ACTIVITY COMPLETION REPORT

USE OF DNA FOR IDENTIFICATION OF *GONYSTYLUS* SPECIES AND TIMBER GEOGRAPHICAL ORIGIN IN SARAWAK

IMPLEMENTING AGENCY:

SARAWAK FORESTRY CORPORATION

ACTIVITY COMPLETION REPORT

USE OF DNA FOR IDENTIFICATION OF *GONYSTYLUS* SPECIES AND TIMBER GEOGRAPHICAL ORIGIN IN SARAWAK

ACTIVITY COMPLETION REPORT

A. Activity Identification

a	**Title**	**Use of DNA for Identification of *Gonystylus* Species and Timber Geographical Origin in Sarawak**
b.	**Implementing agency**	**Sarawak Forestry Corporation**
c.	**Start date**	**October 2012**
d.	**Project duration**	**12 months extended for 7 months without additional funding**
e.	**Activity Cost**	
	i. ITTO	**US$ 123,000.00**
	ii. Government contribution	**US$ 132,600.00**
	iii. Total cost	**US$ 255,600.00**

Activity Technical and Scientific Staff

Activity Coordinator
Lucy Chong

Team members
Bibian Diway
Lai Pei Sing
Lucy Chong

National Experts
Lee Soon Leong
Kevin Ng Kit Siong
Tnah LeeHong
Ng Chin Hong

Implementing Agency
Sarawak Forestry Corporation, Lot 218, KCLD, Jalan Tapang,
Kota Sentosa, 93250 Kuching, Sarawak, Malaysia.
Tel: +6082 615888 Fax: +6082 610099
E-mail: info@sarawakforestry.com

EXEUTIVE SUMMARY

1. ACTIVITY IDENTIFICATION

There are 26 *Gonystylus* species recorded in Sarawak of which two species are restricted to the Peat Swamp Forest (PSF) and the remaining species are widely distributed in the Mixed Dipterocarp Forest (MDF) and Heath Forest. The Ramin population in the wild has shown a huge decline due to land conversion and over harvesting, however, there is still a high demand for its timber. This has caused the listing of Ramin in Appendix II of CITES. The international trade of Ramin timber and products thus far has been regulated under CITES with the verification of the stated timber species and origin in the CITES export permit.

Usually, timber species are identified by wood anatomy using identification guides and simple hand-held lenses. By this method, verification will only go to genus level and the timber origin is based entirely on what is stated in the permit. Timber forensic to infer the legality of timber origin and verification of species is needed therefore to dispel any doubt.

While CITES has significantly addressed some of the illegal Ramin trade, more measures are needed to improve and enhance the control system in place. The DNA sequence database of Ramin is an advance and powerful technology to infer the identification and timber geographical origin of Ramin species.

2. ACTIVITY OBJECTIVES AND IMPLEMENTATION STRATEGY

Specific objective

The specific objectives are to construct a molecular database of Ramin for the identification of species and the geographical origin in Sarawak, and to develop a protocol for extracting DNA from Ramin timber.

Implementing strategy

The implementation of this Activity involved the managerial, administrative and financial work such as the recruitment of contract researcher and research assistant, documentation and monitoring of financial expenses consistent with the Activity proposal. The technical and scientific matters covered the field work, laboratory experiments and data analysis. Training of staff was emphasised particularly on the sampling technique and sequence analysis at Forest Research Institute Malaysia (FRIM). During field work to some remote areas, the local community was engaged as local guides and boatman.

3. ACTIVITY PERFORMANCE: DIFFERENCES BETWEEN PLANNED AND REALIZED ACTIVITY IMPLEMENTATION

Specific objectives: There was no change in specific objectives.

Activity personnel: The contract researcher and research assistant were engaged in February 2013 four months after the start date in October 2012. The delay in recruitment was due to internal

administrative issues. Their engagement was extended for three months until April 2014 to complete the laboratory analysis.

