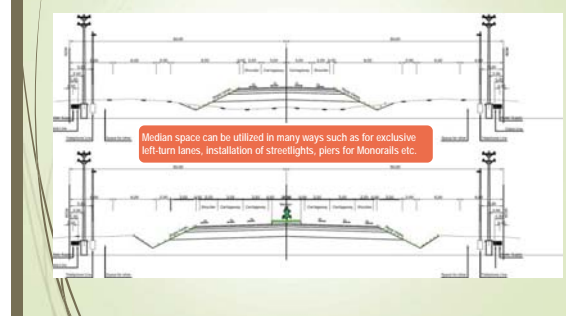
## 15 Typical Cross Sections

### Expressway : 60



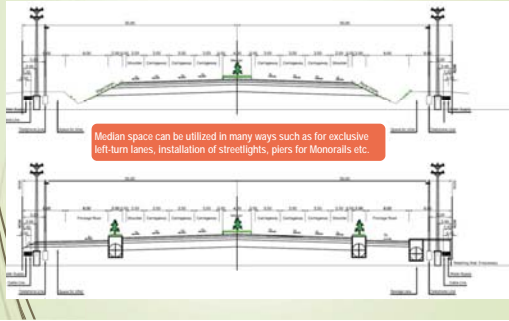
## 16 Typical Cross Sections

### Highway : 60



## 17 Typical Cross Sections

### Highway : 60



## 18 Development of Roadways

### General Consideration for Provision of Utilities

#### SAFETY

- should be provided at MPWT designated space
- Should not adversely affect roadway constructability, operations, maintenance, and safety
- All works including maintenance need permit from MPWT

#### DESIGN

- Close coordination with relevant authorities (joint planning/development)
- Properly designed, installed, operated and maintained
- Consideration for possible impact on the roadway and its use
- Fulfill requirement policy of the MPWT

#### PLACE & PRESERVENCE

- Placed in designated location
- Appropriate measures for protection (erosion)
- Fulfill requirement policy of the MPWT
- Keep records and update
- Maintain visibility for easy identification

Thank You for Your Attention!

19

20





THE PROJECT FOR CAPACITY ENHANCEMENT  
ON ENVIRONMENTAL AND SOCIAL CONSIDERATIONS  
IN IMPLEMENTING AGENCY IN ROAD SECTOR  
IN THE KINGDOM OF CAMBODIA (CESCOR)



# Presentation on Pilot Project Hard Approaches



Presented by: Mr. CHEA Samnang

Chief of ROW Office  
Road Infrastructure Department  
MPWT

2<sup>nd</sup> October, 2019

1

## 2. Target Area of Pilot Project

5

### Contents of This Section

#### Topic1. Pilot Project Hard Approaches 30 min

1. What is IEP?
2. Target Area of Pilot Project
3. IEP Hard Approach Items on Pilot Project
4. Improvement of Road Environment

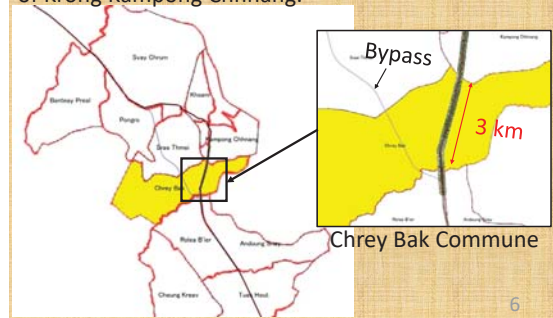
Topic2. DBST Material 15 min  
(Presented by IKEE Company)

Topic3. Inter-Locking Block 15 min  
(Presented by Omura Company)

2

### Location Map of Target Area

Target Area is **Chrey Bak Commune**, located at south of Krong Kampong Chhnang.



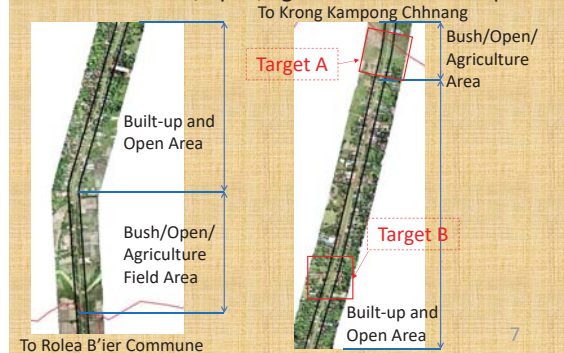
6

## 1. What is IEP ?

3

### Land Use Condition of Target Area

The area has bush, open, agriculture and built-up area.



7

### IEP: Illegal Encroachment Prevention

#### Purpose of IEP

1. To prevent new encroachment in the ROW
2. To regulate temporary use of ROW with Permission

#### IEP Approaches

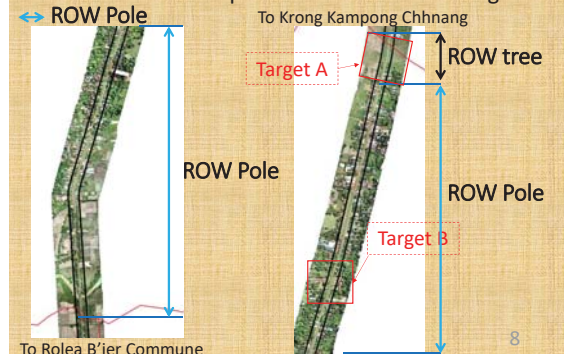
1. Raising Awareness (Education)
2. Monitoring and Control / Intervention
3. Installing Facilities



4

### General Plan of ROW Pole

ROW Poles will be implemented in the following area.



8



### 3. IEP Hard Approach Items on Pilot Project

9

#### Working Items of Target Area A

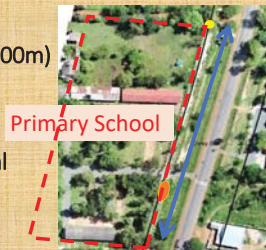
- IEP Fence
- Growing Tree
- Signboard (Not yet)



10

#### Working Items of Target B

- ← Improvement of Road Environment
  - Pedestrian Fence (100m)
  - Sidewalk (200m)
  - Bicycle Road
  - Frontage Road
  - Move of Open Canal
- ROW Marking Plate
- Signboard



conceptual drawing

11

### 4. Improvement of Road Environment

12

#### Improvement of Road Environment(Target B)

Initial Stage  
(2 Lanes)



1st Stage  
(Target B)  
(2 Lanes + IEP)



2nd Stage  
(4 Lanes)



3rd Stage  
(6 Lanes)



13

#### Purpose to Improve Road Environment

- These temporary measures are effective
  1. not only for securing roadside environment,
  2. but also for preventing future encroachment
- Sidewalks and frontage roads are reutilized from 1st Stage (2 lanes + IEP) to following Stages
- Location of open canal was put in its correct position

Let's explain with 3D model

14

Thank You for Your Attention!

#### Next Presentation

Topic2. DBST Material 15 min  
(Presented by IKEE Company)

Topic3. Inter-Locking Block 15 min  
(Presented by Omura Company)

15



## Advancing Pavement Technologies

The Advanced Infrastructure Activist "IKEE PAVING SYSTEMS" - Our Solutions

**Dangerous Pothole Ahead! Excel Patch Fast Solution! Try First!**

**EXCEL** The Permanent Cold Patch For all weather type

The Infra Activists

**IKEE BITUMEN CHEMICAL Cambodia co.,Ltd.**

### Company Background



**Shu NISHIYAMA**  
President

- > IKEE Ltd. is group of companies.
- > Head office locates in Matsuyama, Ehime Province, Japan
- > Main job is pavement construction.
- > The company was established in 1957.



Sale & Construction



### PRODUCT & SERVICE

- I. Asphalt Emulsion (CSS-1 & CRS-2)
- II. EXCEL Cold Patch
- III. Stabilization Machine (Stabilizer)



- IV. Road Construction
- V. Infrastructure and Construction Materials

IKEE BITUMEN CHEMICAL Cambodia co.,Ltd.



And



- > Established in 2017
- > Manufacture Factory
- > Member of IKEE Group
- > Japanese Technology

Sale Office: #09, St. 242, Chaktomuk, Daun Penh, Phnom Penh, Cambodia.

Factory: Phnom Penh Special Economic Zone, Phnom Penh, Cambodia.

Tel: 077 851 992 / 017 427 959 & Email: info.ibckh@gmail.com

### Factory Location

MASTER LAND-USE PLANNING OF PPSZ PROJECT-357.31794a  
Located in Sangkat Kamouk Sangkat Phnom Chhnor Sangkat Beung Thom, Khan Pochentong, Phnom Penh Municipality  
(Approved November 14, 2016)

National Road No. 4

**IKEE BITUMEN CHEMICAL Cambodia co.,Ltd.**

The Product of Cambodia

## Heating Free Asphalt Emulsion

**Heating Free** Spray at Ambient Temperature

- Durable
- Stable Dispersibility
- Excellent Adhesion
- Fastest Set Time

IKEE BITUMEN CHEMICAL Cambodia co.,Ltd.

### Specification

Asphalt Emulsion	Unit	CSS-1	CRS-2	MN-1
Viscosity, Saybolt 25°C	sec	20-100	100-400	-
Sieve Test (%)	%	<0.1	<0.1	-
Particle Charge	+/-	Positive (+)	Positive (+)	-
Storage Stability	%	<1.0	<1.0	-
<b>Distillation Test</b>				
Residue by Distillation	%	>57	>65	-
Penetration 25°C	0.1mm	100-250	100-250	-
Ductility 25°C	cm	>40	>40	-
Solubility	wt%	>97.5	>97.5	-

IKEE BITUMEN CHEMICAL Cambodia co.,Ltd.

**Asphalt Emulsion Plant**



**Precise Quality Control**



**Product**

Asphalt Emulsion Grade	Application
CSS-1 - Cationic Slow Setting	Prime Coat
CRS-2 - Cationic Rapid Setting	Tack Coat , SBST & DBST
M N -1 - Non - Ionic	Asphalt Emulsion-Cement Stabilization

**Features**

1. Easy to use at normal temperature.
2. Eco friendly and non polluting.
3. Firm adhesion even at wet condition.
4. Fast set time, road can be opened to traffic soon after implementation.
5. Non flammable and hassel free material.



IBC office Phnom Penh Special Economic Zone, National Road No.4, Khan Penh, Phnom Penh, Cambodia.  
TEL: 017-427-959/070-361-838 & email: info.lbckh@gmail.com



**Cement-Asphalt Emulsion Stabilization**

Base construction by stabilization for earth road or granular road

Repair of existing pavement (CR)

Subgrade (Filling) + Additive Cement etc. → Stabilization method (in-place mixing) → Pavement (Stabilizing layer + Subgrade (Filling))

**Thank you so much for attention!**



**ANY QUESTION?**



**EXCEL The pavement repair materials**  
The Permanent Cold Patch For all weather type

- ❖ Long-Life Storable – High Quality
- ❖ All-weather Available – Strong with Water
- ❖ Easy Laying – Fast and Easy Repairing
- ❖ Foot Compaction – Less Labors and Easy Compaction

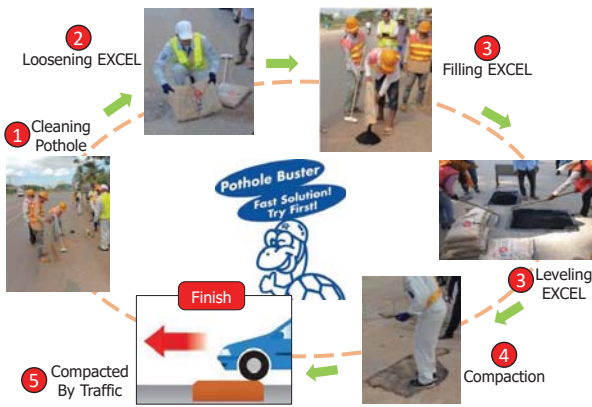
Long-Life Storable

All-Weather Available

Foot Compaction

Easy Laying

**Instruction of Repairing Pothole**



# Precast Concrete Product Introduction



2019/10/02  
KonHiroya

OMURA Concrete Co., Ltd.

Do you know Precast Concrete product?



OMURA Concrete Co., Ltd.

1. Spend much time



1. Shorten time

Shorten time makes change  
Province Area

What purpose to use  
Concrete product ?

If Precast Concrete product  
are used ?

2. Need much workers



2. Save Workers  
&  
Keep Quality

Saving workers makes  
Cut cost and improve quality



3. Difficult manage quality of finishing



3. Keep Quality

3. Keep Quality makes much more opportunity to improve

Precast Concrete Products makes Cambodia infrastructure improve

OMURA Concrete Company Overview



CEO  
Yabusame Kiyonori



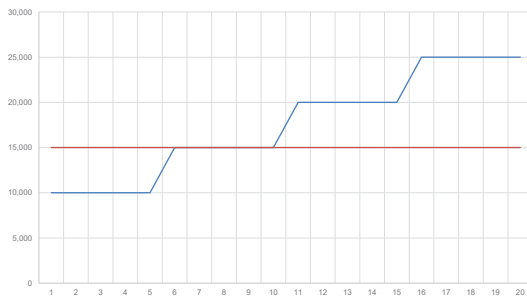
Company Summary

Company Name	OMURA Concrete Co., Ltd.
Address	3rd Floor Phnom Penh Tower, #445, Monivong Blvd, Sangkat Boeung Prail, Khan 7 Makara, Phnom Penh, Cambodia
Phone Number	+855-(0)-23-964-250
Representative	Yabusame Kiyonori
Establish date	16 <sup>th</sup> Sep 2015
Started Capital	\$ 1,000,000
Business Operation	Produce Concrete Products, Installation, Exportation
Staff	65 Persons (On July, 2016)



OMURA Concrete Co., Ltd.

Comparing Life Cycle Cost (LCC)



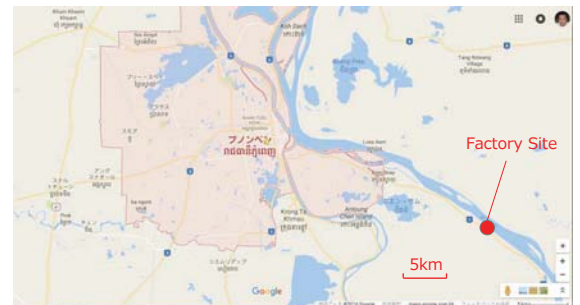
— Bad quality construction  
— Good quality construction

4. Difficult construction at narrow site



4. Available to install

OMURA Concrete Company Overview



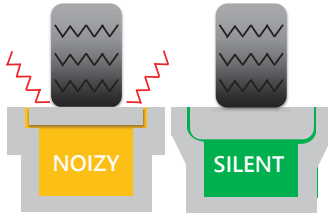
OMURA Concrete Co., Ltd.

Box Culvert



OMURA Concrete Co., Ltd.

Silent Gutter



OMURA Concrete Co., Ltd.

Carns Airport in Australia



OMURA Concr

Silent Gutter Cover



Reasonable Strong

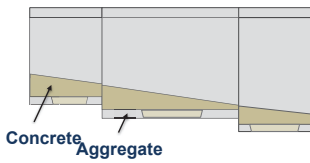
OMURA Concrete Co., Ltd.

Slope Protection



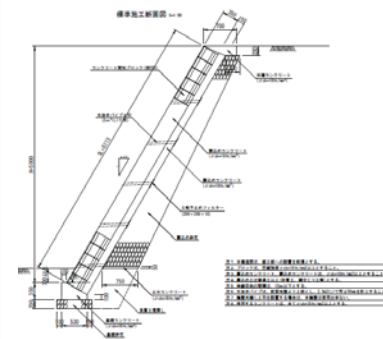
OMURA Concrete Co., Ltd.

VS Gutter



OMURA Concrete Co., Ltd.

Slope Protection



OMURA Concrete Co., Ltd.

Interlocking Block



OMURA Concrete Co., Ltd.

Retaining Wall



OMURA Concrete Co., Ltd.

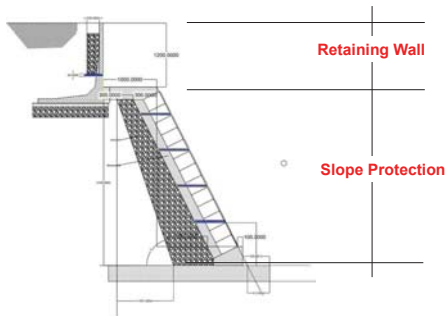


Retaining Wall



OMURA Concrete Co., Ltd.

Retaining Wall



OMURA Concrete Co., Ltd.

Concrete curb



Japanese Bridge (2018)

OMURA Concrete Co., Ltd.

Contact

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MAIL : hiroya.kon@gmail.com

OMURA Concrete Co., Ltd.





**FINAL SEMINAR**

**FOR**

**THE PROJECT FOR CAPACITY ENHANCEMENT ON  
ENVIRONMENTAL AND SOCIAL CONSIDERATIONS IN  
IMPLEMENTING AGENCY IN ROAD SECTOR IN CAMBODIA  
(CESCOR)**

**6TH DECEMBER, 2019**

**SUNWAY HOTEL, PHNOM PENH**



FOR MORE INFORMATION CONTACT: OFFICE +855(0)61-960-213

# AGENDA

## Final Seminar for The Project for Capacity Enhancement on Environmental and Social Considerations in Implementing Agency in Road Sector in Cambodia (CESCoR)

**SUNWAY Hotel, Phnom Penh, 6<sup>th</sup> December, 2019**

### Morning Session

Target Participants: MoI, MEF, MLMUPC, MoE, MPWT, Provincial DPTWs

Time	Program	Content
08:30-08:45	Registration	
08:45-08:50	<b>Cambodian National Anthem</b>	
08:50-09:00	<b>Opening Remarks</b> H.E. Nou Vaddhanak, Under Secretary of State, MPWT	
09:00-09:30	<b>1. Project Completion Report</b> by Dr. TSUCHIDA Takayuki, Team Leader, JICA Project Team	1. Outline and Results of the Project 2. Handover Project Outputs
09:30-10:10	<b>2. Explanation of Road Environmental Guidebook (REG)</b> by Mr. Bour Chhay Ya, DoP, MPWT	Overview of Road Environmental Guidebook (REG)
10:10-10:30	<b>3. Explanation of ROW Management System (RMS)</b> by Mr. Chea Samnang, RID, MPWT	Overview of ROW Management System (RMS)
10:30-10:45	<b>Coffee Break</b>	
10:45-11:15	<b>4. Presentation on ROW Management Structure</b> by Mr. Khai Saray, RID, MPWT	1. Legal Framework, 2. Structure of CSI (RMD, RMM, UAV and Field survey), 3. Structure of IEP (Hard and Soft Approaches)
11:15-11:45	<b>5. Presentation on ROW Management Activity and Plan</b> by Khuon Kompheak, RID, MPWT	1. Priority Activities (CSI, PCM and ROW Pole Installation) 2. Future Development Plan 3. Standard Drawings for Cross-section for Future Development
11:45-12:00	<b>Closing Remarks</b> H.E. Nou Vaddhanak, Under Secretary of State, MPWT	
12:00-13:30	<b>Luncheon</b>	

Note: All Presentation materials will be English, and verbal speech in Khmer except “1. Project Completion Report”.



