

# Completion Report

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**REGIONAL WORKSHOP ON  
THE SHARING OF FINDINGS  
FROM THE ACTIVITIES  
IMPLEMENTED IN INDONESIA  
AND MALAYSIA UNDER THE  
ITTO-CITES PROJECT ON  
ENSURING INTERNATIONAL  
TRADE IN CITES-LISTED  
TIMBER SPECIES IS  
CONSISTENT WITH THEIR  
SUSTAINABLE MANAGEMENT  
AND CONSERVATION**



**ITTO-CITES PROJECT**

**IMPLEMENTING AGENCY**

**Forest Research Institute Malaysia (FRIM)  
Kepong 52109 Selangor**





# Completion Report

**Regional Workshop on the Sharing of Findings from the  
Activities Implemented in Indonesia and Malaysia under the  
ITTO-CITES Project on Ensuring International Trade in  
CITES-Listed Timber Species is Consistent with their  
Sustainable Management and Conservation**



2011

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## COMPLETION REPORT

**Title:** Regional Workshop on the Sharing of Findings from the Activities Implemented in Indonesia and Malaysia under the ITTO-CITES Project on Ensuring International Trade in CITES-listed Timber Species is Consistent with their Sustainable Management and Conservation.

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**Host Government:** Government of Malaysia

**Starting Date:** 20 May 2010

**Actual Duration:** 6 months

**Workshop Date:** 1 - 4 December 2010

<b>Actual Project Costs (US\$):</b>	<b>ITTO</b>	= 47,315.00
	<b>GOM (in kind)</b>	= 19,000.00
	<b>TOTAL</b>	= <b>66,315.00</b>



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## 1.0 BACKGROUND

The aim of the ITTO-CITES “Project on Ensuring International Trade in CITES-listed Timber Species is Consistent with their Sustainable Management and Conservation” is to further enhance the conservation and sustainable management of *Gonystylus* spp. Under the project, there are ten main activities related to various aspects of *Gonystylus* spp. undertaken by Malaysia and Indonesia. All the Activities have been completed by December 2010. In Indonesia, the Activities were conducted by a number of agencies under the supervision of the Forestry Research and Development Agency (FORDA), Indonesia, and Directorate General Forest Protection and Nature Conservation, Indonesia. In Malaysia it was coordinated by the Ministry of Natural Resources and Environment (NRE).

In Malaysia, the implementing agencies were Forestry Department Peninsular Malaysia (FDPM), Sarawak Forest Department (SFD), Sarawak Forestry Corporation and Forest Research Institute Malaysia (FRIM). The implementing agencies in Indonesia were the Center for Forest and Nature Conservation Research and Development (CFNCRD), Remote Sensing & Geomatics Laboratory of the Faculty of Forestry, Bogor Agricultural University, Research Center for Biology of the Indonesian Institute of Sciences and the Directorate of Biodiversity Conservation. As part of the project requirement, a four-day Regional Workshop aims to disseminate the outcomes and findings from the activities was organised (Annex 1). The Regional Workshop was held on 1-4 December 2010 in Kuantan Pahang, Malaysia and participated by 61 technical experts and representatives from governmental, non-governmental, universities, research and international organisations in Malaysia and Indonesia.

## 2.0 WORKSHOP OBJECTIVES

The Regional Workshop aims to disseminate the outcomes, findings, and best practices to all relevant stakeholders with regards to the sustainable management and conservation of *Gonystylus* spp. in Indonesia and Malaysia. The Regional Workshop is expected to provide a platform for the executing agencies in Indonesia and Malaysia to collect information and coordinate the preparation of a final report of all Activities implemented in Indonesia and Malaysia to ITTO. It is also anticipated that the Workshop will also act as a forum for participants to discuss and deliberate on further projects and activities that could assist Indonesia and Malaysia in enhancing the sustainable management and conservation of *Gonystylus* spp. Hence, the specific objectives of the Regional Workshop are as follows:

- (i) To share, learn and discuss the findings of each Activity implemented in Indonesia and Malaysia under the ITTO-CITES Project.
- (ii) To identify and adapt relevant findings from the Indonesian Activities by Malaysia, *vice versa*, and
- (iii) To identify potential projects and activities to further ensure that the international trade of *Gonystylus* spp. is consistent with their sustainable management and conservation practices.

### **3.0 WORKSHOP DELIBERATIONS**

#### **3.1 *Workshop Venue and Participants***

The Workshop was held at Hyatt Regency Hotel, Kuantan, Pahang, about 300 km from Kuala Lumpur. Kuantan was chosen as the Workshop venue as it is only 30 km from Pekan Forest Reserve (FR) where some of the field activities under the ITTO-CITES Project were conducted and a field visit was scheduled in conjunction with the Workshop.

A total of 61 participants including 11 from Indonesia participated in the Workshop (full list of participants as in Annex 2). The Indonesian delegates comprised officers from CFNCRD; the Forestry Industry Revitalization Board (BRIK); Faculty of Forestry, Bogor Agricultural University; Research Centre for Biology, and the Indonesian Institute of Sciences; whereas the Malaysian delegates were from various agencies including from the NRE; FDPM; state forestry departments in Malaysia; Sarawak Forestry Corporation; MTIB; MTC; MTCC; and institutions of higher learning (Universiti Putra Malaysia, Universiti Malaysia Sabah and Universiti Malaysia Pahang). In addition, representatives from the ITTO, CITES and Regional Project Coordinator also attended the Workshop.

#### **3.2 The Programme**

The Regional Workshop examined findings from the ten Activities Implemented in Malaysia and Indonesia under the ITTO-CITES Project on Ensuring International Trade in CITES-listed Timber species is Consistent with their Sustainable Management and Conservation. The workshop was divided into three sessions (Annex 3). Day 1 (1<sup>st</sup> December 2010) was dedicated to the opening ceremony, speeches from FRIM and ITTO-CITES representatives, and followed by the presentation of ten papers. The opening ceremony was graced by the Director General of Forest Research Institute Malaysia (FRIM) on behalf of the Secretary General, Ministry of Natural Resources and Environment. Day 2 (2<sup>nd</sup> December) was an eventful field outing, whereby a tour was organized to Compartment 74, Pekan Forest Reserve located about 30 km from the Kuantan town. The final day (3<sup>rd</sup> December) was devoted to deliberation of four papers followed by a Working Group Discussion. The three Working Groups reviewed in detail issues related to the Activity implementation including problems, strategy to implement outputs, gap analysis and way forward. The Groups prepared a broad range of recommendations, which were reviewed and a Statement was adopted during the last day (4<sup>th</sup> December) of the Workshop (Annex 4).

##### **3.2.1 The Opening Session**

The opening remarks were preceded by a welcoming address by Dr. Shamsudin Ibrahim, a Senior Division Director of Forestry and Environment Division, FRIM and followed by a speech by Ms. Thong Pei Sin, the ITTO-CITES representative. An opening ceremony was conducted and graced by the Director General of Forest Research Institute Malaysia (FRIM) on behalf of the Secretary General, Ministry of Natural Resources and Environment. The address stressed on various essential points including:

- a) The important role of the Regional Workshop as a follow-up of the previous workshop held in Bogor, Indonesia whereby all findings and outputs of the ITTO-

CITES Project activities implemented in Indonesia and Malaysia will be presented and discussed thoroughly for benefit of all stakeholders from both countries;

- b) The need to translate all the findings and outputs into action and implemented them in both countries in the spirit of ASEAN win-win situation so that the forest resources in particular *Gonystylus* spp. can be managed efficiently for both conservation and sustainable use,
- c) Urging the participants to discuss thoroughly and interact with each other on various aspects of *Gonystylus* spp. based on their various studies and to come out with recommendations to further ensure that the international trade of *Gonystylus* spp. is consistent with their sustainable management and conservation practices.

During the opening ceremony, the Director General of FRIM launched a book entitled "*Gonystylus bancanus*: Jewel of the Peat Swamp Forest". The book is an output from one of the Activities prepared by a group of authors led by Dr. Khali Aziz Hamzah from FRIM.

### **3.2.2 Presentation of Papers**

The 14 papers were presented by the respective authors/representatives during the allotted six hours, including Q&A and discussion sessions on 1<sup>st</sup> and 3<sup>rd</sup> December 2010. Annex 5 shows the list of papers presented and Annex 6 contains abstracts of paper presented during the workshop. The session examined Activities findings from Indonesia and Malaysia with respect to the assessment and improvement of inventory, quantification and mapping techniques, population dynamic and silviculture system, DNA and genetic diversity, as well as timber trade and mill recovery studies of *Gonystylus* spp. Of interest are new techniques developed for mapping and monitoring of this species; namely the use of hyperspectral remote sensing data to map *Gonystylus bancanus* distribution in the PSF and the use of Radio Frequency Identification (RFID) to track timber movement for monitoring purposes.

The coverage of the papers was adequate to understand the findings and challenges in engaging the Activities in both countries. The presentations were eloquent, illustrated with attractive graphics and highly informative. The participants articulated with exchange of lessons learnt from occurrence of similar situations in different countries.

### **3.2.3 Field trip**

The participants were given an opportunity to visit Pekan Peat Swamp Forest Reserve (FR) where one of the Activities was carried out. The area is located at Compartment 74, Pekan FR about 30 km from Kuantan. Besides experiencing the natural environment of the PSF, participants were briefed on the management aspect of the forest and the ecology of *Gonystylus bancanus* in the PSF. The highlights of the visit were the demonstration of directional tree felling technique, the use of hand-held spectroradiometer for tree spectral signature study, and the use of Radio Frequency Identification (RFID) for timber movement tracking.

### **3.2.4 Working Groups**

A total of two and half hours were allocated for the three parallel Working Group discussions, one hour for group presentation, and another two hours for a plenary that resulted in the adoption of a Statement.

