

**COMPLETION REPORT** 

# PD 722/13 Rev.1 (I) CAPACITY BUILDING ON REDUCED IMPACT LOGGING (RIL) IN DRY INLAND FOREST IN THE PERMANENT FOREST RESERVE OF PENINSULAR MALAYSIA

Implementing Agency: Forestry Department Peninsular Malaysia (FDPM) Jalan Sultan Salahuddin 50660 Kuala Lumpur

### **COMPLETION REPORT**

Title	PD 722/13 Rev.1 (I) Capacity Building on Reduced Impact Logging (RIL) in Dry Inland Forest in the Permanent Forest Reserve of Peninsular Malaysia		
Executing Agency	Ministry of Plantation,	Industries and Commodity (MPIC)	
Implementing Agency	Forestry Department P	eninsular Malaysia (FDPM)	
Collaborating Agencies	Terengganu State Fore Kayan Terengganu (KF	estry Department and Kumpulan Pengurusan Kayu PKKT)	
Actual Duration	12 months (extended t	o 16 months)	
Project Cost	ITTO	US\$ 226,041.00	
	GoM (in-kind)	US\$ 288,773.00	
	Total	US\$ 514,814.00	
Project Leader	Borhanudin bin Arsha (March – Oct 2015) Ahmad Fadzil bin Abd (Nov 2015 – July 2016) Mohd Nasir bin Abu Ha (Aug 2016 – current)	d Majid assan	
Team Members	Abdul Khalim bin Abu Samah Abdul Wahab bin Deraman Amsari bin Mahmud Norzalyta binti Mohd Ghazali Roslina binti Nordin @ Mamat Mohammad Ifratshim bin Muhamad Sa'ed Fadrillalinawati binti Mohamad Nasrul Akmal bin Amaludin		

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#### EXECUTIVE SUMMARY

#### Project Context, Origin and Main Problem to be addressed

In Peninsular Malaysia, forest harvesting activities have been carried out under the Selective Management System (SMS) in order to achieve Sustainable Forest Management (SFM). Since the beginning, the utilization of crawler tractor in timber extraction had been widely accepted as the standard procedure. This is before the introduction of Reduced Impact Logging (RIL) techniques in these few decades where numerous concessionaires had ventured in RIL operated harvesting operations in line with Forestry Department Peninsular Malaysia (FDPM) effort to minimize impact to the logged forest area. However, the development of this progressive effort were met with upsetting remarks by the concessionaires whom had to bear massive cost increment due to many factors mainly due to the incompetency of workers. Therefore, addressing the issue of workers' level of skill is essential to ensure forest operation produce the least

#### **Project Objectives**

#### General Objective

To improve the efficient implementation of RIL at permanent reserved forest in Peninsular Malaysia.

#### Specific Objectives

The specific objectives of the activity are as follows:

- i. To conduct at least 11 courses for trainers and 12 courses for forest workers.
- ii. To train at least 110 trainers and 360 forest workers from all over Peninsular Malaysia on various disciplines of RIL practices.
- iii. To organize a seminar/workshop in order to increase public awareness in environment related issues.

#### Time Schedule

The project was approved to be implemented for a period of 12 months beginning from 11 March 2015 until 10 February 2016. However, a six (6) months extension without incurred additional cost was endorsed by ITTO from March 2016 to September 2016. This was to enable the completion of the remaining courses as well as to provide adequate time to organize the seminar.

#### Project Performance, Achievements and Outcome

#### Project Performance, Achievements

All activities were successfully implemented with the following outputs:

- i. 270 trainers were produced to conduct training in various RIL's related fields.
- ii. 701 forest workers were trained in various RIL's related fields.
- iii. 158 participants had attended the organized seminar.

