



INTERNATIONAL MEETING ON SUSTAINABLE FOREST MANAGEMENT IN CITES

8-10 January 2013, Bali, Indonesia

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

**FORESTRY DEPARTMENT PENINSULAR MALAYSIA
(MINISTRY OF NATURAL RESOURCES AND ENVIRONMENT)**

OUTLINES

- 1.0 Overview**
- 2.0 Implementation**
- 3.0 Output and Main Findings**
- 4.0 Recommendation**
- 5.0 Potential for Future Application**
- 6.0 Conclusion**

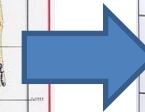
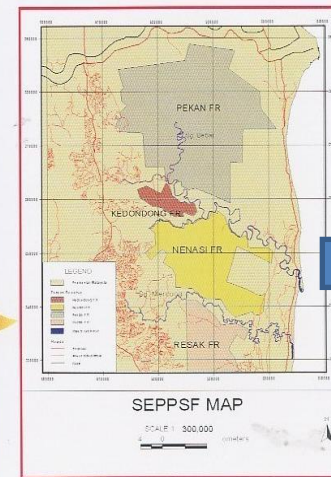
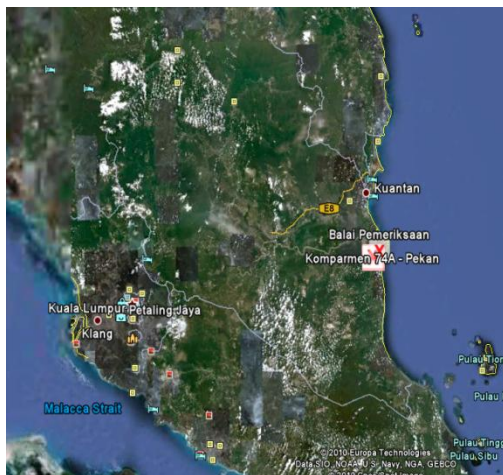


OVERVIEW

- Known as Activity 4 under the ITTO-CITES Work Programme 2008 (Malaysia)
- Presented during The Regional Workshop on the Sharing of Findings from the activities Implemented in Indonesia and Malaysia under ITTO-CITES Project, 1-4 December 2010, Kuantan, Pahang, Malaysia
- The aims of the Activity are:
 - i. Development of a customized cost-effective *Gonystylus* spp. (Ramin) Timber Monitoring System using Radio Frequency Identification (RTRfid) in Peninsular Malaysia
 - ii. Development of automated detection and notification mechanism for tracing non-compliances using handheld computers with RFID scanner system in Peninsular Malaysia

OVERVIEW (cont'...)

- Budget allocation – USD 174,110.00
 - i. ITTO-CITES : USD 103,200.00
 - ii. GOM : USD 70,910.00
- Project duration – Nov 2008 to Nov 2010
- Project area – Compartment 74A, Pekan FR, Pahang, Malaysia



OVERVIEW (cont'...)

Rationale

- Timber tagging system using plastic tag has been operating in Peninsular Malaysia for many years with considerable merit
- However, large components of the system are manual and paper based
- In view of this, validation and verification cannot be undertaken effectively on a remote basis

[illegible]

IMPLEMENTATION

Nov 2008 – May 2009

June 2009 – Oct 2010

Nov 2010

Main Activities

- i. Appointment of vendor for system development
- ii. Appointment of licensee for forest harvesting
- iii. System development
- iv. Training



IMPLEMENTATION (cont'...)

Nov 2008 – May 2009

June 2009 – Oct 2010

Nov 2010

Main Activities

- i. Boundary demarcation
- ii. Pre-F & tree marking
- iii. Data collection & data analysis
- iv. Issuance of harvesting license
- v. Forest harvesting



IMPLEMENTATION (cont'...)