The three Working Groups reviewed in detail issues related to the Activities including the implementation problems and constraints under the current ITTO-CITES project, strategy to implement outputs of the project, gap analysis and way forward. The Groups prepared a broad range of recommendations, which were reviewed and a Statement was adopted upon conclusion of the Workshop.

## **4.0 WORKSHOP RECOMMENDATION**

The participants of the Workshop had deliberated and discussed various aspects concerning the management and conservation of CITES-listed timber species and their habitats in particular *Gonystylus* spp. (ramin) including issues related to their over-exploitation. The Workshop agreed that the management and conservation of *Gonystylus* spp. should be accorded high priority by Indonesia and Malaysia. Concerted efforts need to be enhanced to ensure the sustainable management of *Gonystylus* spp. The participants had highlighted some of the core issues on the management and conservation of *Gonystylus* spp. and subsequently made some recommendations to address the issues as reflected in the Workshop Recommendation (Annex 4).

## **5.0 TOTAL AMOUNT OF EXPENDITURE AND ANALYSIS**

The detail of budget spent for the ITTO and GOM in kind budgets are reflected in Annex 7A-7B and Annex 8A-8B respectively. From the ITTO contribution of USD 47,315.00, a total of USD 46,998.89 was spent with a balance of USD 316.11.

## **6.0 CONCLUSION**

The successful implementation of the Workshop contributed towards capacity building in related departments and agencies in Indonesia and Malaysia in the management of timber species listed under CITES, in particular the *Gonystylus* spp. The outcomes and knowledge gained during the Workshop could be disseminated to other relevant parties to further improve the management and conservation of *Gonystylus* spp. in Indonesia and Malaysia. Lessons learnt and best practices from Indonesia could also be adapted and practised in Malaysia, *vice versa*, to further enhance the sustainable management and conservation of *Gonystylus* spp.

The main output of the regional workshop is a proceedings comprising detailed and complete information of the papers presented during the Workshop and a Statement of Recommendation.

ANNEX 1 Workshop Flyer



**Regional Workshop on**  
the Sharing of Findings from the Activities Implemented in Malaysia and Indonesia under the ITTO-CITES Project on Ensuring International Trade in CITES-listed Timber Species is Consistent with their Sustainable Management and Conservation

1 - 4 December 2010  
Kuantan, Pahang, Malaysia

organised by  
Ministry of Natural Resources and Environment Malaysia (NRE)  
Forest Research Institute Malaysia (FRIM)

**▶ REGISTRATION FORM**

Name (Mr/Ms.):

Designation:

Organisation:

Address:

No. Tel:

Fax:

E-Mail:

Date:    **2010**

Please reply by mail/fax to Secretariat before 12 November 2010

**\*Participation is by invitation only**

**▶ ACCOMMODATION**  
Accommodation will be provided by the organiser throughout the Workshop.

**▶ REMARKS**  
The Secretariat will provide an official invitation letters to assist in visa application, if necessary. The Secretariat strongly advises the timely submission of visa applications to ensure that a visa is granted.

**▶ SECRETARIAT**

Send the Registration Form to:

Regional Workshop on the Sharing of Findings from the Activities Implemented in Malaysia and Indonesia under the ITTO-CITES Project on Ensuring International Trade in CITES-listed Timber Species is Consistent with their Sustainable Management and Conservation,  
Division of Forestry and Environment, Malaysia (FRIM), Kepong  
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**Regional Workshop on**  
the Sharing of Findings from the Activities Implemented in Malaysia and Indonesia under the ITTO-CITES Project on Ensuring International Trade in CITES-listed Timber species is Consistent with their Sustainable Management and Conservation

1 - 4 December 2010 | Kuantan, Pahang, Malaysia

**▶ BACKGROUND**

The aim of ITTO-CITES Project on Ensuring International Trade in CITES-listed Timber species is consistent with their Sustainable Management and Conservation to further enhance the conservation and sustainable management of *Gonystylus* spp. Under the project there are ten main activities related to various aspects of *Gonystylus* spp. being undertaken by Malaysia and Indonesia. All the activities are expected to be completed in 2010. The activities are being conducted by a number of agencies in Indonesia and Malaysia under the supervision of the Forestry Research and Development Agency (FORDA), Indonesia, Directorate General Forest Protection and Nature Conservation, Indonesia and the Ministry of Natural Resources and Environment, Malaysia (NRE).

In Malaysia, the implementing agencies are Forestry Department Peninsular Malaysia (FPPM), Sarawak Forest Department (SFD), Sarawak Forestry Corporation, and Forest Research Institute Malaysia (FRIM). Where as in Indonesia the implementing agencies are the Center for Forest and Nature Conservation Research and Development (CFNCRD), Remote Sensing & Geomatics Laboratory of the Faculty of Forestry, Bogor Agricultural University, Research Center for Biology of the Indonesian Institute of Sciences, and the Directorate of Biodiversity Conservation. As part of the project requirement, a four-day workshop aims to disseminate the outcomes and findings from the activities is organised.

**▶ OBJECTIVE**

The objectives of the workshop are as follows:

- (i) To share, learn and discuss the findings of each Activity implemented in Indonesia and Malaysia under the ITTO-CITES Project.
- (ii) To identify and adapt relevant findings from the Indonesian Activities by Malaysia and vice versa; and
- (iii) To identify potential projects and activities to further ensure that the international trade of *Gonystylus* spp. is consistent with their sustainable management and conservation practices.

**▶ EXPECTED OUTPUT**

The main output of the workshop is a report consisting findings of all the activities implemented in Indonesia and Malaysia under the ITTO-CITES Project and a list of identified potential new activities to further enhance the sustainable management and conservation of *Gonystylus* spp.

**▶ TARGET BENEFICIARIES**

The target beneficiaries of the Workshop will be the relevant stakeholders involved with the management, conservation and trade in *Gonystylus* spp.

**DAY 1**

- 0830 - 0900 Registration of Participants
- 0900 - 1030 Opening session
  - Welcome Remarks By Director General FRIM
  - Speech By ITTO Representative
  - Opening Address By Secretary General NRE

**TARAIKATA**



**1030 - 1100 Tea break**

- SESSION 1: ACTIVITIES OUTCOMES AND FINDINGS**
- Non-detrimental Findings report on *Gonystylus bancanus* – A Quantitative Assessment of *G. bancanus* in Two selected Permanent Forests of Sarawak (Malaysia)
  - Improving Inventory Design to estimate Growing Stock of Ramin (*Gonystylus bancanus*) in Indonesia (Indonesia)

**Break**

- SESSION 2: ACTIVITIES OUTCOMES AND FINDINGS**
- The Distribution of Dry and Wet tolerant *Gonystylus* spp. (Ramin), *Apulana* (Mak), *Agavewood* and *iniba* spp. (Berasak) in Peninsular Malaysia
  - Generation of Spatial Distribution Maps of *Gonystylus bancanus* (ramin) using Hyperspectral Technology (Malaysia)
  - Genetic Diversity of *Gonystylus bancanus* and Genetic Relationship between *Gonystylus* spp. (Indonesia)

**Lunch**

- SESSION 3: ACTIVITIES OUTCOMES AND FINDINGS**
- Population Dynamics and Optimum Harvest of *Gonystylus bancanus* in Production Forests of Peninsular Malaysia (Malaysia)
  - Assessing Silvicultural System on Ramin: Review on the Current Practice and Revitalization of existing Permanent Sample Plots (Indonesia)
  - The Development of *Gonystylus* spp. (ramin) Timber Monitoring System using Ratio Frequency Identification (RFID) in Peninsular Malaysia (Malaysia)

**Tea Break**

- SESSION 4: ACTIVITIES OUTCOMES AND FINDINGS**
- Survey and Inventory of *Gonystylus* spp. in East Kalimantan (Indonesia)
  - Developing DNA Database for *Gonystylus bancanus* in Sarawak (Malaysia)

**Welcoming Dinner**

**Full-day Field Trip to the Pekan Forest Reserve, Pahang**

**DAY 2**

- 0800 - 1700

**DAY 3**

- 0830 - 0855
- 0855 - 0920
- 0920 - 0945
- 0945 - 1010

- SESSION 5: ACTIVITIES OUTCOMES AND FINDINGS**
- Review on Ramin and other Trade CITES Commodities, Tri-National Task Force on Trade in Ramin, Trade Control and Monitoring (Indonesia)
  - Seven Timber and Plywood Recovery Study of Ramin (*Gonystylus bancanus*) in Peninsular Malaysia (Malaysia)
  - Conservation and the establishment of Ramin (*Gonystylus bancanus*) gene pool (Indonesia)
  - Vegetative Propagation of Ramin (*Gonystylus bancanus*) using KOFFCO System (Indonesia)

**Tea Break**

**BREAKOUT SESSION**

- Group 1 : Implementation problems and constraints under the current: ITTO-CITES project
- Group 2 : Strategy to implement outputs of the project
- Group 3 : Gaps identification and way forward

**Lunch Break**

**City Tour**

**DAY 4**

- 0900 - 1000

- SESSION 6: SHARING OF FINDINGS FROM THE BREAKOUT SESSION**
- Report presentation by Group 1
  - Report presentation by Group 2
  - Report presentation by Group 3
  - Report presentation by Group 3

Workshop on Sustainable Management and Conservation of *Gonystylus* spp. in Indonesia and Malaysia  
 10-14 December 2010  
 Kuantan, Pahang, Malaysia



**venue**  
 Hyatt Regency Hotel  
 Kuantan, Pahang, Malaysia  
 Date : 1 - 4 December 2010

## ANNEX 2 List of Participants

NO.	NAME	ORGANISATION	EMAIL	COUNTRY
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## ANNEX 3 Workshop Program

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**WEDNESDAY 1 DECEMBER 2010**

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- 0830 - 0900 Registration of Participants
- 0900 - 1000 Opening ceremony
- Welcome Remarks by the Director General FRIM
  - Speech by ITTO Representative
  - Opening Address by the Secretary General NRE
- 1000 - 1030 Refreshment