Time schedule: The starting of the major activities such as the field work, laboratory experiments and analysis was delayed for four months due to the delay in recruitment of contract personnel. Late delivery of consumables by suppliers, additional analysis and longer time taken in some activities has delayed the completion of this Activity. The Activity was extended for seven months to complete the laboratory analysis and additional time was necessary to prepare the Activity technical reports.

Budget amendment: No amendment

4. PROJECT ACHIEVEMENTS

Outputs and specific objectives achieved

The achievement of Activity's specific objectives was mainly focused on:

i) Obtaining secondary information on Ramin distribution from BRAHMS database of Sarawak Herbarium.

ii) Collection and preservation of samples in the field throughout Sarawak and recording GPS coordinates for the trees.

iii) Laboratory experiments involving the modification and standardisation of extraction protocol, DNA extraction, amplification of DNA and sequencing of amplified DNA.

iv) Analysis of sequenced DNA for species and timber origin identification.

v) Development of DNA sequence database.

Target Beneficiaries

The DNA sequence database developed is one of the powerful tools in enhancing the protection and conservation of the Ramin species, particularly in the verification of legality of species and origin.

The database from four DNA regions can be utilised to genetically distinguish 17 Ramin species including *Gonystylus bancanus* and able to assign the samples back to their geographical range. Thus, the database is useful to the government and international institutions involved in the protection/conservation of this CITES-listed species.

Through the Activity, two contract personnel were engaged, a number of Sarawak Forestry Corporation personnel were involved in sample collection throughout Sarawak, and researchers were involved in sequence and data analysis with experts from FRIM.

5. LESSONS LEARNED

Coordination within and among agencies involved in the Activity was crucial in the initial planning and during implementation of the Activity to ensure that activities conducted were according to the schedule.

The success of the Activity greatly depended on the commitment of all personnel and relevant agencies in building the database. It was also influenced by the conditions related to the sampling sites, availability of samples and laboratory experiments.

The technical difficulties encountered related to field work, laboratory experiment and data analyses during implementation of the Activity were unavoidable. Extension of the Activity for another seven months was therefore necessary.

6. RECOMMENDATIONS

It is recommended that the Ramin DNA sequence database be combined with Ramin databases from other Ramin producing region. The database should be uploaded to a common platform or a recognised database system such as National Centre for Biotechnology Information (NCBI) to be used as future reference particularly for timber forensic research.

PART II MAIN TEXT

1.0 ACTIVITY IDENTIFICATION

1.1 Project Context

Social, economic and environment

There are 26 species of *Gonystylus* recorded in Sarawak based on Sarawak Herbarium records; however only 21 species were discovered and collected during this Activity including *Gonystylus bancanus* which is confined only to Peat Swamp Forest. The other species are found in Mixed Dipterocarp Forest and Heath Forest. The reduction of Ramin population in the wild particularly *G. bancanus,* was partly due to over harvesting to meet the high demand for Ramin timber from the international markets and also due to land conversion for other development and agricultural purposes. This has caused a negative impact on the sustainability of Ramin populations and negative indication on the sustainable management of Ramin in Sarawak.

Project location

Leaf and wood samples were collected from 13 populations throughout Sarawak for extraction of DNA. Most of the sampling sites were in National Parks and Forest Reserves. The laboratory experiments were conducted at the DNA laboratory in Sarawak except for the DNA sequence analysis which was conducted at the genetic laboratory in FRIM.

Relevant national and regional policies and programs

To sustain and conserve Ramin population in the wild, the Sarawak government imposed a ban on the export of Ramin logs that was enforced since 1980. The government has also gazetted four peat swamp forests as national parks: Loagan Bunut National Park, Maludam National Park, Sedilu National Park and Ulu Sebuyau National Park. At the international level, all Ramin species have been listed in CITES Appendix II.

1.2 Origin and problem

The protection measures imposed by the local government and international bodies have shown positive improvement in the conservation of Ramin. However, the measures need to be strengthened to further combat illegal trading particularly on the verification of timber origin and species identification. Verification system is important when smuggling and laundering of illegal Ramin, ineffective control on Ramin harvesting and encroachment into protected areas to harvest Ramin occurs. Many protected areas are located in remote places and thus monitoring is a big challenge. Furthermore, it is impossible for the government to station its enforcement personnel at every corner/perimeter of the park's boundary.