THE PROJECT FOR CAPACITY ENHANCEMENT ON ENVIRONMENTAL AND SOCIAL CONSIDERATIONS IN IMPLEMENTING AGENCY IN ROAD SECTOR IN THE KINGDOM OF CAMBODIA (CESCoR)



## Project Completion Report

1. Results of the Project
2. Results of Joint Review

7<sup>th</sup> Seminar (Final)  
Phnom Penh, 6<sup>th</sup> December, 2019

**Dr. TSUCHIDA Takayuki**  
Team Leader, JICA Project Team

## 2 Contents of Presentation

### 1. Results of the Project

- 1-1. Basic Information of the Project
- 1-2. Results of the Project
- 1-3. Achievements of the Project
- 1-4. History of PDM Modification

### 2. Results of Joint Review

- 2-1. Results of Review based on DAC Evaluation Criteria
- 2-2. For the Achievement of Overall Goals after the Project Completion
- 2-3. Recommendations for the Cambodian Side

## 1. Results of the Project

### 1-1. Basic Information of the Project

#### (5) JCC Member

Assignment	Position
Chair Parson	H.E. Tauch Chankosal, Secretary of State, Ministry of Public Works and Transport (MPWT)
Member	H.E. Nou Vaddhanak, Under Secretary of State, MPWT (former, Director General, General Directorate of Techniques)
Member	Ms. Pin Vuthea, Director, International Cooperation Department (ICD), MPWT
Member	Mr. Prok Novida, Director, Department of Planning (DoP), MPWT
Member	Mr. Chhim Phalla, Director, Road Infrastructure Department (RID), MPWT
Member	Mr. Yong Sy, Chief of Domestic Public Investment III Office, Investment Department, General Department of Budget, Ministry of Economy and Finance (MEF)
Member	Representative(s), JICA Cambodia Office
Member	Experts, JICA Project Team

## 1. Results of the Project

### 1-1. Basic Information of the Project

#### (6) JCC Summary

No.	Date	Agenda
1 <sup>st</sup>	4 May 2017	<ul style="list-style-type: none"> <li>• Explanation of proposed Project Framework</li> <li>• Concept of ROW Management for the Project</li> </ul>
2 <sup>nd</sup>	6 Feb. 2018	<ul style="list-style-type: none"> <li>• Project Progress</li> <li>• Technical Item for EIA Task and ROW Management Task</li> <li>• Confirmation Items: Reformed JCC and TF Members, Draft REG, Authorization Process of REG, Draft Table of Contents of RMS, Selection of Pilot Project Site</li> </ul>
3 <sup>rd</sup>	7 Feb. 2019	<ul style="list-style-type: none"> <li>• Project Progress</li> <li>• Technical Item for EIA Task and ROW Management Task</li> <li>• Confirmation items: Draft of RMG, Pilot Project Site for Illegal Encroachment Prevention (IEP), Participation in IAIA)</li> </ul>
4 <sup>th</sup>	5 Nov. 2019	<ul style="list-style-type: none"> <li>• Explanation of completion of the Project and RMS</li> <li>• Confirmation items: Project Completion Report, RMG, Level of RMS authorization, Schedule of Final Seminar</li> </ul>

## 1. Results of the Project

### 1-1. Basic Information of the Project

- (1) **Title of the Project:** The Project for Capacity Enhancement of Environment and Social Considerations in Implementing Agency in Road Sector (CESCoR)
- (2) **Duration:** January 2016 - December 2019 (3 years)
- (3) **Overall Goal and Project Purpose:**

<b>Overall Goal</b>	ESC in road sector is implemented properly by MPWT.
<b>Project Purpose</b>	Capacity of MPWT officials on ESC is enhanced through applying REG and RMS
<b>Output 1</b>	Implementation framework for the project is strengthened based on past experiences and present situation on ESC and ROW management.
<b>Output 2</b>	Implementation framework of EC related to EIA and EMP is strengthened.
<b>Output 3</b>	Implementation framework of SC related to ROW management is strengthened by establishing RMS
<b>Output 4</b>	Capacity of SC required for ROW management is strengthened through OJT.

## 1. Results of the Project

### 1-2. Results of the Project

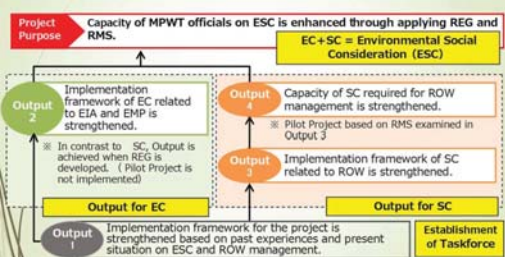
#### (1) Input of Experts

- 1 Team Leader / Right of Way Management-1
  - 2 Deputy Team Leader / Right of Way Management-2
  - 3 ESC/EIA/EMP
  - 4 Road Plan / Transportation Plan / Road Structure Plan
  - 5 Land Management Framework-1
  - 6 Land Management Framework-2 / Database Development
  - 7 Land and House Investigation-1 / Road and Structural Design
  - 8 Land and House Investigation-2
  - 9 Training Plan and Implementation-1
  - 10 Training Plan and Implementation-2
  - 11 Training Plan and Implementation-3
  - 12 Institutional Analysis / PCM
  - 13 Project Coordinator / Database Management
  - 14 Monitoring/Evaluation
- (Planned Assignment: 111.00 M/M, Actual Assignment: 119.30 M/M)  
Accomplishment 119.30 M/M (100%) as of December 13, 2019

## 1. Results of the Project

### 1-1. Basic Information of the Project

#### (4) Schematic Design of the Project Outputs



## 1. Results of the Project

### 1-2. Results of the Project

#### (2) Training

1. Training in Japan
2. Technical exchange in third countries
3. Training and seminar in Cambodia
  - Seminar
  - Pilot Project Seminar
  - Training of Trainer (ToT) Workshop
  - Task Force Meeting

#### (3) Machinery and Equipment

Laptop PC, Desktop PC, Printer, Copy Machine, Projector, Drone and Total Station



## 9 Training in Japan

- 1<sup>st</sup> Japan Training (EIA/EMP): June 13-22, 2017, Tokyo and Osaka - **Completed**
- 2<sup>nd</sup> Japan Training (ROW Management): Feb 27- Mar 8, 2018 , Tokyo and Osaka - **Completed**
- 3<sup>rd</sup> Japan Training (ROW Management) : Feb 12-22, 2019 , Tokyo and Osaka - **Completed**



Note: EIA: Environmental Impact Assessment, EMP: Environmental Management Plan, ROW: Right of Way

## 10 Technical exchange in third countries

- 1<sup>st</sup> Third Country Technical Exchange (EIA/EMP): October 24-28, 2017, Myanmar - **Completed**
- 2<sup>nd</sup> Third Country Technical Exchange (ROW Management): September 26-28, 2018, Phnom Penh - **Completed**  
October 22-26, 2018, Laos and Thailand - **Completed**
- 3<sup>rd</sup> Third Country Technical Exchange (IAIA): April 29-May 2, 2019, Australia - **Completed**



Note: EIA: Environmental Impact Assessment, EMP: Environmental Management Plan, ROW: Right of Way, IAIA: International Association for Impact Assessment

## 11 Seminar

- 1<sup>st</sup> Seminar: May 4, 2017 , Phnom Penh - **Completed**
- 2<sup>nd</sup> Seminar: June 6, 2017, Phnom Penh - **Completed**
- 3<sup>rd</sup> Seminar: February 6, 2018, Phnom Penh - **Completed**
- 4<sup>th</sup> Seminar: September 27, 2018, Phnom Penh - **Completed**
- 5<sup>th</sup> Seminar: November 13, 2018, Phnom Penh - **Completed**
- 6<sup>th</sup> Seminar: March 15, 2019, Phnom Penh - **Completed**
- 7<sup>th</sup> Seminar (Final): December 6, 2019, Phnom Penh - **On going**



## 12 Pilot Project Seminar

- 1<sup>st</sup> Seminar: October 2, 2019, Phnom Penh - **Completed**
- 2<sup>nd</sup> Seminar: October 15, 2019, Chrey Bak Commune, Kampong Chhnang Province - **Completed**



## 13 Training of Trainer (ToT) Workshop

- 1<sup>st</sup> ToT Workshop: June 31, 2019, Phnom Penh - **Completed**  
Target DPWTs: 5 provinces (Kandal, Kampong Chhnang, Pursat, Battambang, and Banteay Meanchey)
- 2<sup>nd</sup> ToT Workshop: August 29, 2019 Phnom Penh - **Completed**  
Target DPWTs: 4 provinces (Kampong Cham, Kampong Thom, Siem Reap, and Oddor Meanchey)
- 3<sup>rd</sup> ToT Workshop: August 30, 2019, Phnom Penh - **Completed**  
Target DPWTs: 6 provinces (Kampong Speu, Takeo, Kep, Koh Kong, Kampot and Preah Vihear)



## 14 Task Force Meeting

### EIA/EMP Taskforce Meeting

- Conducted **30 times** from April 2017 to December 2019
- Discussed to develop and update REG
- Considered approval process of REG for MPWT's Decision

### ROW Management Taskforce Meeting

- Conducted **60 times** from May 2017 to December 2019
- Discussed to develop RMS including RMG, RMM and RMD
- Considered approval process of RMG for MPWT's Decision



Note: EIA: Environmental Impact Assessment, EMP: Environmental Management Plan, RMS: ROW management System, REG: Road Environment Guidebook, ROW: Right of Way, RMM: ROW Management Map, RMD: ROW Management Database

## 1. Results of the Project

### 1-3. Achievements of the Project

#### Status of Project

Overall Goal	ESC in road sector is implemented properly by MPWT.	
Project Purpose	Capacity of MPWT officials on ESC is enhanced through applying REG and RMS	
Outputs	Output 1	Implementation framework for the project is strengthened based on past experiences and present situation on ESC and ROW management. <b>[Status] Completed (100%)</b>
	Output 2	Implementation framework of EC related to EIA and EMP is strengthened. <b>[Status] Completed (100%)</b>
	Output 3	Implementation framework of SC related to ROW management is strengthened by establishing RMS <b>[Status] Completed (100%)</b>
	Output 4	Capacity of SC required for ROW management is strengthened through OJT. <b>[Status] Completed (100%)</b>

Note: REG: Road Environment Guidebook, RMS: ROW Management System, EIA: Environmental Impact Assessment, EMP: Environmental Management Plan

## 1. Results of the Project

### 1-3. Achievements of the Project

#### Major Specific Outcomes

- Output 2: Implementation Framework of Environmental Considerations is strengthened.
  - Output 3: Implementation Framework of Social Considerations is strengthened.
  - Output 4: Capacity of Social Considerations is strengthened.
- Road Environmental Guidebook (REG)** has been finalized and will be authorized the decision of MPWT.
- ROW Management System (RMS)** has been developed through project activities.



\* RMS is consisted ROW Management Guidelines (RMG), ROW Management Map (RMM) and ROW Management Database (RMD).

1. Results of the Project  
1-3. Achievements of the Project

Pilot Project

<b>Purpose:</b>	Capacity of Social Considerations (SC) required for ROW management is strengthened as a component of CESCoR Project, funded by JICA
<b>Activity:</b>	<p><b>Part 1: Current Status Identification (CSI) – NR5 336km</b></p> <ul style="list-style-type: none"> <li>-UAV Survey (Taking aerial photos with UAV)</li> <li>-Office Work (Ortho images and GIS processing)</li> <li>-Field Survey</li> <li>-Data finalization and Classification</li> </ul> <p><b>Part 2: Illegal Encroachment Prevention (IEP) - Chrey Bak commune, Kampong Chhnang province – NR5 3km</b></p> <ul style="list-style-type: none"> <li>-Plan for IEP Approaches(Soft and Hard) by Classification</li> <li>-Soft Approach (e.g. PCM and Patrol)</li> <li>-Hard Approach (e.g. ROW poles, Signboard, Fence and Growing tree)</li> </ul>
<b>Term:</b>	May 2018 to Oct 2019
<b>Area:</b>	<p><b>Target Area along National Road No.5 in four Provinces:</b></p> <ol style="list-style-type: none"> <li>1) KAMPONG CHHNANG Province</li> <li>2) PURSAT Province</li> <li>3) BATTAMBANG Province</li> <li>4) BANTEAY MEANCHEY Province</li> </ol>

1. Results of the Project  
1-3. Achievements of the Project

Pilot Project: IEP hard approach



Hard Approach (e.g. ROW poles, Signboard, Fence and Growing tree, Road Improvement)

1. Results of the Project  
1-3. Achievements of the Project

Budget Plan for ROW Management

Purpose of Budget plan for the ROW management:

- To classify the cost of appropriate ROW management
- To contribute the budget requirement for ROW management
- To secure the future budget for ROW management

Budget Plan for the future ROW management, which is set as CSI and IEP will be used on the all 1-digit and 2-digit national road which total length is 7,260 km.

3 phases (3 years/phase) in total 9 years budgetary plan was provided and necessary budget was estimated for each phase.

First phase (3 years) target will be set as follows,

- CSI for half of all 1-digit & 2-digit
- PCM for 50 places
- Patrol on all 1-digit & 2-digit national road
- New ROW Pole installation for 150 km

1. Results of the Project  
1-3. Achievements of the Project

Monitoring Sheet

- Monitoring Sheet Ver. 1.0: April 6, 2017 - **Completed**
- Monitoring Sheet Ver. 2.0: July 7, 2017 - **Completed**
- Monitoring Sheet Ver. 3.0: December 6, 2017 - **Completed**
- Monitoring Sheet Ver. 4.0: June 11, 2018 - **Completed**
- Monitoring Sheet Ver. 5.0: December 11, 2018 - **Completed**
- Monitoring Sheet Ver. 6.0: June 28, 2019 - **Completed**

1. Results of the Project  
1-3. Achievements of the Project

Future Development Plan with 3D Drawing

**Step 1: Existing Condition**  
(2-lane without ROW management)

**Step 2: Development Plan of Pilot Project**  
(2-lane with ROW management)

**Step 3: Future Development Plan**  
(4-lane)

**Step 4: Future Development Plan**  
(6-lane)

1. Results of the Project  
1-4. History of PDM Modification

PDM Modification

Date	PDM version
October 2015	Ver. 0.0
February 2018	Ver. 1.0

1. Results of the Project  
1-3. Achievements of the Project

Public Relations Activities

Hand Fan: 2,000 units

Eco Bag: 1,000 units

Shirts: 350 units

Monthly Report: every month

JICA Web site: every month

2. Results of Joint Review  
2-1. Results of Review based on DAC Evaluation Criteria

Evaluation Criteria

- DAC (Development Assistance Committee, Organization for Economic Co-operation and Development: OECD)
- A Joint review was conducted by questionnaire and discussion. Each criterion is assessed as follows,
  - 1) Relevance
  - 2) Effectiveness
  - 3) Efficiency
  - 4) Impact
  - 5) Sustainability

Five evaluative scale

- Extremely satisfactory
- Very satisfactory
- Moderately satisfactory
- Slightly satisfactory
- Not at all satisfactory

2. Results of Joint Review  
2-1. Results of Review based on DAC Evaluation Criteria

**Evaluation Criteria**

- 1) **Relevance**  
The extent to which the aid activity is suited to the priorities and policies of the target group, recipient and donor.
- 2) **Effectiveness**  
A measure of the extent to which an aid activity attains its objectives.
- 3) **Efficiency**  
Efficiency measures the outputs - qualitative and quantitative - in relation to the inputs. It is an economic term which signifies that the aid uses the least costly resources possible in order to achieve the desired results.
- 4) **Impact**  
The positive and negative changes produced by a development intervention, directly or indirectly, intended or unintended. This involves the main impacts and effects resulting from the activity on the local social, economic, environmental and other development indicators.
- 5) **Sustainability**  
Sustainability is concerned with measuring whether the benefits of an activity are likely to continue after donor funding has been withdrawn. Projects need to be environmentally as well as financially sustainable.

2. Results of Joint Review  
2-2. For the Achievement of Overall Goals after the Project Completion

<b>Overall Goal</b>	ESC in road sector is implemented properly by MPWT.
<b>Project Purpose</b>	Capacity of MPWT officials on ESC is enhanced through applying <b>REG</b> and <b>RMS</b>

**For the achievement of Overall Goals**

- 1) **EIA/EMP**  
Environmental consideration procedures shall be implemented in line with Road Environmental Guidebook (REG).
- 2) **ROW Management**  
ROW management shall be operated by using ROW Management System (RMS).
- 3) **ROW Management Budget**  
ROW management budget shall be secured based on budgetary plan.

2. Results of Joint Review  
2-1. Results of Review based on DAC Evaluation Criteria

**Result of Evaluation**

	Extremely satisfactory	Very satisfactory	Moderately satisfactory	Slightly satisfactory	Not at all satisfactory
<b>Overall</b>		X			
1) Relevance		X			
2) Effectiveness	X				
3) Efficiency		X			
4) Impact		X			
5) Sustainability			X		

2. Results of Joint Review  
2-3. Recommendations for the Cambodian Side

- (1) **Implementation of Hard Approaches for IEP**  
ROW management concept shall be considered in the road designs on new road construction and road rehabilitation projects. Standard drawings prepared by this project contributes to this recommendation.
- (2) **Advertisement Income System**  
To secure the budget for ROW management, advertisement income shall be introduced with the cooperation between MPWT and provincial government. Advertisement income such as advertisement board shall be included in MPWT's budget directly for the ROW management activities.
- (3) **Communication with other countries**  
Good practices from other countries would be good lessons in practice. MPWT has exchanged technical knowledge with Japan, Myanmar, Laos, Thailand and Australia. This communication shall be continued and expanded to share and solve the ROW issues.

