

Kingdom of Cambodia

**Collaboration Program with the
Private Sector for Disseminating
Japanese Technology for
Capacity Development for Training of
Auto-Mechanics and Instructors in
Cambodia**

Final Report

January, 2017

Japan International Cooperation Agency

ReNet Japan Group Inc.

OS
JR
17-005

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1. PROJECT OVERVIEW

1.1. Project Description

- Name : Collaboration Program with the Private Sector for Disseminating Japanese Technology for Capacity Development for Training of Auto-Mechanics and Instructors in Cambodia
- Objective: Develop training capacity of technical schools and instructors in mechanic field in Cambodia based on the training method applied in Japan
- Project Manager: ReNet Japan Group Inc. (RJG)

1.2. Background

- Due to the rapid motorization caused by the economic expansion and raise of urban population, the issues around traffic such as congestion and accidents major social and economic issues in Cambodia.
- Lack of comprehensive vehicle inspection and registration system create under-maintained vehicles causing more traffic accidents and larger emissions.
- The government has recently established the National Road Safety Committee to improve traffic safety system. However, the activities related to the vehicle maintenance is still limited.
- The improvement in the vehicle maintenance infrastructure including inspection, maintenance and repairs is greatly needed given that larger number of automotive is available and the demand for the high skilled mechanics are picking up rapidly.

1.3. Objective

- Improve training capacity for the technical schools in the Ministry of Labor and Vocational Training (MLVT) by developing the curriculum and textbooks for the Automotive mechanic training and delivering them to the instructors and students in the field.
- Create skilled automotive mechanics with certification in order to improve the skill base of the shops providing automotive inspection, maintenance and repair services.
- Contribute to solve the issues around traffic in Cambodia, namely CO2 emission, traffic congestions and accidents by reducing the under-maintained automotive vehicles.

1.4. Project Duration

January, 2015 – January, 2017

1.5. Activities

① On-field Activities

- a. Develop training curriculums for automotive mechanic course applying training know-how and textbook from Japan
- b. Delivery of the training to the instructors in the technical schools under MLVT
 - Phase 1 – Basic Training (3 month)
 - Phase 2 – Advanced Training (7 month)

② Field Trip to Japan

- a. Visit government agencies related to Automotive Mechanic regulatory systems
- b. Conduct workshop on Automotive mechanic training and certification system
- c. Visit to the private sectors such as Toyota, private garages and technical schools

③ Report writing and develop business and activities plans

2. PHASE 1 BASIC TRAINING (JUNE – AUGUST 2015)

2.1. Summary

① Venue

Based on the discussion with MLVT, Industrial Technical Institute (ITI) is selected as the main venue for training delivery. The participants were also sent to the automotive service shops run by the affiliate garages and Toyota Group's facilities.

② Duration

Total 120 hour course from August 4th, -14th, 2015 and August 31st – September 11th, 2015

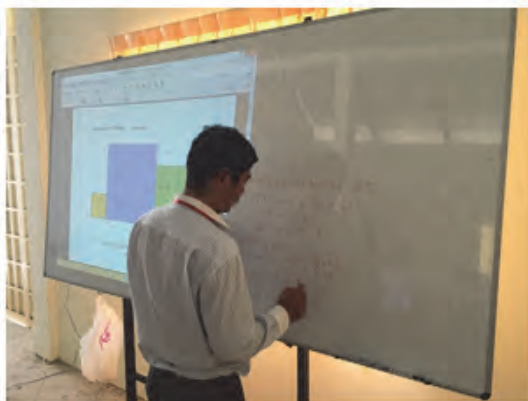
③ Target Audience

Instructors of Automotive mechanic course in MLVT's technical schools from the Phnom Penh and provinces including 4 instructors from 3 technical schools in Phnom Penh and 5 instructors from selected provincial technical schools.