In the trading of timber species listed under CITES Appendix II, the CITES export permit and custom verification on species and origin is required. Though species identification of Ramin timber can be done by experts, it is generally only up to genus level. This can be very confusing as Ramin timber is rather similar to other timber genus

such as Jelutong (*Dyera*) and Rubber wood (*Hevea*). The confirmation of the timber origin as stated in the permit is also problematic. Therefore, an advance and reliable verification system for Ramin such as the molecular DNA technology which is widely used in human forensic is promising.

2.0 ACTIVITY OBJECTIVES AND IMPLEMENTATION STRATEGY

2.1 Project rationale

This Activity intended to develop a database for Ramin species identification and timber origin. The ability to prove the legality of species and origin is crucial to enhance trading control of Ramin timber and thus enhance the sustainable management and protection of Ramin in the wild. From this Activity, the database will be developed based on sequence DNA from Ramin nuclear DNA and chloroplast DNA region for species identification, and microsatellite markers to be used for geographical origin identification.

This Activity is also a follow-up of the previous ITTO CITES Activity on “Development of DNA database for *Gonystylus bancanus* in Sarawak”. The DNA sequence developed using microsatellite markers was further analysed under this Activity for application of the sequence in identification of the origin of Ramin timber in Sarawak, with special reference to *G. bancanus.*

Specific objective 1

To construct a molecular database of Ramin for the identification of species and geographical origin in Sarawak.

Specific objective 2

To develop a protocol for extracting DNA from Ramin timber.

2.2 Activity implementation strategy

The activities were as follows:

1. Collation of secondary data on Ramin species distribution from BRAHMS system.
2. Selecting and planning for field sampling throughout Sarawak.
3. Recruitment of contract researcher and research assistant.
4. Experimenting and standardising extraction protocol adopted from previous ITTO CITES Activity on "Development of DNA database for *Gonystylus bancanus* in Sarawak".
5. Extraction of DNA from collected plant samples (leaf and wood samples) and from preserved Ramin wood.
6. Purification of extracted DNA using high pure PCR template preparation kit.
7. PCR amplification of DNA.
8. Visualisation of amplified DNA or PCR products on agarose gel.
9. Purification of PCR products at FRIM using USB® ExoSAP-IT PCR product cleanup.

10. Sequencing of PCR product using Genetic Sequencer at FRIM.
11. Assembly of sequence DNA using Sequencher (Sequence analysis software).
12. Analysis of sequence DNA data.
13. Development of sequence DNA database.

2.3 Risk

Recruitment of qualified candidates caused a delay at the beginning of the Activity. Some consumables and kits required took longer time to be delivered by suppliers. In some cases, the sequence analysis has to be repeated for confirmation of initial results. Unexpected additional analysis and longer time taken for some of the activities has delayed the completion of the Activity.

3.0 ACTIVITY PERFORMANCE

3.1 Performance of each activity

Output and Operational Activity	Schedule (Duration)
Output 1.1 DNA from Ramin samples extracted.	
Activity 1.1.1 Identification of Ramin populations - information from the BRAHMS database will provide the distribution of Ramin species throughout Sarawak.	October-November 2013
Activity 1.1.2 Sampling of Ramin samples from the identified populations - leaves and wood samples will be collected from the identified populations. Wood samples will also be collected from the potential log ponds and industries, otherwise wood samples collected from the wild will be dried for different periods and processed before extraction of DNA.	January 2013–January 2014
Activity 1.1.3 Extraction and purification of DNA - extraction and purification of DNA will be conducted.	January 2013–March 2014
Output 1.2 Chloroplast DNA haplotypes between species and origin determined.	
Activity 1.2.1 Sequencing of intergenic spacer regions of cpDNA - sequencing of intergenic spacer regions of cpDNA using universal chloroplast primers will be conducted at the FRIM Genetics laboratory.	January 2013–March 2014

