INTERNATIONAL TROPICAL TIMBER ORGANIZATION (ITTO)

REDUCING DEFORESTATION AND FOREST DEGRADATION AND ENHANCING ENVIRONMENTAL SERVICES IN TROPICAL FORESTS (REDDES)

PROJECT DOCUMENT

TITLE	REDUCING FOREST DEGRADATION AND EMISSIONS THROUGH SUSTAINABLE FOREST MANAGEMENT (SFM) IN PENINSULAR MALAYSIA
SERIAL NUMBER	RED-PD 037/11 Rev.2 (F)
SUBMITTED BY	GOVERNMENT OF MALAYSIA
ORIGINAL LANGUAGE	ENGLISH

SUMMARY

With 19.5 million hectare of its land covered with natural forest, Malaysia enjoys one of the highest percentages of forested land among tropical countries. Consequently, the timber and timber products industry are very important and play a significant role in Malaysia's economy. At the same time, there is also an increasing recognition of the protective roles of the forests such as the conservation of biodiversity, protection of soil and water resources and stabilizing the climate. As such, Malaysia has accorded the management of the forests on a sustainable basis a high priority.

Forest management in Malaysia is based on the Selective Management System (SMS) which involves the selection of a management regime to optimize not only the objectives of efficient and economic harvesting and sustained yield but, more importantly, to ensure that forest development is ecologically and environmentally sustainable. However, forest degradation in terms of carbon stocks is occurring in production forests as a result of logging operations. Logging operations in Malaysia in the past have also been reported to be damaging, but of late, significant improvements have been made. The extent of current forest degradation in terms of carbon stocks need to be further studied as it is still not well understood in Malaysia.

Reports have indicated that improved forest management could reduce degradation and reduce carbon emission. However, all these studies are confined to specific areas and with limited information for scaling up activities. Consequently, this project is implemented to assess enhancement of climate change mitigation through reduced emissions from forest degradation in Malaysia. Specifically, the project will determine emissions from forest degradation in logged forests and assess the value of enhancing forest management practices to reduce emissions from forest degradation. Financial evaluations of the improved management practices will be undertaken to provide avenues for assessing payment for ecosystem services.

EXECUTING AGENCY	FOREST RESEARCH INSTITUTE MALAYSIA (FRIM) *IN COLLABORATION WITH* FORESTRY DEPARTMENT PENINSULAR MALAYSIA
COOPERATING GOVERNMENTS	-
DURATION	36 MONTHS
APPROXIMATE STARTING DATE	TO BE DETERMINED

BUDGET AND PROPOSED SOURCES OF FINANCE	Source	Contribution in US$	Local Currency Equivalent
	ITTO	**590,922**	
	Gov't of Malaysia	273,700	
	TOTAL	**864,622**	

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PROJECT BRIEF

All inland production forests in Peninsular Malaysia are currently being managed under the Selective Management System (SMS). The system allows trees to be removed based on a flexible cutting regime where all trees above a prescribed cutting limit are removed. The determination of the cutting limit takes into consideration the existing growing stock, its increment and mortality, as well as a specified future crop at the end of a 30-year cutting cycle. However, there are concerns that the assumptions for the above factors in the implementation of SMS are not being met consistently and thus affecting the productivity of the residual stands. In addition traditional ground based harvesting logging practices have been reported to be damaging to the residual stand and the surrounding environment.

The introduction of Reduced Impact Logging (RIL) systems and practices have indeed reduced the logging damage and improved stand conditions. It is thus opportune that further improvements to the current management practices be implemented to further enhance the productivity of the residual stand and reduce forest degradation in terms of total carbon stocks as well as other ecological factors. However, such sustainable forest management practices may incur significant additional costs both to the logging operators as well as the government. The REDD+ mechanism under the UNFCCC currently being discussed, presents an incentive that may encourage implementation of improved management practices to reduce forest degradation.

The general objective of this project is to utilize Sustainable Forest Management (SFM) as a mitigation tool in combating climate change. As deforestation rate is stable in Malaysia, the emissions to be accounted for REDD mechanism would probably come from the reduction of forest degradation in Peninsular Malaysia.

The specific objective is narrowed down to improve knowledge on reduction of forest degradation and enhance payments for ecosystem services. Assessment of national forest degradation could be done based on identification of drivers and documentation of the forestry data supporting the cause of forest degradation. Guidelines and policy tools could be developed later to monitor and report national forest degradation in the country.

Besides, the project will also study the economic aspect of establishing incentives in reducing forest degradation for carbon and ecosystems services. Opportunity cost for implementing the programme will be evaluated for the purpose, and suitable incentives procedures will be recommended for minimizing forest degradation through sustainable forest management practices.