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**SESSION 1 ACTIVITIES OUTCOMES AND FINDINGS**

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**Chair: Prof. Dr. Aminuddin Muhamad**

- 1030 - 1055 **Malcom Demies, Mohd. Shahbudin Sabki, Lucy Chong & Ernest Chai**  
Non-detrimental Findings report on *Gonystylus bancanus* – A Quantitative Assessment of *G. bancanus* in Two selected Permanent Forests of Sarawak (Malaysia)
- 1055 - 1120 **Nengah Surati Jaya, Samsuri, Tien Lastini & Edwin Setia Purnama**  
Improving Inventory Design to estimate Growing Stock of Ramin (*Gonystylus bancanus*) in Indonesia (Indonesia)
- 1120 - 1145 **Samsu Anuar Nawawi, Ihsan Sabri Kamarazaman, M. Zarin Ramlan<sup>1</sup> & Muhamad Azmi**  
The Distribution of Dry and Wet Inland *Gonystylus* spp. (Ramin), *Aquilaria* spp. (Agarwood) and *Intsia* spp. (Merbau) in Peninsular Malaysia (Malaysia)
- 1145 - 1210 **Khali Aziz Hamzah, Mohd Azahari Faidi, Tan Sek Aun & Hamdan Omar**  
Generation of Spatial Distribution Maps of *Gonystylus bancanus* (ramin) using Hyperspectral Technology (Malaysia)
- 1210 - 1235 **AYPBC Widyatmoko**  
Genetic Diversity study of *Gonystylus bancanus* and Genetic Relationship between *Gonystylus* spp. (Indonesia)
- 1235 - 1400 Lunch

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**SESSION 2 ACTIVITIES OUTCOMES AND FINDINGS (CONT.)**

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**Chair: Ir. Tajudin Edy Komar**

- 1400 - 1425 **Ismail Harun, Abd Rahman Kassim, Ismail Parlan & Harfendy Osman**  
Population Dynamics and Optimum Harvest of *Gonystylus bancanus* in Production Forests of Peninsular Malaysia (Malaysia)
- 1425 - 1450 **Istomo, Cahyo Wibowo, & Tajudin Edy Komar**  
Assessing Silvicultural System on Ramin: Review on the Current Practice and Re-vitalization of existing Permanent sample Plots (Indonesia)

1450 - 1515	<b>Harry Yong &amp; Abdul Jalil Ahmad Tabon</b> The Development of <i>Gonystylus</i> spp. (ramin) Timber Monitoring System using Radio Frequency Identification (RFID) in Peninsular Malaysia (Malaysia)
1115 - 1145	Tea Break
1545 - 1610	<b>Muhammad Mansur, Teguh Triono, Kade Sidiyasa, Ismail &amp; Zaenal Arifin</b> Survey and inventory of <i>Gonystylus</i> spp. in East Kalimantan. (Indonesia) PAPER
1610 - 1635	<b>Bibian Diway, Nurul Farhana Zakaria, Suliana Charles, Kevin Ng &amp; Lucy Chong</b> Developing DNA Database for <i>Gonystylus bancanus</i> in Sarawak (Malaysia)
2000	<b>Welcoming Dinner</b>

<b>THURSDAY</b>	<b>2 DECEMBER 2010</b>
<b>FULL-DAY FIELD TRIP TO PEKAN FOREST RESERVE, PAHANG</b>	
<b>Person In-charge: Dr. Ismail Parlan</b>	

0800	Depart from Hyatt Regency Hotel, Kuantan
0930	Arrive at Compartment 74, Pekan FR
1000 - 1030	Briefing by Mr. Ismail Talib (District Forest Officer, FD Pahang) on management of Pekan FR
1030 - 1100	Briefing by Dr Ismail Hj. Parlan (FRIM) on ecology of <i>Gonystylus bancanus</i> in Pekan FR
1100 - 1130	Briefing by Mr. Harry Yong (FDPM) on RFID
1130 - 1300	Demonstrations on RFID Process
1300 - 1330	Briefing and demonstrations by Mr. Mohd Azahari Faidi (FRIM) on Spectroradiometer Procedures
1330	Lunch
1400	Depart from Compartment 74, Pekan FR
1600	Arrive at Hyatt Regency Hotel, Kuantan

<b>FRIDAY</b>	<b>3 DECEMBER 2010</b>
<b>SESSION 3</b>	<b>ACTIVITIES OUTCOMES AND FINDINGS (CONT.)</b>
<b>Chair: Dr. Ismail Harun</b>	

0830 - 0855	<b>Badiah &amp; Tajudin Edy Komar</b> Review on Ramin Harvest and Trade: CITES Compliance, Tri -National Task Force on Trade in Ramin, Trade Control and Monitoring (Indonesia)
0855 - 0920	<b>Harry Yong, Rosaizan Haryani Rosli &amp; Abdul Jalil Ahmad Tabon</b> Sawn Timber and Plywood Recovery Study of Ramin ( <i>Gonystylus bancanus</i> ) in Peninsular Malaysia (Malaysia)

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0920 - 0945	<b>Endang Savitri, Tajudin Edy Komar &amp; Rusmana</b> Conservation and the establishment of ramin ( <i>Gonystylus bancanus</i> ) genepool (Indonesia)
0945 - 1010	<b>Evalin Sumbayak &amp; Tajudin Edy Komar</b> Vegetative Propagation of Ramin ( <i>Gonystylus bancanus</i> ) using KOFFCO system (Indonesia)
1010 - 1040	Tea Break

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**PARALLEL SESSION**

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1040 - 1300	<b>Group 1</b> : Implementation problems and constraints under the current ITTO- CITES project <b>Group 2</b> : Strategy to implement outputs of the project <b>Group 3</b> : Gap analysis and way forward
1300 - 1400	Lunch
1400 - 1700	City Tour
1800 - 1830	Refreshment

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**SATURDAY 4 DECEMBER 2010**

**SESSION 4 SHARING OF FINDINGS FROM THE PARALLEL SESSION**

**Chair : Dr. Shamsudin Ibrahim**

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0900 - 1000	Report presentation by <b>Group 1</b> Report presentation by <b>Group 2</b> Report presentation by <b>Group 3</b>
1000 - 1030	Tea Break
1030 - 1100	Workshop resolution by Mr. Samsudin Musa (Forest Research Institute Malaysia, FRIM)
1100 - 1200	Concluding Remarks by Dr. Shamsudin Ibrahim
1200 - 1300	Lunch & Farewell

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## ANNEX 4 Workshop Recommendations

### Introduction

The participants of the Workshop had deliberated and discussed various aspects concerning the management and conservation of CITES-listed timber species and their habitats including issues related to their exploitation, in particular *Gonystylus* spp. (ramin). The Workshop agreed that the management and conservation of ramin should be accorded high priority by Indonesia and Malaysia. Concerted efforts need to be enhanced to ensure the sustainable management of ramin. The participants had highlighted some of the core issues on the management and conservation of ramin and subsequently made some recommendations to address the issues.

### Issues and Recommendations

1. Information on the status of ramin habitat in general, and the stocking and distribution of ramin in particular are still inadequate. Accurate information on ramin is needed to enable better management and conservation of the resource. Consequently, the Workshop participants recommended the following:
  - Develop more reliable and cost effective methods of assessing ramin. The Workshop participants recognised the efforts by Indonesia and Malaysia in developing resource assessment techniques using high resolution satellite data and hyperspectral technology as well as national forest inventories.
  - Enhance the conduct of non-detrimental findings (NDF) further and explore the possibility of having a standardised format of NDF for the region.
2. Peat swamp forests (PSF) as the habitat of *G. bancanus* are being exploited and converted to other land use especially agriculture. Some harvesting activities within production PSF in the permanent reserved forests have resulted in a significant reduction of *G. bancanus* residual stands due to excessive removal of the species. Further concerns on genetic erosion of *G. bancanus* have also been highlighted. Improvements in forest management are needed to ensure that *G. bancanus* is not harvested beyond its sustainable levels. Consequently, the Workshop participants recommended the following:
  - Improve current management prescriptions to promote the sustainable management of the production PSF, particularly the sustainable harvest of *G. bancanus*, e.g. to consider spatial distribution (hyperspectral approach) as alternative to cutting limit in selection for harvesting. The studies by FRIM regarding optimum harvest of *G. bancanus* and the practice of reduced impact logging (RIL) are recognised.
  - Enhance enforcement of rules and regulations to ensure that harvesting operations are conducted accordingly. The efforts of the Forestry Department Peninsular Malaysia to introduce radio frequency identification (RFID) for better control of log extraction and transportation is recognised. The RFID also needs to be further studied and extended to sawmill gates.
  - Prevent genetic erosion of *G. bancanus* during harvesting by retaining sufficient healthy *G. bancanus* trees at various sizes within the residual stands. Studies on

genetic variation by FORDA and development of DNA database by Sarawak Forestry Corporation are recognised.

3. Some logged-over PSFs are poorly stocked, deficient in ramin and other major commercial species. Such forests are not expected to recover within the prescribed cutting cycle. Greater efforts are needed to enhance the recovery of such forests and increase their productivity. Consequently, the Workshop participants recommended the following:
  - Intensify effective silvicultural treatments to enhance the productivity and recovery of PSFs.
  - Prepare sufficient quality planting materials for silvicultural treatment.
  - Provide greater protection for ramin during forest harvesting.
  
4. The project activities have generated useful information and outputs related to the management and conservation of ramin in Indonesia and Malaysia. Consequently, the Workshop participants recommended the following:
  - Distribute and share the findings to other agencies, e.g. universities, policy makers and forest managers.
  - Enhance sharing of technology /information (clearing house mechanism).
  - Explore mechanism to effectively implement the outputs of the project by relevant authorities in respective countries.
  - Address outputs that require further investigation before implementation, e.g. outputs of DNA study.
  - Expand cooperation between Indonesia and Malaysia on common web page in terms of R&D.
  - Convene inter-regional workshop to exchange experience and lessons learnt on addressing CITES compliance for timber-listed species in Appendix II, organise by ITTO
  - Engage in publications/joint publications of the project results.
  - Translate science/R&D results and outputs of the project into management/operational guidelines, e.g. integrating into forest management plans, forest management systems and forest policies.
  
