



PROJECT ANNUAL REPORT

January 2018 to December 2018

<Project Profile>

Project Code	AFoCo/010/2016
Project Title	Domestication of Endangered, Endemic and Threatened Plant Species in Disturbed Terrestrial Ecosystem in Malaysia and Thailand
Project Duration	Start date: 19 May 2016 End date: 18 May 2022
Implementing Agency	Forest Research Institute Malaysia (FRIM)
Proponent Country	Malaysia
Project Site	FRIM Research Station at Bidor, Perak
Target Area¹	Primary Target Area: Initiating customized restoration and reforestation models Secondary Target Area: Strengthening institutional capabilities, diversifying resources, and promoting regional actions
Budget and Source of Finance	Total: US\$ - AFoCO: US\$ 6,000,000 - National budget: US\$ 2,947,470 - Others: US\$ Nil
Annual Budget and Source of Finance	Total: US\$ - AFoCO: US\$ 153,720.00 - National budget: US\$ 491,246.00 - Others: US\$ Nil

¹ Refer to the list of target areas which is in accordance with the objectives and prevailing strategic plan of AFoCO (provided by the Secretariat).

<Implementing Agency Profile>

Name	Forest Research Institute Malaysia (FRIM)	
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Project Manager	Dr Ang Lai Hoe	
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Project Members	Dr Ho Wai Mun	Collection and analysis of data, organizing of seminar/workshop, annual and financial reporting, preparation for external auditing
	Ms Tang Lai Kuen	Collection of data, assist in organizing of seminar/workshop, assist in financial reporting

Notes to the Authors & Readers

The project annual report intends to support the Implementing Agency (IA) exercise good management by providing regular, timely and relevant information on the project's progress and achievement. The report also aims to provide a tool for the senior management of the IA and the AFoCO, including the Assembly and the Secretariat, to review, assess and provide guidance in the progress of project implementation.

The project annual report should include the description of activities started or completed during the period covered, and the costs incurred. The report will also elaborate the technical and scientific data used, their analysis, and results/recommendations. The report is recommended to provide elaborations on the achievements following the given format, however the addition or revision of items is allowed in pursuit of more effective and transparent delivery of project results.

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1. Project Overview

(To include objectives and expected outputs from the Project Document, and expected outputs of the year)

Executive Summary

Malaysia and Thailand are a mega-biodiversity landscape and the rapid development and changes of climate had inevitably caused degradation of terrestrial ecosystems. The problem of forest degradation and potential biodiversity loss is critical and Malaysia and Thailand are addressing the problems through research and development activities. Domestication of endangered, endemic and threaten species (EETS) is one of the effective approaches to conserve the germplasm. The Malaysia-Thailand project aims to strengthen bilateral cooperation between the two nations focused on biodiversity conservation, domestication and eco-tourism through pilot testing, workshops on best practices and technology transfer and capacity development.

Immediate Objectives

- To domesticate national red-list species in both countries
- To strengthen cooperation between Malaysia-Thailand on conservation of biodiversity, domestication techniques and technology transfer.
- To exchange knowledge and lessons learned on best practice of rehabilitation and biodiversity conservation.

Expected Outputs

- At least 2 to 5 species of EETS shall be domesticated per year through the cooperation between Malaysia-Thailand.
- Country report of the project is documented and shared through regional workshops.
- Capacity building through short-term training course, internship programme, and publications.

Expected Outputs of 2018

- GPS mapping of a 3 ha area and GPS map developed.
- Planting of 3 ha with endemic, endangered and threatened species.
- Site properties of 3 ha are documented.
- Publication of at least 1 journal paper and 2 proceedings papers.

2. Implementation Progress

2.1 Overall Progress & Review of Performance

(To indicate the state of progress in tabular form.)