In addition, a crucial aim of this project is to build capacity amongst stakeholders and communities on the importance of SFM and climate change mitigation. This could be implemented through awareness programmes such as organizing workshops and meetings for policy makers and forest managers. Information on the project's findings could be disseminated as well for better understanding of forest degradation in the country through outreach activities (i.e. publications, seminars, workshops).

LIST OF ABBREVIATIONS AND ACRONYMS

CBD	Convention on Biological Diversity
CDM	Clean Development Mechanism
DNA	Designated National Authority
FDHQ	Forestry Department Headquarters
FDPM	Forestry Department Peninsular Malaysia
FMU	Forest Management Unit
FRIM	Forest Research Institute Malaysia
GHG	Greenhouse House Gas
GoM	Government of Malaysia
ITTA	International Tropical Timber Agreement
ITTO	International Tropical Timber Organization
KPKKT	Kumpulan Pengurusan Kayu-kayan Terengganu
LULUCF	Land Use Land Use Change and Forestry
MNRE	Ministry of Natural Resources and Environment
MNS	Malayan Nature Society
MRV	Measurement, Reporting and Verification
MUS	Malayan Uniform System
NCCC	National Committee on Climate Change
NCCDM	National Committee on Clean Development Mechanism
NGO	Non-Governmental Organization
NSC	National Steering Committee
PITC	Perak Integrated Timber Complex
PFE	Permanent Forest Estates

PRF	Permanent Reserved Forests
PSC	Project Steering Committee
REDD	Reducing Emissions from Deforestation and Forest Degradation
REDDES	Reducing Emissions from Deforestation and Forest Degradation and Ecosystem Services
RIL	Reduced Impact Logging
SFM	Sustainable Forest Management
SMS	Selective Management System
TWG	Technical Working Group
UNFCCC	United Nations Framework on Climate Change
WWF	Worldwide Fund for Nature

MAP OF PROJECT AREA

Figure i: Map of Peninsular Malaysia showing the location of the State of Pahang

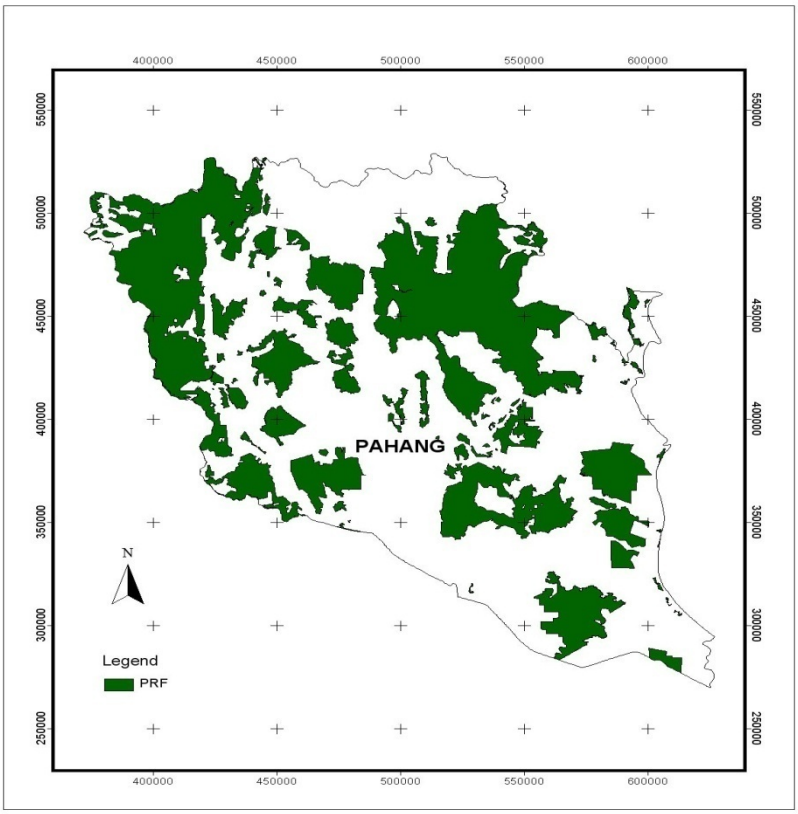

Figure ii: Map of the State of Pahang showing forest areas

PART 1. PROJECT CONTEXT

1.1 Origin

Malaysia recognises the concerns from various parties, both local and international, on the threats posed by climate change and the contribution of the forestry sector to emissions due to deforestation and forest degradation. In this respect, Malaysia's invaluable forests need to be conserved and managed on a sustainable basis to prevent depletion and degradation of forest resources. In this regard there is a need for a better understanding on the impacts of management policies and practices on the forest ecosystem and to overall emissions of CO_2.

Deforestation is defined as the transition from any forest type to non-forest type which involves a land use change; whereas forest degradation describes the transition from closed forest to open or fragmented forest with no land use change. Malaysia has shown strong commitment in implementing sustainable forest management, where we support global efforts to curb deforestation and forest degradation; as well as to provide incentives for reducing deforestation and forest degradation.