5. There were challenges and constraints in the implementation of project activities. Some of the constraints included limited and non-continuous funding, lacking of trained personnel, and lacking of awareness at various levels. Consequently, the Workshop participants recommended the following:
  - Provide sufficient timeline and funding to execute project activities effectively.

- Raise stakeholder awareness of the need for sustainable use and appropriate national legislation, and develop regional collaborative strategies.
  - Adopt similar activities, method and technology to reduce cost and time to complete project activities.
6. After discussing the implementation of the project activities and the achievement of the outputs, the Workshop identified some gaps and suggested way forward to address them. Some of these include:
- Pursue full scale proposal to include bigger areas, including PSF in Sabah and Sarawak to be submitted to ITTO.
  - Include studies on distributions, ecology, diversity and phenology of other than *G. bancanus* species.
  - Embark on ramin supply and demand market studies as input for NDF report for the industry's quota-setting purpose.
  - Conduct studies on carbon balance in PSF/ramin forest and its relationship to climate change and environmental conventions.
  - Engage systematic approach to gene pool conservation as base for improving planting materials.
  - Include CITES requirements under forest certification and verification schemes.
  - Replicate similar projects to other important forest species such as merbau, karas, cengal, belian, etc.
7. In general the project was implemented well and achieved its objectives and desired outputs. However, the Workshop participants felt that further improvements could be made and suggested the following:
- Results of the project should be written in a way that is easily understood by wider audience (stakeholders and interested parties).
  - Progress of activities to be reported quarterly instead of monthly.
  - Conduct impact assessment (third party) of the project at least three months after implementation.

## **WORKING GROUP 1:**

### **Implementation problems and constraints under the current ITTO-CITES project**

**Moderator: Dr. Alexander K. Sayok**

#### **1. Were the project activities been implemented effectively in Indonesia and Malaysia achieved their objectives and outputs?**

Activities and output were achieved albeit with some modification during implementation to suit administrative and financial mechanism of respective country.

##### *Suggestions/Questions:*

- How to make use of the output is still a big question.
- Study on ramin recovery should include the downstream industries.
- Suggest to distribute the findings to other agencies, e.g. universities and policy makers.
- Further study on RFID is needed.
- Share the results with stakeholders or related agencies.
- Impact assessment should be conducted for improvement.

#### **2. What are the challenges and constraints faced by the project in the implementation of the activities?**

- Indonesia** - Staffing turnover had delayed the project implementation.  
- Physical implementation of the project - time constraint especially on field studies.
- Sarawak** - Field studies - weather/climate unpredictable.  
- Office – staffing.
- JPSM** - Global economic situation - no body submitted tender to identify the area.
- FRIM** - Data acquisition.  
- Delayed disbursement of fund.

#### **3. Suggestions for improvements?**

- To further enhance internal coordination.
- To have an alternative plan for projects activities as a back-up. This plan should be done in consideration of climate condition of the respective country.
- Agreement to be concluded at the beginning of the year for timely implementation of the project.
- Results should be written in a way that is easily understood by wider audience (stakeholders and interested parties).
- Impact assessment of the project to be conducted by a third party at least three months after the project has been implemented.

## **WORKING GROUP 2:**

### **Strategy to Implement Outputs of the Project**

**Moderator: Dr. Teguh Triono**

#### **1. Has the project activities achieved their objectives and outputs?**

- All project objectives were achieved.
- Some of the outputs were not conclusive enough to meet CITES requirement and objectives.
- Some of the project outputs required more time to get more meaningful result that meets CITES inquiry (e.g. permanent sample plots).

#### **2. Can the outputs of the project be implemented (in the short term and the long term)? What are the constraints and barriers?**

Short term:

- Technical outputs of the project can be implemented and incorporated in the training system for field workers. For example, they can be implemented and incorporated in capacity building on species identification using species identification guide and hyperspectral technology for inventory.

Long term:

- Some other outputs required further investigation before they can be implemented (e.g. DNA study).
- Amalgamate the outputs with other research/activities outputs to make them more meaningful and conclusive (e.g. national forest inventory, national biodiversity inventory).

Constraints:

- Delayed, interrupted funding.
- Lack of trained manpower (in basic science, dendrology, etc).
- Lack of awareness at all levels.
- Problem in mainstreaming results into management system.

#### **3. How can the outputs of project activities be shared between Indonesia and Malaysia?**

- Joint capacity building (e.g., on species identification).
- Sharing of technical experiences on know-how (e.g., genetic study and database, hyperspectral method, KOFCCO method).
- Exchange program (scientist & technical staff).
- Publications/joint publications.

#### **4. Suggestions for improvements**

- Sufficient timeline and funding.
- Develop mechanism for sharing technology/information (e.g., clearing house mechanism).
- Raising awareness.
- Adoption of similar activities, method and technology.
- Translate scientific/R&D result into management/operational level.



## **WORKING GROUP 3:**

### **Gap Analysis and the Way Forward**

**Moderator: Assoc. Prof. Hj. Mohd Basri Hamzah**

#### **ITTO-CITES Programme**

- Improved forest inventories for CITES
  - Pursue full scale proposal to include bigger areas, including PSFs in Sabah and Sarawak (further study to be submitted to ITTO).
  - Conduct studies on distributions, ecology, diversity and phenology for other than *G. bancanus* species -.
- Improved management of species to ensure population levels are maintained.
  - Revisit current RIL for better management of ramin-dominant forests.
- Monitor species utilisation that is not detrimental to its survival
  - Revisit NDF as per applicability and effectiveness for ramin forest in the region.
- Raise stakeholder awareness of the need for sustainable use and appropriate national legislation, and develop regional collaborative strategies.
- Build trust and cooperation between industries and relevant authorities
  - Case study on supply and demand for ramin – input for NDF report to set the quota for the industry (internal utilisations without export). A web-based approach to be considered.
- Strengthen trade compliance systems
  - RFID should be continued, but the tracking system within RFID needs to be extended to sawmill gates.
  - Extended to DNA tracking (beyond forest) – create database.
- Outreach
  - To expand on common web page on corporation between FRIM and FORDA in terms of R&D.
  - To convene inter-regional workshop to exchange experience and lessons learnt on addressing CITES compliance for timber-listed species in Appendix II, organise by ITTO.

#### **The Way Forward**

- Carbon balance in PSF/ramin forest and climate change.
- Systematic approach to gene pool conservation as base for improving planting materials.
- Forest certification review with respect to CITES requirements.
- Expand NDF to other threatened species, e.g. merbau, *Aqualaria*, cengal, belian, etc.
- Harvesting of ramin – to consider spatial distribution (hyperspectral approach) as alternative to cutting girth limit (CGL) as basis for selection.

ANNEX 5 Lists of Paper and Presenter

NO	TITLE
1	<b>Non-detrimental findings report on <i>Gonystylus bancanus</i> : a qualitative assessment of <i>G. bancanus</i> in two selected permanent forests of Sarawak</b> Malcom Demies, Mohd. Shahbudin Sabki, Lucy Chong & Ernest Chai
2	<b>Improving inventory design to estimate growing stock of ramin (<i>Gonystylus bancanus</i>) in Indonesia</b> Nengah Surati Jaya, Samsuri, Tien Lastini & Edwin Setia Purnama
3	<b>The distribution of dry and wet inland <i>Gonystylus</i> spp. (ramin), <i>Aquilaria</i> spp. (karas) and <i>Intsia</i> spp. (merbau) in Peninsular Malaysia</b> Samsu Anuar Nawi, Ihsan Sabri Kamarazaman, M. Zarin Ramlan & Muhamad Azmi
4	<b>Generation of spatial distribution maps of <i>Gonystylus bancanus</i> (ramin) using hyperspectral technology</b> Khali Aziz Hamzah, Mohd Azahari Faidi, Tan Sek Aun & Hamdan Omar
5	<b>Genetic diversity study of <i>gonystylus bancanus</i> and genetic relationship between <i>Gonystylus</i> spp.</b> Anthonius YPBC Widyatmoko
6	<b>Population dynamics and optimum harvest of <i>Gonystylus bancanus</i> in production forests of Peninsular Malaysia</b> Ismail Harun, Abd Rahman Kassim, Ismail Parlan & Harfendy Osman
7	<b>Assessing silvicultural system on ramin: review on current practices</b> Istomo, Cahyo Wibowo & Tajudin Edy Komar
8	<b>The development of <i>Gonystylus</i> spp. (ramin) timber monitoring system using radio frequency identification (RFID) in Peninsular Malaysia</b> Harry Yong & Abdul Jalil Ahmad Tabon
9	<b>Survey and inventory of <i>Gonystylus</i> spp. In east Kalimantan</b> Muhammad Mansur, Teguh Triono, Kade Sidiyasa, Ismail & Zaenal Arifin
10	<b>The development of DNA database for <i>Gonystylus bancanus</i> in Sarawak</b> Bibian Diway, Nurul Farhana Zakaria, Suliana Charles, Kevin Ng & Lucy Chong
11	<b>Review on ramin harvest and trade CITES compliance, tri-national task force on trade ramin, trade control and monitoring</b> Sutito, Agus Badiah & Tajudin Edy Komar
12	<b>Sawn timber and plywood recovery study of ramin (<i>Gonystylus bancanus</i>) in Peninsular Malaysia</b> Harry Yong, Rosaizan Haryani Rosli & Abdul Jalil Ahmad Tabon
13	<b>Conservation and the establishment of ramin (<i>Gonystylus bancanus</i>) genepool</b> Endang Savitri, Tajudin Edy Komar & Rusmana
14	<b>Vegetative propagation of ramin (<i>Gonystylus bancanus</i>) using KOFFCO system</b> Evalin Sumbayak & Tajudin Edy Komar