2. Results of Joint Review  
2-1. Results of Review based on DAC Evaluation Criteria

**Major Result for the Project Purpose**

Indicators	Major Results
(1) Implementation framework of the project is established by Task Force (TF) consisting of ICD, RID and DOP officials - <b>Satisfied</b>	- TF members were officially selected at the 1st JCC held on 4th May 2017. - Each TF members conduct the appropriate activities through the TF meeting and present the output at the seminar etc.
(2) More than 5 members of TF are observed their capacity enhancement on Environmental Considerations (EC) through continuous participation to the REG preparation process - <b>Satisfied</b>	- TF meetings were held once or twice per month and total 7 TF members had participated in the meeting and discussed some challenges. - Total 6 TF members had participated training in Japan and third country and learnt the good practices for EC - Total 7 TF members had participated at the seminars and presented their activities. - TF members had monitored the environmental countermeasure at NRS with using draft REG. - Output of activities will be presented by TF members at final seminar.



THE PROJECT FOR CAPACITY ENHANCEMENT ON ENVIRONMENTAL AND SOCIAL CONSIDERATIONS IN IMPLEMENTING AGENCY IN ROAD SECTOR IN THE KINGDOM OF CAMBODIA (CESCoR)



**Thank You for Your Attention**

Dr. TSUCHIDA Takayuki  
tsuchida@ctii.co.jp

2. Results of Joint Review  
2-1. Results of Review based on DAC Evaluation Criteria

**Major Result for the Project Purpose**

Indicators	Major Results
(3) More than 5 members of TF are observed their capacity enhancement on Social Considerations (SC) through continuous participation to the RMS preparation process - <b>Satisfied</b>	- TF meetings were held once or twice per month and total 19 TF members had participated in the meeting and discussed some challenges. - Total 8 TF members had participated training in Japan and third country and learnt the good practices for SC. - Total 18 TF members had participated at the seminars and presented their activities. - Output of activities will be presented by TF members at final seminar.
(4) More than 10 members of TF and Pilot Project Task Force (PTF) are trained to guide RMS operation to the other officials - <b>Satisfied</b>	- PTF members were selected at the ROW TF meeting. - Total 22 from MPWT and 10 from DPWT TF members had participated their meeting and seminars. - Training to MPWT and to DPWT were conducted through the dissemination seminar by TF members.





THE PROJECT FOR CAPACITY ENHANCEMENT  
ON ENVIRONMENTAL AND SOCIAL CONSIDERATIONS  
IN IMPLEMENTING AGENCY IN ROAD SECTOR  
IN THE KINGDOM OF CAMBODIA (CESCoR)



## Technical Item for EIA Task

7<sup>th</sup> Seminar (Final)  
Phnom Penh, 6<sup>th</sup> December, 2019

Presented by Mr. Bour Chhay Ya  
Deputy Chief Officer, DoP, MPWT

1

2

## Contents of Presentation

- Overview of Road Environmental Guidebook (REG)
- Authorization Process of REG
- REG Dissemination Plan

3

## 1. Overview of Road Environmental Guidebook (REG)



- The objectives of development of REG is to assist MPWT's officials in charge of EIA/EMP to be more effective, in particular reviewing and giving comments on EIA Report and Environmental Management Plan (EMP), Environmental Monitoring Plan (EMoP) on Road Project in Cambodia.
- Scope of the REG
  - Assist MPWT officials, who are in charge of EIA, EMP, EMoP, to understand the main areas of concern and use that understanding to enhance the quality of the EIA, EMP, and EMoP.
  - The Appendices are prepared more practical for road project, and for effective/efficient reviewing of EIA Report, EMP, EMoP.

4

## Outline of REG

1. Introduction
  - 1.1 Backgrounds
  - 1.2 Objectives, Users and Scope of REG
  - 1.3 General Steps in Conducting EIA
  - 1.4 Project Cycle and EIA
2. Essential Laws/Prakas and Guidelines related to REG
3. Steps of EIA Process and Involvement Phases by MPWT in Cambodia
  - 3.1 Steps of EIA Process in Cambodia as Nationwide
    - 3.1.1 IEIA/EIA Report Preparing Phase
    - 3.1.2 IEIA/EIA Report Reviewing Phase
    - 3.1.3 Environmental Monitoring Phase
  - 3.2 Involvement Phases by MPWT for EIA Process in Cambodia
    - 3.2.1 EIA Report Preparing Phase
    - 3.2.2 EIA Report Reviewing Phase
    - 3.2.3 Environmental Monitoring Phase

5

## Outline of REG (1)

### 4. Practical Involvement Methods by MPWT for EIA Process in Cambodia

- 4.1 EIA Report Preparing Phase
  - (1) EIA Report Contents
- 4.2 EIA Report Reviewing Phase
  - (1) Introduction of EIA Report Review
  - (2) Practical Methods for EIA Report Reviewing
- 4.3 Environmental Monitoring Phase
  - (1) Introduction of Environmental Monitoring
  - (2) Two categories of Environmental Monitoring
  - (3) Environmental Monitoring Plan (EMoP)
  - (4) Environmental Monitoring Report (EMoR)

6

## Outline of REG (2)

### Appendices:

- Appendix 1: Checklist for Reviewing EIA Report for Road Project
- Appendix 2: Checklist for Reviewing EMP for Road Project
- Appendix 3: Checklist for Reviewing EMoP for Road Project
- Appendix 4: Checklist for Reviewing EMoR for Road Project

7

### Appendix 1: Checklist for Reviewing EIA Report for Road Project

ឈ្មោះ	កាលបរិច្ឆេទ	ទីកន្លែង	ស្ថានភាព	កម្រិត	កម្រិត
១. ទិន្នន័យគោលដៅ					
២. ការវាយតម្លៃប៉ះពាល់បរិស្ថាន					
៣. ការវាយតម្លៃប៉ះពាល់សង្គម					
៤. ការវាយតម្លៃប៉ះពាល់បរិស្ថាន និងសង្គម					
៥. ការវាយតម្លៃប៉ះពាល់បរិស្ថាន និងសង្គម					
៦. ការវាយតម្លៃប៉ះពាល់បរិស្ថាន និងសង្គម					
៧. ការវាយតម្លៃប៉ះពាល់បរិស្ថាន និងសង្គម					
៨. ការវាយតម្លៃប៉ះពាល់បរិស្ថាន និងសង្គម					
៩. ការវាយតម្លៃប៉ះពាល់បរិស្ថាន និងសង្គម					
១០. ការវាយតម្លៃប៉ះពាល់បរិស្ថាន និងសង្គម					

ឈ្មោះ	កាលបរិច្ឆេទ	ទីកន្លែង	ស្ថានភាព	កម្រិត	កម្រិត
១. ទិន្នន័យគោលដៅ					
២. ការវាយតម្លៃប៉ះពាល់បរិស្ថាន					
៣. ការវាយតម្លៃប៉ះពាល់សង្គម					
៤. ការវាយតម្លៃប៉ះពាល់បរិស្ថាន និងសង្គម					
៥. ការវាយតម្លៃប៉ះពាល់បរិស្ថាន និងសង្គម					
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១០. ការវាយតម្លៃប៉ះពាល់បរិស្ថាន និងសង្គម					

8

### Appendix 2: Checklist for Reviewing EMP for Road Project

ឈ្មោះ	កាលបរិច្ឆេទ	ទីកន្លែង	ស្ថានភាព	កម្រិត	កម្រិត
១. ទិន្នន័យគោលដៅ					
២. ការវាយតម្លៃប៉ះពាល់បរិស្ថាន					
៣. ការវាយតម្លៃប៉ះពាល់សង្គម					
៤. ការវាយតម្លៃប៉ះពាល់បរិស្ថាន និងសង្គម					
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៦. ការវាយតម្លៃប៉ះពាល់បរិស្ថាន និងសង្គម					
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៩. ការវាយតម្លៃប៉ះពាល់បរិស្ថាន និងសង្គម					
១០. ការវាយតម្លៃប៉ះពាល់បរិស្ថាន និងសង្គម					

ឈ្មោះ	កាលបរិច្ឆេទ	ទីកន្លែង	ស្ថានភាព	កម្រិត	កម្រិត
១. ទិន្នន័យគោលដៅ					
២. ការវាយតម្លៃប៉ះពាល់បរិស្ថាន					
៣. ការវាយតម្លៃប៉ះពាល់សង្គម					
៤. ការវាយតម្លៃប៉ះពាល់បរិស្ថាន និងសង្គម					
៥. ការវាយតម្លៃប៉ះពាល់បរិស្ថាន និងសង្គម					
៦. ការវាយតម្លៃប៉ះពាល់បរិស្ថាន និងសង្គម					
៧. ការវាយតម្លៃប៉ះពាល់បរិស្ថាន និងសង្គម					
៨. ការវាយតម្លៃប៉ះពាល់បរិស្ថាន និងសង្គម					
៩. ការវាយតម្លៃប៉ះពាល់បរិស្ថាន និងសង្គម					
១០. ការវាយតម្លៃប៉ះពាល់បរិស្ថាន និងសង្គម					

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### Appendix 3: Checklist for Reviewing EMoP for Road Project

ល.រ	ឈ្មោះ	កិច្ចការ	ស្ថានភាព	កាលបរិច្ឆេទ	ឈ្មោះ
1	ការវាយតម្លៃបរិស្ថាន	បាន	គ្រប់គ្រាន់		
2	ការវាយតម្លៃសង្គម	បាន	គ្រប់គ្រាន់		
3	ការវាយតម្លៃសេដ្ឋកិច្ច	បាន	គ្រប់គ្រាន់		
4	ការវាយតម្លៃបរិស្ថានសង្គម	បាន	គ្រប់គ្រាន់		
5	ការវាយតម្លៃបរិស្ថានសង្គម	បាន	គ្រប់គ្រាន់		
6	ការវាយតម្លៃបរិស្ថានសង្គម	បាន	គ្រប់គ្រាន់		
7	ការវាយតម្លៃបរិស្ថានសង្គម	បាន	គ្រប់គ្រាន់		
8	ការវាយតម្លៃបរិស្ថានសង្គម	បាន	គ្រប់គ្រាន់		
9	ការវាយតម្លៃបរិស្ថានសង្គម	បាន	គ្រប់គ្រាន់		
10	ការវាយតម្លៃបរិស្ថានសង្គម	បាន	គ្រប់គ្រាន់		
11	ការវាយតម្លៃបរិស្ថានសង្គម	បាន	គ្រប់គ្រាន់		
12	ការវាយតម្លៃបរិស្ថានសង្គម	បាន	គ្រប់គ្រាន់		
13	ការវាយតម្លៃបរិស្ថានសង្គម	បាន	គ្រប់គ្រាន់		
14	ការវាយតម្លៃបរិស្ថានសង្គម	បាន	គ្រប់គ្រាន់		
15	ការវាយតម្លៃបរិស្ថានសង្គម	បាន	គ្រប់គ្រាន់		
16	ការវាយតម្លៃបរិស្ថានសង្គម	បាន	គ្រប់គ្រាន់		
17	ការវាយតម្លៃបរិស្ថានសង្គម	បាន	គ្រប់គ្រាន់		
18	ការវាយតម្លៃបរិស្ថានសង្គម	បាន	គ្រប់គ្រាន់		
19	ការវាយតម្លៃបរិស្ថានសង្គម	បាន	គ្រប់គ្រាន់		
20	ការវាយតម្លៃបរិស្ថានសង្គម	បាន	គ្រប់គ្រាន់		

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### Appendix 4: Checklist for Reviewing EMoR for Road Project

ល.រ	ឈ្មោះ	កិច្ចការ	ស្ថានភាព	កាលបរិច្ឆេទ	ឈ្មោះ
1	ការវាយតម្លៃបរិស្ថាន	បាន	គ្រប់គ្រាន់		
2	ការវាយតម្លៃសង្គម	បាន	គ្រប់គ្រាន់		
3	ការវាយតម្លៃសេដ្ឋកិច្ច	បាន	គ្រប់គ្រាន់		
4	ការវាយតម្លៃបរិស្ថានសង្គម	បាន	គ្រប់គ្រាន់		
5	ការវាយតម្លៃបរិស្ថានសង្គម	បាន	គ្រប់គ្រាន់		
6	ការវាយតម្លៃបរិស្ថានសង្គម	បាន	គ្រប់គ្រាន់		
7	ការវាយតម្លៃបរិស្ថានសង្គម	បាន	គ្រប់គ្រាន់		
8	ការវាយតម្លៃបរិស្ថានសង្គម	បាន	គ្រប់គ្រាន់		
9	ការវាយតម្លៃបរិស្ថានសង្គម	បាន	គ្រប់គ្រាន់		
10	ការវាយតម្លៃបរិស្ថានសង្គម	បាន	គ្រប់គ្រាន់		
11	ការវាយតម្លៃបរិស្ថានសង្គម	បាន	គ្រប់គ្រាន់		
12	ការវាយតម្លៃបរិស្ថានសង្គម	បាន	គ្រប់គ្រាន់		
13	ការវាយតម្លៃបរិស្ថានសង្គម	បាន	គ្រប់គ្រាន់		
14	ការវាយតម្លៃបរិស្ថានសង្គម	បាន	គ្រប់គ្រាន់		
15	ការវាយតម្លៃបរិស្ថានសង្គម	បាន	គ្រប់គ្រាន់		
16	ការវាយតម្លៃបរិស្ថានសង្គម	បាន	គ្រប់គ្រាន់		
17	ការវាយតម្លៃបរិស្ថានសង្គម	បាន	គ្រប់គ្រាន់		
18	ការវាយតម្លៃបរិស្ថានសង្គម	បាន	គ្រប់គ្រាន់		
19	ការវាយតម្លៃបរិស្ថានសង្គម	បាន	គ្រប់គ្រាន់		
20	ការវាយតម្លៃបរិស្ថានសង្គម	បាន	គ្រប់គ្រាន់		

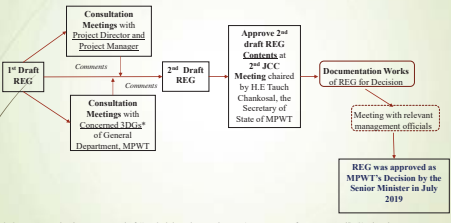
13

### Site Visit at NR 5 (South Section Kompong Chhnang)



14

### 2. Authorization Process of REG



\*: 3DGs are each Director General of 1) Administration & Finance (Management for ICD as well), 2) Planning & Policy (Management for DoP as well), and 3) Technique (Management for RID as well)

11

### Summary of activities related to Development of REG

- Japan training on EIA and EMP in June 2017
- Technical Exchange Seminar on EIA in Road Sector between Cambodia and Myanmar in October 2017
- Applying REG at site in North Section of NR\_No. 5 in September, 2018
- Applying REG at the site in South Section of NR\_No. 5 in December, 2018
- There are 29 EIA-TF meetings were held.

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### 3. Dissemination Plan of REG

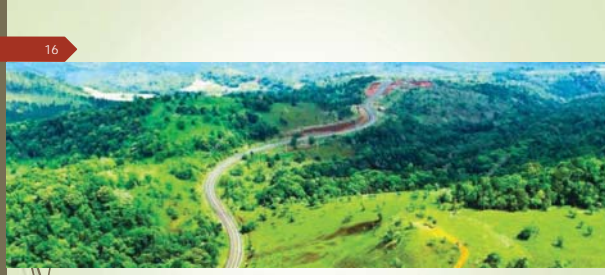
- 200 copies of REG were published and will be distributed to MPWT.
- Introduce REG for other departments at Dissemination Seminar in December 2019.
- Applying REG at the site of National Road No. 5 for Environmental Monitoring in December 2019.
- Apply REG to other Road Improvement Projects, which are either national budget and/or funded by donor, based on institutional framework of MPWT.
- Update REG according to present condition and introduce proper procedures of EIA, EMP and EMoP from DoP to other Departments of MPWT.

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### Site Visit at NR 5 (North Section Battambang)



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Thank you so much for attention!



## Road Environmental Guidebook (REG) Monitoring Results

Final Seminar for CESCoR  
6<sup>th</sup> December, 2019

Tsuyoshi ITO, JICA Project Team

Thank you very much for your attention.