Activity No.	Activity	Timeline	Performance Indicators		Percentage Executed	Progress Description
			Baseline	Achieved		
Output 1						
A	Site Characteristics					
A.1	Site characterization	Dec 2018	Site selection and marking	Site of 3 ha selected. GPS mapping for 2 ha completed.	65%	Mapping has been delayed due to discovery of a big depression in the previously selected site. Thus, a new site was chosen and mapping has to be done all over. The map is expected to be developed by April 2019.
A.2	Procurement of EETS	Dec 2018	Procurement of seedlings, site preparation, planting and tending have been grouped into one single procurement in accordance to national procurement rules.	Letter of Appointment (LoA) for contractor was only issued in 21 Feb 2019. Site preparation started on 1 Mac 2019.	30%	Procurement Branch has nullified the first application and thus a second application was submitted. This caused delay in the internal procurement process. However, site preparation and planting are expected to be done within two months after appointment of contractor by May 2019.
A.3	Establishment of model plots					
A.4	Documentation of site properties	Dec 2018	Assessment of plant growth and determination of site properties.	Plant growth monitored and soil sampling is completed.	40%	Soil samples will be processed and sent to laboratory for analysis. Results of analysis are expected to be produced by October 2019.
Output 2						
B	Regional Seminar					
B.1	NA					
Output 3						
C	Technology Transfer and Capacity Development					
C.1	Cross visits	May 2018	Cross visit to Mount Makiling, Philippines and Bogor Botanical	Cross visit to Mount Makiling Forest Reserve & Botanical	100%	Visit to Mount Makiling and University of Philippines Los Baños was made together with Royal Forest Department (RFD), Thailand. The

			Gardens, Indonesia have been planned.	Garden, Los Baños was carried out on 15-19 Jan 2018 while visit to Bogor Botanical Gardens was conducted on 2-5 Mac 2018.		purpose of these visits were to enhance the knowledge of implementing agencies on the use, survival and silviculture of tropical species, particularly endangered or threatened species, in rehabilitation and for conservation.
C.2	Knowledge and technology transfer	May 2018	Publication of pamphlet.	A pamphlet has been designed by project members. A total of 300 pamphlets have been printed.	100%	One pamphlet on AFoCo activities in Malaysia (2016-2017) has been printed. The pamphlet has been distributed including during Regional Workshop in Chiang Mai in 2018. Website of Malaysia will be incorporated into Thailand's webpage. Link to Proceedings of Regional Workshop 2017 has been shared with Thailand for this purpose.
Output 4						
D	Local Operation					
D.1	External auditing	May 2018	Submission of external financial audit report.	Audit reports for both Malaysia and Thailand were available in November 2018.	100%	External financial audit reports were delivered by hand to AFoCO Secretariat during 4 th PCM. The reports were delayed as the auditor was busy with other jobs. There were also some misunderstandings on the use of certain terms example 'commitment', which is not used in accounting.
D.2	Attending overseas meeting	Nov 2018	Attending national or international seminars	Attended: 1) 7 th Kuala Lumpur International Symposium on Plant-Soil Interactions at Low pH, Putrajaya, 25-28 Jun 2018. 2) 28 th Malaysian Society of Plant	100%	1) 2 proceedings papers were published. 2) 2 posters presented and will be

				Physiology Conference (MSPPC 2018), 28-30 Aug 2018, Kota Bharu. 3) Regional Workshop, Chiang Mai, 29-30 Nov 2018.		published in a transaction in 2019 3) Three officers attended the Regional Workshop held by RFD. Dr Ang was the Keynote Speaker and Panel while Dr Ho was the Moderator for Panel Discussion.
D.3	Project Coordination Meeting	Nov 2018	Attending 4 th PCM in Lampang, Thailand	Attended the 4 th PCM 26-28 Nov 2018.		Three officers attended the 4 th PCM. Work and budget plan was presented and important issues were discussed. The delegates also visited the project site in Mae Moh Mine.
D.4	Annual report	Mac 2018	Submission of annual report including financial report.	Annual report and financial report are being prepared since Jan 2019.		The annual report and financial reports are expected to be submitted by March 2019. Malaysia shall compile the reports from Thailand before submitting to AFoCO Secretariat as agreed in 4 th PCM.
D.5	Miscellaneous	NA				

*Note: NA – Not Applicable

2.2 Key Decisions of PSC undertaken

(To summarize key decisions made to address issues and guide the project during PSC meetings organized during the reporting period)

Main Issues	Decisions	Follow-up Actions
PCM	The 5 th and 6 th PCM will be held in Malaysia. The Regional Workshop to be organized back to back before or after 6 th PCM.	Malaysia to prepare for PCM and Regional Workshop.
Project monitoring	Project monitoring will be organized after planting in 2019.	Malaysia to inform AFoCO Secretariat when planting is completed.
Budget	Implementing countries can interchangeably transfer remaining budget between project activities categories.	Malaysia and Thailand to report on any transfers in budget during PCM.
Submission of reports	Leading country (Malaysia) to compile progress and annual reports before submission to AFoCO Secretariat. Annual report 2018 including financial report to be submitted by March 2019	Malaysia to compile annual and progress reports from 2019.