## ANNEX 6 Abstracts of Papers Presented During the Workshop

### 1. NON-DETRIMENTAL FINDINGS REPORT ON *GONYSTYLUS BANCANUS*: A QUALITATIVE ASSESSMENT OF *G. BANCANUS* IN TWO SELECTED PERMANENT FORESTS OF SARAWAK

Malcom Demies<sup>1</sup>, Mohd. Shahbudin Sabki<sup>2</sup>, Lucy Chong<sup>1</sup> & Ernest Chai<sup>3</sup>

<sup>1</sup>Sarawak Forestry Corporation

<sup>2</sup>Forest Department Sarawak

<sup>3</sup>Tropical Evergreen Enterprise

**Abstract** *Gonystylus bancanus* or locally in Sarawak known as ramin telur or ramin was assessed in two areas of peat swamp forests in the Permanent Forest Estate of Sarawak namely, Kayangeran Forest Reserve (FR) and Saribas Lupar Protected Forest (PF). Thirty eight (38) and nine (9) transects were established in Kayangeran FR and Saribas Lupar PF respectively. A total of 1,154 ramin stems were recorded in transects covering an area of 22.05 ha in Kayangeran FR and Saribas Lupar PF. Four ramin trees with stem diameter at breast height (dbh)  $\geq 10$  cm were recorded. The seedlings and saplings density in Saribas Lupar PF was 144.26 and 165.25 ha<sup>-1</sup> respectively while the density of ramin seedlings and saplings in Kayangeran FR was 3.4 and 7.2 ha<sup>-1</sup> respectively. About 54% of the seedlings were less than 1.3 m in height while 46% of seedlings were taller than 1.3 m but less than 1.0 cm in dbh. 97% of the saplings were from the diameter group of 1.0 to 5.0 cm and another 3% were from the diameter class of 5.1 to 9.9 cm. The stocking of ramin trees in the studied areas was 0.15 and 0.33 trees ha<sup>-1</sup> in Kayangeran FR and Saribas Lupar PF respectively. The mean ramin volume is estimated at 0.33 m<sup>3</sup> ha<sup>-1</sup> for the two sites. With such low volume, harvesting of ramin in Kayangeran FR and Saribas Lupar PF is not recommended.

### 2. IMPROVING INVENTORY DESIGN TO ESTIMATE GROWING STOCK OF RAMIN (*GONYSTYLUS BANCANUS*) IN INDONESIA

Nengah Surati Jaya, Samsuri, Tien Lastini & Edwin Setia Purnama

Faculty of the Forestry, Bogor Agriculture University. Kampus IPB Darmaga Bogor, Indonesia.

**Abstract** This study is dedicated for improving the inventory technique for estimating the standing stock of ramin (*Gonystylus bancanus*). The study was performed at two peat swamp forest, namely Sebangau National Park in Central Kalimantan and the concession area of PT Diamond Raya Timber in Riau Sumatra. The improvements are focused on the techniques applied and their relative efficiencies as well as the sampling error produced. The sampling techniques examined in this study include double sampling, in which the plots on the first phase was taken at high resolution satellites imageries, while the second phase plots was created in the field. The medium resolution satellite imageries were also used to delineate the peat swamp forest. The stand variable measured at the first phase was crown closure (C), while the stand variables measured at the second phase in the field were tree diameter (dbh), tree height and ground crown diameter. This study concludes that the proposed double sampling technique examined provides better performance, having 301% relative efficiency, in comparison with techniques using either only ground survey or remote sensing technology method. The proposed inventory technique using double sampling technique by combining high-resolution remotely sensed data and ground survey is 201% more efficient than using conventional simple random sampling.

### 3. THE DISTRIBUTION OF DRY AND WET INLAND *GONYSTYLUS* SPP. (RAMIN), *AQUILARIA* SPP. (KARAS) AND *INTSIA* SPP. (MERBAU) IN PENINSULAR MALAYSIA

**Samsu Anuar Nawati, Ihsan Sabri Kamarazaman, M. Zarin Ramlan & Muhamad Azmi**  
Forest Management Division, Forestry Department Peninsular Malaysia

**Abstract** There is a widespread concern on the distribution of *Gonystylus* spp. (ramin), *Aquilaria* spp. (karas) and *Intsia* spp. (merbau) due to the existing rate of exploitation and extraction in Peninsular Malaysia. Assessments on distribution of the three species were carried on 59 sampling units (SU) using NFI-4 data and consequently ten Permanent Sample Plots (PSPs) were established for periodic monitoring on the growth, mortality and recruitment of *Gonystylus* spp. Enumeration on the 59 SU shows that only two species of *Aquilaria* are found, totalling 3.96 stems ha<sup>-1</sup> and 92.08% concentrated in diameter classes 1.5m<10cm and 10 < 30cm. *Aquilaria hirta* and *Aquilaria malaccensis* recorded 2.8 and 1.16 stems ha<sup>-1</sup> respectively. As for *Intsia* spp., the total number of stems per ha for *I. bijuga* and *I. palembanica* is 0.013 and 0.034 respectively. Six *Gonystylus* spp. were recorded in the enumeration namely *G. bancanus*, *G. affinis*, *G. macrophyllus*, *G. brunnescens*, *G. confusus* and *G. maingayi* with estimated 19.51 stems ha<sup>-1</sup>. for all diameter classes. However, based on the diameter class 10cm dbh and above, the difference on the number of stems ha<sup>-1</sup> is lessened to 3.5 stems ha<sup>-1</sup>. For dry *Gonystylus*, it is 1.8 stems ha<sup>-1</sup> and wet inland *Gonystylus* (*G. bancanus*) is 1.73 stems ha<sup>-1</sup>. Result on wet inland *Gonystylus* is comparable to the result on the enumeration of 10 PSPs which recorded 1.6 stems ha<sup>-1</sup> of *G. bancanus* but lesser number of stems ha<sup>-1</sup> for dry *Gonystylus* or 0.9 stems ha<sup>-1</sup>. Other results on *Gonystylus* spp. *Aquilaria* spp. and *Intsia* spp. enumerated in the 59 SU, ten PSPs and NFI-4 are presented and discussed in this paper.

### 4. GENERATION OF SPATIAL DISTRIBUTION MAPS OF *GONYSTYLUS BANCANUS* (RAMIN) USING HYPERSPECTRAL TECHNOLOGY

**Khali Aziz Hamzah, Mohd Azahari Faidi, Tan Sek Aun & Hamdan Omar**  
Forest Research Institute Malaysia (FRIM), 52109 Kepong, Selangor, Malaysia

**Abstract** Peat swamp forest (PSF) is the largest of the wetland forest in Malaysia and consist of some of Malaysia's endangered tree species. Ramin (*Gonystylus bancanus*) which grows in PSF is one of the species that has been listed in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Due to lack of spatial distribution of this species, in addition to high market demand, the species population is now decreasing very rapidly and threatened in some areas. Developments of airborne hyperspectral remote sensing technique have provided new opportunities on mapping the individual tree species in the landscape scale such as the PSF. The main objective of this paper is to present the findings of a study to generate spatial distribution maps of ramin using the Spectral Angle Mapper (SAM) sub-pixel classification method in analysis of airborne hyperspectral imaging at the canopy level. HySpex VNIR-1600 airborne hyperspectral data with the spatial resolution of 0.5 meter and spectral range of 400 nm to 1000 nm were used in this study. About 6.25 ha of PSF at Pekan Forest Reserve, Pahang was selected as the study plot. Sampling plots with the size of 30 x 30 m were established in the study area and all ramin with the diameter 20 cm and above were inventoried. The inventory data were used as a sampling point to generate the spectral signature of ramin using the SAM processing technique. It was found that the density of ramin within the study area is about 21 trees ha<sup>-1</sup>. All of these trees were able to be mapped using the hyperspectral data with an error of about ± 4 trees ha<sup>-1</sup>. Verification on the ground indicated that the map accuracy is about 86%. The results showed that by combining individual ramin signature sampling from HySpex data in SAM appears to have a high accuracy for discriminating individual ramin canopy in the PSF. It was also found that the HySpex airborne hyperspectral data have good capability to discriminate individual canopy layer tree species in mix peat

swamp forest. The availability of accurate information on ramin population from this study can be used to assist in designing rehabilitation and conservation programs in order to conserve and sustainably manage the ramin population in the PSF.

## **5. GENETIC DIVERSITY STUDY OF *GONYSTYLUS BANCANUS* AND GENETIC RELATIONSHIP BETWEEN *GONYSTYLUS* SPP.**

**Anthony YPBC Widyatmoko**

Center for Forest Biotechnology and Tree Improvement Research, Forestry Research and Development Agency, Ministry of Forestry, Indonesia

**Abstract** *Gonystylus bancanus* (Ramin) is the most valuable timber species in peat swamp forests. It has high potential as plantation species since planting material can be raised easily either through seeds or vegetative propagation. Over harvesting and illegal logging have decreased the potential of the species. Thus conservation of the species becomes a very crucial activity to be carried out. In order to conserve the species effectively and efficiently, information on genetic diversity, distribution and genetic relationship between populations are very important. In this study, 72 loci from 18 RAPD primers were used to investigate genetic diversity of ramin using ten populations distributed in Kalimantan and Sumatera. Mean genetic diversity of ten populations of *G. bancanus* was 0.329 and mean genetic distance between populations of *G. bancanus* was 0.061. Distribution of genetic diversity within population was higher (94%) than between populations (6%). Based on cluster analysis, ten populations of *G. bancanus* were divided into two groups, Sumatera populations and Kalimantan populations. *Ex-situ* and *in-situ* conservation of *G. bancanus* should be based on that information. Genetic relationship of ramin (*Gonystylus* spp.), a CITES-listed genus subject to illegal international trade, was examined using ITS rDNA (ITS3) and three chloroplast non-coding regions samples representing nine different ramin species. No variation within species was recognized among the nine species, including three unidentified *Gonystylus* spp. Based on ITS3 sequence, nine species were divided into three clades. The first clade was *G. bancanus*, the second clade consisted of five species, *G. brunnescens*, *G. velutinus* and three *Gonystylus* spp., and the third clade consisted of three species, *G. consangineus*, *G. keithii* and *G. macrophyllus*. However, using combination of ITS3 and three chloroplast non-coding regions, the nine species were divided into four groups. The first group was *G. bancanus* and *G. macrophyllus*; the second group was *G. brunnescens*, *G. consangineus*, *G. velutinus* (two samples) and one *Gonystylus* spp., the third group consisted of *G. velutinus* (two samples) and two *Gonystylus* spp., and the final group *G. keithii*.