Student Rosters

No.	Name 氏名	Age 年齢	Gender 性別	Affiliation 所属	Address 住所
1	NOL SARAT	26	M	BIT	Battambang
2	PHIN CHANTHOU	22	M	JVC	PHNOM PENH
3	Chea Chamnan	35	M	RPITSK	Krong Kampot
4	SIM Sokheng	30	M	RPIPSSR	Svay Rieng
5	KONG DYNA	39	M	ITI	PHNOM PENH
6	MOM SOK NOV	31	M	NPIC	PHNOM PENH
7	SUN SINA	29	M	RPITT	Takeo
8	TENG VAN OEURN	35	M	ITI	PHNOM PENH
9	KHVAN NARETH	30	M	RPITSB	Battambang

2.2. Class Images at ITI



2.3. Content

- The training content was selected based on the pre-conducted interviews from the selected instructors in automotive mechanics course. Based on the interview, the basic training covered medium level course (Level 2) in Japan standard. Also, the introduction on the new technologies such as hybrid systems and common rails were covered.
- Toyota Prius was used for training practice on the vehicle diagnosis using scan tools.

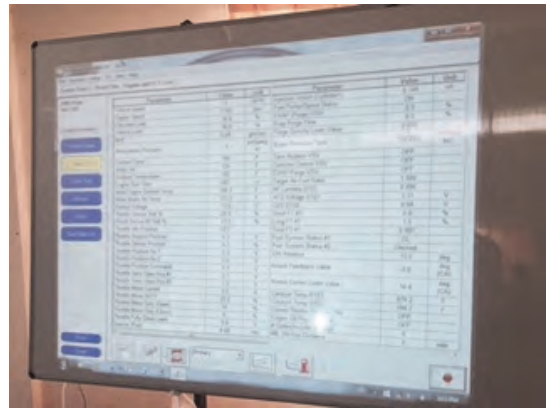
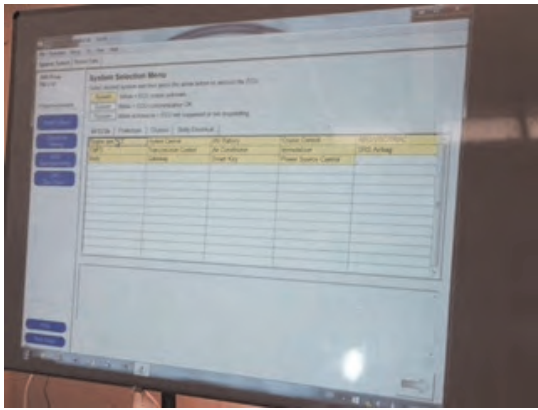
- Introduced new training method to understand the quality of work using “Origami” which is one of the traditional training method in Japan. The method was later applied to the classes in JICA’s senior volunteer at National Polytechnic Institute of Cambodia (NPIC).
- Provide training of 5S method with additional the concept of Accident Prediction Training, which is important concept to maintain safety at the workplace. In Cambodia, many mechanics wear sandals while at work. It will cause potential accidents such as foot damage or electric shocks. The training provide opportunity for students to think about “What if” situation at the workplace.
- Offered opportunity for the practical training including the visits to “Pit&GO Automotive Service Centre”, the automotive garage in Phnom Penh run by Toyota Group Companies. The training covered such as air-conditioner repairs, use of diagnostic tools etc.

Practice Session at “PIT&GO Automotive Service Center”





- Demo of Toyota's official diagnose tool "Toyota Tech Stream"



3. PHASE 2 ADVANCED TRAINING (DEC 2015 – SEPT 2016)

3.1. Summary

This phase of the training was delivered in the each technical schools in Phnom Penh and the provinces. The training was focused to provide sample training session to the students under the instructors' observation so that the instructors understand how to deliver the training to the students. With the reflection on the first phase, the practice session using hybrid car is also delivered.

a. Automotive Mechanic Level 3: Basic

1. Use of the Tools	3h
2. Basic Structure of Automotive	3h
3. Use of tools: Measurement tools	3h
4. Use of tools: Diagnostic tools	3h

Total 12 h

b. Basic Concept of Hybrid Cars

c. Basic Inspection, Daily maintenance, Emergency Response

d. Hybrid Technology (Electric Safety), Scan Tool (Basic)

1 General Work	3h
2 Safety	3h
3 Diagnosis	3h
4 <u>Electric Control Systems</u>	3h

Total 12 h

3.2. Training Schedules

Date	Location	
Jan.18 th – Jan 20 th	JVC, Phnom Penh	Phnom Penh
Jan 25 th – Jan 27 th	ITI, Phnom Penh *Canceled	Siem Reap
Feb 1 st – Feb 3 rd	NPIC, Phnom Penh	Phnom Penh
Feb 8 th – Feb 10 th	Battambang *Held on March	
Feb 15 th – Feb 17 th	Kampot	Kampot
Mar 9 th – Mar 11 th	Takeo	Takeo
Mar 15 th – Mar 17 th	Battambang	Battambang