In addition, Malaysia recognizes the relationship of the deforestation and forest degradation with the increase in emissions of greenhouse gasses (GHGs) and the reduction of carbon sequestration potential. Thus Malaysia continues to emphasise the significance of sustainable management of existing sinks and reservoirs, as fulfilling the commitment outlined in the Convention on Biological Diversity (CBD), which is ratified in 1994. Malaysia also developed its own Criteria and Indicators (MC & I) based on ITTO Guidelines for Sustainable Management of Natural Tropical Forests and Criteria for the Measurement for Sustainable Tropical Forest Management in the same year. Currently, Malaysia is implementing the MC & I as part of the measures to reduce emissions and improve sustainability.

Sustainable Forest Management (SFM) is one of the avenues proposed for reducing emissions from tropical deforestation and forest degradation. Under the SFM practices, forest degradation from harvesting activities occurs in permanent production forests is minimized. In this manner, the production forests within the Permanent Reserved Forests (PRFs) are managed sustainably under the Selective Management System (SMS) based on a 30 year cutting cycle.

However, there is a gap in information pertaining to rates of deforestation and forest degradation at the national level, as well as the drivers of deforestation and forest degradation in the past and present. As such, it is expected that this project will provide a holistic approach with a better assessment of the situation.

The project will be implemented in a pilot area involving a forest management unit such as the state of Pahang. Thus, the implementation of the project will involve the Pahang State Forestry Department. Since the project deals with REDD which is headed at the Federal level by MNRE, the involvement of REDD Unit at the Ministry and the Forestry Department Headquarters Peninsular Malaysia are essential.

1.2 Relevance

1.2.1 Conformity with ITTO's objectives and priorities

(1) Compliance with ITTA 2006 Objectives article 1

The project conforms to the objectives contained in Article 1 of ITTA 2006 through reformulation of policy and economic framework in managing forest resource particularly objective of:

(m) Encouraging members to develop national policies aimed at sustainable utilization and conservation of timber producing forests, and maintaining ecological balance, in the context of the tropical timber trade;
(o) Encouraging information sharing for a better understanding of voluntary mechanisms such as, *inter alia*, certification, to promote sustainable management of tropical forests, and assisting members with their efforts in this area;
(s) Identifying and addressing relevant new and emerging issues.

Malaysia is in the process of developing a National REDD strategy which requires much needed baseline data on the status of deforestation and degradation in the country as the emissions from forest management. Such information is lacking and the implementation of this project will be able to support the development of the strategy in providing some of the baseline data.

Malaysia has not been included in the UN-REDD countries and as such lacks the experience in undertaking REDD pilot projects which is essential in providing much needed capacity through learning by doing. The implementation of this project is expected to assist Malaysia in its readiness and able to address new and emerging issues through the implementation of the project.

(2) Compliance with ITTO Action Plan 2008-2011

The proposed project complies with various aspects as raised in the ITTO Action Plan 2008-2011 particularly in the commission of reforestation and forest management:

Expected outcome 5: Tropical forest resource better secured
The outcome related to the objectives (c), of Article 1 of the ITTA, 2006.

(b) Undertake studies and analyses of the latest climate change predictions and report on the implications of these for the resource base at the national level using formats and systems that facilitate synthesis

(d) Develop pilot and full-scale activities that test carbon sink and carbon sequestration measures and capture new and additional financial resources to support this

The proposed project is indeed a pilot project as Malaysia is yet to implement a REDD+ project in order to enhance its readiness to full implementation of REDD+. The implementation of the project is expected to enable better integration climate change requirements into current forest planning and management.

Expected outcome 6: Tropical forest resource sustainably managed

(g) Strengthen training institutions and intensify the training of forestry personnel and other stakeholders in ecosystem behaviour, silviculture, RIL and resource assessment, and in the management of both natural forests and timber plantations

The proposed project will assess the current management systems in terms of its carbon emissions. In addition improved silvicultural and management prescriptions will be introduced to reduce emissions.

(3) Compliance with ITTO Policy Development Series No 15 (Criteria and Indicator for the sustainable management of tropical forest)

The project was also is coherent with ITTO Policy Development Series No 15 (November 2002) "ITTO Guidelines for the Criteria and Indicator for the sustainable management of tropical forest which is intended, among others, to Criterion No. 1 Enabling Condition for sustainable forest management.

Criteria 1, i.e., enabling conditions for sustainable forest management which addresses the general institutional requirements that are necessary to make sustainable forest management possible. Most of these cover the policy, legal, institutional frameworks, and economic framework.