#### Outcome

The proficiency of workers in conducting RIL's related operations have been improved their levels of knowledge and skills have been enhance through series of courses. The enhancement of skills among forest workers will contribute to lessen the impact of forest operations towards the environment thus contribute to enhance forest regeneration of logged over forest. This could possibly allow for shorter cutting cycle and lead to increase economic contribution for the country. These will eventually resulting to better management of the forest in a more sustainable manner.

#### Lesson Learnt

During the stretch of period where the project took place, several constraint could best be highlighted for future recommendation as the followings:

- i. Particular selection of participants in order to ensure individuals who attended the courses work closely related to the subject matter.
- ii. Weather consideration need to be taken into account especially when planning for training activities in forest harvesting areas, and
- iii. In order to produce qualified trainers, the participants have to be put under intensive training attachment with longer period of time.

#### Recommendations

It is recommended that the trainers produced from this project to be sent for intensive training. Through this, the selected individuals will undergo a comprehensive training regarding a subject and once the training is completed, they will become the subject matter in their respective fields.

#### 1.0 PROJECT IDENTIFICATION

#### 1.1 Context

Malaysia has been managing its Permanent Reserved Forests (PRFs) as a renewable resources under SMS since 1978. This system is based on a 30-year cutting cycle and has evolved in many aspects to minimise forest degradation and to prevent depletion of forest resources. Despite considerable progress made towards some aspects of forest management in this country, there are concerns that the implementation on the ground has to be further improved with regards to forest operations such as timber felling, handling of heavy logging machineries, forest road construction, and long cable extracting system. Based on reports from the surveillance visits to all Forest Management Unit (FMU) revealed that some aspects of noncompliances still prevailed during forest harvesting operation where poor construction of cross drain and silt traps, improper chamber, excessive earthworks and poor maintenance of drainage still occurred. Other issues that were highlighted included some basic aspects of forest development activities that were not properly conducted. In most cases the interpretation does not match the actual observation on the ground where identification of tree species, diameter at breast height (DBH) and number of logs were not accurately and consistently recorded during pre-felling and post-felling inventory record form. The main reasons are mainly due to the facts that forest workers are not competent and insufficient knowledge on the basic concept and implementation RIL on the ground.

Recognising the importance of forest resources especially timber to the nation's economic and social development, forestry department has taken various steps to further improve the operational practices especially in forest harvesting. It was noted that the effectiveness of RIL implementation on the ground requires skilled logging machineries operators as well as skilled and knowledgeable personnel. It is anticipated that skilled personnel trained through this project will be able to produce more skilled and competent workers in the future.

Under the Tenth Malaysia Plan (2011-2015) the FDPM had prepared various training programmes related to forestry including RIL for department personnel as well as private sectors throughout Peninsular Malaysia. The effort was boosted through undertaking of the 'Capacity Building on Reduced Impact Logging (RIL) in Dry Inland Forest in the Permanent Forest Reserve of Peninsular Malaysia' project jointly-funded by ITTO and Government of Malaysia. The implementation of numerous training modules for this project were carried out in Forestry Training Division (FTD), Kepong while courses related to forest operations were conducted in Terengganu Forestry Training Centre (TFTC), Kuala Berang, Terengganu. These training programmes were conducted by well-trained FDPM lecturers/instructors and senior officers in related fields.

Thus, it is expected that through the completion of this project more skilled, trained and knowledgeable forest workers are able to implement RIL effectively to fully materialised SFM as implementation of RIL can helps to reduce the density of skid trails construction and thus minimized the soil lost as well as reduces forest damage.