3. Issues & Lessons Learned

(To describe the issues encountered and lessons learned during the reporting period in bullet points – a short paragraph for each issue identified and any action taken to address that issue and lessons learned thereof.)

No.	Description of Issues	Actions Taken and Lessons Learned
1.	<p><u>Attack by wild boars</u> Encroachment and attack of seedlings/ saplings by wild boars causing loss of plants and cost by refilling.</p>	<p>A wild boar perimeter fence measuring 1.2 km was established in June 2018 to prevent the encroachment of the wild boars.</p>
2.	<p><u>Procurement process</u> The process can take a long time due the various verification steps. One of the procurement which has been delayed since 2016 is the procurement of a weather station for monitoring of microclimate. The fluctuation of market prices for the instrument has caused rejection by internal evaluation committee due to higher price compared to budgeting amount.</p>	<p>There is no other way as procurement above RM20,000 must abide by the standard government procedure. Therefore, market prices have to be surveyed and compared prior to application in order to obtain prices close to budgeted amount.</p>
3.	<p><u>External auditing</u> The process needs more time than expected. The auditor was also busy with other jobs which have delayed the auditing of this project.</p> <p>There were also some misunderstandings on the use of certain terms example 'commitment', which is not used in accounting.</p> <p>There were two different conversion rates which has also caused confusion to the auditor despite several meetings.</p>	<p>More auditing companies should be considered in the future to ensure that auditing can be finished on time.</p> <p>The account has been reviewed by FRIM accountant before being re-submitted to the auditor. The accountant has helped in moderating the process, refining the reporting format and checking the drafts of audit report. Project members will continue to consult FRIM accountant in the future for preparation of financial reports (progress / annual).</p> <p>There will be a number of conversion rates in the future and thus the use of average rate has been suggested by FRIM accountant to reduce complexity only during reporting.</p>
4.	<p><u>Site selection</u> There was no issue on site selected encountered in the first planting in year 2017. However, discovery of a huge depression in the second site selected has caused delay in mapping and determination of site properties as plants cannot be planted in the depression.</p>	<p>A new site without depression was selected subsequently. Future mapping and soil sampling should only be conducted after the condition of whole selected site has been ascertained.</p>

4. Outcome and Impact of Project Activities

(To describe the outcome and/or impact from the implementation of project activities)

Activities of rehabilitation and experiences in conservation through this regional AFoCo project since 2016 has been recognized at both national and international levels. With the Regional Seminar held in 2017, a total of 8 ASEAN countries have participated and has successfully aggregated information on similar works in a Proceedings. Since then, officers involved in this project have been invited as speakers in seminars and other events. These include the Regional Workshop in Chiang Mai in November 2018 and National Landscape Day in Putrajaya in February 2019. As the project is only less than three years, more activities and impacts will be observed later including environmental benefits.

5. Conclusion and Recommendation

(To provide the conclusion reached on the state of project implementation, based on the analyses made above. To also recommend any corrective actions or adjustment necessary for the achievement of the project's objectives.)

The Project Leader and members of this Project deeply regret the delay in procurement activities including procurement of seedlings and planting scheduled in 2016 and 2018. As national rules and regulations must be strictly abided to avoid any misconduct, all involved in this project will continue to expedite the necessary process in order to achieve the planned targets. Despite some delays, all planned targets have been achieved. External auditing on the finance of this project has concluded that all activities and cash flows for 2016-2017 were in conformity with approved accounting standards in Malaysia.

The decision during the 4th PCM that implementing countries can interchangeably transfer remaining budget between project activities categories is an important move that will allow flexibility in expenditures. This is because fluctuation in prices and exchange rates is difficult to be predicted. In another example, careful negotiation with seminar package provider has reduced package prices and absence of two international participants has contributed to lower expenditure during organizing the Regional Seminar in 2017. The access fund from that activity has been used in activities of other categories which may further benefit the project.

The project would also benefit with more participation from Korean counterparts in the future. Research agencies as well as universities are welcome to conduct their studies in the AFoCo planting sites as this will not only allow transferring of technology and experiences but also enhancing the role of the Republic of Korea, through AFoCO, with her success in rehabilitation and conservation.

6. Photo records

(To provide relevant project photos with proper description. The photos should include project site photos of before, during and after implementation of project activities. The original electronic files of the photos used in this section should also be submitted.)

Activity A.2: Procurement of EETS



A site visit by the Procurement Branch and potential contractor was guided by Dr Ang LH (in yellow boots) on 13 September 2018. The visit was planned so that potential contractor can quote the appropriate price for supplying of seedlings, planting and tending works.