សូមអរគុណចំពោះការយកចិត្ត  
ទុកដាក់ស្តាប់

Arigatou gozaimasu

### 1. Objectives of REG Monitoring

- ◆ To understand more practical uses the REG Contents through EIA/EMP Project Document Reviews
  - Practical Methods how to evaluate Proposed Mitigation Measures in EIA Report
  - Practical Methods how to review necessary EMP Items/Contents
  - etc.
- ◆ To consider any update items/contents of the Checklists of the REG, if necessary
- ◆ To verify the Checklists of the REG on Road Development Project through Actual Road Development Project Site Checks
  - Appendix 1: Checklist for Reviewing "EIA Report" for Road Project
  - Appendix 2: Checklist for Reviewing "EMP" for Road Project
  - Appendix 3: Checklist for Reviewing "EMoP" for Road Project

### 2. Actual REG Monitoring Activities in the Project Site Checks

- ✓ 20<sup>th</sup> June, 2018: Candidate Monitoring Points at South Section of NR\_No.5
- ✓ 25<sup>th</sup>&26<sup>th</sup> September, 2018: Environmental Monitoring Points at North Section of NR\_No.5
- ✓ 13<sup>th</sup> December, 2018: Environmental Monitoring Points at South Section of NR\_No.5

1



2

### 3. REG Monitoring Results

- ◆ Almost all the Checklists Items/Contents and Examples are applicable for NR\_No.5
- ◆ EIA/EMP TF Members understood Important EIA/EMP Technical Check Points
  - Necessary Sampling Parameters of Air, Water, Noise, Vibration
  - Reasonable Sampling Locations/Points of Air, Water, Noise, Vibration
  - Important Confirmation Points for Proposed Mitigation Measures
  - Effective Site Check Planning

### 4. Further Recommendations

- ◆ Further uses of the REG for the other Development Projects by MPWT
  - Main contents, including Appendices are applicable for the other Infrastructure development projects, such as Railway, Port
- ◆ Actual Uses of Appendix 4: Checklist for Reviewing Environmental Monitoring Report (EMoR)

3



The Project for Capacity Enhancement on Environmental and Social Considerations in Implementing Agency in Road Sector In the Kingdom of Cambodia (CESCoR)



## Right of Way Management System (RMS)



Final Seminar  
Phnom Penh, December 6, 2019

## Contents of the Presentation

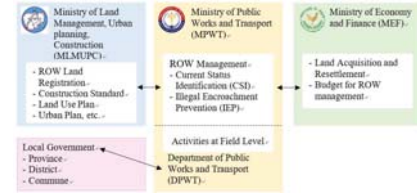
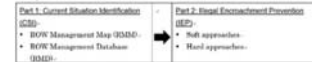
1. Right of Way Management Guidelines (RMS)
2. ROW Management Guidelines (RMG)
3. RMS Dissemination Plan
4. Budgetary Plan
5. RMS Authorization Process
6. Major Items Confirmed



## 2. Right of Way Management Guidelines (RMG)

### SECTION 1: Basic Policy

- 1.1 Background
- 1.2 Objectives
- 1.3 Scope
- 1.4 Concept of ROW Management (Including Legal Framework)
- 1.5 Definition of Terminology



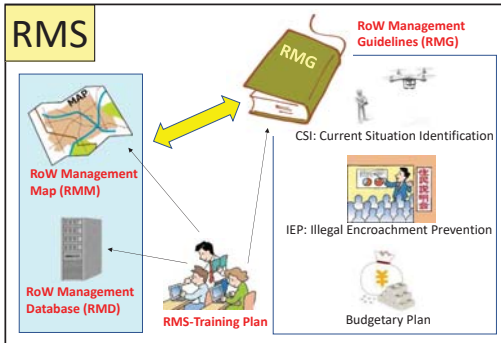
## 2. Right of Way Management Guidelines (RMG)

### SECTION 2: Current Status Identification (CSI)

- 2.1 General
- 2.2 Purpose
- 2.3 Structure/outline
- 2.4 Target Area
- 2.5 Organization
- 2.6 Methods and Work Steps
- 2.7 Development of RMD

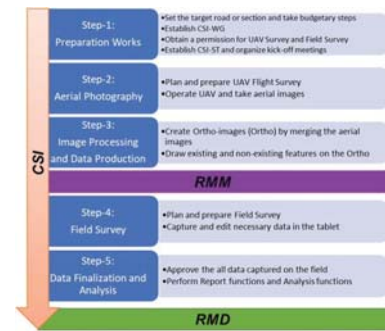


## 1. Right of Way Management System (RMS)



## 2. Right of Way Management Guidelines (RMG)

### SECTION 2: Current Status Identification (CSI)



## 2. Right of Way Management Guidelines (RMG)



**RMG Main Text**  
SECTION 1: Basic Policy  
SECTION 2: Current Status Identification (CSI)  
SECTION 3: Illegal Encroachment Prevention (IEP)  
SECTION 4: Future Road Development Plan

### Thirteen(13) Appendices

- Appendix 1: Aerial Photography Manual
- Appendix 2: Ground Control Point Survey Manual
- Appendix 3: Work Management Manual for CSI
- Appendix 4: Image Processing Manual
- Appendix 5: Data Production Manual
- Appendix 6: TabletApp User Manual
- Appendix 7: Web GIS Manual
- Appendix 8: Database Operation Manual
- Appendix 9: Database Development Manual
- Appendix 10: Documents and PR Goods for IEP
- Appendix 11: Construction Management Manual for IEP
- Appendix 12: Typical Cross Section for Future Development Plan
- Appendix 13: RMS-Training Plan (RMS-TP)



## 2. Right of Way Management Guidelines (RMG)

### SECTION 3: Illegal Encroachment Prevention (IEP)

- 3.1 General
- 3.2 Purpose
- 3.3 Structure/outline
- 3.4 Target Area
- 3.5 Organization
- 3.6 IEP Approaches



## 2. Right of Way Management Guidelines (RMG)

### SECTION 3: Illegal Encroachment Prevention (IEP)

Recommended IEP Approaches based on Classification of target areas on ROW Management Map

IEP Approaches	Classified Area		
	Populated	Potential	Non-dense
<b>Soft Approaches</b>			
1) Raising awareness -			
IEP for Public Consultation Meetings (PCM)	✓✓	✓✓	✓
IEP campaign for schools	✓✓	✓✓	✓
Brochure Distribution	✓✓	✓✓	✓
IEP trainings for local governmental officials	✓✓	✓✓	✓
2) Monitoring and Warning -			
Patrol for Monitoring	✓✓	✓✓	✓
Advice and Warning	✓✓	✓✓	✓
<b>Hard Approaches</b>			
1) Installing Facilities -			
ROW Pole	✓✓	✓✓	✓✓
ROW Fence	✓	✓	✓✓
Growing Tree	✓	✓	✓✓
ROW Signboard	✓✓	✓✓	✓✓
ROW Marking Plate	✓✓	✓✓	✓
Highlight color on tile brick	✓✓	✓✓	✓
2) Road Environment Improving -			
Sidewalk, Pedestrian Fence, Frontage Road, etc.	✓✓	✓✓	✓

## 2. Right of Way Management Guidelines (RMG)

### SECTION 4: Future Road Development Plan

- 4.1 General
- 4.2 Purpose
- 4.3 Target Area
- 4.4 Standard Cross Section
- 4.5 Stage Construction
- 4.6 Three Methods to Construct Road

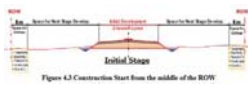


Figure 4.2 Construction Start from the middle of the ROW



## 5. RMG Authorization Process

Target Level of Document: **Decision**

[Year 2019]

**13 November:** All Appendixes are submitted for reviewing

**20 November:** Deadline of final comments for RMG

**By November:** RMG Khmer version will be prepared

**By Year-End:** RMG Khmer version will be confirmed

[Year 2020]

RMG Khmer will be circulated within MPWT for approval and will be authorized in early 2020.



## Major Items Confirmed on RMS

Items below are principally agreed at the 4<sup>th</sup> JCC.

- Structure and Contents of RMS are agreed
- Target approval level are agreed as "Decision"
- Necessity of budget preparation for ROW Management was confirmed
- Schedule for RMS finalization process



## 3. RMS Dissemination Plan

RMS shall be disseminated to relevant MPWT and DPWT officers for future RMS implementation by using prepared RMS-TP. Recommended outlines are described as below:

- (1) Target Period: 5 Years
- (2) Target: Major MPWT Department and all DPWT
- (3) Frequency: Several Times in a year
- (4) Lecturer: CESCOTF Member
- (5) Venue: MPWT

\* Training curriculum should be flexible to fit with priorities



ITEM	TYPE	DURATION	TARGET	
			MPWT	DPWT
CSM	Lecture	3	✓	✓
RMS Management	Lecture	4	✓	✓
LMW survey & Data Preparation	Workshop	3	✓	✓
Case survey & Data Preparation	Workshop	3	✓	✓
Image processing	Lecture	3	✓	✓
GIS mapping	Workshop	3	✓	✓
Field survey 1 (road survey)	Lecture	1	✓	✓
Field survey 2 (geoprocessing field)	Workshop	1	✓	✓

Thank you  
for your attention!!

## 4. Budgetary Plan

It is necessary to **secure budget for future ROW Management** by MPWT. In the proposed budgetary plan, cost for each activity is estimated with prioritized activities. MPWT shall make effort to secure budget for implementation of RMS.

CSI on the all 1digit & 2digit NR: **USD 917,000**  
 IEP: Priority area for ROW management: **USD 100,000,000**

↓

**Priority Activities:-**

- > CSI on the all 1digit & 2digit NR: **USD 917,000**
- > PCM for 50 places: **USD 100,000 for every year**
- > Patrol on all 1 digit & 2 digit NR: **USD 73,000 for every year**
- > New ROW Pole on 1 digit & 2 digit NR (for 2.675km): **USD 3,530,000**
- > Other hard approaches is implemented in the national/international road project.

# ROW MANAGEMENT STRUCTURE

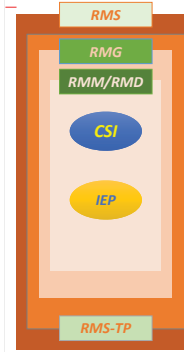
THE PROJECT FOR CAPACITY ENHANCEMENT ON ENVIRONMENTAL AND SOCIAL CONSIDERATIONS IN IMPLEMENTING AGENCY IN ROAD SECTOR IN THE KINGDOM OF CAMBODIA

Final Seminar  
Phnom Penh, December 6, 2019

## Table of Contents

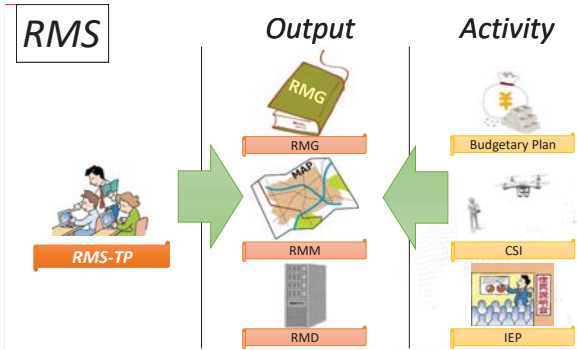
- ROW Management
- Pilot Project

## STRUCTURE



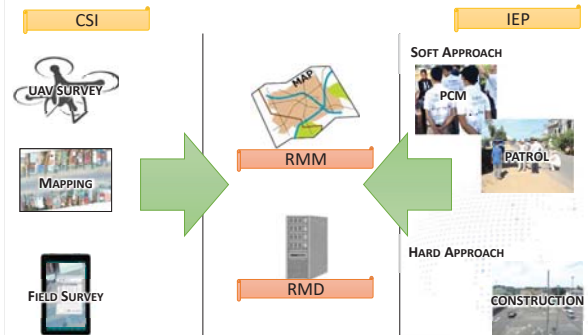
- **RMS: ROW Management System**  
- overall Right Of Way Management System
- **RMG: ROW Management Guideline**  
- guideline for CSI&IEP
- **RMM: ROW Management Map, and;**
- **RMD: ROW Management Database**  
- CSI: Current Status Identification  
UAV Survey, GIS mapping, Field Survey to create Map
- IEP: Illegal Encroachment Prevention  
> Hard Approach (construction)  
> Soft Approach (PCM, Patrol, registration)
- **RMS-TP: RMS Training Plan**  
- training curriculum & manuals to create RMM/RMD

## CONCEPT



## ROW MANAGEMENT

## RMM & RMD



## LEGAL FRAMEWORK FOR RIGHT OF WAY(ROW)

Cambodia ROW means state land along the road with fixed distances from the centerline of existing roads for the future development.

Road level		ROW Dimensions	
		Ministerial Orders(※1)	Sub-Decree (※2)
1-digit Number National Roads	NR1, 4 and 5	30 m(※3)	30 m(※3)
	Others	25 m(※3)	
2-digits Number National Roads		25 m(※3)	25 m(※3)
Provincial roads		20 m(※3)	Not specified
Commune Roads		15m(※3)	Not specified

※1 Ministerial Orders No. 06, 1999,  
※2 Sub-Decree No.197, 2009, ※3 length from the centerline

## CSI ROLE

	ITEM	MPWT	DPWT	LOCAL AUTHORITY
KICKOFF MTG	Arrangement	✓	✓	
	Implementation	✓	✓	✓
	Flight permission	✓	✓	✓
UAV SURVEY	Flight plan	✓		
	UAV survey	✓	✓	
	Supervision (for outsourcing)	✓		
OFFICE WORK	Image processing	✓		
	Mapping (data production)	✓		
FIELD SURVEY	FS permission	✓	✓	✓
	Field survey	✓	✓	
	Supervision	✓		
GIS	data finalization	✓		



# IEP ROLE

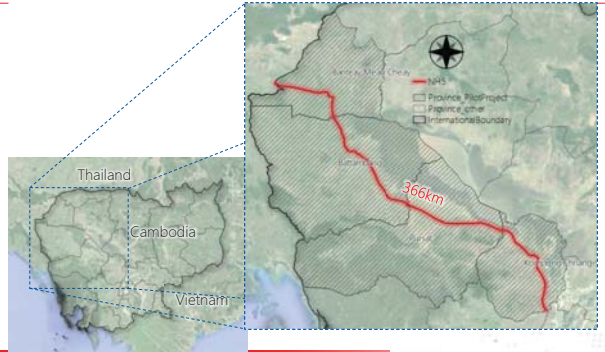
ITEM	MPWT	DPWT	Local Authority	MLMUPC	OTHER
Classification	✓				
Raise awareness		✓	✓		✓
Monitoring & intervention	✓	✓	✓		✓
Permission & Registration	✓	✓	✓	✓	✓
Supervision	✓	✓			

# RMG

**GUIDELINE WHICH INDICATES...**

- Policy
- Objectives
- Scope of work
- Related organizations
- CSI work procedure and manual
- IEP work procedure and manual
- Outsourcing TOR
- ROW development

# CSI TARGET AREA



# CSI WORK

**PROGRESS CHART**

- UAV Survey: 100%: 250 flights
- Image Processing: 100%: 36,600,000m<sup>2</sup>
- Data Production: 100%: 33625 points
- Field Survey: 100%: 25248 ground photos
- Data Finalization: 100%: Compiled all photo, point and map

**ROW MANAGEMENT MAP (RMM):**  
To Identify Encroachment into ROW on Map

**ROW MANAGEMENT DATABASE (RMD):**  
To show Detailed Information of Encroachment To count Encroachments for Classification

# RMS-TP AND TRAINING

**TRAINING PLAN WHICH INCLUDES...**

- Curriculum
- schedule
- Content of subject

**TRAINING FROM JICA TO MPWT**

**TRAINING FROM MPWT TO DPWT...**

- Today

# RESULT OF CSI WORK

**Web GIS:**  
Web GIS is Map Browsing Tool of RMM and RMD by Web-browser at Office.

**RMM:**  
- RMM shows Aerial Photo, Center Line and ROW boundary by layer.  
- CIS point/Encroachment is located on RMM.

**RMD:**  
- CIS point/Encroachment is listed by filter.  
- Result of Summary and Classification are shown with Report.  
- Some result can be produced to Excel File for analysis.

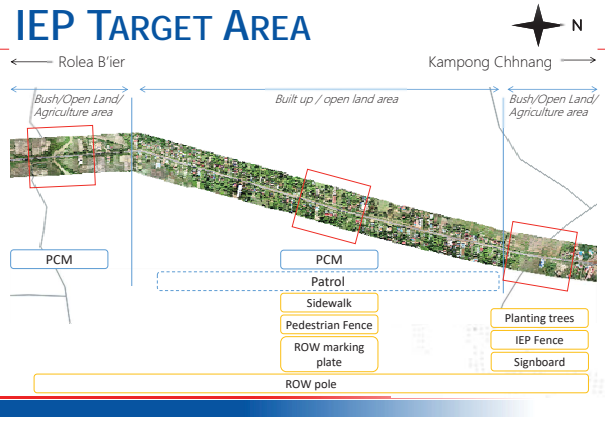
# PILOT PROJECT

# IEP TARGET AREA





# IEP TARGET AREA



# IEP WORK PROGRESS

		APRIL	MAY	JUNE	JULY	AUG	SEP
SOFT APPROACH	PCM 1	●					
	PCM 2	●					
HARD APPROACH	Patrol				●	■	
	K/O MTG	●					
	Construction						■



# RESULT OF IEP WORK FOR HARD APPROACH



**THANK YOU! សូមអរគុណ**





THE PROJECT FOR CAPACITY ENHANCEMENT ON ENVIRONMENTAL AND SOCIAL CONSIDERATIONS IN IMPLEMENTING AGENCY IN ROAD SECTOR IN THE KINGDOM OF CAMBODIA (CESCoR)



# ROW Management Activity and Plan

1

Final SEMINAR  
Phnom Penh, 6<sup>th</sup> December 2019

## 2 Contents of Presentation

- សកម្មភាពអាទិភាព /Priority Activities
- ផែនការសំរាប់អនាគតក្នុងក្រុងពេលអនាគត /Future Development Plan
- Standard Drawings for Cross Section for Future Development

### Purpose of the Presentation

- To share Priority Activity, Estimation Cost and Development Plan
- To share information on the Standard Typical Cross Section
- To share General ideas on the sequential development of roadways (Typical Cross Sections) and management of ROW

## សកម្មភាពអាទិភាព PRIORITY ACTIVITIES

3

## 4 គុណប្រយោជន៍នៃការគ្រប់គ្រងដីចំណីផ្លូវ

- ការកាន់កាប់ទំនៀមទម្លាប់ដីដោយខុសច្បាប់ និងបង្កអោយមានភាពស្មុគស្មាញកើតឡើង (គ្រោះថ្នាក់, អាណាចក្រ, ខូចខាត ជាដើម...) និងធ្វើអោយការគ្រប់គ្រងគ្មានប្រសិទ្ធភាពល្អ
- មិនតែប៉ុណ្ណោះ ទំហំនៃការដោះស្រាយផលប៉ះពាល់នឹងមានការកើនឡើងយ៉ាងច្រើននៅពេលអនាគតប្រសិនបើគ្មានការគ្រប់គ្រងដីចំណីផ្លូវបានត្រឹមត្រូវ
- ការគ្រប់គ្រងដីចំណីផ្លូវបានល្អផ្តល់ផលប្រយោជន៍ដូចជា៖
  - កាត់បន្ថយលើការចំណាយការដោះស្រាយផលប៉ះពាល់នៅពេលមានការអភិវឌ្ឍន៍
  - ជួយអោយការអភិវឌ្ឍន៍ផ្លូវថ្នល់មានភាពកាន់តែល្អនូវទៅមុខ ដោយគ្មានការពន្យារពេលណាមួយលើការដោះស្រាយបញ្ហាទំនាស់ដីក្តី
- សកម្មភាព CSI និង IEP នឹងជួយរួមចំណែកក្នុងការទប់ស្កាត់លើការរំលោភទំនៀមទម្លាប់ដីចំណីផ្លូវដោយខុសច្បាប់នៅតាមបណ្តាលផ្លូវជាតិ និងជួយកាត់បន្ថយក្នុងការចំណាយលើការដោះស្រាយសំណងផលប៉ះពាល់នៅពេលអនាគត