Activity 1.2.2 Analysis of chloroplast sequence DNA - search for specific nucleotide capable of discriminating between species and origin will be conducted.	September 2013– March 2014
Activity 1.2.3 Development of chloroplast DNA database - the haplotypes profiles of species and origin will be compiled to create the database.	February 2014– March 2014
Output 2.1 DNA from wood samples extracted.	
Activity 2.1.1 Collecting and processing of timber samples - the timber samples will be collected and processed for different duration of drying.	February 2013– December 2013
Activity 2.1.2 Optimizing the DNA extraction protocol - extraction protocol will be modified from hexadecyltrimethylammonium bromide (CTAB) and optimized.	February 2013– March 2013
Output 2.2 DNA extraction protocol for Ramin timber developed.	
Activity 2.2.1 Extracting DNA of Ramin timber using the optimized protocol - the processed timber samples will be extracted using the optimized protocol.	March 2013– January 2014
Activity 2.2.2 Sequencing and analysing data - sequencing analysis will be carried out at the Forest Research Institute Malaysia (FRIM).	September 2013– January 2014
Activity 2.2.3 Establishing the DNA extraction protocol for Ramin timber - the DNA extraction protocol for Ramin timber will be established with the collaborating agencies.	January 2014

3.2 Activity achievement

Specific objective 1, Output 1.1: DNA from Ramin samples extracted.

Leaf and wood samples of Ramin species for DNA extraction and voucher specimens for species identification were collected from 13 populations throughout Sarawak. All together, 21 species were identified including *Gonystylus bancanus.* Sample collection and species identification were completed in January 2014. Before the actual DNA extraction, modification of CTAB protocol was carried out to standardise the protocol so as to extract DNA from all Ramin species. All DNA extracts were further purified with the High Pure PCR Template Preparation Kit (Roche) according to the manufacturer's protocol. DNA extraction and purification were completed in March 2014.

Specific objective 1, Output 1.2: Chloroplast DNA haplotypes between species and origin determined.

For Ramin species identification, a total of eight chloroplast DNA (cpDNA) regions were tested for species identification of Ramin. In addition, two nuclear DNA (nrDNA) regions were also selected. From eight cpDNa and two nrDNA regions tested, only four (one nrDNA and three cpDNA) were selected for further sequence analysis. The sequence data obtained were then subjected to three types of data analysis: Neighbor-Joining using MEGA5, genetic gap distance using MEGA6 and blasting analysis using BLAST. A total of 17 Ramin species including *G. bancanus* were genetically

distinguishable. A DNA database of Ramin species for identification was established.

For identification of geographical origin, the sequence data from 16 microsatellites markers previously developed were used. In addition, DNA sequence data from five cpDNA regions generated by FRIM were also included. A total of nine haplotypes for *G. bancanus* from five cpDNA were defined. Six haplotypes were rare and found only in a single population. Further analysis was conducted to test the capability of the samples to be assigned back to the original populations. The correct assignment rate when all the populations were analyzed individually was 58.78%. However, when the populations were compiled into two large populations (Loagan Bunut and Kayangeran as one population, and the remaining populations as another population) the correct assignment rate increased to 99.07%. This finding proved that DNA can be used for tracing the Ramin timber geographical origin in Sarawak though it may be difficult to trace back to the exact origin or to stump.

Specific objective 2, Output 2.1: DNA from wood sample extracted.

Experiment to extract DNA from Ramin wood sample was conducted on preserved Ramin wood and different wood parts. Fresh wood samples collected were preserved in six preservation methods for up to three months: air drying, oven drying, in silica dry, soaking in water, ethanol and NaCl-CTAB. The DNA was extracted using the modified CTAB protocol established. The results showed that DNA extraction was successful even for samples stored up to

three months. However, the intensity of the DNA bands gradually decreased with time for some preservation methods.