A second site visit with different potential contractors was organized by the Procurement Branch on 4 December 2018 guided by Dr Ang (in blue cap).



As indicated in 'Issues and Lessons Learned', the project site was constantly encroached by wild boars and as a result, some plants were broken or destroyed (left). At the moment, a perimeter fence using orchid netting (right) was set up around the plot to prevent the encroachment of these wild boars.

Activity A.3 Establishment of model plots



Tending of trees planted in 2017 continued until April 2018. The works included chemical weeding (top left), application of fertilizer (top right) and loosening of soil (bottom).

Activity C.1: Technology Transfer and Capacity Development



A cross visit to Bogor Botanical Gardens in Indonesia was conducted on 2-5 March 2018

Domestication of Endangered, Endemic and Threatened Plant Species in Disturbed Terrestrial Ecosystem in Malaysia and Thailand

This regional project was initiated in April 2014 during the 4th Session of the Governing Council of the Agreement on ASEAN-ROK Forest Cooperation. The partnership between two implementing agencies, Forest Research Institute Malaysia and Royal Forest Department of Thailand, aims to develop and transfer domestication techniques for endangered, endemic and threatened tropical forest tree species for a period of 6 years from 2016-2022.

Prior to planting, the site was mapped to ascertain location & species of existing trees

For Malaysia, the 3-ha project site is located on an ex-tin mine in Bidar, Perak. A total of 10 species listed in the national red list have been selected and planted as ex-situ conservation effort.

Planting was completed in April 2017 but refilling and tending activities continued to ensure the survival and growth of healthy plants.

Soil samples were collected from the site to determine both physical and chemical properties

Apularkia malaccensis

Dipterocarpus chartaceus

Dryobalanops oblongifolia

Hopea ferruginea

Hopea helferi

Malaysia

Inception Meeting held in Lampang marked the beginning of this partnership followed by 1st Project Committee Meeting in Kuala Lumpur

As part of the project's objectives, knowledge sharing and technology transfer are realized through workshop, seminar and publications.

A regional seminar on "Reclamation, Rehabilitation and Restoration of Disturbed Sites" was held 15-17 August 2017 in Kuala Lumpur. The seminar was attended by various professions including researchers, academicians, administrators and private sector from ASEAN countries.

Prepared by: W.M. Ho, L.H. Ang, L.K. Tang

Lagerstroemia angkowiensis

Meibomia hemslii

Palaquium mangayi

Shorea glauca

Shorea sumatrana

Malaysia

A leaflet on the background and progress (2016–2017) of the project has been published. This leaflet will be circulated to visitors of the research site and to all interested parties / stakeholders.