#### 1.2 Project Location

The project was carried out in eight (8) locations throughout Peninsular Malaysia as listed below:

- i. Terengganu Forestry Training Centre, Terengganu
- ii. Forestry Training Division, Kepong, Selangor
- iii. Forest Development Training Centre, Pahang
- iv. Bukit Bakar Forestry Training Centre, Kelantan
- v. Sungai Siput Forestry Training Centre, Perak
- vi. Construction Academy Malaysia, East Region, Terengganu
- vii. Jengai Forest Reserve, Pasir Raja, Terengganu
- viii. Cherul Forest Reserve, Bukit Besi, Terengganu

#### 1.3 Problems to be Addressed

The principal issue that the department wished to overcome when reaching out for this funding was the skill competency level as well as understanding among the forest workers whom were expected to perform forest operations on the ground, in line with RIL guidelines. It was established that most of RIL principles had been assimilated within the Malaysian Criteria and Indicator (MC&I) (Natural Forest), which every FMUs in Malaysia were made to abide by. Through the compliance of MC&I, all FMUs should have been able to practice forest operation activities closely by RIL standards. However, this has not been happening as many audited FMUs still received major Corrective Action Requests (CARs) due to non-compliances of certain criteria, indicators and guidelines.

This indicate the gap of understanding of the guidelines among forest workers as it were translated poorly through on the ground application as seen from the audit reports.

Hence, this project aims to bridge the gap by strengthening the capability and capacity of its personnel through enhancing their skill in performing forest operation activities closely by the stated guidelines. In order to ensure the sustainability of competency training for the future, it is also crucial to produce qualified trainers who are able to conduct training in the said matter. Through these actions, it is believed that RIL on the ground implementation will be better executed and thus address the issues concerned.

#### 2.0 PROJECT OBJECTIVES AND IMPLEMENTATION STRATEGY

#### 2.1 Objectives

The objectives of the project are (i) to conduct at least 11 courses for trainers and 12 courses for forest workers; (ii) to train at least 110 trainers and 360 forest workers within forest department workers and private workers from all over Peninsular Malaysia on various disciplines of RIL practices; and (iii) to organize a seminar/ workshop to increase public awareness in environmental related issues.

#### 2.2 Implementation Strategy

There were three (3) components which are critical to the successful implementation of the project as below:

- i. Signing of MoA between Kumpulan Pengurusan Kayu Kayan Terengganu (KPKKT) and FDPM. Through the signing, several training which require locations within active license sites were able to be held at KPKKT concessionaires.
- ii. Signing of MoA between State Forestry Department of Terengganu (SFDT) and FDPM. Through the signing, SFDT will expedite the licensing process under KPKKT concessionaires for the training sites.
- iii. Despite FTD and TFTC being the main venue for the execution of this project, several other training centres were also utilized to conduct courses which resources are scarce near TFTC. This strategy had also avoided from bottlenecking TFTC from hosting back-to-back courses and also allow simultaneous conduct of courses.

#### 3.0 ASSUMPTIONS AND RISK

During the project implementation, constraints that were encountered were mainly on planning the dates for training sessions where several training plan have to be postponed due to unavailability of sites or due to weather condition. As most training were held in Terengganu which is located in the east coast of Peninsular Malaysia, most training sites were restricted to monsoon season which started sometime in October and ended in January. This factor had in interrupted several training preparations and put them on hold after the monsoon season. As a result, the project lagged in schedule and caused the Project Leader to call for project extension. Therefore, if there were any similar projects to be held in the future, it is safer to avoid the monsoon season off from any site related activities and plan for other indoor activities instead.

#### 4.0 PROJECT PERFORMANCE AND ACHIEVEMENTS

### 4.1 Performance of each activity

Operational Activity	Percentage Executed	Planned Completion Date	Completion date			
Output 1: Adequate trained personnel on	RIL implementation					
Activity 1.1.Train Personnel	Activity 1.1. Train Personnel					
Sub activity 1.1.1 Collect, collate and update materials for use in preparation of training modules	100%	January 2015	January 2015			
Sub activity 1.1.2 Prepare Training Modules	100%	February 2015	March 2015			
Sub activity 1.1.3 Prepare and acquire training aids and materials	100%	March 2015	December 2015			
Sub activity 1.1.4 Prepare training reports	100%	April 2016	September 2016			
Sub activity 1.1.2 Steering Committee Meeting	100%	i. March 2015 ii. May 2016	i. April 2015 ii. Sept. 2016			
Output 2: Sufficient information related to	RIL implementation					
Activity 2.1. Organise seminar						
Sub activity 2.1.1 Conferences/ Seminar/ Workshop/ Talks	100%	February 2016	May 2016			
Sub activity 2.1.2 Information, outreach and stakeholder consultation	100%	December 2015	May 2016			
Sub activity 2.1.3 Annual audit	0%	October 2016	8 November 2016			
Sub activity 2.1.8 Project Monitoring and Administration	100%	March 2016	September 2016			