Extraction of DNA from inner bark (cambium), sapwood and heartwood using the same extraction protocol was successful. Visualisation of amplified DNA on agarose gel showed the presence of DNA bands though they gradually decreased from inner bark, sapwood to heartwood.

Specific objective 2, Output 2.2: Establishing the DNA extraction protocol for Ramin timber.

The DNA extracted from preserved wood samples and wood parts of Ramin was suitable for further analysis such as PCR amplification, sequencing, and DNA fingerprinting. This showed that the modified DNA extraction protocol is reliable and has the potential for use in timber forensic work.

Technical Reports

Four technical reports were produced and published:

1. Standard DNA extraction protocol for *Gonystylus* species.
2. DNA extraction from wood of *Gonystylus* species.
3. Development of DNA sequence database of Ramin for DNA-based species identification.
4. Geographic pattern of phenotypic variation of Ramin in Sarawak: towards the identification of the origin of timber.

3.3 Total amount of expenditures and analysis

From the ITTO contribution of US$123,000.00 a total of US$121, 924.84 was spent with a balance of US$1,075.16 as reflected in the 'Activity Cash Flow Statement-ITTO contribution' and the 'Activity Financial Statement-ITTO contribution' in **Annexes 1** and **2** respectively. The contribution from the Government of Malaysia was US$132,600.00 of which a total of US$90,016.02 was spent as shown in the 'Activity Cash Flow Statement-Government of Malaysia (GoM) contributon' and the 'Activity Financial Statement-GoM contribution' in **Annexes 3** and **4** respectively.

4.0 TARGET BENEFICIARIES INVOLVEMENT

The DNA extraction protocol is applicable for the extraction of DNA for all Ramin species and Ramin wood, and can be used by many scientists and researchers with similar interest. The DNA sequence database will benefit local and national governments, NGOs and timber forensic agencies to enhance the protection and conservation of Ramin.

5.0 ASSESSMENT AND ANALYSIS

5.1 The Activity design has been efficient in achieving the Activity Objectives and to answer key issues raised in the Activity Documentation.

5.2 Implementation strategies which have been taken through technical, scientific and managerial aspects have been effective in the execution of the Activity operation activities and produce outputs.

5.3 In general, the execution of the Activity has been in accordance with the expectation made during the Activity identification process, the problem to be addressed and the outputs achieved through the implementation approach.

5.4 The Activity was implemented on schedule with involvement of staff from Sarawak Forestry Corporation (SFC) in the field work, contract personnel in laboratory work and experts from FRIM in scientific analysis.

5.5 The expected outputs achieved through the Activity were necessary for the enhancement of tracing and tracking system for Ramin timber in the supply and production chain.

6.0 LESSONS LEARNED

6.1 Activity development

To ensure the successful implementation and completion of the Activity, cooperation and support from relevant stakeholders involved are required as well as commitment of all personnel and agencies involved. This includes the relevant Ministries and government agencies, personnel directly involved in implementing the operational activities and local community at the sampling sites.

6.2 Operational matters

To build a more comprehensive and complete database which is necessary for creating an effective and validated forensic identification tool for Ramin species identification, more Ramin species and samples from other locations in Sarawak should be

collected and analysed. The database for tracing the geographical origin will also be more effective if used together with the Ramin database from other geographical ranges nearby, for example, from Indonesia, Brunei, Peninsular Malaysia and Sabah. Building this database depended greatly on the commitment of all personnel and agencies involved. It was also influenced by the technical conditions at the sampling sites, availability of targeted samples and matters related to laboratory experiments.

The difficulties encountered during implementation were accessibility to many sampling sites which took longer than expected, some delay in the supply of chemicals and reagents particularly for PCR analysis, and the queuing system for sequence analysis conducted at FRIM. The occurrence of delays was unavoidable.

7.0 CONCLUSION AND RECOMMENDATION

7.1 Development lessons

Cooperation and commitment from agencies and personnel involved has made the Activity objectives achievable. The DNA database for species identification was developed for 17 Ramin species and haplotypes were determined only from Sarawak Ramin database.