3.3. Result

a. JVC Technical College

The session received large attention from students and media. 100 students from 3 classes has joined training. BBC in Cambodia has covered the session to promote the Japan's cooperation.



b. NPIC (National Polytechnic Institute of Cambodia)

The students in Sophomore and senior classes has joined the session. The session focused to train 13 new instructors that will start teaching next year.



c. RPITSK (Regional Polytechnic Institute Techo Sen Kampot)

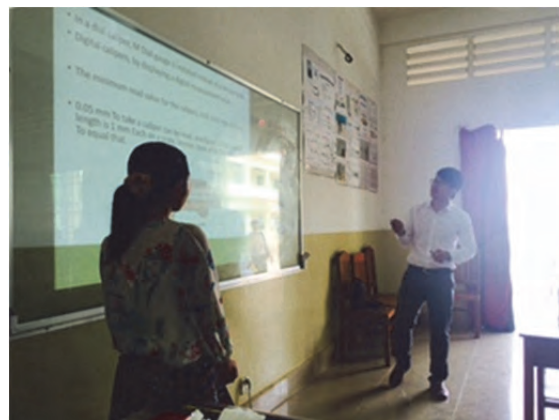
3 instructors and 25 students has attended the training session. The participatory training was also delivered by the instructors in order for them to learn and practice new training style under supervision.



The group training method was applied in order for the female students to be involved in the training. The scan tool training were the popular program as the most of instructors and students never used such tools.

d. RPITST (Regional Polytechnic Institute Techo Sen Takeo)

The hybrid systems were also covered in the session. The instructors were also participated in the delivery of the session so that they improve the training skills.





The director of the RPITST (Takeo) has issued the thank you letter to the master instructor





e. RPITSB (Regional Polytechnic Institute Techo Sen Battambang)

2 technical schools were involved in the training including the RPITSB and the Battambang Institute of Technology (BIT). The total number of the participants were 45. The same training was delivered in the session.





4. FIELD TRIP TO JAPAN (MARCH – APRIL 2016)

4.1. Objective

To understand and consider potential application of the Automotive Mechanics training, certification system in Japan by the key officials in MLVT

4.2. Training Content

- Automotive mechanic training system and content in Japan
- Certification system of Automotive Mechanics endorsed by the Ministry of Land, Infrastructure, Transport and Tourism (MLIT)
- Automotive inspection regulation and system
- Visit to automotive after-service business in Japan

4.3. Participants

- ① H.E. Dr. PICH SOPHOAN, Secretary of State of MLVT
- ② H.E. POK PANN, Under Secretary of State of MLVT
- ③ H.E. LAOV HIM, Directorate General of TVET (Technical and Vocational Education and Training)
- ④ H.E. BUN PHEARIN, President of NPIC (National Polytechnic Institute of Cambodia)
- ⑤ H.E. YOK SOTHY, Director of NTTI (National Technical Training Institute)
- ⑥ H.E. MOAN SAM OEURN, Director of ITI (Industrial Technical Institute)

4.4. Result

The field trip was able to provide the opportunity to understand comprehensively on the issues around automotive mechanic training and certification system. The trip visited key regulators such as JICA head office, Automotive Department of MLIT, Southern Asia Department of Ministry of Foreign Affairs, Automotive Servicing Promotion Associations of Kyoto and Shiga, the private technical schools in Japan (Automotive Mechanic Course of Youth Institute of Community Education Kyoto and Nissan Gakuen Kyoto).

On the final day, H.E Pich Sophoan has offered interest in applying training on maintenance and inspection in the automotive mechanic training curriculums in Cambodia. He understood importance of vehicle inspection and maintenance which will prevent the potential hazard before the vehicles break down in comparison to the “Repair” which occurs after the vehicles broke down. The current training programs in Cambodia focus on the repair but he insist the inspection and maintenance is important for reduce the breakdown.

He addressed the possibility to develop the new training center focused on the automotive inspection and maintenance based on the know-how from Japan in order to address the traffic issues in Cambodia.

The following was his comment on the media coverage after he was back from the field trip. His comment shows the trip had positive impact on addressing the traffic issues in Cambodia and promote further cooperation between Cambodia and Japan.