Nov 2008 – May 2009

June 2009 – Oct 2010

Nov 2010

Main Activities

i. Reporting / Publication



Output

- [illegible]

[illegible][illegible]

Audit Trail Report

OUTPUT & MAIN FINDINGS (cont'...)

Output (cont'...)

- Customized Forest Management using RFID in Peninsular Malaysia (ForRFID)



Tree Tagging Module



Removal Pass Module

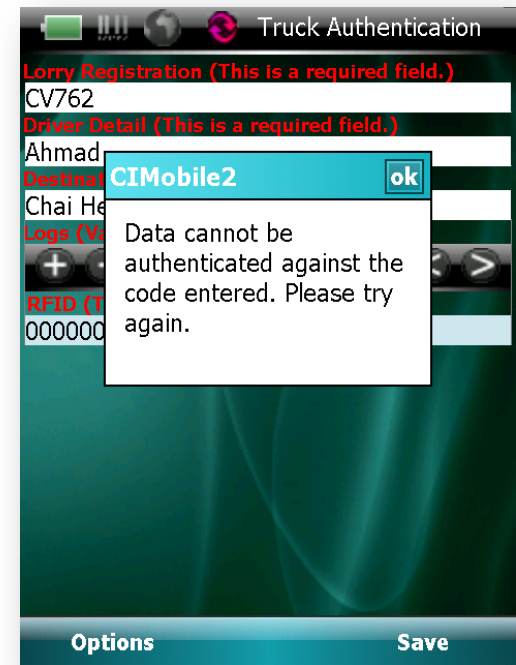


Enforcement Module

OUTPUT & MAIN FINDINGS (cont'...)

Main Findings

- i. Stringent monitoring and tracking through process of CoC
- ii. Application of high technology to facilitate timber monitoring and tracking from the forest to the mill, however, the operational cost seems to be expensive
- iii. Enhancement of enforcement activities



RECOMMENDATION

(based on the report and workshop)

- i. Further development and customization of the RFID application such as writing data from handheld onto the RFID



Previous RFID tag

A screenshot of a handheld application titled 'Inventory'. It displays a form with various fields for data entry, including a unique tag ID and descriptive text.

Inventory	
No. Petak	5
No. Siri Tag Tanda Pokok	4E4C35383737375231433031 (1633)
Spesis	Soesis I R
	RAMIN
Diameter	55
Anggaran Bil Tual	4
Kualiti Balak	2
Jenis	Pokok Tebangan
Catatan	
Options Save	



Current RFID tag

RECOMMENDATION (cont'...) (based on the report and workshop)

- ii. Extending the RFID's system scope coverage by including mill inspection



Forest Checking Station



On-Transit Enforcement



Mill Inspection

- iii. Integrating RFID system into existing FDPM current computer application

[illegible]