7.2 Operation lessons

The Activity Coordinator played an important role to ensure the successful execution of the Activity. Commitment and involvement of managers and staff from SFC, guidance from experts from the

collaborating agency (FRIM) as well as local communities from the sampling sites has ensured the smooth operation of the activities at the planning and implementation level.

7.3 Activity sustainability after completion

To further sustain the Activity, compilation of DNA sequence databases from other Ramin producing regions need to be carried out and centralised where all databases have to be uploaded to the Centre for Biotechnology Information (NCBI) or other recognised database platform. The potential of the Activity in strengthening the control of Ramin trade should be promoted among stakeholders (nationally and internationally) and the producing countries.

Annex 1

ACTIVITY CASH FLOW STATEMENT (in US Dollar)

ITTO CONTRIBUTION

Program Title: ITTO-CITES Program, Phase II

Activity No. : 1 Period covered (ending on): April 2014

Activity Title: Use of DNA for Identification of *Gonystylus* species and Timber Geographical Origin in Sarawak

Component	Reference	Date	Amount	
			in US $	Local Currency In RM
A. <u>Funds received from ITTO:</u>				
1. First instalment		Nov-12	61,500.00	185,288.68
2. Second Instalment		10-Oct-13	61,500.00	194,820.76
3. Third instalment				
4. Fourth instalment				
5. Interest on bank deposits				
Total Funds Received:			123,000.00	380,109.44

Annex 1 Continue

B.	**Expenditures (by Executing Agency):**				
10.	Personnel				
	11. Coordinator				
	12. Other Personnel				
	12.1 Assistant 1			14,008.43	43,290.25
	12.2 Assistant 2			6,336.23	19,580.85
	12.3 Other labour				
	15 Personnel Total:			20,344.66	62,871.10
20.	Sub-contracts				
	21. Sub-contract (Topic e.g. mapping, etc.)			3074.14	9500.00
	22. Sub-contract (Topic 2)				
	29. Sub-contracts Total:			3074.14	9500.00
30.	Travel				
	31. Daily Subsistence Allowance				
	31.1 National Expert(s)				
	31.2 International Consultant(s)				
	31.3 Others			25,330.61	78,279.18
	39. Travel Total:			25,330.61	78,279.18

Annex 1 Continue

50. Consumable Items				
51. Raw materials			68,062.45	210,333.38
52. Spares			2,504.29	7,739.00
53. Utilities			1,129.40	3,490.19
54. Office Supplies			415.94	1,285.37
59. Consumable Items Total:			72,112.07	222,847.94
60. Miscellaneous				
61. Sundry			1,063.36	3,286.10
62. Contingencies				
69. Miscellaneous Total:			1,063.36	3,286.10
70. Others (specify)				
71. Others (specify)				
79. Others Total:				
Total Expenditures To-date:			121,924.84	376,784.32
Remaining Balance of Funds (A-B):			1,075.16	3,325.12

Exchange rate: 1USD = RM3.0903

Notes: (1) Amounts in U.S. dollars are converted using the average rate of exchange when funds were received by the Executing Agency;

(2) Amount of expenditures in US dollar should be the same as amount shown in column (c) of the Financial Statement (with direct link from the Cash Flow Statement);

(3) Provide a **list of all expenditure components** (listing the expenditures on excel format, showing date, payee, category/components of expenditures and the amount, both in local currency and in US dollar);

(4) Submit all **actual supporting payment documents/evidences** (filed in the same sequence as the entries in the list of expenditures in (3) above); and

(5) Submit **bank reconciliation statements** along with the bank statement to support the remaining balances/funds in the Cash Flow Statement.