## 4.2 Outputs Achievement

#### Output 1: Adequate trained personnel on RIL implementation

Throughout the project, a total of 270 forestry officers from all over Peninsular Malaysia had attended 13 Training of the Trainers (TOT) courses held. This surpassed the initial target of 170 participants and 11 courses for the TOT.

Additionally, the courses held for forest workers also exceeded the initial target where 701 participants had attended 26 courses compared to 360 participants and 12 courses initially.

These were achievable through additional fund received due to different currency exchange rate during the first and second instalment of the project funding by ITTO.

#### Output 2: Sufficient information related to RIL implementation

In order to disseminate information related to RIL implementation thus far in Peninsular Malaysia, a seminar was held in Bangi, Selangor in 17-18 May 2016. The seminar was attended by 158 participants from all over Malaysia. The two (2) days seminar was packed with 11 paper presentations which were presented by 11 outstanding speakers from Forestry Departments of Peninsular Malaysia, State Forestry Department of Sabah and Forest Department of Sarawak, Academicians from local higher learning institutes and Researchers.

The seminar covered many important aspect of RIL such as road engineering, pre-felling activities, Incremental Cost of RIL, certification, as well as sharing of experiences of RIL implementation practices in other places.

Overall, it can be concluded that the seminar managed to provide to the participants a rounded view of RIL and put forward causes to start considering RIL thoroughly for forest operations in the future.

#### 4.3 Total Amount of Expenditures and Analysis

The Expenditure and Cash flow of the project can be Refer to Annex 1 (a) and Annex 1(b).

#### 5.0 PROJECT OUTCOME, TARGET BENEFICIARIES INVOLVEMENT

#### 5.1 Achievement of Specific Objectives

The project has managed to produce a groups of trainers who have the technical capabilities to demonstrate their skills in RIL related matter for future training purposes. Many capable forest workers both from government and private sector were also trained to conduct their daily forest operations according to RIL guidelines. Finally, the seminar managed to disseminate a huge load of eye-opening inputs which could pull the trigger for RIL total implementation in future.

#### 5.2 Participation of Targeted Beneficiaries

The training conducted for the trainers managed to gain participation from forestry officers from related positions. The courses were attended by Forest Conservators, Forest Rangers, and Foresters. Meanwhile, the courses organized for forest workers managed to gain participation from both department staffs as well as private forest workers. As for the seminar, the participation came from even more diverse group of participants from Forestry Department of Peninsular Malaysia, State Forestry Department of Sabah and Forest Department of Sarawak, Academicians from local universities, Researchers, Industry players as well as private forest workers.

#### 5.3 List of Publications

- Programme Booklet Seminar on the Implementation of Reduced Impact Logging (RIL) in Dry Inland Forest of Peninsular Malaysia, 17-18 May 2016 – English and Malay;
- (ii) Garis Panduan Penggunaan Jentera Log Fisher dalam Pengusahasilan Hutan Darat Asli dalam Hutan Simpanan Kekal - Malay
- (iii) 13 Reports of the Training of Trainers (TOT) courses English; and
- (iv) 26 Reports of the Public and Private Forest Workers courses English
- (v) Brochures and Posters related to RIL
- (vi) Article for ITTO TFU Reduced Impact Logging (RIL) FDPM-ITTO Project Achievement: Capacity Building in RIL in the Dry Inland Forests of Peninsular Malaysia

#### 6.0 ASSESSMENT AND ANALYSIS

Both project objectives were successfully achieved within the project implementation period. The execution of the planned activities and sub-activities were in accordance with the milestone and expectation outlined in the inception report. However a six (6) months no-cost extension was requested as several training had to be postponed due to the bad weather condition faced in the middle of the project implementation.