<p>Bayang Teguh SDN BHD Mac 16hb-31hb</p>			
<p>RINGKASANNYA :</p>			
<p>A. KAYU KERAS BERAT HHW 100%</p>			
1 Balau	36.06 m ³	× RM 44.00	RM 1586.64
2 Kekatang	13.85 m ³	× RM 12.00	RM 166.20
3 Merbau	4.92 m ³	× RM 89.00	RM 437.88
	54.83 m ³		RM 2190.72
<p>B. KAYU KERAS SEDERHANA MHW 100%</p>			
1 Kasai	10.36 m ³		
2 Kelat	18.91 m ³		
3 Kelalang	20.95 m ³		
4 Kempas	11.82 m ³		
5 Kemuning	57.51 m ³		
6 Merbau	7.76 m ³		
	127.31 m ³		
<p>C. KAYU KERAS RINGAN LHW 100%</p>			
1 Kedondong	14.47 m ³		
2 Medang	1.21 m ³		
3 Meluak	8.15 m ³		
4 Mempiang	8.90 m ³		
5 Meranti Merah Muda	279.56 m ³		
6 Meranti Merah Tua	245.08 m ³		
7 Meranti Kuning	57.79 m ³		
8 Meranti Putih	12.82 m ³		
9 Merawan	8.21 m ³		
10 Mersawa	96.55 m ³		
11 Nyatoh	41.38 m ³		
12 Petaling	1.41 m ³		
13 Perah	1.67 m ³		
14 Tulang Daging	1.72 m ³		
15 Sepetir	53.99 m ³		
	832.91 m ³		
<p>D. KAYU KERAS SEDERHANA MHW 50%</p>			
1 Kelat	1.06 m ³	× RM 12.50	RM 13.25
2 Kelalang	2.03 m ³	× RM 6.00	RM 12.18
3 Kering	3.88 m ³	× RM 21.00	RM 81.48
	6.97 m ³		RM 106.91
<p>E. KAYU KERAS RINGAN LHW 50%</p>			
1 Medang	1.33 m ³	× RM 6.00	RM 7.98
2 Mempening	2.50 m ³	× RM 6.00	RM 15.00
3 Meranti Merah Muda	10.45 m ³	× RM 24.00	RM 250.80
4 Meranti Merah Tua	2.25 m ³	× RM 28.50	RM 64.12
5 Meranti Kuning	1.04 m ³	× RM 17.00	RM 17.68
6 Nyatoh	2.12 m ³	× RM 20.00	RM 42.40
7 Pungaai	1.76 m ³	× RM 6.00	RM 10.56
8 Ramin	1.22 m ³	× RM 44.00	RM 53.68
	22.67 m ³		RM 462.22
<p>A. KAYU KERAS BERAT HHW 100%</p>			
	54.83 m ³	RM	2190.72
<p>B. KAYU KERAS SEDERHANA MHW 100%</p>			
	127.31 m ³	RM	4056.55
<p>C. KAYU KERAS RINGAN LHW 100%</p>			
	832.91 m ³	RM	38195.48
<p>D. KAYU KERAS SEDERHANA MHW 50%</p>			
	6.97 m ³	RM	106.91
<p>E. KAYU KERAS RINGAN LHW 50%</p>			
	22.67 m ³	RM	462.22
<p>Jumlah Kecil</p>			
Ses RM 10.00 × 1,044.69 m ³	1,044.69 m ³	RM	45,011.88
		RM	10446.90
<p>Jumlah Besar</p>			
		RM	55,458.78
<p>Baki Cukai</p>			
Jumlah Pas Memindah	= RM	109,991.42	Helai
	=	50	

- iv. Inclusion of unique identifier (security code) into the existing removal pass

Manually Issued Removal Pass

RFID Generated Removal Pass

RECOMMENDATION (cont'...) (based on the report and workshop)

- v. Replicate and extend the system to full coverage of Ramin habitat

Helveta CI World - Windows Internet Explorer provided by Yahoo!

http://plot1.helveta.com:3080/cview/

Asset Browser

- Master Issue List (22/0)
- ITTO Ramin (22/0)
- Kompartment 74A/Pekan
- Reports
 - ITTO Ramin Dashboard
 - Peta Inventori Ramin
 - Inventori
 - Inventori Pokok
 - Pokok Ditebang
 - Tual Balak Hasil
 - Buku Kawalan
 - PAS BAGI MEMINDAHKAN

Flowchart: Inventori → Penebangan → Tual Balak → Matau Utama/Balai Pemeriksaan

Meter Padu

Jenis Hasil	Bilangan Atau Kuantiti	Panjang (meter)	Garisputat Min (cm)	Potongan Bagi Rongga dll		Isipadu Bersih (m3)	Kadar Royalti / m3	Royalti
				Isipadu	Isipadu			
RAMIN	XJW4AM3X8FEM	6.20	41	0.08		0.08	11.00	0.90
RAMIN	9WFLJF72RWY5	6.20	48	0.11		0.11	11.00	1.23
RAMIN	KM10PKKWNA4C	9.20	32	0.07		0.07	11.00	0.81

PENDUA

KERAJAAN NEGERI Negeri Sembilan

AKTA PERHUTANAN NEGARA 1984

BORANG 8

PAS BAGI MEMINDAHKAN HASIL HUTAN

Seksyen 70 (2)

No. PAS PEMINDAHAN: 298464

jayamani

Pas ini membenarkan Encik/Syarikat

No. K.P.P.N. 681115055315 yang beralamat di

memindah melalui Balai Pemeriksa Jabatan Hutan di

hasil hutan yang diperihalkan di bawah ini yang telah diambil di bawah Lesen/Lesen Kecil/Permit Penggunaan* No.