Annex 2

ACTIVITY FINANCIAL STATEMENT (in US Dollar)

ITTO CONTRIBUTION

Program Title: ITTO-CITES Program, Phase II

Activity No. : 1 Period covered (ending on): April 2014

Activity Title: Use of DNA for Identification of *Gonystylus* species and Timber Geographical Origin in Sarawak

	Component	Original Amount (A)	Expenditures To-date			Available Funds (E) { A - D }
			Accrued (B) b/	Expended (C)	Total (D) { B + C }	
I.	**Funds managed by Executing Agency**					
10	Personnel					
	11. Coordinator					
	12. Other Personnel					
	12.1 Assistant 1			14,008.43	14,008.43	(14,008.43)
	12.2 Assistant 2			6,336.23	6,336.23	(6,336.23)
	12.3 Other labour	22,000.00				22,000.00
	15. Personnel Total:	22,000.00		20,344.66	20,344.66	1,655.34

Annex 2 Continue

20	Sub-contracts					
	21. Sub-contract	10,000.00		3074.14	3074.14	6,925.86
	22. Sub-contract					
	29. Component Total:	10,000.00		3074.14	3074.14	6,925.86
30	Travel					
	31. Daily Subsistence Allowance					
	31.1 National Expert(s)					
	31.3 Others	35,000.00		25,330.61	25,330.61	9,669.39
	39. Travel Total:	35,000.00		25,330.61	25,330.61	9,669.39
50	Consumable Items					
	51. Raw Materials	35,000.00		68,062.45	68,062.45	(33,062.45)
	52. Spares	3,000.00		2,504.29	2,504.29	495.71
	53. Utilities	4,000.00		1,129.40	1,129.40	2,870.60
	54. Office Supplies	4,000.00		415.94	415.94	3,584.06
	59. Consumable Items Total:	46,000.00		72,112.07	72,112.07	(26,112.07)

Annex 2 Continue

60.	Miscellaneous						
	61.	Sundry	10,000.00		1,063.36	1,063.36	8,936.64
	62.	Contingencies					
	69.	Miscellaneous Total:	10,000.00		1,063.36	1,063.36	8,936.64
70.	Others (specify)						
	71.	Others (specify)					
	79.	Others Total					
100		GRAND TOTAL:	123,000.00		121,924.84	121,924.84	1,075.16

Exchange rate: 1USD = RM3.0903

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

a/ The **Cash Flow Statement must be completed first**, before the other inputs into this Financial Statement;
b/ Accrued expenditure: expenditures incurred during the reporting period, but not yet settled;
c/ Amounts under the "Expended" column will be transferred automatically from the Cash Flow Statement (with direct link); and
d/ Refer to the notes in the Cash Flow Statement for the supporting **information and documents** that are to be submitted to the ITTO Secretariat.

Annex 3

ACTIVITY CASH FLOW STATEMENT (in US Dollar)

GOVERNMENT OF MALAYSIA CONTRIBUTION

Program Title: ITTO-CITES Program, Phase II

Activity No. : 1 Period covered (ending on): April 2014

Activity Title: Use of DNA for Identification of *Gonystylus* species and Timber Geographical Origin in Sarawak

Component	Reference	Date	Amount	
			in US$	Local Currency In RM
A. <u>Funds received from GoM:</u>				
1. First instalment		Nov-12	66,300.00	202,215.00
2. Second Instalment		Oct-13	66,300.00	207,558.78
3. Third instalment				
4. Fourth instalment				
5. Interest on bank deposits				
Total Funds Received:			132,600.00	409,773.78

Annex 3 continue

B.	**Expenditures (by Executing Agency):**				
	10 Personnel				
	11. Coordinator			14,060.12	43,450.00
	12. Other Personnel				
	12.1 Assistant 1			7,989.35	24,689.50
	13. National Experts				
	13.1 Expert 1				
	13.2 Expert 2				
	13.3 Expert 3				
	15 Personnel Total:			22,049.48	68,139.50
	16. Workshop/Seminar and Training				
	(specify beneficiaries)				
	16.3 Venue and Logistics				
	16.4 Workshop Materials				
	16.5 Others			1,362.33	4,210.00
	17. Workshop/Seminar and Training Total:			1,362.33	4,210.00
30.	Travel				
	31. Daily Subsistence Allowance				
	31.1 National Expert(s)				