The unexpected drop in Ringgit Malaysia (RM) during the first instalment have made a huge implication towards the project. This inclination however was a good news as more allocation were received for the project expenses. With the permission of ITTO, FDPM managed to spend the excessed allocations by adding 80% more training courses to the list and boosted the number of trained individuals.

#### 7.0 LESSONS LEARNT

#### Role and Responsibilities

The project activities were monitored efficiently by the Ministry of Natural Resources and Environment (NRE) as the executing agency and the FDPM as the Implementing Agency to ensure all scheduled activities were implemented accordingly. Coordination roles played by the Project Leader was equally important to ensure all activities in the inception report were implemented smoothly according to the work plan. In addition, cooperation and participation from relevant agencies benefited the project tremendously.

#### Implementation Strategy

The signing of MoA with KPKKT had contributed largely towards the project implementation. Besides the MoA, several other agencies showed good companionship in aiding the training such as SFD Terengganu, KPKKT, Construction Academy of Malaysia (East Region) and National Institute of Occupational Safety and Health (NIOSH). These agencies had worked closely with FDPM in making the project succeed.

#### Funds

The funds received were adequate to execute all planned activities in achieving the project objectives and outputs.

#### 8.0 CONCLUSION AND RECOMMENDATIONS

Based on the activities undertaken, it could be concluded that the project on "Capacity Building on Reduced Impact Logging (RIL) in Dry Inland Forest in the Permanent Forest Reserve of Peninsular Malaysia" was successfully implemented. It is recommended that the trainers produced throughout the project to be monitored and their performance knowledge and skills on RIL's practices be enhanced periodically.

In order to ensure sustainability of qualified trainers for future training purposes, it is highly recommended that a group of highly trained SMEs to be formed and recognized by the department. This will safeguard the longevity of precise technical knowledge and skills to be passed down for future forest guardians.

## Annex 1(a) : Activity Financial

### UNAUDITED ACTIVITY FINANCIAL STATEMENT (In US Dollar)

	Original Expenditure To-date			Available	
Component	Amount	Accrued	Expended	Total	Funds
	(A)	(B)	(C)	(D)	(E)
L Fund managed by Executing Ager		D/		{B+C}	{ A - D }
10. Personnel					
11. Resource Person	40,733.13		40,596.30	40,596.30	136.83
12. Specialist	18,000.00		18,000.00	18,000.00	0.00
12. Information Sheet					
o Brochure(500)					
o Banner (4)	2,630.87		2,630.87	2,630.87	0.00
o Bunting (4)					
o Poster (TTA)					
19. Component Total	61,364.00		61,214.01	61,214.01	149.99
1. Travel					
31.1 Meals					
31.3 Accommodations					
33. Local Transport					
2. Local Transport					
31.1 Meals - seminar	15,100.00		14,786.93	14,786.93	313.07
31.3 Accommodations					
33 Local Transport					
39. Component Total	15,100.00		14,686.93	14,686.93	413.07