NT 01/03/2010

SEBAYA TEGUH

ID10367 - PSMB_K.L

Jenis Hasil	Bilangan Atau Kuantiti	Panjang (meter)	Garisputat Min (sentimeter)	Meter Padu			Kadar Royalti	Royalti		
				Isipadu	Potongan Bagi Rongga dll	Isipadu Bersih				
53d	AA07275 MT. TEMBAGA	1	5.50	79.00	2.70	22.00	0.21	2.49	48.00	119.52
319	AA07285 MT. TEMBAGA	1	5.60	75.00	2.47	0.00	0.00	2.47	48.00	118.56
819	AA07284 MT. TEMBAGA	1	5.50	69.00	2.06	0.00	0.00	2.06	48.00	98.88
5fb	AA07274 MT. NEMESU	1	6.00	64.00	2.57	0.00	0.00	2.57	57.00	146.49
235	AA07282 MT. LANGGONG	1	5.00	62.00	1.51	0.00	0.00	1.51	48.00	72.48
7c9	AA07281 MT. NEMESU	1	5.60	62.00	1.69	0.00	0.00	1.69	57.00	96.33
d29	AA07277 MT. NEMESU	1	6.10	62.00	1.84	0.00	0.00	1.84	57.00	104.88
195	AA07279 MT. R. DAUN	1	6.80	54.00	1.56	26.00	0.36	1.20	48.00	57.60
ee3	AA07278 MT. NEMESU	1	6.10	53.00	1.35	0.00	0.00	1.35	57.00	76.95
175	AA07283 MT. TEMBAGA	1	7.50	52.00	1.59	0.00	0.00	1.59	48.00	76.32
301	AA07280 MT. R. DAUN	1	6.80	51.00	1.39	0.00	0.00	1.39	48.00	68.72
501	AA07276 MT. SERAYA	1	6.80	51.00	1.39	0.00	0.00	1.39	57.00	79.23
Jumlah		12				22.12	0.57	21.55		1113.96
SES:								RM. 10		215.50
Jumlah Besar										1329.46