Activity D.1: External Auditing

 <p>REPORT OF THE AUDITORS TO THE REPRESENTATIVE OFFICER OF FOREST RESEARCH INSTITUTE MALAYSIA</p> <p>We have audited the accompanying statement of financial position of the project "DOMESTICATION OF ENDANGERED, ENDEMIC AND THREATENED PLANT SPECIES IN DISTURBED TERRESTRIAL ECOSYSTEM IN MALAYSIA AND THAILAND" as of 31 December 2017 and the related statements of activities and cash flows statements for the year then ended. These financial statements are the responsibility of Forest Research Institute Malaysia's management. Our responsibility is to express an opinion on these financial statements based on our audit.</p> <p>We conducted our audit in accordance with approved auditing standards in Malaysia. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by the management of Forest Research Institute Malaysia, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.</p> <p>In our opinion, the financial statements audited by us present fairly, in all material respects, the financial position of the project "DOMESTICATION OF ENDANGERED, ENDEMIC AND THREATENED PLANT SPECIES IN DISTURBED TERRESTRIAL ECOSYSTEM IN MALAYSIA AND THAILAND" at 31 December 2017, and the results of its activities and cash flows for the year then ended, and are in conformity with applicable approved accounting standards in Malaysia.</p> <p><i>Chase Hassan Razi</i> KHAIRUDDIN HASYUDEEN & RAZI AF1611 Chartered Accountants</p> <p><i>Ahmad Khairuddin Salleh</i> Ahmad Khairuddin Salleh 1574/03/19 (J) Partner of the Firm</p> <p>Kuala Lumpur Dated: 12 November 2018</p> <p>Page 1</p> <p>B-5-7 Megan Avenue II 12, Jalan Yap Kwan Seng 50455 Kuala Lumpur Malaysia Tel: +603 2710 7117 Fax: +603 2718 7227 Website: www.khiraudit.com.my E-mail: chartered@khiraudit.com.my KUALA LUMPUR - ALOR SETAR - KOTA BHARU - MELAKA</p> <p>Linking Strategy to Value</p>	 <p>REPORT OF THE AUDITORS TO THE REPRESENTATIVE OFFICER OF FOREST RESEARCH INSTITUTE MALAYSIA</p> <p>We have audited the accompanying statement of financial position of the project "DOMESTICATION OF ENDANGERED, ENDEMIC AND THREATENED PLANT SPECIES IN DISTURBED TERRESTRIAL ECOSYSTEM IN MALAYSIA AND THAILAND" as of 31 December 2016 and the related statements of activities and cash flows statements for the period then ended. These financial statements are the responsibility of Forest Research Institute Malaysia's management. Our responsibility is to express an opinion on these financial statements based on our audit.</p> <p>We conducted our audit in accordance with approved auditing standards in Malaysia. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by the management of Forest Research Institute Malaysia, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.</p> <p>In our opinion, the financial statements audited by us present fairly, in all material respects, the financial position of the project "DOMESTICATION OF ENDANGERED, ENDEMIC AND THREATENED PLANT SPECIES IN DISTURBED TERRESTRIAL ECOSYSTEM IN MALAYSIA AND THAILAND" at 31 December 2016, and the results of its activities and cash flows for the period then ended, and are in conformity with applicable approved accounting standards in Malaysia.</p> <p><i>Chase Hassan Razi</i> KHAIRUDDIN HASYUDEEN & RAZI AF1611 Chartered Accountants</p> <p><i>Ahmad Khairuddin Salleh</i> Ahmad Khairuddin Salleh 1574/03/19 (J) Partner of the Firm</p> <p>Kuala Lumpur Dated: 12 November 2018</p> <p>Page 1</p> <p>B-5-7 Megan Avenue II 12, Jalan Yap Kwan Seng 50455 Kuala Lumpur Malaysia Tel: +603 2710 7117 Fax: +603 2718 7227 Website: www.khiraudit.com.my E-mail: chartered@khiraudit.com.my KUALA LUMPUR - ALOR SETAR - KOTA BHARU - MELAKA</p> <p>Linking Strategy to Value</p>
 <p>REPORT OF THE AUDITORS TO THE REPRESENTATIVE OFFICER OF ROYAL FOREST DEPARTMENT, THAILAND</p> <p>We have audited the accompanying statement of financial position of the project "DOMESTICATION OF ENDANGERED, ENDEMIC AND THREATENED PLANT SPECIES IN DISTURBED TERRESTRIAL ECOSYSTEM IN MALAYSIA AND THAILAND" as of 31 December 2017 and the related statements of activities and cash flows statements for the year then ended. These financial statements are the responsibility of Royal Forest Department's management. Our responsibility is to express an opinion on these financial statements based on our audit.</p> <p>We conducted our audit in accordance with approved auditing standards in Malaysia. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by the management of Royal Forest Department, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.</p> <p>In our opinion, the financial statements audited by us present fairly, in all material respects, the financial position of the project "DOMESTICATION OF ENDANGERED, ENDEMIC AND THREATENED PLANT SPECIES IN DISTURBED TERRESTRIAL ECOSYSTEM IN MALAYSIA AND THAILAND" at 31 December 2017, and the results of its activities and cash flows for the year then ended, and are in conformity with applicable approved accounting standards in Malaysia.</p> <p><i>Chase Hassan Razi</i> KHAIRUDDIN HASYUDEEN & RAZI AF1611 Chartered Accountants</p> <p><i>Ahmad Khairuddin Salleh</i> Ahmad Khairuddin Salleh 1574/03/19 (J) Partner of the Firm</p> <p>Kuala Lumpur Dated: 12 November 2018</p> <p>Page 1</p> <p>B-5-7 Megan Avenue II 12, Jalan Yap Kwan Seng 50455 Kuala Lumpur Malaysia Tel: +603 2710 7117 Fax: +603 2718 7227 Website: www.khiraudit.com.my E-mail: chartered@khiraudit.com.my KUALA LUMPUR - ALOR SETAR - KOTA BHARU - MELAKA</p> <p>Linking Strategy to Value</p>	 <p>REPORT OF THE AUDITORS TO THE REPRESENTATIVE OFFICER OF ROYAL FOREST DEPARTMENT, THAILAND</p> <p>We have audited the accompanying statement of financial position of the project "DOMESTICATION OF ENDANGERED, ENDEMIC AND THREATENED PLANT SPECIES IN DISTURBED TERRESTRIAL ECOSYSTEM IN MALAYSIA AND THAILAND" as of 31 December 2016 and the related statements of activities and cash flows statements for the period then ended. These financial statements are the responsibility of Royal Forest Department's management. Our responsibility is to express an opinion on these financial statements based on our audit.</p> <p>We conducted our audit in accordance with approved auditing standards in Malaysia. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by the management of Royal Forest Department, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.</p> <p>In our opinion, the financial statements audited by us present fairly, in all material respects, the financial position of the project "DOMESTICATION OF ENDANGERED, ENDEMIC AND THREATENED PLANT SPECIES IN DISTURBED TERRESTRIAL ECOSYSTEM IN MALAYSIA AND THAILAND" at 31 December 2016, and the results of its activities and cash flows for the period then ended, and are in conformity with applicable approved accounting standards in Malaysia.</p> <p><i>Chase Hassan Razi</i> KHAIRUDDIN HASYUDEEN & RAZI AF1611 Chartered Accountants</p> <p><i>Ahmad Khairuddin Salleh</i> Ahmad Khairuddin Salleh 1574/03/19 (J) Partner of the Firm</p> <p>Kuala Lumpur Dated: 12 November 2018</p> <p>Page 1</p> <p>B-5-7 Megan Avenue II 12, Jalan Yap Kwan Seng 50455 Kuala Lumpur Malaysia Tel: +603 2710 7117 Fax: +603 2718 7227 Website: www.khiraudit.com.my E-mail: chartered@khiraudit.com.my KUALA LUMPUR - ALOR SETAR - KOTA BHARU - MELAKA</p> <p>Linking Strategy to Value</p>