40: Capital Items				
44. Field Training Materials (110)	13,710.56	13,710.56	13,710.56	0.00
64. Forestry EquipmentoChainsawoWalkie-talkieoClinometeroMeasuring TapeoHoeoSpade	7,139.44	7,129.75	7,129.75	9.69
49. Component Total	20,850.00	20,839.62	20,839.62	10.38
50: Consumable Items				
51. Raw Materials (Fuel)	662.00	463.25	463.25	198.75
54. Office Supplies				
a. Video camera	1,600.00	1,388.35	1,388.35	201.65
b. Stationery	4,550.00	4,547.41	4,547.41	2.59
55. Forestry Engineering Materials (FDPM)				
o Culverts				
o Timber for Bridge				
o Crusher run				
o Sand				
59 Component Total	6,812.00	6,349.01	6,349.01	462.99
60: Miscellaneous				
60 Miscellaneous	3,627.30	3,627.30	3,627.30	0.00
61 Steering Committee Meeting	1,271.76	1,271.76	1,271.76	0.00
62 Audit				
63 Contingencies	2,062.76	2,052.24	2,052.24	10.52
64 Forestry Equipment (Rental) o Crawler Tractor/ Bulldozer o Logfisher o Excavator o Motor Grader o Shovel (Wheel Loader)	69,634.18	70,266.30	70,266.30	(632.12)
69 Component Total	76,596.00	77,217.61	77,217.61	(621.61)

80: Project Monitoring & Administration					
80 ITTO Programme Support cost (12% of 10-80)	24,219.00		-	-	24,219.00
81 ITTO Monitoring & Review	20,000.00		-	-	20,000.00
89 Component Total	44,219.00		-	-	44,219.00
100. Grand Total :	224,941.00	-	180,307.18	180,307.18	44,633.82

Note: Budget Components are those detailed in the Activity Document.

- a/ Weighted average exchange rate USD to MYR ~ RM3.645 RM3.963 (may vary)
- b/ The **Cash Flow Statement must be completed first**, before the other inputs into this Financial Statement;
- c/ Accrued expenditure: expenditures incurred during the reporting period, but not yet settled;

Amounts under the "Expended" column will be transferred automatically from the Cash Flow Statement (with direct link); and

d/ Refer to the notes in the Cash Flow Statement for the supporting **information and documents** that are to be submitted to the ITTO Secretariat.

Annex 1(b) : Activity Cash Flow

Component	Refer		Expenditure		
Component	ence	Dale	(USD)	(RM)	
A. Fund received from ITTO:					
1. First instalment		11.03.2015	119,995.00	437,381.78	
2. Second instalment		16.05.2016	60,717.00	240,621.47	
TOTAL RECEIVED :			180,712.00	678,003.25	
B. Expenditure					
10. Personnel					
11. Resource Person			40,583.14	149,538.34	
12. Specialist			18,000.00	65,610.00	
12. Information Sheet					
o Brochure (500)					
o Banner (4)			2,630.87	9,590.00	
o Bunting (4)					
o Poster (TTA)					
19. Component Total			61,214.01	224,738.34	
1. Travel					
31.1 Meals					
31.3 Accommodations					
33. Local Transport					
2. Local Transport					
31.1 Meals - seminar			14,686.93	58,680.00	
31.3 Accommodations					
33 Local Transport					
39. Component Total			14,686.93	58,680.00	
40: Capital Items					
44. Field Training Materials (110)			13,710.56	49,975.00	

## UNAUDITED ACTIVITY CASH FLOW STATEMENT (In US Dollar)

64. Forestry Equipment		
o Walkie-talkie	7 100 0/	2/ 415 00
o Clinometer	/,129.06	26,415.00
o Measuring Tape		
o Hoe		
	20 839 62	76 390 00
49. Component Total	20,007.02	10,070.00
50: Consumable Items		
51. Raw Materials (Fuel)	463.25	1,725.00
54. Office Supplies		
a. Video camera	1,338.35	5,097.00
b. Stationery	4,547.41	16,575.30
55. Forestry Engineering Materials (FDPM)		
o Culverts		
o Timber for Bridge		
o Crusher run		
o Sand		
59 Component Total	6,349.01	23,397.30
60: Miscellaneous		
60 Miscellaneous	3,627.30	14,375.00
61 Steering Committee Meeting	1,271.76	5,040.00
62 Audit		
63 Contingencies	2,052.24	7,975.00
64 Forestry Equipment (Rental)   o Crawler Tractor/ Bulldozer   o Logfisher (2 unit)   o Excavator   o Motor Grader	70,266.30	265,803.30
	77 017 41	203 103 30
69 Component Total	//,21/.01	273,173.30
80: Project Monitoring & Administration		
80 ITTO Programme Support cost (12% of 10-80)		
81 ITTO Monitoring & Review		