Annex 3 continue

	31.2 International Consultant(s)				
	31.3 Others			8,127.85	25,117.50
33.	Local Transport Costs				
	33.1 National Expert(s)				
	33.2 International Consultant(s)				
	33.3 Others			3,507.75	10,840.00
39.	Travel Total:			11,635.60	35,957.50
40.	Capital Items				
43	Capital Equipment				
	43.1 Computer Equipment (specify)				
	43.2 Others (specify)			35,472.28	109,620.00
49.	Capital Items Total:			35,472.28	109,620.00
70.	Others (specify)				
71.	Others (Agency Management Cost)			19,496.33	60,249.50
79.	Others Total:			19,496.33	60,249.50
	Total Expenditures To-date:			90,016.02	278,176.50
	Remaining Balance of Funds (A-B):			42,583.98	131,597.28

Exchange rate: 1USD = RM3.0903

Notes:

(1) Amounts in U.S. dollars are converted using the average rate of exchange when funds were received by the Executing Agency;

(2) Amount of expenditures in US dollar should be the same as amount shown in column (c) of the Financial Statement (with direct link from the Cash Flow Statement);

(3) Provide a **list of all expenditure components** (listing the expenditures on excel format, showing date, payee, category/components of expenditures and the amount, both in local currency and in US dollar);

(4) Submit all **actual supporting payment documents/evidences** (filed in the same sequence as the entries in the list of expenditures in (3) above); and

(5) Submit **bank reconciliation statements** along with the bank statement to support the remaining balances/funds in the Cash Flow Statement.

Annex 4

ACTIVITY FINANCIAL STATEMENT (in US Dollar)

GOVERNMENT OF MALAYSIA CONTRIBUTION

Program Title: ITTO-CITES Program, Phase II

Activity No.:1 Period covered (ending on): April 2014

Activity Title:Use of DNA for Identification of *Gonystylus* species and Timber Geographical Origin in Sarawak

Component	Original Amount (A)	Expenditures To-date			Available Funds (E) { A - D }
		Accrued (B) b/	Expended (C)	Total (D) { B + C }	
I. Funds managed by Executing Agency					
10. Personnel					
11. Coordinator			14,060.12	22,049.48	(22,049.48)
12. Other Personnel					
12.1 Assistant 1			7,989.35		
13. National Experts					
13.1 Expert 1	16,600.00				16,600.00

Annex 4 continue

	13.2 Expert 2					
	13.3 Expert 3					
15.	Personnel Total:	16,600.00		22,049.48	22,049.48	(5,449.48)
16.	Workshop/Seminar and Training (specify beneficiaries)					
	16.3 Venue and Logistics					
	16.4 Workshop Materials					
	16.5 Others	3,000.00		1,362.33	1,362.33	1,637.67
17.	Workshop/Seminar and Training Total:	3,000.00		1,362.33	1,362.33	1,637.67
30.	Travel					
33.	Local Transport Costs					
	33.3 Others	10,000.00		11,635.60	11,635.60	-1,635.60
39.	Travel Total:	10,000.00		11,635.60	11,635.60	(1,635.60)
40.	Capital Items					
43.	Capital Equipment					
	43.1 Computer Equipment (specify)					
	43.2 Others	80,000.00		35,472.28	35,472.28	44,527.72
49.	Capital Items Total:	80,000.00		35,472.28	35,472.28	44,527.72

Annex 4 continue

70.	Others (specify)					
	71. Others (Executing Agency Management Costs)	23,000.00		19,496.33	19,496.33	3,503.67
	79. Others Total	23,000.00		19,496.33	19,496.33	3,503.67
100.	GRAND TOTAL:	132,600.00		90,016.02	90,016.02	42,583.98

Exchange rate: 1USD = RM3.0903

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

a/ The **Cash Flow Statement must be completed first**, before the other inputs into this Financial Statement;

b/ Accrued expenditure: expenditures incurred during the reporting period, but not yet settled;

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

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

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