## 5 ការដាក់ស្ថានភាពសំរាប់ការងារគ្រប់គ្រងដីចំណីផ្លូវ

ប្រវែងផ្លូវជាតិមួយលេខ និងពីរលេខសរុបមានប្រវែង: ៨,០៥៥គីឡូម៉ែត្រ  
<សកម្មភាពអាទិភាព>

- សកម្មភាពការងារ CSI សំរាប់ផ្លូវជាតិទី១លេខនិង២លេខគ្រោងចំណាយថវិកាប្រមាណជា: USD 917,000
- វេទិកាសាធារណៈPCM ចំនួន៥០កន្លែងគ្រោងចំណាយថវិកា USD 100,000 for every year
- Patrol ការត្រួតពិនិត្យតាមដានការប្រើប្រាស់ដីចំណីផ្លូវសំរាប់ផ្លូវជាតិមួយលេខនិងពីរលេខគ្រោងចំណាយថវិកា: USD 73,000 for every year
- ដំឡើងបង្គោលព្រំដីចំណីផ្លូវបន្ថែមសំរាប់ផ្លូវជាតិមួយលេខនិងពីរលេខ (2,675km): USD 3,530,000
- អន្តរក្តីការងារ Hard approaches សំរាប់គម្រោងជាតិនិងបរទេស

	1 <sup>st</sup> phase (1Y-3Y)	2 <sup>nd</sup> phase (4Y-6Y)	3 <sup>rd</sup> phase (7Y-9Y)
CSI	All 1 digit & 2digit NR		
PCM	50 places/year	50 places/year	50 places/year
Patrol	All 1digit & 2digit NR	All 1digit & 2digit NR	All 1digit & 2digit NR
ROW Pole	for 150km	for 600km	for 1,925km

## 6 ទិសដៅដំណាក់កាលទី១ សំរាប់យុទ្ធសាស្ត្រ

- CSI: Half of all 1 digit & 2digit NR(3,472km): USD 462,000
- PCM for 50 places (2time in each province): USD 300,000
- Patrol on all 1 digit & 2digit NR: USD 217,800
- New ROW Pole for 150km is installed: USD 198,000

Approaches	1 <sup>st</sup> year	2 <sup>nd</sup> year	3 <sup>rd</sup> year	3 years total	Remarks
Progress	1,142km	1,142km	1,142km	3,427km	Half of 1 & 2 digit NR
UAV	\$111,600	\$109,000	\$111,400	\$332,000	(Outsource) 38.9MM
Office	\$35,300	\$4,400	\$4,400	\$44,100	90.3MM
FS	\$30,200	\$25,900	\$30,200	\$86,300	221.7MM
Total	\$177,000	\$139,000	\$146,000	\$462,000	
PCM	\$100,000	\$100,000	\$100,000	\$300,000	50 places / year
Patrol	\$72,600	\$72,600	\$72,600	\$217,800	All 1 & 2 digit NR
ROW Pole	\$66,000	\$66,000	\$66,000	\$198,000	For 150 km
Total	\$239,000	\$239,000	\$239,000	\$717,000	
Total	\$416,000	\$378,000	\$385,000	\$1,179,000	

## 7 ផែនការសំរាប់អនាគតក្នុងក្រុងពេលអនាគត FUTURE DEVELOPMENT PLAN

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### ផែនការសកម្មភាពការងារ

- NR #1 ប្រវែងសរុប: 162.00Km
- NR #2 + 22 ប្រវែងសរុប: 120.00Km
- NR #4 ប្រវែងសរុប: 230.00Km
- NR #31+33+3 ប្រវែងសរុប: 150.00Km
- NR #8 ប្រវែងសរុប: 130.00Km
- NR #48 ប្រវែងសរុប: 150.00Km

# STANDARD DRAWINGS FOR FUTURE DEVELOPMENT

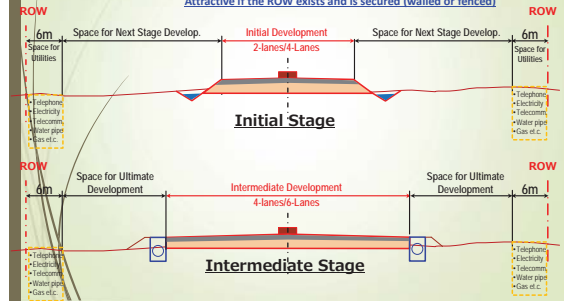
9

## 10 Introduction

- ROW Management (Encroachment) concern of developing countries
- Transportation agency responsible for ROW management
- Full-fledge development cost very high
- Ideal to construct road initially to a level sufficient to meet the immediate requirements of traffic and at a later date reconstruct to a higher standard/final form

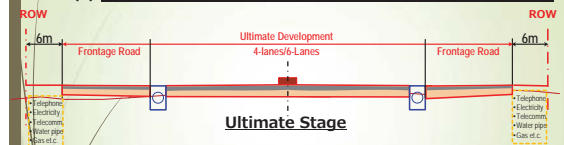
## 13 Development of Roadways

(1) **METHOD-1** Construct initial stage at the middle of the ROW  
Attractive if the ROW exists and is secured (walled or fenced)



## 14 Development of Roadways

(1) **METHOD-1** Construct initial stage at the middle of the ROW



### MAJOR MERITS

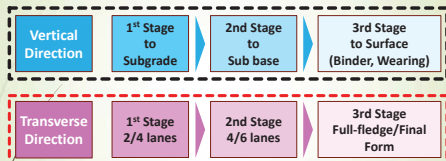
- Initial construction, maintenance and operation cost is low
- Balanced/symmetrical widening (non-biased)/fair to people on either side
- Centerline and ROW fixed (No confusion in future)

### MAJOR DEMERIT(S)

- Spaces can be encroached (if not managed like putting wall or fences etc.)
- Access to abutting properties

## 11 Development of Roadways

Roadway Development (Stage construction)

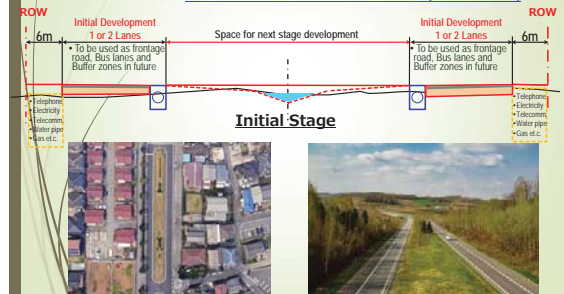


- (1) **METHOD-1**: Construct initial stage at the middle of the ROW
- (2) **METHOD-2**: Construct initial stage at each side of the ROW
- (3) **METHOD-3**: Construct initial stage at one side of the ROW

## 15 Development of Roadways

(1) **METHOD-2**: Construct initial stage at each side of the ROW

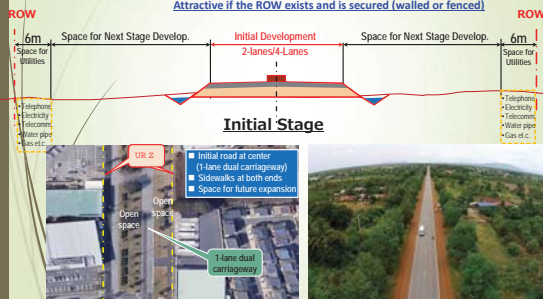
Attractive where ROW exists but is not secured (walled or fenced)



## 12 Development of Roadways

(1) **METHOD-1** Construct initial stage at the middle of the ROW

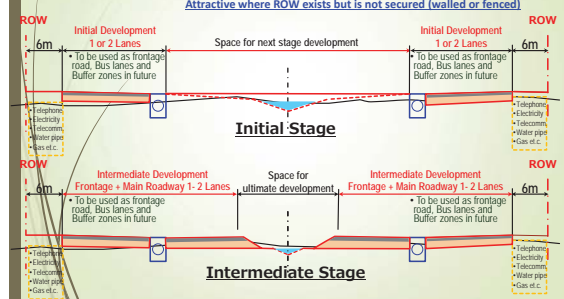
Attractive if the ROW exists and is secured (walled or fenced)



## 16 Development of Roadways

(1) **METHOD-2**: Construct initial stage at each side of the ROW

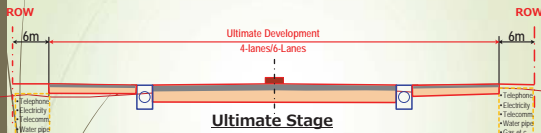
Attractive where ROW exists but is not secured (walled or fenced)



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## Development of Roadways

(1) **METHOD-2** Construct initial stage at each side of the ROW



### MAJOR MERITS

- ROW Encroachment can be avoided
- Balanced/symmetrical widening (non-biased)/fair to people on either side
- Centerline and ROW fixed (No confusion in future)
- Attracts exploitation on both sides of the road

### MAJOR DEMERIT(S)

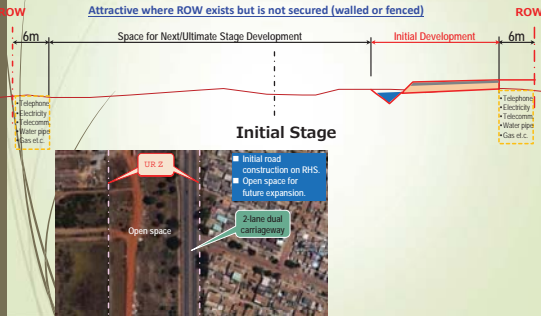
- Initial construction, maintenance and operation cost is higher than Method-1
- Access to abutting properties

18

## Development of Roadways

(3) Construct initial stage at one side of the ROW

Attractive where ROW exists but is not secured (walled or fenced)

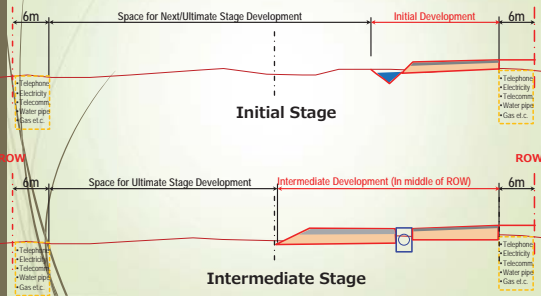


19

## Development of Roadways

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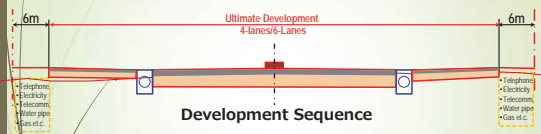


20

## Development of Roadways

(3) Construct initial stage at one side of the ROW

Attractive where ROW exists but is not secured (walled or fenced)



### MAJOR MERITS

- Initial construction, maintenance and operation cost is lowest
- Encroachment at development side can be avoided

### MAJOR DEMERIT(S)

- ROW at opposite side of development can be encroached (if not managed)
- Confusion of centerline and ROW in future (data management required)
- Development not symmetric/balanced and could be target for complaints
- Attracts imbalanced exploitation

21

## Development of Roadways

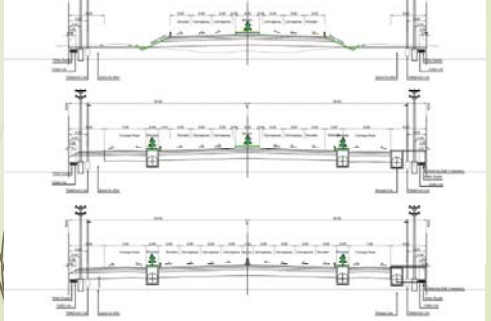
### Conclusion and Recommendation

- Cross section requirements for roadways vary according to the capacity, level of service to be provided and the alongside land use pattern
- Each roadway section must be individually analyzed, and its cross section determined based on the volume and type of projected traffic, existing capacity, desired level of service
- All methods have both advantages and disadvantages. Selection of the optimum method should be done through comprehensive and in-depth study
- Standard Drawings of Typical Cross Sections for planning Expressways and Highways (60m, 50, and 40m) have been prepared under this project and can be referred for road development by MPWT in future. If approved, the drawings will be provided in the appendix of the Design Standard.

22

## Typical Cross Sections

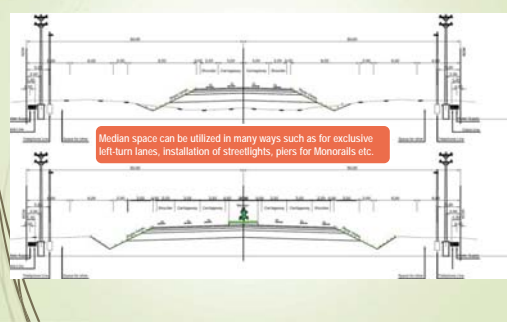
### Expressway : 60



23

## Typical Cross Sections

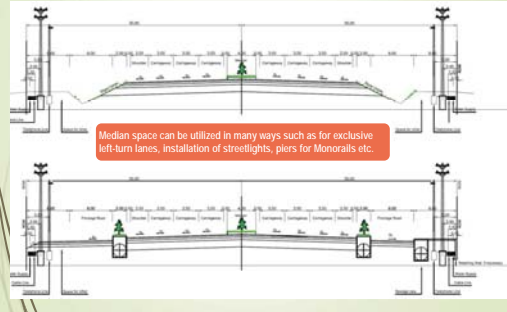
### Highway : 60



24

## Typical Cross Sections

### Highway : 60



## Development of Roadways

### General Consideration for Provision of Utilities

#### SAFETY

- should be provided at MPWT designated space
- Should not adversely affect roadway constructability, operations, maintenance, and safety
- All works including maintenance need permit from MPWT

#### DESIGN

- Close coordination with relevant authorities (joint planning/development)
- Properly designed, installed, operated and maintained
- Consideration for possible impact on the roadway and its use
- Fulfill requirement policy of the MPWT

#### PLACE & PRESERVENCE

- Placed in designated location
- Appropriate measures for protection (erosion)
- Fulfill requirement policy of the MPWT
- Keep records and update
- Maintain visibility for easy identification

Thank You for Your Attention!





# AGENDA

## Final Seminar for The Project for Capacity Enhancement on Environmental and Social Considerations in Implementing Agency in Road Sector in Cambodia (CESCoR)

SUNWAY Hotel, Phnom Penh, 6<sup>th</sup> December, 2019

### Afternoon Session

Target Participants: All provincial DPWTs

Time	Program	Content
13:30-14:00	<b>6. Presentation on Current Status Identification (CSI)</b> by Mr. Khuon Kompheak, RID, MPWT	1. Outline of Field Survey 2. Detailed Procedure for Field survey 3. Data collection and utilization by survey result (data analysis)
14:00-14:30	<b>7. Presentation on Illegal Encroachment Prevention (IEP) Approaches</b> by Mr. Kaing Theara, RID, MPWT	1. Type of IEP approaches (Soft and Hard approach) 2. Procedure for Soft Approaches such as Conduct PCM, Patrol and Provide ROW usage permission
14:30-15:00	<b>8. Presentation on Implementation of Field Survey for CSI and IEP</b> by Mr. Khai Saray, RID, MPWT	1. Procedures for Field Survey 2. Procedures for Patrol 3. How to use Tablet App for Field survey and Patrol
15:00-15:10	Coffee Break	
15:10-15:50	<b>9. Presentation on Pilot Project Hard Approaches</b> 1. Mr. Chea Samnang, RID, MPWT 2. IKEE Company 3. Omura Company	1. Pilot Project Hard Approaches 1. DBST Material (by IKEE Company) 2. Inter-Locking Block (by Omura Company)
15:50-16:00	<b>Closing Remarks</b> By MPWT	

Note: All Presentation materials will be English, and verbal speech in Khmer

## CSI (CURRENT STATUS IDENTIFICATION)

THE PROJECT FOR CAPACITY ENHANCEMENT ON ENVIRONMENTAL AND SOCIAL CONSIDERATIONS IN IMPLEMENTING AGENCY IN ROAD SECTOR IN THE KINGDOM OF CAMBODIA

## OUTLINE

2

## CSI WORK CONTENTS

### Kick-off Meeting

- To explain the work purpose, content and schedule to the local authorities.



## CSI WORK CONTENTS



## GENERAL

- Current Status Identification (CSI) focuses on data collection related to situation of right of way along national roads and provincial roads across the country in order to creating right of way maps and database as baseline for effective right of way management.
- The purpose of CSI is to study on a current situation of ROW management and developing a ROW current situation map as a baseline so that appropriate measures can be applied for effective ROW management and encroachment prevention.
- The CSI work covers on all national roads under management of MPWT. A primary focus for the CSI is 1-digit national roads of which information is to be compiled on a ROW management map. After the completion of the map for the 1-digit national roads, 2-digit national roads will be targeted.

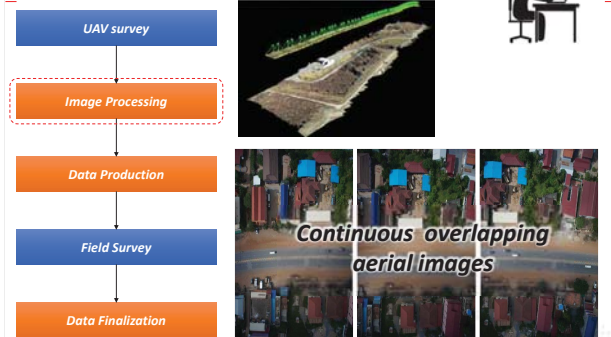
## ORGANIZATION

Main contents of CSI are:

- 1) UAV survey,
- 2) data processing and
- 3) field survey, which is consisted data processing for Map and preparing survey sheet.

RID & DPWT should understand roles and collaborate with each organization to collect basic information through the surveys.