89 Component Total		-	
Total expenditures to-date		180,307.17	676,398.94
Remaining balance of funds (A-B)		404.82	1,604.31

Note: Budget Components are those detailed in the Activity Document.

- a/ Weighted average exchange rate USD to MYR ~ RM3.645 RM3.963 (may vary)
- b/ The **Cash Flow Statement must be completed first**, before the other inputs into this Financial Statement;
- c/ Accrued expenditure: expenditures incurred during the reporting period, but not yet settled;

Amounts under the "Expended" column will be transferred automatically from the Cash Flow Statement (with direct link); and

d/ Refer to the notes in the Cash Flow Statement for the supporting **information and documents** that are to be submitted to the ITTO Secretariat.

No.	Course Title	Date	Venue	No. of participant
1	Dendrology of the Dipterocarp Family	6-9 April 2015	FTD*, Kepong	13
2	Forest Mensuration	13-16 April 2015	FTD, Kepong	9
3	Dendrology of the Non Dipterocarp Family	20-23 April 2015	FTD, Kepong	21
4	Tree Marking	4-7 May 2015	FTD, Kepong	17
5	Logfisher Handling	4-7 & 11-14 May 2015	TFTC**	25
6	Directional Tree Felling Techniques	25-28 May 2015	Jengai FR***	21
7	Chained Heavy Machineries Handling	31 May - 4 Jun 2015	CAM****	19
8	Wheeled Heavy Machineries Handling	8-10 & 14-15 Jun 2015	CAM	19
9	Chainsaw Handling and Maintenance	27-30 July 2015	TFTC	21
10	Planning, Construction and Maintenance of Forest Road	17-20 Aug 2015	TFTC	42
11	Log Identification	7-10 Sept 2015	Bukit Bakar FTC*****	24
12	Occupational Safety and Health	15-19 Nov 2015	TFTC	9
13	Forest Harvesting using Logfishing System in RIL	15-19 May 2016	Cherul FR	30
		Total		270

Annex 3(a) : List if Courses for Trainers (ToT)

\* Forestry Training Division \*\* Terengganu Forestry Training Centre \*\*\* Forest Reserve \*\*\*\* Construction Academy Malaysia \*\*\*\*\* Forestry Training Centre

Annex 3(b): List if Courses for Forest Workers

No.	Course Title	Date	Venue	No. of participant
1	Dendrology of the Dipterocarp Family	10-13 Aug 2015	TFTC	32
2	Dendrology of the Non Dipterocarp Family	16-19 Nov 2015	Belimbing FTC	24
3	Survey and Demarcation of Forest Boundaries	19-22 Oct 2015	Sungai Siput	28
4	Tree Marking	16-19 Nov 2015	Bukit Bakar	29
5	Forest Mensuration	17-20 Aug 2015	Belimbing FTC	28
6	Log Identification	5-8 Oct 2015	Belimbing FTC	31
7	Chainsaw Handling and Maintenance	7-10 Sep 2015	TFTC	38
8	Forest Road Planning, Construction and Maintenance	19-22 Oct 2015	TFTC	38
9	Occupational Safety and Health	29 Nov -3 Dec 2015	TFTC	20
10	Wheeled Heavy Machineries Handling	27 Sep –1 Oct 2015	TFTC	31
11	Chained Heavy Machineries Handling	4-8 Oct 2015	TFTC	25
12	Logfisher Handling	3-6 Aug 2015	TFTC	21
13	Directional Tree Felling Technique	26-29 Oct 2015	Jengai FR	32
14	Entension Course on Chained Heavy Machineries	18-23 Dec 2015	TFTC & CAM	23
15	Entension Course on Wheeled	18-23 Dec 2015	TFTC & CAM	30
16	Forest Harvesting using	22-26 May 2016	Jengai FR	30
17	Extension Course on Wheeled and Chained Heavy Machineries	12-17 Feb 2016	TFTC & CAM	27
18	Basic Maintenance of Wheeled	6-10 Mar 2016	TFTC	17
19	Basic Maintenance of Chained	20-24 Mar 2016	TFTC	16
20	Basic Handling of Wheeled Heavy Machineries for Forest Operations and Enforcement in	20-24 Mar 2016	TFTC	21
21	RIL Basic Handling of Chained Heavy Machineries for Forest Operations and Enforcement in RIL	6-10 Mar 2016	TFTC	29
22	Geographic Information System in RIL	19-22 Apr 2016	HQ FDPM	21
23	Forest Road Guideline using Logfisher in RIL	30 May-1 Jun 2016	TFTC	31