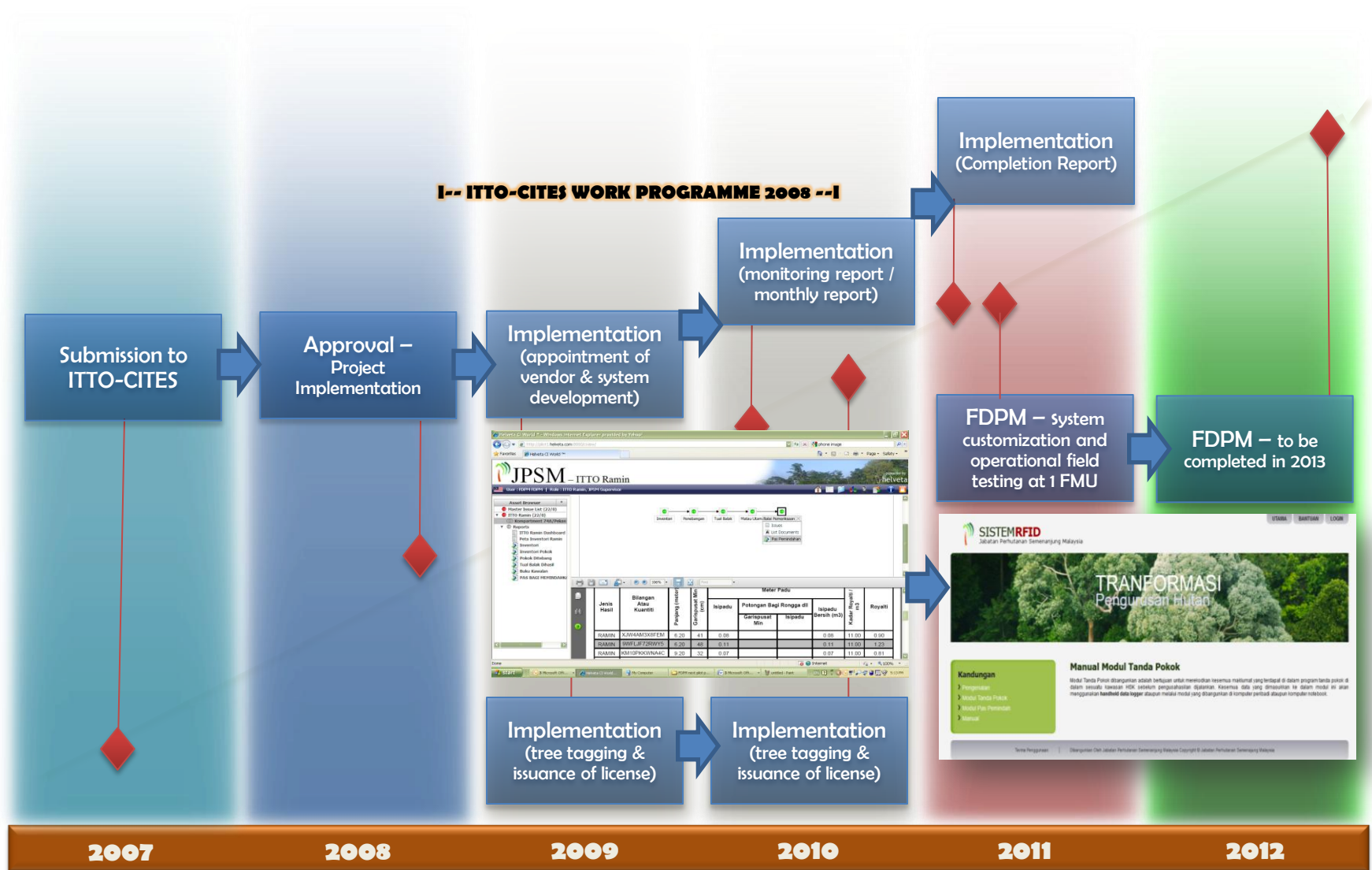
No. Pendaftaran Alat Pengangkutan: ND7443

Destinasi: Kim Lee Sawmill, Sbn

Waktu: 12:25 PM

Tarikh: 24/05/2011

POTENTIAL FOR FUTURE APPLICATION



CONCLUSION

The RFID technology is a useful instrument for effective timber tracking from the forest to the mill. However, continuous replication to the other FMUs / States is needed to find better costing.

ACKNOWLEDGEMENT

This work was made possible by a grant from ITTO under its collaborative program with CITES to build capacity for implementing timber licensing. Donors to this collaborative program include the EU (primary donor), the USA, Japan, Norway, New Zealand and Switzerland. The roles played by the Ministry of Natural Resources and Environment Malaysia (NRE) as well as FDPM as implementing agency are also greatly appreciated.



THANK YOU



COSTING

i. Capital / Asset

a. System Development = Free

b. Handheld (Min. 5 / license) = USD 5k / unit

c. RFID Tag = 50 cent – USD 10

ii. Operational Cost (tagging, harvesting)

a. Without RFID

- = USD 85 / ha – tagging
- = USD 100 / m³ – harvesting

b. Using RFID

- = USD 102 / ha – tagging
- = USD 120 / ha - harvesting