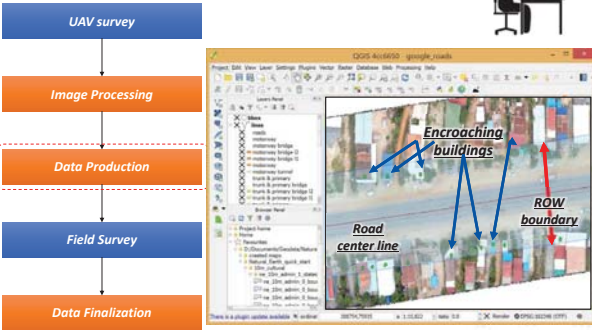
## CSI WORK CONTENTS



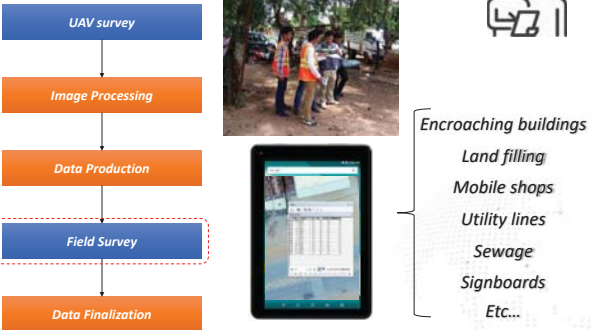
## CSI WORK CONTENTS



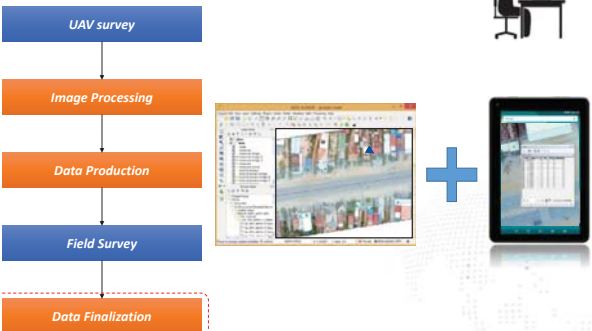
# CSI WORK CONTENTS



# CSI WORK CONTENTS



# CSI WORK CONTENTS



# CSI ROLE

	ITEM	MPWT	DPWT	LOCAL AUTHORITY
KICKOFF MTG	Arrangement	✓	✓	
	Implementation	✓	✓	✓
UAV SURVEY	Flight permission	✓	✓	✓
	Flight plan	✓		
	UAV survey	✓	✓	
OFFICE WORK	Supervision (for outsourcing)	✓		Support
	Image processing	✓		
FIELD SURVEY	Mapping (data production)	✓		
	FS permission	✓	✓	✓
GIS	Field survey	✓	✓	
	Supervision	✓		
	data finalization	✓		

# PREPARATION FOR FIELD SURVEY



# PERMISSIONS - SAMPLE -

Request from JICA project to MPWT

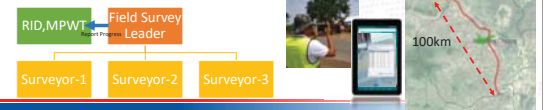
Request for Drone survey from MPWT

Permission from Provincial Office

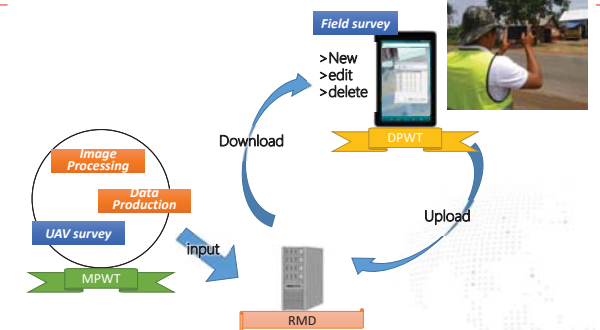
# SURVEY TEAM ARRANGEMENT

About team arrangement for Field Survey, the assumption has been considered based on the result of pilot project.

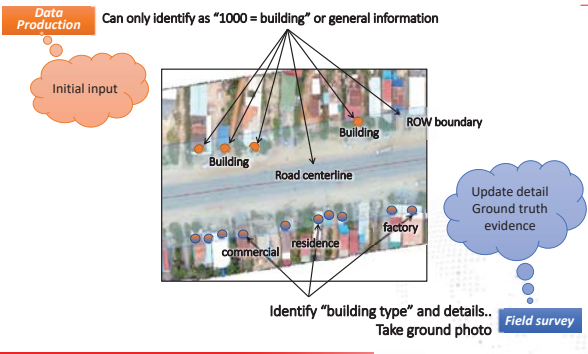
- Field Survey Leader: **1 person** will be assigned to manage Field Survey Team from MPWT or DPWT.
- Field Surveyors: **3 persons** for 1 team will be assigned to implement Field Survey from DPWT. The team could complete 100km within 3 months.
- Team arrangement could be considered depend on scale and priority of road improvement project.



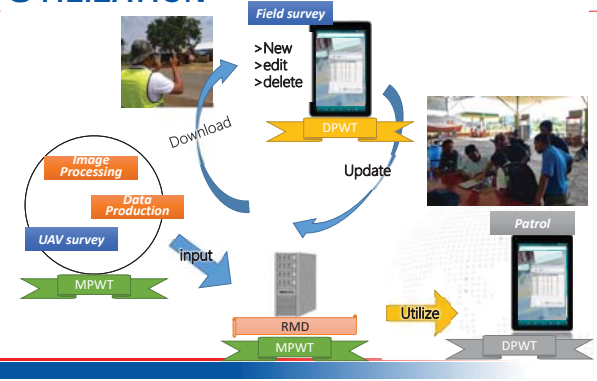
# SYSTEM



# CONCEPT



# UTILIZATION



# CSI DATA COLLECTION LIST

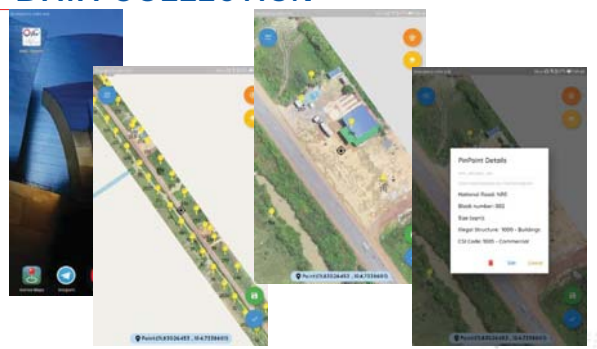
Data Production	Field Survey																																																																																																																																																																																																								
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2000	Parking																																																																																																																																																																																																								
2999	Other																																																																																																																																																																																																								
3100	Signboard public																																																																																																																																																																																																								
3110	Signboard private																																																																																																																																																																																																								
3200	Street light																																																																																																																																																																																																								
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3400	Cemetery																																																																																																																																																																																																								
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3900	Control point (GCP)																																																																																																																																																																																																								
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# RESULT OF CSI WORK

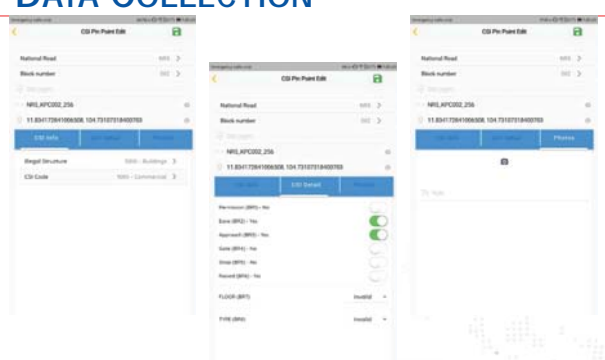
The result of CSI work is stored into the server.  
The result can be verified and displayed by Web GIS.

- Check Current Status on Map
- Summarize Report of CSI Result by Commune
  - Number and Type of Encroachment
  - Classification
  - Priority in Province
  - Area Map

# DATA COLLECTION



# DATA COLLECTION



THANK YOU FOR YOUR ATTENTION!!

# IEP (ILLEGAL ENCROACHMENT PREVENTION) APPROACHES

THE PROJECT FOR CAPACITY ENHANCEMENT ON ENVIRONMENTAL AND SOCIAL CONSIDERATIONS IN IMPLEMENTING AGENCY IN ROAD SECTOR IN THE KINGDOM OF CAMBODIA

## OUTLINE

# APPROACH METHODS

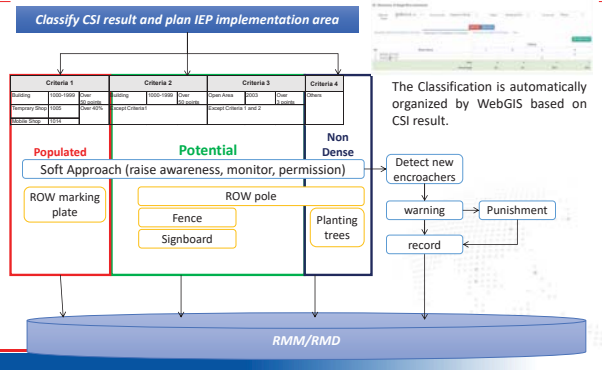
## SOFT & HARD APPROACH

Hard Approach		Soft Approach		
New Road Design	Installing Facilities	Permission and Registration	Monitoring and Intervention	Raising awareness
Constructing sub-road as ROW boundary	Digging channels as ROW boundary Pole Signboard Fence Growing Tree	ROW marking plate Access road permit	Appealing to the court ROW use permit	Local people High school and university students Local governmental official Regular patrol activities Collaborating with local authorities

## GENERAL

- ROW management map is developed using the data collection activities from CSI. Based on densities of ROW encroachments pointed on the ROW map, ROW areas shall be classified into populated, potential and non-dense areas. IEP shall be implemented properly according to classification of areas on ROW management map in order not to allow any illegal or inappropriate land uses in ROW.
- IEP approaches aim to prevent new encroachment in the ROW and to regulate temporary use of ROW with permission so as to manage and maintain the land secured for road development.

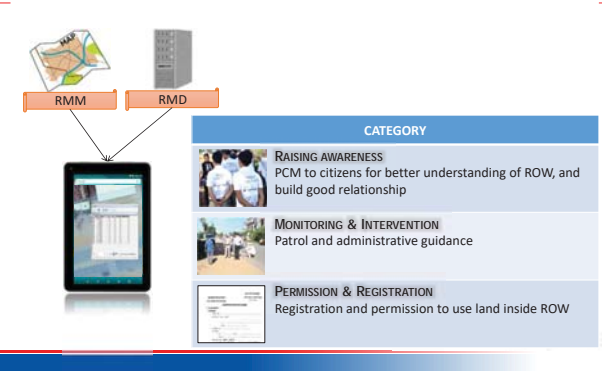
## IEP METHOD CLASSIFICATION



## ORGANIZATION

- According to Law on Road, MPWT is the road control authority in charge of construction, maintenance and management of all national roads in Cambodia. Also, Road Infrastructure Department (RID) of MPWT is a main actor in charge of ROW management of all national roads. Additionally, there are also other agencies/ministries involved in the ROW management such as Ministry of Interior, Ministry of Land Management, Urban Planning and Construction and Ministry of Education, Youth and Sport. MPWT is responsible for coordination, implementation, maintenance of the necessary records on the ROW and expenditure management and preparation of budgetary provisions.

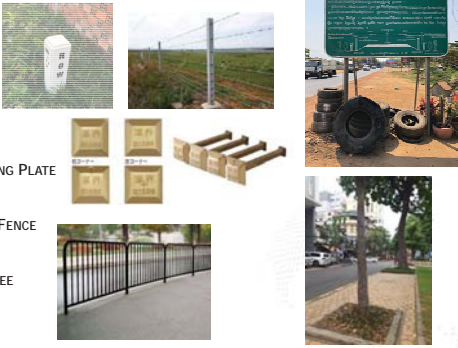
## IEP SOFT APPROACH





# IEP HARD APPROACH

- 1. ROW POLE
- 2. IEP FENCE
- 3. SIGNBOARD
- 4. ROW MARKING PLATE
- 5. PEDESTRIAN FENCE
- 6. GROWING TREE

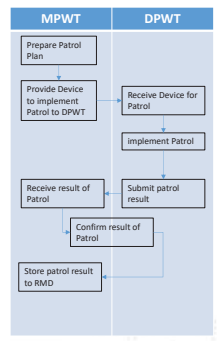
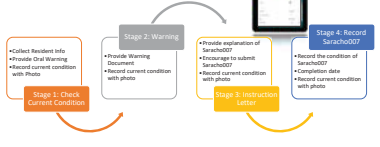


# SOFT APPROACH-2

## Monitoring and Intervention

MPWT and DPWT should collaborate to implement "Patrol" to collect the evidence from resident and to provide "Warning" for Illegal Encroachment. Also, Saracho 007 should be introduced to Local people at Patrol as administrative guidance. The Patrol is divided 4 stages to record the condition of encroachment within ROW in order to encourage to submit Saracho 007 to local people.

### - Patrol and Warning



# ROLES & PROCEDURES



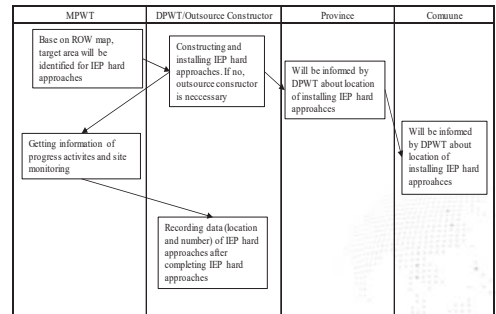
# IEP HARD APPROACH ROLE

ITEM	MPWT	DPWT	Local Authority	MLMUPC	OTHER
<b>Classification</b>	✓				
<b>Raise awareness (PCM)</b>					
1) Citizen	✓	✓	✓		
2) High school / University	✓				✓
3) Local government office	✓	✓	✓	✓	
<b>Monitoring &amp; intervention</b>					
1) Regular patrol	✓	✓	✓		
2) Collaborating w/ local authorities		✓	✓		
3) Appealing to court	✓	✓	✓		✓
<b>Permission &amp; Registration</b>					
1) ROW permit	✓	✓	✓		
2) ROW registration	✓	✓	✓	✓	
3) Access road permit	✓	✓			✓
<b>Supervision</b>					
1) Record of "raising awareness"	✓	✓			
2) Record of "Monitoring"	✓	✓			
3) Record of "Permission"	✓	✓			

# IEP SOFT APPROACH ROLE

ITEM	MPWT	DPWT	Local Authority	MLMUPC	OTHER
<b>Classification</b>	✓				
<b>Raise awareness (PCM)</b>					
1) Citizen	✓	✓	✓		
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3) Local government office	✓	✓	✓	✓	
<b>Monitoring &amp; intervention</b>					
1) Regular patrol	✓	✓	✓		
2) Collaborating w/ local authorities		✓	✓		
3) Appealing to court	✓	✓	✓		✓
<b>Permission &amp; Registration</b>					
1) ROW permit	✓	✓	✓		
2) ROW registration	✓	✓	✓	✓	
3) Access road permit	✓	✓			✓
<b>Supervision</b>					
1) Record of "raising awareness"	✓	✓			
2) Record of "Monitoring"	✓	✓			
3) Record of "Permission"	✓	✓			

# HARD APPROACH

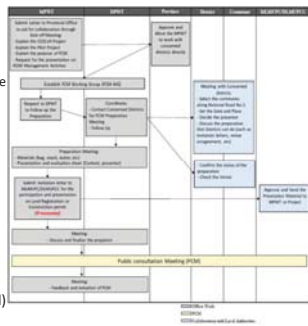


# SOFT APPROACH-1

## Raising awareness

Relevant organizations such as MPWT, DPWT and Local Authority should collaborate to provide "Consultation Meeting" to local people and relevant governments to ensure better understanding of ROW, and build good relationship

- Raising local people's awareness
- Raising relevant government officials' awareness
- Integrating ROW concept into school curriculum (To be Considered)



# ផលវិជ្ជមាន និងផលអវិជ្ជមាន នៃការរំលោភដីចំណីផ្លូវ

## ផលវិជ្ជមាន នៃការរំលោភដីចំណីផ្លូវ

- កាត់បន្ថយការចំណាយរបស់ រដ្ឋាភិបាលទៅលើការដោះស្រាយផលប៉ះពាល់នៅពេលអភិវឌ្ឍផ្លូវ
- ងាយស្រួលក្នុងការអភិវឌ្ឍន៍ប្រព័ន្ធផ្លូវផ្សេងៗដូចជា លូ ផ្លាកសញ្ញាពេទពណ៍
- កាត់បន្ថយដីលោះរាងរដ្ឋ និងប្រជាពលរដ្ឋ
- កាត់បន្ថយគ្រោះថ្នាក់ពេទ (គ្មានអ្នករស់នៅភ្ញៀវផ្លូវ, អ្នកបើកបរមើលឃើញស្ថានភាពផ្លូវច្បាស់)
- ធ្វើឱ្យផ្លូវប្រើប្រាស់បានយូរ មិនងាយខូច (ដោយសារមានគ្មានការបាក់ដីខ្ពស់ជាងផ្លូវមានប្រព័ន្ធរំលោះទឹកចេញពីផ្លូវគ្រប់គ្រាន់)
- ផ្លូវមានសោភ័ណភាព

**ផលវិជ្ជមាន និងផលអវិជ្ជមាន នៃការរំលោភដីចំណីផ្លូវ**

**ផលអវិជ្ជមាន នៃការរំលោភដីចំណីផ្លូវ**

- រដ្ឋចំណាយច្រើនទៅលើការដោះស្រាយផលប៉ះពាល់ គម្រោងពង្រីកផ្លូវ
- ធ្វើឱ្យផ្លូវជាប់ខូច (ដោយសារការរស់នៅជាប់ផ្លូវ, ចាក់ដីខ្ពស់ជាងផ្លូវ)
- រួមចំណែក បង្កគ្រោះថ្នាក់ចរាចរ ដោយសារការចូលមករស់នៅក្នុងដីចំណីផ្លូវជាឧបសគ្គធ្វើឱ្យអ្នកបើកបរមើលមិនច្បាស់
- ផ្លូវគ្មានសោភ័ណភាព

**THANK YOU FOR YOUR ATTENTION!**

**អរគុណសម្រាប់ការយកចិត្តទុកដាក់ស្តាប់**

# Implementation of Field Survey for CSI and IEP

Final Seminar  
6th December 2019

## Content:

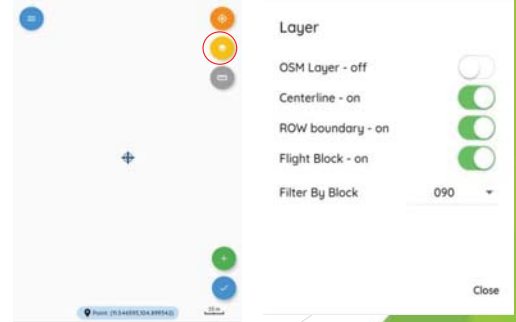
1. Login
2. Show current location
3. Show Layer
4. Measure distance
5. Show point location
6. Add New CSI Point
7. Edit CSI Point
8. IEP

## 2. Show current location

To show current location click on



## 3. Show Layer



## Practice for Sample Format

Sample Format is stored into each Tablet.