24	Competency Accessment on Wheeled & Chained Heavy Machineries Handling in RIL Series 1/2016	21-25 May 2016	TFTC&CAM	25
25	Competency Accessment on Wheeled & Chained Heavy Machineries Handling in RIL Series 2/2016	27 July-1 Aug 2016	TFTC&CAM	19
26	Extension Course on Handling of Wheeled & Chained Heavy Machineries for Forest Operations and Enforcement in RIL Series 2/2016	29 July-3 Aug 2016	TFTC&CAM	35
27	Competency Accessment on Wheeled & Chained Heavy Machineries Handling in RIL Series 3/2016	17-21 Aug 2016	TFTC&CAM	25
		Total	_	726







Annex 5: Participation based on origin for trainers (TOT).



Annex 6: Participation based on origin for forest workers.

Annex 7: List of Paper Presentation during the 'Seminar on Implementation of Reduced Impact Logging in Peninsular Malaysia'

No.	Presenter	Paper Title
1.	Borhanudin bin Arshad Forestry Department Peninsular Malaysia	Future of Reduced Impact Logging in Peninsular Malaysia
2.	Abdul Khalim bin Abu Samah Forestry Department Peninsular Malaysia	Reduced Impact Logging (RIL) FDPM-ITTO Project Achievement: Capacity Building in RIL in the Dry Inland Forests of Peninsular Malaysia
3.	Faizah binti Mohamad Forestry Department Peninsular Malaysia	Forest Road Guideline in Reduced Impact Logging Activities
4.	Dr.Affendi bin Suhaili Sarawak Forestry Fepartment	Observation Technique in the Implementation of Reduced Impact Logging using Medium Resolution Image Data
5.	Paul Leo Lohuji Sabah Forestry Department	Experience in Implementation of Reduced Impact Logging in Sabah
6.	Dr.Samsudin bin Musa Forest Research Institute of Malaysia	Formation of Silvicultural Felled Tree Selection System for Production Forest Management
7.	Dr. Khali Aziz bin Hamzah Forest Research Institute of Malaysia	Implementation of Reduced Impact Logging Activity in Peat Swamp Forest
8.	Prof.Dr.Shahwahid bin Othman Universiti Putra Malaysia	Incremental Cost of Reduced Impact Logging
9.	Dr.Norizah binti Kamarudin Universiti Putra Malaysia	Forest Management Planning for Reduced Impact Logging Activity
10.	Siti Syaliza binti Mustapha Malaysian Timber Certification Council	Importance of Reduced Impact Logging in MTCS Certification
11.	Dr. Ismail bin Parlan Forest Research Institute of Malaysia	Optimum Harvesting Regimes in Peat Swamp Forest of Peninsular Malaysia by Using Reduced Impact Logging Method