An external financial audit was carried out by FRIM for both Malaysia (above) and Thailand (below) for 2016 and 2017. Reports were handed to RFD and AFoCO Secretariat during 4th PCM in Lampang. The reports found that the statements and activities were in conformity with applicable approved accounting standards in Malaysia.

Activity D.2 & D.3: Attending overseas meeting & Project Coordination Meeting



Project Leader and members attending the 4th Project Coordination Meeting in Lampang (left) and Dr Ang as panel during a Discussion Session with Dr Ho as Session Coordinator (right).

SURVIVAL OF TEN ENDEMIC, ENDANGERED AND THREATENED TREE SPECIES GROWN ON SLIME TAILINGS AT SIX MONTHS AFTER PLANTING

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Introduction
Asian Forest Cooperation Project (AFCoP) has funded a collaborative project between Malaysia-Thailand on domestication of endangered, endemic and threatened tree species (EETS) on degraded terrestrial ecosystem. The project planted some EETS classified by national and IUCN Red List (Chen, 2004; Chua et al. 2010). This paper aims to share the plot establishment experiences including site amelioration technique, planting and tending experiences. In addition, early survival of the mixed stand at six months after planting is also reported. The objective of this study is to share establishment technique and early survival of the 10 selected tree species grown on slime tailings.

Method and Materials
Site preparation and planting stock
The study site is located in Tin Tailings Afforestation Centre, SPP Bidor, Perak. The slime tailings had pH range of 4.5-5.5. It has 95-99% of composition of silt and ash. Each planting hole was spaced at 5 x 4 m and enriched soils with a mixture soil conditioner comprising of coconut-based with burrhusia husk (biochar) at a ratio of 1:2 or 1:5 kg combined with 10 kg burnt-rice husk. The planting stock of the ten species and their conservation value, size and quantity are listed in Table 1.

Tending regime
Watering for the planting was carried out immediately and continued daily 10 heavy rainfall, then, the planting was watered at 2 dry-day interval. The soil of 50 cm radius of the planting point was tamped, clippers were removed monthly. Fertilizer application is carried out quarterly. The application of a mixture of 80g compound fertilizer NPK(17:17:17) + trace elements with chicken manure at 50% maturity per planting was carried out in June, September and December 2017.