Please try to use TableApp following Instructions.

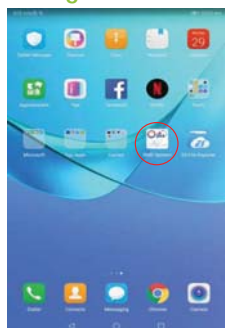
- ▶ Update CSI Point(CSI) : Category, Type, Picture
- ▶ Add New CSI Point : New Point, Category, Type, Picture
- ▶ Update CSI Point (IEP) : Resident Info, Patrol



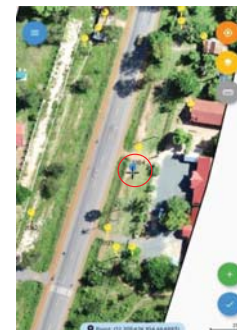
## 4. Measure distance



## 1. Login

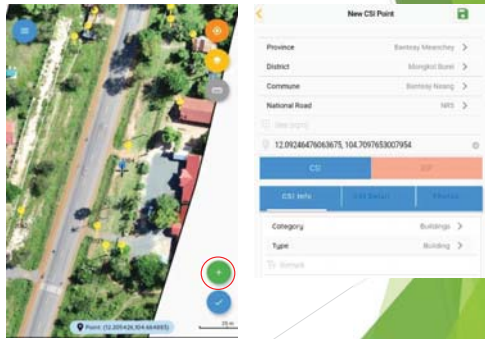


## 5. Show point location

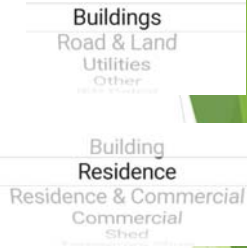


To get any point location by move cursor to that point then click-on

## 6. Add New CSI Point



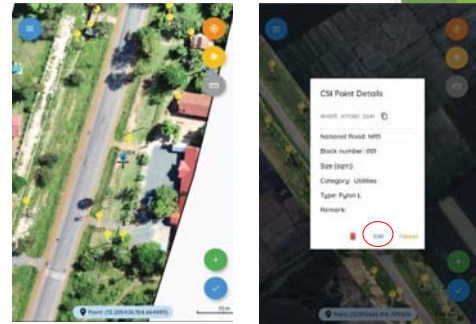
Click on Category then select relevant CSI Category



Click on Type the choose

## 7. Edit CSI Point

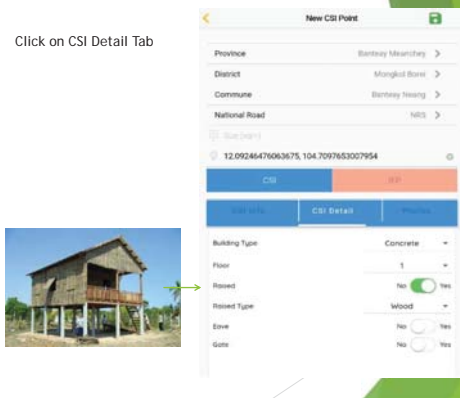
To edit CSI Point, click on CSI point then choose Edit



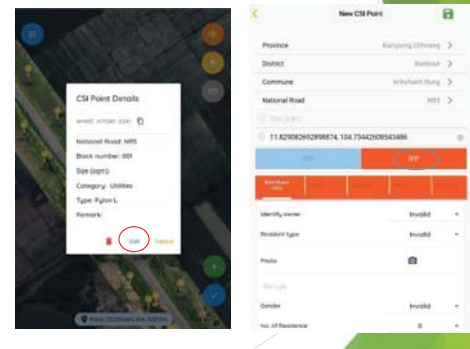
Then update necessary information



Click on CSI Detail Tab



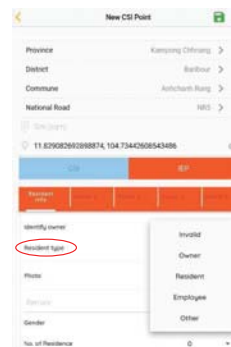
## 8. IEP



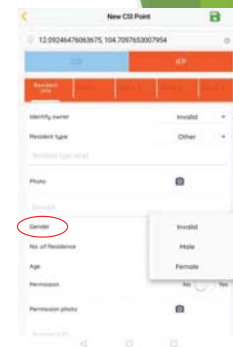
Click on Photos Tab, it can take 3 photos



Resident type



Gender



No. of Residence

Form fields: No. of Residence (dropdown), Identify owner, Resident type, Photo, Gender, Age, Permission, Permission form, Permission from, Permission duration, Permission photo.

Age

Form fields: No. of Residence, Identify owner, Resident type, Photo, Gender, Age (dropdown), Permission, Permission form, Permission from, Permission duration, Permission photo.

Resettlement reason

Form fields: Explanation by face to face, Need next patrol?, Next patrol in, Complete resettlement?, Resettlement reason (dropdown), Invalidation reason.

Permission: yes

Form fields: Photo, Gender, No. of Residence, Age, Permission (dropdown), Permission form, Permission from, Permission duration, Permission photo.

Form fields: Photo, Gender, No. of Residence, Age, Permission, Permission from (dropdown), Permission duration, Permission photo.

Thanks!!

Permission duration

Form fields: Photo, Gender, No. of Residence, Age, Permission, Permission form, Permission from, Permission duration (dropdown), Permission photo.

Then take photo of reference document

Form fields: Photo, Gender, No. of Residence, Age, Permission, Permission form, Permission from, Permission duration, Permission photo.

Patrol 1 then click "Need next patrol?"

Form fields: Explanation by face to face, Need next patrol?, Next patrol in (dropdown), Complete resettlement?, Resettlement reason.





# Presentation on Pilot Project Hard Approaches



Final Seminar  
6<sup>th</sup> December 2019

## 2. Target Area of Pilot Project

### Contents of This Section

#### Topic1. Pilot Project Hard Approaches 30 min

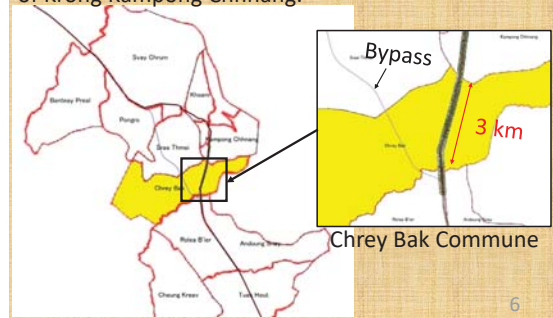
1. What is IEP?
2. Target Area of Pilot Project
3. IEP Hard Approach Items on Pilot Project
4. Improvement of Road Environment

#### Topic2. DBST Material 15 min (Presented by IKEE Company)

#### Topic3. Inter-Locking Block 15 min (Presented by Omura Company)

### Location Map of Target Area

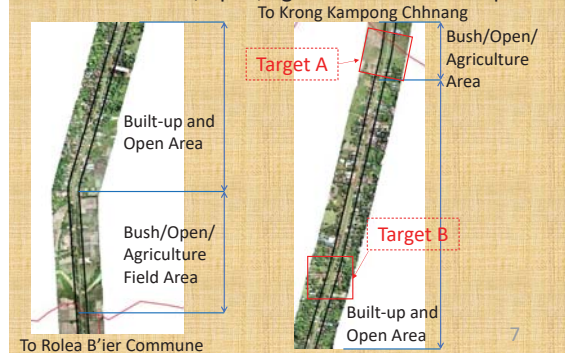
Target Area is **Chrey Bak Commune**, located at south of Krong Kampong Chhnang.



## 1. What is IEP ?

### Land Use Condition of Target Area

The area has bush, open, agriculture and built-up area.



### IEP: Illegal Encroachment Prevention

#### Purpose of IEP

1. To prevent new encroachment in the ROW
2. To regulate temporary use of ROW with Permission

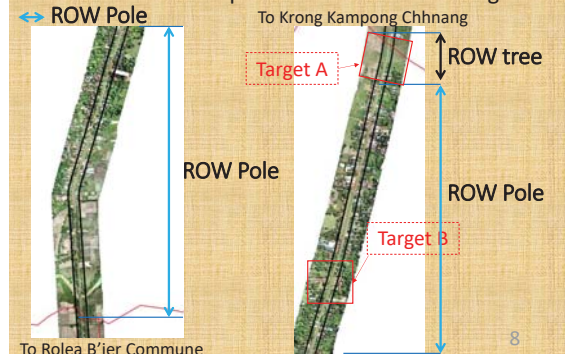
#### IEP Approaches

1. Raising Awareness (Education)
2. Monitoring and Control / Intervention
3. Installing Facilities



### General Plan of ROW Pole

ROW Poles will be implemented in the following area.



### 3. IEP Hard Approach Items on Pilot Project

9

#### Working Items of Target Area A

— IEP Fence — Growing Tree — Signboard



10

#### Working Items of Target B

Improvement of Road Environment

- Pedestrian Fence (100m)
- Sidewalk (200m)
- Bicycle Road
- Frontage Road
- Move of Open Canal

● ROW Marking Plate  
● Signboard

Primary School



### 4. Improvement of Road Environment

12

#### Improvement of Road Environment(Target B)

Initial Stage  
(2 Lanes)



1st Stage  
(Target B)  
(2 Lanes + IEP)



2nd Stage  
(4 Lanes)



3rd Stage  
(6 Lanes)



13

#### Purpose to Improve Road Environment

- These temporary measures are effective
  1. not only for securing roadside environment,
  2. but also for preventing future encroachment
- Sidewalks and frontage roads are reutilized from 1st Stage (2 lanes + IEP) to following Stages
- Location of open canal was put in its correct position

Let's explain with 3D model

14

Thank You for Your Attention!

#### Next Presentation

Topic2. DBST Material 10 min  
(Presented by IKEE Company)

Topic3. Inter-Locking Block 10 min  
(Presented by Omura Company)

15



**Advancing Pavement Technologies**

The Advanced Infrastructure Activist "IKEE PAVING SYSTEMS" Our Solutions

**EXCEL** The pavement repair materials For all weather types

**IKEE Group**

**IKEE BITUMEN CHEMICAL Cambodia co.,Ltd.**

**The Infra Activist**  
**IKEE Group**

**IKEE PAVING SYSTEMS Co., Ltd.**  
Sale & Construction

**IKEE BITUMEN CHEMICAL Cambodia co.,Ltd.**  
Factory & Manufacturing

### Company Background

**Shu NISHIYAMA**  
President

- > IKEE Ltd. is group of companies.
- > Head office locates in Matsuyama, Ehime Province, Japan
- > Main job is pavement construction.
- > The company was established in 1957.

**IKEE Group: Advanced Infrastructure Activists**

- IKEE Co., Ltd.
- Tokubei Green Co., Ltd.
- Apart Co., Ltd.
- Awa Tahayya Namson Co., Ltd.
- YUKI Co., Ltd.
- IKEE Sangyo Co., Ltd.
- Kaga Kogyo Co., Ltd.
- Chayyo Sasaki Co., Ltd.
- Strati Co., Ltd.
- IKEE PAVING SYSTEMS**

**IKEE Group**

### PRODUCT & SERVICE

- Asphalt Emulsion (CSS-1 & CRS-2)**
- EXCEL Cold Patch**
- Stabilization Machine (Stabilizer)**
- Road Construction**
- Infrastructure and Construction Materials**

**IKEE BITUMEN CHEMICAL Cambodia co.,Ltd.**

Established in 2017

Japanese Technology

Member of IKEE Group

Manufacture Factory

**And**

**IKEE PAVING SYSTEMS Co., Ltd.**

- > Established in 2015
- > Construction & Sale
- > Member of IKEE Group
- > Japanese Technology

Sale Office: #09, St. 242, Chaktomuk, Daun Penh, Phnom Penh, Cambodia.  
Factory: Phnom Penh Special Economic Zone, Phnom Penh, Cambodia.  
Tel: 077 851 992 / 017 427 959 & Email: info.ibckh@gmail.com

**The Product of Cambodia**  
**Heating Free Asphalt Emulsion**

**IKEE BITUMEN CHEMICAL Cambodia**

**Heating Free** Spray at Ambient Temperature

**Durable** **Stable** **Excellent Adhesion** **Fastest Set Time**

### Factory Location

MASTER LAND-USE PLANNING OF PPSZ PROJECT-357.3179H4  
Located in Sangkat Kamboj Sanguk Phnom Penh Special Economic Zone, Phnom Penh Municipality  
(2014/2015 November 1st, 2015)

**National Road No. 4**

**IKEE BITUMEN CHEMICAL Cambodia co.,Ltd.**

### Specification

Asphalt Emulsion	Unit	CSS-1	CRS-2	MN-1
Viscosity, Saybolt 25°C	sec	20-100	100-400	-
Sieve Test (%)	%	<0.1	<0.1	-
Particle Charge	+/-	Positive (+)	Positive (+)	-
Storage Stability	%	<1.0	<1.0	-
<b>Distillation Test</b>				
Residue by Distillation	%	>57	>65	-
Penetration 25°C	0.1mm	100-250	100-250	-
Ductility 25°C	cm	>40	>40	-
Solubility	wt%	>97.5	>97.5	-

## Asphalt Emulsion Plant



## Precise Quality Control



## Product

Asphalt Emulsion Grade	Application
CSS-1 - Cationic Slow Setting	Prime Coat
CRS-2 - Cationic Rapid Setting	Tack Coat, SBST & DBST
MN-1 - Non - Ionic	Asphalt Emulsion-Cement Stabilization

## Features

1. Easy to use at normal temperature.
2. Eco friendly and non polluting.
3. Firm adhesion even at wet condition.
4. Fast set time, road can be opened to traffic soon after implementation.
5. Non flammable and hassel free material.

**IKEE BITUMEN CHEMICAL Cambodia**  
 IBC office Phnom Penh Special Economic Zone, National Road No.4, Khan Penh, Phnom Penh, Cambodia.  
 Tel. 017-427-959/070-361-838 & Email info.ibckh@gmail.com



## Cement-Asphalt Emulsion Stabilization



Thank you so much for attention!



ANY QUESTION?

**IKEE BITUMEN CHEMICAL Cambodia co.,Ltd.**

## EXCEL The pavement repair materials

The Permanent Cold Patch For all weather type



Long-Life Storable

- ❖ Long-Life Storable – High Quality
- ❖ All-weather Available – Strong with Water
- ❖ Easy Laying – Fast and Easy Repairing
- ❖ Foot Compaction – Less Labors and Easy Compaction



All-Weather Available



Foot Compaction



Easy Laying

## Instruction of Repairing Pothole



# Products Introduction



2019/12/06  
Seang Try

OMURA Concrete Co., Ltd.

## OMURA Concrete Company Overview



CEO  
Yabusame Kiyonori

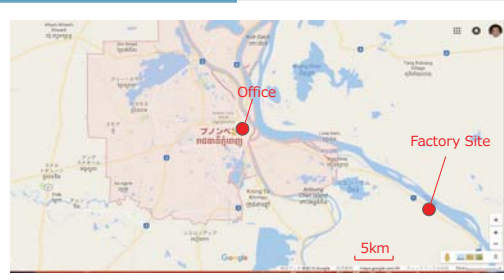


### Company Summary

Company Name	OMURA Concrete Co., Ltd.
Address	Office 4F, The Rise Building, #5, St.282, BKK1, Phnom Penh, Cambodia
Phone Number	+855-(0)-23-964-250
Representative	Yabusame Kiyonori
Establish date	16 <sup>th</sup> Sep 2015
Started Capital	\$ 1,000,000
Business Operation	Produce Concrete Products, Installation, Exportation
Staff	60 Persons (On July, 2018)

OMURA Concrete Co., Ltd.

## OMURA Concrete Company Overview



Head office: Prince Phnom Penh Tower 3F

Factory site: National Road No1, Km35

OMURA Concrete Co., Ltd.

## PRODUCTS AND SERVICES

### 1. Water Way

- Box Culvert
- Silent Gutter
- VS gutter
- DO pipe
- U-shape gutter
- Main hole

### 2. Wall Protection

- SKW (Retaining Wall)
- Kenchi Block
- Gyokuyo

### 3. Curb

- Concrete Curb
- Border Block

### 4. Interlocking Block

- Top Shape
- Straight (N, S)
- Apia
- Pogolit
- Flat Plate
- Uni-Normal

OMURA Concrete Co., Ltd.

## Box Culvert



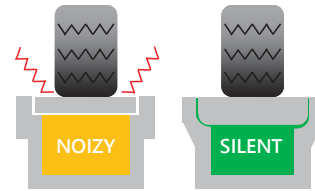
OMURA Concrete Co., Ltd.

## Silent Gutter



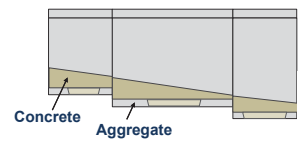
OMURA Concrete Co., Ltd.

## Silent Gutter Cover



OMURA Concrete Co., Ltd.

## VS Gutter



OMURA Concrete Co., Ltd.



Retaining Wall



OMURA Concrete Co., Ltd.

Concrete curb



Japanese Bridge (2018)

OMURA Concrete Co., Ltd.

Slope Protection



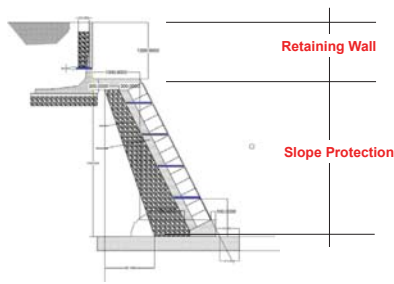
OMURA Concrete Co., Ltd.

Interlocking Block



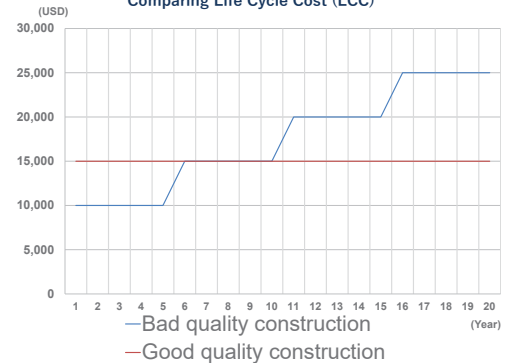
OMURA Concrete Co., Ltd.

Retaining Wall



OMURA Concrete Co., Ltd.