## **6. POPULATION DYNAMICS AND OPTIMUM HARVEST OF *GONYSTYLUS BANCANUS* IN PRODUCTION FORESTS OF PENINSULAR MALAYSIA**

**Ismail Harun, Abd Rahman Kassim, Ismail Parlan & Harfendy Osman**

Forestry Division, Forest Research Institute Malaysia (FRIM), 52109 Selangor, Malaysia

**Abstract** Accurate estimation of population dynamics, growing stock, cutting cycles and allowable harvest which are biologically sustainable is important in achieving sustainable forest management in production peat swamp forests. Currently, the peat swamp forests in Peninsular Malaysia are managed under a modified Selective Management System (SMS), which is basically a system designed for the management of dry inland forests. As the peat swamp forest is a unique forest type with silvicultural characteristics that are rather different from that of the dry inland forests, it is hoped that through this project, suitable silvicultural and management practices could be formulated so that the peat swamp forests can be managed in a sustainable manner. This project is Component 2 of the main Activity of FRIM's ITTO-CITES Project entitled 'Generation of spatial distribution maps of *Gonystylus bancanus* (ramin) using

hyperspectral technology and determination of sustainable level of harvest of ramin in production forests of Peninsular Malaysia'. The general objective of Component 2 is to enhance conservation by determining sustainable level of harvest for *G. bancanus* in production forests of Peninsular Malaysia. Study site for this project is Pekan Forest Reserve, Pahang. Methodology for this project was based on two specific objectives of this project. In order to determine population dynamics of *G. bancanus*, assessment of stocking and population dynamics of *G. bancanus* were carried out by using ecological plots established in the study site. Meanwhile, assessment of growth projection model and existing growing stock in determining the sustainable level of harvest were conducted in order to project sustainable harvest levels of *G. bancanus* in natural forest stands. This paper elaborates findings of the project based on the two specific objectives.

## 7. ASSESSING SILVICULTURAL SYSTEM ON RAMIN: REVIEW ON CURRENT PRACTICES

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<sup>2</sup> Forest Research and Development Agency (FORDA), Jln. Gunung Batu, Bogor, Indonesia

**Abstract** Silvicultural system which was applied in this natural peat swamp forest is a selective cutting system, which cuts only commercial trees with certain diameter limit, and leave a number of core trees for the next cutting cycle. The objective of preparing this report is to evaluate the implementation of silvicultural system in peat swamp. To achieve this objective, numerous laws, regulations and concepts which focus peat swamp forest silvicultural system and its implementation in the field were studied. The absence of a specific silvicultural system for ramin together with the high rate of ramin logging has drastically reduced the number and regeneration of ramin trees. The difficulty to manage ramin which naturally grow in waterlogged peat swamp forest calls for the need to establish an environmentally friendly and efficient system for harvesting and transporting ramin. Improvement of silvicultural system of peat swamp forest needs to consider the present condition of production forest in the peat swamp forest. In primary forest and logged over forest of active concession forest area, there could be application of selective cutting silvicultural system with improvements on several important aspects with approach of uneven-aged forest stand (natural forest). In the peat swamp forest of ex-concession forest area in the form of mixed secondary forest or scrubland, there could be application of rehabilitation silvicultural system in the form of strip cutting and planting.

## 8. THE DEVELOPMENT OF *GONYSTYLUS* SPP. (RAMIN) TIMBER MONITORING SYSTEM USING RADIO FREQUENCY IDENTIFICATION (RFID) IN PENINSULAR MALAYSIA

Harry Yong<sup>1</sup> and Abdul Jalil Ahmad Tabon

Forestry Department Peninsular Malaysia, Kuala Lumpur

**Abstract** Ramin (*Gonystylus* spp.) is one of the most important peat swamp forest tree species currently being utilised in Malaysia. There are widespread concerns about the rate of this species is being harvested due to increasing demand from the timber industries, both local and international. There are also concerns that the ramin trees are under considerable threats from illegal logging and tax evasion that causes the government to lose lucrative forest revenues. Tree marking is one of the measures carried out by Forestry Department Peninsular Malaysia to address these problems. It also serves to regulate the harvestable number and volume of trees as well as to monitor incompliance of forest operation such as the felling of mother trees, buffer zone and protection trees from logging areas. The project embarked on the use of radio

frequency identification (RFID) technology instead of the manual timber tagging activities in the harvesting of peat swamp forest area, in particular ramin species. It aims to develop a customised cost-effective *Gonystylus* spp. (ramin) timber monitoring system using radio frequency identification (RFID) in Peninsular Malaysia. This project is very essential to promote sustainable utilisation towards the conservation of ramin in production forests of Malaysia.

## 9. SURVEY AND INVENTORY OF *GONYSTYLUS* SPP. IN EAST KALIMANTAN

**Muhammad Mansur<sup>1</sup>, Teguh Triono<sup>1</sup>, Kade Sidiyasa<sup>2</sup>, Ismail<sup>1</sup> & Zaenal Arifin<sup>2</sup>**

<sup>1</sup>Botany Division, Research Center for Biology-LIPI, Cibinong Science Center, Cibinong

<sup>2</sup>Wanariset Samboja, East Kalimantan.

**Abstract** Field survey and inventory for *Gonystylus* spp. in East Kalimantan were conducted from June until December 2009 at five locations: Malinau Research Forest of PT. Inhutani II Concessions, Sungai Wain Protection Forest (HL-SW), Bukit Bangkirai and Samboja Research Forest-Balikpapan, PT. ITCI Concession areas and Gunung Lumut Protection Forest-Paser District. Results of the survey show that from the above five locations, six *Gonystylus* spp. were found: *G. affinis*, *G. brunnescens*, *G. consanguineus*, *G. forbesii*, *G. keithii* and *G. velutinus*. The species grow naturally in primary forest with flat to hilly topography, with altitude ranges from 20 to 500 m above sea level, on sand clay soil type with pH between 5.1-6.8, and soil moisture between 20% -75%. Among those five species, only *G. brunnescens* was found in abundance and with better natural regeneration, especially in Sungai Wain Protection Forest, Bukit Bangkirai and PT. ITCI concession area. The other five species were found in small population ranging from one to five individuals in all locations visited.

## 10. THE DEVELOPMENT OF DNA DATABASE FOR *GONYSTYLUS BANCANUS* IN SARAWAK

**Bibian Diway<sup>1</sup>, Nurul Farhana Zakaria<sup>2</sup>, Suliana Charles<sup>1</sup>, Kevin Ng<sup>2</sup> & Lucy Chong<sup>1</sup>**

<sup>1</sup>Sarawak Forestry Corporation, Botanical Research Centre, KM 20 Jalan Borneo Height, 93250 Kuching, Sarawak Malaysia.

<sup>2</sup>Forest Research Institute Malaysia, FRIM, 52109 Kepong, Selangor, Malaysia.

**Abstract** The government of Malaysia and CITES control measure on ramin could not guarantee no illegal trading of ramin. The current project was developed to probe the use DNA for tracing and tracking of ramin timber origin and species verification in order to combat illegal trading. The DNA was extracted from leaves and bark samples that were collected from nine populations throughout Sarawak using cetyltrimethyl ammonium bromide (CTAB) with modification. Eighteen microsatellite markers were selected to amplify the DNA and thus used to generate alleles frequencies for database. From the database, a total of 67 unique alleles detected providing useful information for tracing the population origin of ramin. The genetic diversity measured was generally high for most populations except for Kayangeran Forest Reserve and Loagan Bunut National Park. Cluster analysis based on Nei's genetic distance revealed that the populations were clustered into two geographical regions. In order to determine if the populations were significantly distinguishable from one to another, pair wise comparison of populations test was conducted. The results based on *Fst* values showed that most populations were significantly differentiated except for populations located at the tributaries of Batang Lupar (Lupar River). This indicated that most likely gene flow has occurred along waterway. Unique alleles detected and cluster analysis indicated the ability and usefulness of microsatellite markers selected for tracking and tracing of ramin populations. However for effective and accurate use of microsatellite markers, application should be based on many loci and complete database covering all ramin populations throughout other states and neighbouring countries.

## **11. REVIEW ON RAMIN HARVEST AND TRADE CITES COMPLIANCE, TRI-NATIONAL TASK FORCE ON TRADE RAMIN, TRADE CONTROL AND MONITORING**

**Sutito Agus, Badiyah & Tajudin Edy Komar**

Directorate of Biodiversity Conservation, Manggala Wanabakti Building BlockVII, 7<sup>th</sup> floor, Jl. Gatot Soebroto, Jakarta.