Table 1. Planting stock of the 10 selected tree species

Species	Conservation Status	Planting	Quantity
Agavea malacensis	Endangered	Seedling	100
Alseodaphnophloeum	Endangered	Seedling	100
Alseodaphnophloeum	Endangered	Seedling	100
Alseodaphnophloeum	Endangered	Seedling	100
Alseodaphnophloeum	Endangered	Seedling	100
Alseodaphnophloeum	Endangered	Seedling	100
Alseodaphnophloeum	Endangered	Seedling	100
Alseodaphnophloeum	Endangered	Seedling	100
Alseodaphnophloeum	Endangered	Seedling	100
Alseodaphnophloeum	Endangered	Seedling	100

Table 2. The survival record of the 10 tree species of three months after planting

Species	Quantity	Survival	Survival (%)
Alseodaphnophloeum	100	100	100
Alseodaphnophloeum	100	100	100
Alseodaphnophloeum	100	100	100
Alseodaphnophloeum	100	100	100
Alseodaphnophloeum	100	100	100
Alseodaphnophloeum	100	100	100
Alseodaphnophloeum	100	100	100
Alseodaphnophloeum	100	100	100
Alseodaphnophloeum	100	100	100
Alseodaphnophloeum	100	100	100

CONCLUSIVE REMARKS
The preliminary survival of the EETS shows that Lagerstroemia langkawiensis is more adaptable to the site condition of the slime tailings and had 100% survival through the mid-year short dry period in Bidor.

DOMESTICATION OF ENDEMIC, ENDANGERED AND THREATENED RAINFOREST TREE SPECIES AT SLIME TAILINGS

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Introduction
Asian Forest Cooperation Project (AFCoP) has funded a collaborative project between Malaysia-Thailand on domestication of endangered, endemic and threatened tree species (EETS) on degraded terrestrial ecosystem. The project planted some EETS classified by national and IUCN Red List (Chen, 2004; Chua et al. 2010). This paper aims to share the plot establishment experiences including site amelioration technique, planting and tending experiences. In addition, early survival and height measurements were reported.

Objective
The objective of this study is to share establishment techniques and early survival of the planting of 10 selected species of endangered, endemic and threatened tree species at slime tailings.

Method and Materials
Study site (Tin Tailings Afforestation Centre, SPP Bidor, Perak)
Site preparation
Site preparation
Planting stock
Tending regime

Table 1. Planting stock of the 10 selected tree species

Species	Conservation Status	Planting	Quantity
Alseodaphnophloeum	Endangered	Seedling	100
Alseodaphnophloeum	Endangered	Seedling	100
Alseodaphnophloeum	Endangered	Seedling	100
Alseodaphnophloeum	Endangered	Seedling	100
Alseodaphnophloeum	Endangered	Seedling	100
Alseodaphnophloeum	Endangered	Seedling	100
Alseodaphnophloeum	Endangered	Seedling	100
Alseodaphnophloeum	Endangered	Seedling	100
Alseodaphnophloeum	Endangered	Seedling	100
Alseodaphnophloeum	Endangered	Seedling	100

Table 2. Survival and height measurement of 10 tree species after 12 months after planting

Species	Quantity	Survival	Survival (%)	Height (m)
Alseodaphnophloeum	100	100	100	1.5
Alseodaphnophloeum	100	100	100	1.5
Alseodaphnophloeum	100	100	100	1.5
Alseodaphnophloeum	100	100	100	1.5
Alseodaphnophloeum	100	100	100	1.5
Alseodaphnophloeum	100	100	100	1.5
Alseodaphnophloeum	100	100	100	1.5
Alseodaphnophloeum	100	100	100	1.5
Alseodaphnophloeum	100	100	100	1.5
Alseodaphnophloeum	100	100	100	1.5