Comparing Life Cycle Cost (LCC)



Retaining Wall



River bank protection at Chrey Thom Village

OMURA Concrete Co., Ltd.

Thanks You!

Contact

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OMURA Concrete Co., Ltd.

J1-Appendix 2: Record and Relevant Material on Training Courses  
in Japan



## 1.1 Record and Relevant Material on Training Courses in Japan

### 1.1.1 The 1st Training in Japan

1) Name of the Training Course (Objective): Training for Capacity Enhancement on Environmental and Social Considerations in Implementing Agency in Road Sector in the Kingdom of Cambodia,

- To understand Concept of Environmental Considerations and its implementation process,
- To understand Implementation framework of Right of Way Management.

2) Training Period: From 14 June 2017 to 22 June 2017

### 3) List of Participants

Organization	Name	Position
Ministry of Public Works and Transport (MPWT)	Mr. PROK Novida	Director, Department of Planning
	Mr. CHEA Samnang	Chief, Right of Way Management Office, Road Infrastructure Department
	Mr. KHAI Saray	Deputy Chief, Right of Way Management Office, Road Infrastructure Department
	Ms. SRENG Sorphea	Officer, International Cooperation Department
	Mr. SONG Kimheng	Officer, International Cooperation Department
	Mr. SREY Vireak	Officer, Department of Planning
	Mr. NGEL Sovanarith	Officer, International Cooperation Department
	Mr. BOUR Chhayya	Officer, Department of Planning
Ministry of Environment (MOE)	Mr. SOK Oror	Deputy Director, Department of Environmental Impact Assessment
	Mr. CHUOP Sivutha	Deputy Director, Department of Environmental Impact Assessment

### 4) List of Training Materials

	Title	Date	Remarks
1.	At a Glance: Expressway Projects in Japan & Hanshin Expressway	15 June	Related to EIA and ROW
2.	Environmental Measures on the Hanshin Expressway	15 June	Related to EIA
3.	ROW Management	16 June	Related to ROW
4.	Introduction to "ROW" management system	16 June	Related to ROW
5.	Introduction to "Occupation-in-ROW" management system	16 June	Related to ROW
6.	Expressways considering historic landscape	17 June	Related to EIA
7.	Land Acquisition & Compensation for Public Use in Japan	19 June	Related to ROW
8.	Land Acquisition & Compensation for Public Project	19 June	Related to ROW
9.	Shutoko's Environmental Initiatives	20 June	Related to EIA

## 5) Schedule

Date		Time		Training Program	Place to Visit
June 14	Wed	PM		Arrival in Japan	
15	Thu	10:00	~ 11:00	Briefing	JICA Kansai
		11:00	~ 11:30	Program Orientation	
		13:05	~ 13:10	Opening Remark	Kobe Business and Maintenance Department, HEX
		13:10	~ 14:15	Expressway Projects in Japan & Hanshin Expressway	
		14:15	~ 15:30	Environmental measures (HEX) Lecture	
		16:05	~ 16:20	Environmental measures (HEX) Site visit	
		18:00	~ 20:00	Welcome Dinner in Osaka	Near Hotel
16	Fri	9:30	~ 11:00	Right of Way (ROW) management ◆Discussion	Osaka Business and Maintenance Bureau, HEX
		11:00	~ 12:15	"ROW" management system "Occupation-in-ROW" management system	
		14:00	~ 14:25	ROW management of Hanshin Expressway (Umeda Ramp, Tsumori Storage, Semba Viaduct)	Umeda Ramp
		14:50	~ 16:10		Tsumori Storage
		16:40	~ 17:00		Semba Viaduct
17	Sat	10:20	~ 10:55	Cultural Experience (Kizakura Sake Brewery)	Kizakura Kappa Country at Kyoto
		10:55	~ 13:10	Consideration on appearance of the structure of Hanshin Expressway	Aburano-Koji Viaduct, Jujo Ventilation Station
		13:20	~ 14:45	Cultural Experience (Fushimi-Inari Shrine)	Fushimi-Inari Shrine
				Move to Tokyo	JICA Tokyo
18	Sun	9:00	~ 12:00	Preparation for the Presentation	JICA Tokyo
19	Mon	9:30	~ 11:30	Legal Framework of Public Land Management (regarding Land Acquisition & Compensation for Public Use)	JICA Tokyo
		12:15	~ 15:15	ROW management in Metropolitan Expressway (Saitama-Omiya Line)	Saitama City
		15:15	~ 18:15	Preparation for the Presentation	JICA Tokyo
		18:30	~ 21:00	Welcome Dinner in Tokyo	
20	Tue	10:00	~ 11:30	Environmental measures in MEX	Ohashi Junction, MEX
		11:30	~ 12:00	Environmental measures in MEX	Ohashi Junction, MEX
		12:35	~ 14:30	Cultural Experience (Tokyo Metropolitan Government Tower)	Tokyo Metropolitan Government Tower
				Move to Osaka	
21	Wed	9:30	~ 9:45	Review of Training Course	Headquarters, HEX
		9:45	~ 14:30	Preparation for the Presentation	
		14:30	~ 16:25	Final presentation ◆ Group A Environmental Consideration ◆ Group B Right of Way management Evaluation Meeting	
		16:25	~ 17:00	Closing Ceremony	
22	Thu	AM		Leave from Itami to Phnom Penh	



6) Photo of activities

<p>Program Orientation on 15 Jun.</p> 	<p>Expressway Projects &amp; HEX on 15 Jun.</p> 
<p>Environmental measures (HEX) on 15 Jun.</p> 	<p>Environmental measures (HEX) on 15 Jun.</p> 
<p>Right of way management (HEX) on 16 Jun.</p> 	<p>ROW management system (HEX) on 16 Jun.</p> 
<p>ROW site visit @ Umeda Ramp (HEX) on 16 Jun.</p>	<p>Tsumori Storage (HEX) on 16 Jun.</p>
	

ROW site visit @ Tsumori (HEX) on 16 Jun.



ROW site visit @ Semba Viaduct (HEX) on 16 Jun.



Aburano-Koji Viaduct (HEX) on 17 Jun.



Jujo Ventilation Station (HEX) on 17 Jun.



Lecture by JOLAC @ JICA Tokyo on 19 Jun.



ROW site visit @ Saitama (MEX) on 19 Jun.



Environmental measures (MEX) on 20 Jun.



Environmental measures (MEX) on 20 Jun.





Review of Training Course on 21 Jun.



Preparation for Presentation on 21 Jun.



Presentation (Environment) on 21 Jun.



Presentation (Right of Way) on 21 Jun.



Evaluation Meeting on 21 Jun.



Address of Thanks on 21 Jun.



Closing Ceremony on 21 Jun.



### 1.1.2 The 2nd Training in Japan

1) Name of the Training Course: Training for Capacity Enhancement on Environmental and Social Considerations in Implementing Agency in Road Sector in the Kingdom of Cambodia

2) Training Period: From 28 February 2018 to 9 March 2018

#### 3) List of Participants

Organization	Name	Position
Ministry of Public Works and Transport (MPWT)	Ms. PIN Vuthea	Director, International Cooperation Department
	Mr. CHEA Samnang	Chief, Right of Way Office Road Infrastructure Department
	Mr. KHUON Kompheak	Chief, Road Infrastructure Department
	Ms. LON Virakmithona	Chief Office, Road Infrastructure Department
	Mr. HAY Chandara	Deputy Chief Office, Road Infrastructure Department
	Mr. PEANG Samoeun	Deputy Chief Office, International Cooperation Department
	Mr. SAO Premarak	Official, Road Infrastructure Department
Ministry of Land Management, Urban Planning and Construction (MLMUPC)	Mr. SEK Sothirith	Director, Urban Planning
	Mr. SAO Vary	Director, Cadastral Conservation Department
Ministry of Economy and Finance (MEF)	Mr. YONG Sy	Office Chief, Department of Investment

#### 4) List of Training Materials

	Title	Date
1	Land Acquisition System and Management of Land for Project by Tokyo Metropolitan Government	1, Mar
2	2017 Training Plan for Land Purchase Division	1, Mar
3	Land Purchase Procedure and Resettlement Support for Specially Maintained Roads	1, Mar
4	Management of Land for Projects (with 1 sheet of reference material)	1, Mar
5	Management of Land for Projects	1, Mar
6	Company Profile of PASCO	1, Mar
7	Management of geospatial Information on Unified coordinates	1, Mar
8	Road Space Management	1, Mar
9	Mobile Mapping System (MMS) Vehicle Overview and Application Examples	1, Mar
10	High-Precision 3D Viewer and Mapping System	1, Mar
11	Metropolitan Expressway ROW Management	2, Mar
12	At a Glance: Expressway Projects in Japan & Hanshin Expressway	5, Mar
13	Road Establishment and Management	5, Mar
14	ROW management	6, Mar
15	Introduction to "ROW" management system	6, Mar
16	Introduction to "Occupation-in-ROW" management system	6, Mar
17	Overview of Real Property Registration System (with 13 sheets of reference materials)	6, Mar

## 5) Schedule

Date		Time		Training Program	Place to Visit
Feb 28	Wed	6:30		Arrival in Japan	
		15:00	~ 17:00	Briefing & Program Orientation	JICA Tokyo
March 1	Thu	9:50	~ 12:00	Land acquisition system and ROW management by Tokyo Metropolitan Government	Tokyo Metropolitan Government
		13:45	~ 17:30	Road Space Management	PASCO
2	Fri	10:00	~ 12:15	ROW management@Yokohama,MEX	Tsurumi, MEX
		13:45	~ 17:30	ROW management@Yokohama,MEX	Tsuzuki, MEX
3	Sat			Move to Osaka	
4	Sun			Holiday (Preparation for the Presentation)	
5	Mon	9:30	~ 11:15	Expressway Projects in Japan & Hanshin Expressway	Headquarters, HEX
		11:15	~ 12:15	ROW management ◆Discussion(Status Quo)	
		13:30	~ 15:30	Road Establishment & Management by Ministry of Land,Infrastructure,Transport and Tourism(MLIT)	
		15:30	~ 17:00	ROW management ◆Discussion(Problems to be solved)	
6	Tue	9:30	~ 11:00	ROW management •Lecture	Headquarters, HEX
		11:00	~ 12:00	ROW managing system and permission for occupancy	Headquarters, HEX
		13:00	~ 15:00	Overview of Real Property Registration System	Headquarters, HEX
		15:00	~ 16:45	Managing method for ROW	Tsumori Storage, HEX
7	Wed	9:40	~ 13:50	ROW management •Site visit	Umeda, Kozu,HEX
		14:30	~ 17:30	ROW management ◆Discussion(Solution)	Headquarters, HEX
8	Thu	9:30	~ 14:30	Preparation for the Presentation	Headquarters, HEX
		14:30	~ 16:00	Final Presentation	
		16:00	~ 17:00	Evaluation meeting Closing ceremony	
9	Fri	AM		Leave from Itami to Phnom Penh	



6) Photo of Activities

Program orientation on 28 February.



Land acquisition system and ROW management(Tokyo Metropolitan Government) on 1 March



Road Space Management @PASCO on 1 March



MMS Vehicle Overview @PASCO on 1 March



ROW site visit @ Yokohama on 2 March



ROW site visit @ Yokohama on 2 March



Move to Osaka on 3 March



Expressway projects & HEX on 5 March



Road Establishment & Management by MLIT on 5 March



ROW management discussion (HEX) on 5 March



ROW management discussion (HEX) on 5 March



ROW management discussion (HEX) on 5 March



ROW management (HEX) on 6 March



ROW Managing system and Permission for occupancy (HEX) on 6 March



Overview of Real Property Registration System (HEX) on 6 March



Tsumori Storage (HEX) on 6 March





ROW site visit @Umeda on 7 March



ROW site visit @Kozu on 7<sup>th</sup> March



ROW management discussion on 7 March



ROW management discussion on 7 March



Preparation for presentation on 8 March (Team A)



Preparation for presentation on 8 March (Team B)



Final presentation (Team A)



Final presentation (Team B)



Review of the project on 8 March



Evaluation meeting on 8<sup>th</sup> March



Certification of completion on 8<sup>th</sup> March



Presented with souvenir on 8<sup>th</sup> March



Closing Ceremony on 8 March



### 1.1.3 The 3rd Training in Japan

1) Name of the Training Course: Training for Capacity Enhancement on Environmental and Social Considerations in Implementing Agency in Road Sector in the Kingdom of Cambodia

2) Training Period:

From 12 February 2019 to 22 February 2019

#### 3) List of Participants

Organization	Name	Position
Ministry of Public Works and Transport (MPWT)	Mr. CHAK Borith	Chief Officer, Road Infrastructure Department
	Mr. IENG Huo	Chief Officer, Public Works Department of public works and transport of Kampong Chhnang province
	Mr. KANG Kimchhun	Chief Officer, Technical office Department of public works and transport of Pursat province
	Mr. PHENG Chan Chhaya	Chief, Equipment office Department of public works and transport of Battambang province
	Ms. EAM Sokchea	Deputy Chief, Public Infrastructure department
	Mr. HOK Angkearithvongsa	Officer, Road Infrastructure Department
	Mr. An Menghour	Officer, International Cooperation Department
	Mr. KIM Sovannchetra	Officer, Financial office Department of public works and transport of Banteay Meanchey province

#### 4) List of Training Materials

	Title	Date
1	Part1. PASCO Corporate Introduction	14, Feb
2	Part2. Land Acquisition	14, Feb
3	Part3. Land Management	14, Feb
4	Part4. How to manage Land	14, Feb
5	Land Management based on CADASTER	14, Feb
6	LAND MANAGEMENT in Japan	15, Feb
7	Training Framework of the ROW Management	18, Feb
8	HEX"ROW" managemnet	18, Feb
9	Overview of Real Property Registration System	18, Feb
10	ROW managemnet around Morinomiya, Osaka	19, Feb
11	Introduction. ROW Degitalized managemnet System	19, Feb



## 5) Schedule

Date		Time		Training Program	Place to Visit
Feb 13	Wed		AM	Arrival in Japan	
		15:00	~ 16:00	Briefing	JICA Tokyo
		16:00	~ 17:00	Program Orientation	
14	Thu	10:00	~ 17:00	Road Space Management	PASCO
15	Fri	10:00	~ 11:00	ROW management by Metropolitan Expressway (lecture)	JICA Tokyo
		14:00	~ 14:30	ROW management by Metropolitan Expressway (at site)	Saitama, MEX
		15:00	~ 16:00	ROW management by Metropolitan Expressway (at site)	
16	Sat			Move to Osaka	
17	Sun	10:30	~ 11:30	Cultural experience at Todaiji temple	Nara prefecture
		13:00	~ 14:30	Cultural experience at Kofukuji temple	
18	Mon	9:30	~ 10:00	ROW orientation and GAP analysis	Headquarters, HEX
		10:00	~ 12:00	Expressway Projects in Japan & Hanshin Expressway	
		13:30	~ 15:30	ROW management by HEX (part1)	
		15:30	~ 17:30	Overview of Real Property Registration System	
19	Tue	9:30	~ 10:30	ROW management by HEX (part2)	Osaka Business and Maintenance Bureau, HEX
		10:30	~ 11:30	ROW patrol car of HEX	
		11:30	~ 12:00	Traffic control center	Morinomiya, HEX
		14:30	~ 15:30	ROW management by HEX and municipality	
		15:30	~ 16:30	Cultural experience	
20	Wed	10:00	~ 12:00	Management of geographic information	Headquarters, HEX
		13:30	~ 17:30	ROW management ◆Discussion	
21	Thu	9:30	~ 14:30	Preparation for the Presentation	Headquarters, HEX
		14:30	~ 16:00	Final Presentation	
		16:00	~ 16:30	Evaluation meeting	
		16:30	~ 17:30	Closing ceremony	
22	Fri		AM	Leave from Itami to Phnom penh	

6) Photo of Activities

<p>Program orientation on 13 February</p>	<p>Road Information maintenance (PASCO) on 14 March</p>
	
<p>Road Information maintenance (PASCO) on 14 March</p>	<p>ROW management (Metropolitan Expressway) on 14 February</p>
	
<p>ROW site visit @Saitama on 15 February</p>	<p>ROW site visit @Saitama on 15 February</p>
	
<p>Cultural experience @Nara on 17 February</p>	<p>ROW orientation and GAP analysis(HEX) on 18 February</p>
	



Expressway project& HEX on 18 February



ROW management system (HEX) on 18 February



Overview of Real Property Registration System on 18 February



ROW management system(HEX) on 19 February



ROW patrol car (HEX) on 19 February



ROW site visit on 19 February



Cultural experience(Osaka castle) on 19 February



Tsumori Storage (HEX) on 20 February



Management of geographic information and clarifying border on 20 February



2/20 Discussion(solution)



Final presentation on 21 February



Evaluation meeting on 21 February



Closing ceremony on 21 February



Certification of completion on 21 February



Closing ceremony on 21 February



Presented with souvenir on 21 February





Closing Ceremony on 21 February





### 1.1.4 Training and output review

In Cambodia, land policy and its legal framework are still under development. Encroachment on the ROW by the privately owned buildings, structures and even street vendors has been a social issue. Most people don't have a legitimately guaranteed land title (so-called "hard title"). Such an issue is caused by the retrofitted legal framework.

CESCOr has launched a series of the capacity enhancement training programs in Japan to transfer expertise of the ROW management to solve the aforementioned issue. Trainees who are involved in the ROW management were invited by JICA. Some of them are relatively deficient in the historical legal background; thus, they are likely to simply identify encroachment on ROW as illegal. The training programs have clarified the lack of resources (e.g., human, financial and technical resources) to tackle with "illegal" encroachment and the deficiency of the organizational division of work such as a task demarcation between the central and local bureaus. The training programs are designed based on the gap analysis framework to find out "causes" and "ideas for solutions" on ROW policy and management. All participants aggressively worked on the training programs to sort out the solutions. They have learned that ROW management consists of two major tasks; one is a legal management (management of occupancy permission in ROW) and the other is an asset management (management of permitted properties and removal of illegal properties in ROW). The programs have brought out some practical outputs to solve the ROW issues Cambodia is facing with.

CESCOr expects the outcome of the training programs would certainly contribute to their policy making even if they are struggling lack of resources.

### 1.1.5 Outputs of the Training Programs

This clause shows some outputs of the training programs. The trainees know the current status-quo on the ROW issues. They have figured out practical solutions by learning the way of ROW management of Japan.