**Abstract** The activity objective is expected to contribute to improved management of ramin through the formulation of a roadmap towards sustainable forest management and conservation, improved implementation on CITES, more effective mechanism in tackling illegal trade, and improved trade control and monitoring. The overall objective of the inclusion of species into CITES Appendix is to ensure the sustainable management and conservation of the species through international trade regulation. The regulation includes the requirement that the harvest is not in contravention with national rules and regulation, and the harvest does not cause detrimental effect on the survival of species, population and habitat. Theoretically, the determination of harvest quota is aimed to minimize the detrimental effect caused by the harvest. Understanding on the basis for the inclusion of species into CITES Appendix, determination of harvest quota and Non-Detriment Finding (NDF) is still limited for most field officers of the CITES management authority and other relevant stakeholders such as plant quarantine, customs officers, and the officers of Customs and Excise offices. This activity is intended to improve capacity of both institutional and human resources in order to enhance the sustainable forest management (SFM). It also intends for conservation of ramin through the establishment of ramin roadmap for the management, the implementation of CITES rules and regulation, trade control and monitoring. Moreover, monitoring on harvest and trade is also still weak resulting in poor statistical data presentation and accuracy. In order to improve monitoring on ramin international trade, either legally or illegally, and also to enhance data exchange to reduce illegal trade to the neighbouring countries, Indonesia, Malaysia and Singapore has established a regional forum. The Tri-National Task Force on Trade in Ramin – formed in 2003 - is scheduled to have annual meeting in the member countries. Since 2006, the meeting of the Task Force has been temporarily suspended until there is a new insight to demonstrate that the Task Force will be contributing significantly to combat illegal logging and illegal trade of ramin. Other issues may also include poor trade monitoring and tracking system not only for ramin, but also for other CITES-listed species. The poor trade monitoring has also resulted in data variation and inconsistency which will have implication to forest management, taxes and revenue. The National Workshop held on 24 July 2007 on the evaluation of CITES implementation has also questioned the pricing of ramin for both domestic and international trade. This paper recommends that a closer look on data collection mechanism, monitoring and export control of forest products, including ramin be carried out.

## **12. SAWN TIMBER AND PLYWOOD RECOVERY STUDY OF RAMIN (*GONYSTYLUS BANCANUS*) IN PENINSULAR MALAYSIA**

**Harry Yong, Rosaizan Haryani Rosli & Abdul Jalil Ahmad Tabon**

Forestry Department Peninsular Malaysia, Kuala Lumpur

**Abstract** Malaysia is one of the largest exporter of logs and sawn timber and a major exporter of other products, such as plywood and other wood-based panels, wooden furniture, builders' carpentry and joinery (BCJ), and mouldings. The sawmilling sector is the largest and oldest wood processing industry in Malaysia. The government has expected a further reduction in output from the natural forest by 2020 and substitutes from forest plantation is planned, thus affecting the nature of the wood-based industries in Malaysia. However, ITTO (1997) has forecasted that Malaysia, principally, Peninsular Malaysia, is already an importer of hardwood logs. This trade will grow over time with most of the processing are for meeting domestic



consumption or for further processing into value-added products. As resource scarcity becomes more and more severe, the sawmills, especially in Peninsular Malaysia, will have to undergo restructuring to compete with composite board plants, such as those involved in the manufacturing of medium-density fibreboard (MDF) and chipboard. There is a need for sawmills to maximize their processing recovery rates as the size of timber for the next decade will also be reduced. The objectives of the proposed activities are to (i) determine the recovery rate of ramin logs for the manufacture of sawn timber, and (ii) develop a technique for quantifying wood waste from sawmilling production. The expected outputs from the proposed activities are (i) improved recovery rate and maximised utilisation of ramin timber; and (ii) calculation of the quantum of wood waste for estimating the recovery rate of ramin log in the production of sawn timber.

### **13. CONSERVATION AND THE ESTABLISHMENT OF RAMIN (*GONYSTYLUS BANCANUS*) GENEPOOL**

**Endang Savitri<sup>1</sup>, Tajudin Edy Komar<sup>1</sup> & Rusmana<sup>2</sup>**

<sup>1</sup>Center for Forest and Nature Conservation Research and Development, Bogor

<sup>2</sup>Forest Research Institute of South Kalimantan, Banjarbaru, South Kalimantan

**Abstract** Ramin (*Gonystylus bancanus*) - one of more than 30 *Gonystylus* species - with a vulnerable status is facing a high risk of extinction in the wild. Its natural habitat is peat swamp forest areas in Sumatera (eastern coast of Riau, Jambi and South Sumatera) and Kalimantan (West and Central Kalimantan). Due to its critical status and problems in artificial regeneration, Forest Research Institute (FRI) Banjarbaru with ITTO Project carried out two studies: plantation trials since 2008 under ITTO project and the establishment of gene pool in 2010 under ITTO-CITES Project. The research sites are in Tumbang Nusa Forest Research Station, Central Kalimantan. For the plantation trials, different strip planting methods were used to study the response of ramin to light intensity (shade intensity). The result shows that the seedlings were very sensitive to light intensity (shade). With a four-meter-wide strip, the seedlings tended not to survive (high mortality) compared to those planted in a two-meter-wide strip. This indicates that too strong an intensity was not suitable for ramin planting in this site. The gene pool activity was developed to conserve ramin genetic resources and to support the provision of stem cutting for propagation of planting materials. The flowering and fruiting seasons are unreliable and difficult to predict, therefore vegetative propagation is the best solution. The materials for genepool were collected in the form of wildings in the vicinity of Teluk Umpan and Lahei, Central Kalimantan. The wildings were separated according to the source. The wildings were planted from May to July 2010 and data collection is still in progress. FRI Banjarbaru will carry on with these studies and records data for analysis, later.

### **14. VEGETATIVE PROPAGATION OF RAMIN (*GONYSTYLUS BANCANUS*) USING KOFFCO SYSTEM**

**Evalin Sumbayak<sup>1</sup> & Tajudin Edy Komar**

Forest and Nature Conservation Research and Development, Bogor

**Abstract** Ramin (*Gonystylus bancanus*) is known as commercial timber species growing naturally in peat swamp forest which is now has limited natural distribution. Ramin is also a slow growing species and its seed production is limited to certain interval which causes scarcity of planting materials. The scarcity of planting materials has become critical problem in both natural and artificial regeneration. Some previous studies showed that vegetative propagation using stem cutting is one of the alternative sources of planting materials. The advantage of using vegetative is mass production of planting materials and independent of time and seeds. The

production of planting materials in this study was by using Komatsu-FORDA Fogging Cooling System (KOFFCO). KOFFCO system works based on the control of light intensity (5,000 – 20,000 lux), temperature ( $<30\text{ }^{\circ}\text{C}$ ) and humidity ( $\geq 90\text{ }^{\circ}\text{C}$ ). The growth media used also influence the successful production of planting materials from stem cuttings. The growth media used were the mixtures of sterilized sands and local peat (2: 1). Root one F was applied to the base of stem cutting to stimulate rooting. The percentage of rooting within 8 weeks was 88.9% and within 11 weeks, 96.8%. This method was considered successful to produce ramin planting materials through the use of stem cuttings for vegetative propagation.

ANNEX 7A Activity financial statement (ITTO)

ACTIVITY FINANCIAL STATEMENT (in US Dollar)							
ITTO CONTRIBUTION FUNDING							
	Component	Original	Expenditures To-date			Available	
		Amount	Accrued	Expended	Total	Funds	
		(A)	(B)	(C)	(D)	(E)	
			b/		{ B + C }	{ A - D }	
<b>I.</b>	<b>Funds managed by Executing Agency</b>						
10.	Personnel						
	11.	Coordinator					
	12.	Other Personnel					
		12.1 Assistant 1					
		12.2 Assistant 2					
		12.3 Other labour					
	13.	National Experts					
		13.1 Expert 1					
		13.2 Expert 2					
		13.3 Expert 3					
	14.	International Consultant(s)					
		14.1 Consultant 1					
		14.2 Consultant 2					
	<b>15.</b>	<b>Personnel Total:</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	
	16.	Workshop/Seminar and Training					
		(specify beneficiaries)					
		16.1 Travel/Transportation (participants)	6,400.00	0.00	6,589.44	6,589.44	-189.44
		16.2 Daily Subsistence Allowances (participants)	3,000.00	0.00	714.78	714.78	2,285.22
		16.3 Venue and Logistics	20,225.00	0.00	25,658.56	25,658.56	-5,433.56
		16.4 Workshop Materials	10,440.00	0.00	5,691.81	5,691.81	4,748.19
		16.5 Others	7,250.00	0.00	8,332.43	8,332.43	-1,082.43
	<b>17.</b>	<b>Workshop/Seminar and Training Total:</b>	<b>47,315.00</b>	<b>0.00</b>	<b>46,987.01</b>	<b>46,987.01</b>	<b>327.99</b>
20.	Sub-contracts						
	21.	Sub-contract					
	22.	Sub-contract (Topic 2)					
	<b>29.</b>	<b>Component Total:</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	
30.	Travel						

	31.	Daily Subsistence Allowance					
		31.1 National Expert(s)					
		31.2 International Consultant(s)					
		31.3 Others					
	32.	International Travel					
		32.1 National Expert(s)					
		32.2 International Consultant(s)					
		32.3 Others					
	33.	Local Transport Costs					
		33.1 National Expert(s)					
		33.2 International Consultant(s)					
		33.3 Others					
	<b>39.</b>	<b>Travel Total:</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
40.	Capital Items						
	41.	Premises					
	42..	Vehicle(s)					
	43.	Capital Equipment					
		43.1 Computer Equipment (specify)					
		43.2 Others					
	<b>49.</b>	<b>Capital Items Total:</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
50.	Consumable Items						
	51.	Raw Materials					
	52.	Spares					
	53.	Utilities					
	54.	Office Supplies					
	<b>59.</b>	<b>Consumable Items Total:</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
60.	Miscellaneous						
	61.	Sundry					
	62.	Contingencies	0.00	0.00	11.87	11.87	-11.87
	<b>69.</b>	<b>Miscellaneous Total:</b>	<b>0.00</b>	<b>0.00</b>	<b>11.87</b>	<b>11.87</b>	<b>-11.87</b>
70.	Others (specify)						
	71.	Others (Management cost)					
	79.	Others Total					
100.		<b>GRAND TOTAL:</b>	<b>47,315.00</b>	<b>0.00</b>	<b>46,998.89</b>	<b>46,998.89</b>	<b>316.11</b>
Note: -Exchange rate USD to MYR ~ 3.18							