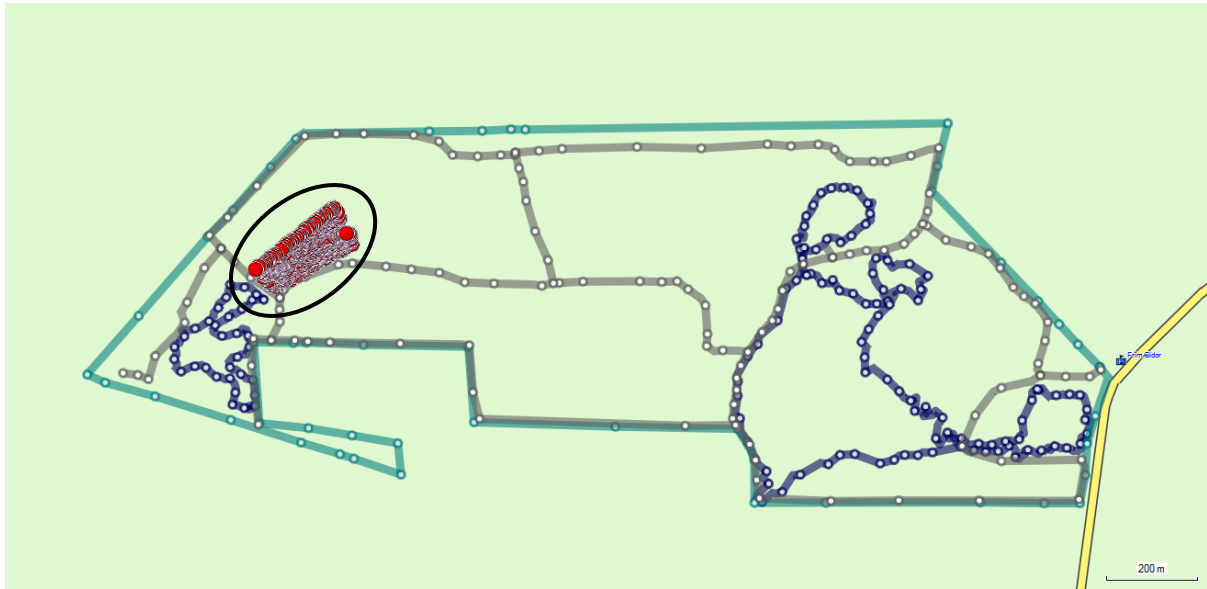
On behalf of the project, Ms Tang Lai Kuen attended and presented results of this project in the 10th International Symposium on Plant-Soil Interactions at Low pH on 25-28 June 2018 at Putrajaya (left) and the 28th Malaysian Society of Plant Physiology Conference on 28-30 August 2018 at Kota Bharu (right) to present preliminary results of the project.

Appendices

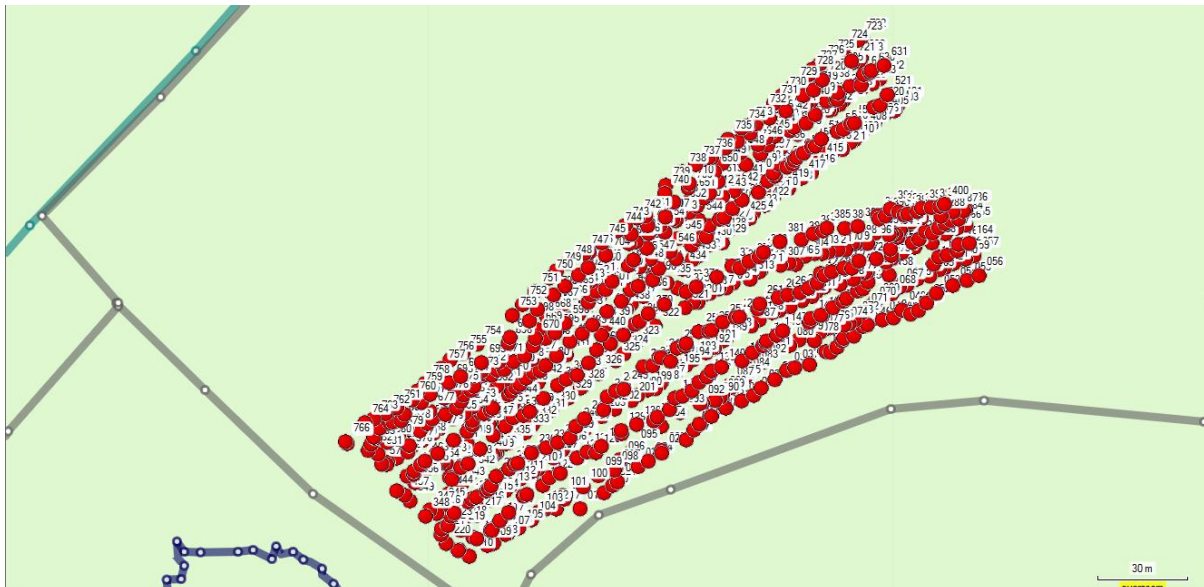
Appendix 1. Detailed Results of Key Activities

(To include any material with both audio & visual records of project activities and any relevant documents such as maps, figures and/or maps as to support the report)

Activity A.1 Site characterization



Location of planting site (encircled) in FRIM Research Station Bidor (boundary marked with light blue line).



Planting site where coordinates of each tree (red dots) was tagged using GPS.

As reported in 2017, site locality map needed updating due to mortality and changes of species. The GPS map of three hectares was completed in March 2018.