“It was successful trip for me. The related agencies in Japan has expressed support to address the automotive maintenance issues in Cambodia. In Japan, I have notice more emphasis is put on “Inspection” and “maintenance” in order to prevent the breakdown, not just skill in the repair after the vehicles are broken down. I would like to engage the inspection and maintenance in the training curriculums in Cambodia. From that, I believe we can address raising issues of traffic accidents.”

4.5. Gains from the trip by the participant’s

The delegates has gained many insights on the automotive inspection and maintenance system from the trip as it shows the comment of H.E Pich Sophoan described in the 4.4.

4.6. Action Plan after the trip

Since the trip was held towards the end of the project, no action will be taken during the project. However, the new project which focus on the development of the certification system for automotive mechanics and inspection is necessary to develop as the follow-up project.

5. DEVELOPMENT OF TEXTBOOK (JUL – SEPT 2016)

The certification of the automotive mechanic in Japan is the national license that the licensed mechanic can only be able to involve in the repair works. In turn, the certification system in Cambodia is currently a diploma that the mechanic do not necessary hold the certification to work at the garages.

The certification has generally 4 levels in Japan. Among the level, it is expected that the students shall learn starting from the Level 3 of Japan standard which is the base skill for all the mechanical work. As such, the project improved the textbook with updated translation and digitalized the Level 3 of the automotive mechanic textbook in Japan.

Also, the English-Japanese-Khmer dictionary that covers 3,649 words related to the automotive mechanic has also developed as improved version from the JICA's past project and transformed to the digital version.

The set of the textbooks will be donated to the MLVT along with the training guides.

• **Automotive Mechanic: Level 3**

Goal: Mechanic understand basic structure and repair of the each component

- Automotive Mechanics Level 3: Body ⇒ Translated in Khmer with Digital Textbook
- Automotive Mechanics Level 3: Petrol Engine ⇒ Translated in Khmer with Digital Textbook
- Automotive Mechanics Level 3: Diesel Engine ⇒ Translated in Khmer with Digital Textbook
- Automotive Mechanics Level 3: Motorbike

6. GOING FORWARD : ACTION PLAN DEVELOPMENT (JUN-SEPT 2016)

6.1. Training

MLVT continue to request for supporting the capacity development for the automotive mechanic training. RJG also willing to continue to work with MLVT on this matter.

Since the training cannot charge high fee from the students as the most of them do not has capacity to pay for the training. As such, the training projects are considered to be more on the base project that leads to other businesses such as human resource support or auto after-service businesses. The cost of the training project will be covered by the income from the other business.

Also, there are possibility to develop internship program to send the automotive mechanic students to Japan to gain practical experience in the garages in Japan.

6.2. Human Resource Support

Human Resource Support business provide support to the car dealers and automotive garages who are looking for the skilled mechanics to introduce well educated & skilled mechanics at ease. The income is generated from the introduction fee earned by placement the staff. The business is based by the skill training to the automotive mechanics.

From the training project on 6.1, RJG will develop the list of staff educated from the training. The potential staff is introduced from the list of the graduates or certified mechanics so that the automotive garages and dealers can easily identify the staff at their desired level.

According to the hearings to the local car dealers and garages, there are still difficulties in finding the well-educated, skilled mechanics. The following is the comment from the stakeholders regarding to the hiring of the automotive mechanics.

Issues in Hiring Mechanics

- The hired mechanic do not hold sufficient basic knowledge and requires to further educate the staff by themselves after hiring (Car Dealer)
- Lack of understanding on the electrical skill (Auto Garages)
- Lack of staff willing to work in the provinces (Car Dealer)
- Staff often pulled out by the competitor (Car Dealer)
- Lack of potential staff willing to work technical & engineering work (HR company)

As the comment from the stakeholder revealed above, there are several issues facing by the garages and dealers for the hiring of the automotive mechanics. This indicate there are potential to pay a for the introduction and placement services. If the graduates of the automotive mechanic would be certified clearly by their skill level, the companies can feel easier to hire the staff.

Also, the mechanic is also in demand not only at dealers or garages but also car care shops and quick service shops which is started to emerge as motorization progress. In addition, the demand of mechanic is further extended to any other industrial machineries businesses such as agriculture machines, generators etc. indicating that there are larger potential for business expansion.