**ANNEX 7B** Activity cash flow statement (ITTO)

ACTIVITY CASHFLOW STATEMENT (in US Dollar)						
ITTO CONTRIBUTION FUNDING						
		Component	Reference	Date	Amount in US\$	Local Currency
<b>A.</b>	<b>Funds received from ITTO:</b>					
	1.	First installment		Jul.10	35,444.01	112,575.31
	2.	Second installment		Dec.10	11,870.99	37,703.97
	3.	Interest on bank deposits				
		<b>Total Funds Received:</b>			<b>47,315.00</b>	<b>150,279.28</b>
<b>B.</b>	<b>Expenditures (by Executing Agency):</b>					
10.	Personnel					
	11.	Coordinator				
	12.	Other Personnel				
		12.1 Assistant 1				
		12.2 Assistant 2				
		12.3 Other labour				
	13.	National Experts				
		13.1 Expert 1				
		13.2 Expert 2				
		13.3 Expert 3				
	14.	International Consultant(s)				
		14.1 Consultant 1				
		14.2 Consultant 2				
	<b>15</b>	<b>Personnel Total:</b>			<b>0.00</b>	<b>0.00</b>
	16.	Workshop/Seminar and Training				
		(specify beneficiaries)				
		16.1 Travel/Transportation Costs (participants)			6,589.44	20,929.00
		16.2 Daily Subsistence Allowances (participants)			714.78	2,270.25
		16.3 Venue and Logistics			25,658.56	81,495.30
		16.4 Workshop Materials			5,691.81	18,078.00
		16.5 Others			8,332.43	26,465.00
	<b>17.</b>	<b>Workshop/Seminar and Training Total:</b>			<b>46,987.01</b>	<b>149,237.55</b>
20.	Sub-contracts					
	21.	Sub-contract				
	22.	Sub-contract (Topic 2)				

	<b>29.</b>	<b>Sub-contracts Total:</b>				
30.		Travel				
	31.	Daily Subsistence Allowance				
		31.1 National Expert(s)				
		31.2 International Consultant(s)				
		31.3 Others				
	32.	International Travel				
		32.1 National Expert(s)				
		32.2 International Consultant(s)				
		32.3 Others				
	33.	Local Transport Costs				
		33.1 National Expert(s)				
		33.2 International Consultant(s)				
		33.3 Others				
	<b>39.</b>	<b>Travel Total:</b>			<b>0.00</b>	<b>0.00</b>
40.	Capital Items					
	41.	Premises				
	42.	Vehicle(s)				
	43.	Capital Equipment				
		43.1 Computer Equipment (specify)				
		43.2 Others (specify)				
	<b>49.</b>	<b>Capital Items Total:</b>			<b>0.00</b>	<b>0.00</b>
50.	Consumable Items					
	51.	Raw materials				
	52.	Spares				
	53.	Utilities				
	54.	Office Supplies				
	<b>59.</b>	<b>Consumable Items Total:</b>			<b>0.00</b>	<b>0.00</b>
60.	Miscellaneous					
	61.	Sundry				
	62.	Contingencies			11.87	37.71
	<b>69.</b>	<b>Miscellaneous Total:</b>			<b>11.87</b>	<b>37.71</b>
70.	Others (specify)					
	71.	Others (specify)				
	<b>79.</b>	<b>Others Total:</b>			<b>0.00</b>	<b>0.00</b>
		<b>Total Expenditures To-date:</b>			<b>46,998.89</b>	<b>149,275.26</b>
		<b>Remaining Balance of Funds (A-B):</b>			<b>316.11</b>	<b>1,004.02</b>
Note: -Exchange rate USD to MYR ~ 3.18						

**ANNEX 8A Activity financial statement (GOM)**

ACTIVITY FINANCIAL STATEMENT (in US Dollar)						
GOVERNMENT OF MALAYSIA FUNDING						
	Component	Original	Expenditures To-date			Available
		Amount	Accrued	Expended	Total	Funds
		(A)	(B)	(C)	(D)	(E)
			b/		{ B + C }	{ A - D }
<b>I.</b>	<b>Funds managed by Executing Agency</b>					
10.	Personnel					
	11. Coordinator					
	12. Other Personnel					
	12.1 Assistant 1					
	12.2 Assistant 2					
	12.3 Other labour					
	13. National Experts					
	13.1 Expert 1					
	13.2 Expert 2					
	13.3 Expert 3					
	14. International Consultant(s)					
	14.1 Consultant 1					
	14.2 Consultant 2					
	<b>15. Personnel Total:</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
	16. Workshop/Seminar and Training					
	(specify beneficiaries)					
	16.1 Travel/Transportation (participants)					
	16.2 Daily Subsistence Allowances (participants)					
	16.3 Venue and Logistics	12,000.00		12,000.00	12,000.00	0.00
	16.4 Workshop Materials	7,000.00		7,000.00	7,000.00	0.00
	16.5 Others					
	17. Workshop/Seminar and Training Total:	19,000.00	0.00	19,000.00	19,000.00	0.00
20.	Sub-contracts					
	21. Sub-contract					
	22. Sub-contract (Topic 2)					
	<b>29. Component Total:</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

30.	Travel						
	31.	Daily Subsistence Allowance					
		31.1 National Expert(s)					
		31.2 International Consultant(s)					
		31.3 Others					
	32.	International Travel					
		32.1 National Expert(s)					
		32.2 International Consultant(s)					
		32.3 Others					
	33.	Local Transport Costs					
		33.1 National Expert(s)					
		33.2 International Consultant(s)					
		33.3 Others					
	<b>39.</b>	<b>Travel Total:</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
40.	Capital Items						
	41.	Premises					
	42.	Vehicle(s)					
	43.	Capital Equipment					
		43.1 Computer Equipment (specify)					
		43.2 Others					
	<b>49.</b>	<b>Capital Items Total:</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
50.	Consumable Items						
	51.	Raw Materials					
	52.	Spares					
	53.	Utilities					
	54.	Office Supplies					
	<b>59.</b>	<b>Consumable Items Total:</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
60.	Miscellaneous						
	61.	Sundry					
	62.	Contingencies					
	<b>69.</b>	<b>Miscellaneous Total:</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
70.	Others (specify)						
	71.	Others (Management cost)					
	79.	Others Total					
<b>100.</b>		<b>GRAND TOTAL:</b>	<b>19,000.00</b>	<b>0.00</b>	<b>19,000.00</b>	<b>19,000.00</b>	<b>0.00</b>



**ANNEX 8B** Activity cash flow statement (GOM)

ACTIVITY CASHFLOW STATEMENT (in US Dollar)						
GOVERNMENT OF MALAYSIA FUNDING						
		Component	Reference	Date	Amount in US\$	Local Currency
<b>A.</b>		<b>Funds received from ITTO:</b>				
	1.	First instalment		Jul. 10	19,000.00	62,320.00
	2.	Second instalment				
	3.	Third instalment				
	4.	Fourth instalment				
	5.	Interest on bank deposits				
		<b>Total Funds Received:</b>			<b>19,000.00</b>	<b>62,320.00</b>
<b>B.</b>		<b>Expenditures (by Executing Agency):</b>				
10.		Personnel				
	11.	Coordinator				
	12.	Other Personnel				
		12.1 Assistant 1				
		12.2 Assistant 2				
		12.3 Other labour				
	13.	National Experts				
		13.1 Expert 1				
		13.2 Expert 2				
		13.3 Expert 3				
	14.	International Consultant(s)				
		14.1 Consultant 1				
		14.2 Consultant 2				
	<b>15</b>	<b>Personnel Total:</b>			<b>0.00</b>	<b>0.00</b>
	16.	Workshop/Seminar and Training				
		(specify beneficiaries)				
		16.1 Travel/Transportation Costs (participants)				
		16.2 Daily Subsistence Allowances (participants)				
		16.3 Venue and Logistics			12,000.00	39,360.00
		16.4 Workshop Materials			7,000.00	22,960.00
		16.5 Others				
	<b>17.</b>	<b>Workshop/Seminar and Training Total:</b>			<b>19,000.00</b>	<b>62,320.00</b>
20.		Sub-contracts				
	21.	Sub-contract				
	22.	Sub-contract (Topic 2)				

	<b>29.</b>	<b>Sub-contracts Total:</b>				<b>0.00 0.00</b>
30.	Travel					
	31.	Daily Subsistence Allowance				
		31.1 National Expert(s)				
		31.2 International Consultant(s)				
		31.3 Others				
	32.	International Travel				
		32.1 National Expert(s)				
		32.2 International Consultant(s)				
		32.3 Others				
	33.	Local Transport Costs				
		33.1 National Expert(s)				
		33.2 International Consultant(s)				
		33.3 Others				
	<b>39.</b>	<b>Travel Total:</b>				<b>0.00 0.00</b>
40.	Capital Items					
	41.	Premises				
	42.	Vehicle(s)				
	43.	Capital Equipment				
		43.1 Computer Equipment (specify)				
		43.2 Others (specify)				
	<b>49.</b>	<b>Capital Items Total:</b>				<b>0.00 0.00</b>
50.	Consumable Items					
	51.	Raw materials				
	52.	Spares				
	53.	Utilities				
	54.	Office Supplies				
	<b>59.</b>	<b>Consumable Items Total:</b>				<b>0.00 0.00</b>
60.	Miscellaneous					
	61.	Sundry				
	62.	Contingencies				
	69.	Miscellaneous Total:				<b>0.00 0.00</b>
70.	Others (specify)					
	71.	Others (specify)				
	<b>79.</b>	<b>Others Total:</b>				<b>0.00 0.00</b>
		<b>Total Expenditures To-date:</b>				<b>19,000.00 62,320.00</b>
		<b>Remaining Balance of Funds (A-B):</b>				<b>0.00 0.00</b>