The proposed project will complement efforts by Malaysia to develop a REDD Strategy and enhancing enabling conditions for sustainable forest management

(4) Compliance with ITTO Thematic Programme; Reducing Deforestation and Forest Degradation and enhancing environmental services in Tropical Forests (REDDES)

The project coherent with thematic programme objective under the following:

- Reduction of forest degradation in the project area
- Maintain and enhance climate mitigation and other environmental services of tropical forests
- Contribute to the social and economic sustainability and well being of forest dependent communities by increasing forest values through appropriate payment for forest based environmental service
- Awareness raising among decision makers and the public
- Potential for income generation activities realized from forest-related environmental services and other outputs in Programme impact areas
- Measurable outcomes of the project's pilot phase will contribute directly to Increase of the area under (actual) conservation in the tropical forests in Programme impact areas

The project supports the thematic programme scope under the following:

- Climate change mitigation and adaptation through enhancement of carbon pools in the forest and avoidance of emissions from degradation
- Maintenance and enhancement of biodiversity
- Improvement of soil and water conservation
- Ecotourism, amenity and recreation values
- Sustainable forest production
- Combination of various ES and other outputs within the SFM implementation

Many of the above are achieved through improvements in current management prescriptions as well as practices that will further reduce logging damage and reduction of carbon stocks. The management practices are expected to reduce the intensity of trees being removed from logging as well as maintain forest structure to enhance biodiversity conservation.

(5) Conformity with REDDES Monitoring Protocol (MP) including Means of Verification

The results of the proposed project contribute to the achievement of the programme targets provided in the REDDES Monitoring Protocol (MP). It will contribute to the following target values and Means of Verification:

- Increased recognition and awareness of the values of tropical forests and their environmental services as evidenced from reports on stakeholder consultations and seminar proceedings
- Increased forest value and market opportunities for forest products and services in one FMU as indicated in accounting reports
- evidence of PES mechanisms having been developed and pilot tested in one FMU
- demonstration project with at least 1 community involvement in avoided deforestation and degradation, development of environmental services, as evidenced by final project report, visit reports.

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1.2.2 Relevance to the submitting country's policies

Sustainable management and conservation of Malaysia's forests have been accorded a high priority by the Government. Efforts are being advanced to ensure that the flora and fauna are conserved for future generations. Such efforts are reflected by the fact that Malaysia played a leading role at the 1992 Earth Summit in Rio de Janeiro and served as the first chair of the U.N. Commission on Sustainable Development. Malaysia has also ratified the Convention on Biological Diversity and the United Nations Framework Convention on Climate Change and the Kyoto Protocol. Malaysia has adopted its own National Forest Policy, National Policy on Biological Diversity, as well as the National Policy on Climate Change.

The forestry sector in Malaysia assumes an important role in providing environmental protection, particularly those related to climate change, and a major economic role in generating incomes through timber utilization in the country.

At present, Malaysia's forest management practice has been able to conserve biological resources and carbon stocks by avoiding the deforestation cycle. In general, Malaysia's forests falls under three broad categories:

i. Totally protected areas (Wildlife, National and State Parks, numbering in excess of 50);

ii. Permanent forest estates (PFE), which comprise over 75% of natural forests in Malaysia, and include both protection and production forests, to be maintained and managed as forest in perpetuity;

iii. State lands (conversion forests) which are land reserved for future development purposes.

Deforestation activities are confined to state land forests as and when the need for new development arises, and Malaysian forests under the PFE do not undergo a change in land use. This being amongst Malaysia's commitments to the UNFCCC, where Land Use, Land Use Change and Forestry (LULUCF) activities should promote the long-term sustainable management of forests and their resources.

Referring to the above, the project proposed is relevant to the country's primary priority in the fight against climate change in reduction of emissions at source and that conservation of existing forests as carbon sinks.

Such efforts are in line with the National Policy on Climate Change which aims to mainstream climate change through wise management of resources and enhanced environmental conservation. The policy also has among others the following principles and strategic thrusts:

- Strengthen implementation climate change actions that contribute to environmental conservation and sustainable use of natural resource

- Incorporate climate change actions that contribute to environmental conservation and sustainable use of natural resources

- Adopt balanced adaptation and mitigation measures to strengthen environmental conservation and promote sustainability of natural resources.

- Support climate resilient development and investment including industrial development in pursuit of sustainable socio-economic growth.

- Increase awareness and community participation to promote behavioural responses to climate change

Malaysia through the REDD Unit at the MNRE is currently developing a National Strategy for REDD. In this respect, the project will contribute towards the development and implementation of the REDD National Strategy

1.3 Target Area

1.3.1 Geographic location

The implementation of activities under the project will be mainly in Peninsular Malaysia. A forest management unit, consisting of the state of Pahang will be selected as the pilot area for implementation of activities.

Pahang is the largest state in Peninsular Malaysia with an area of 35965 square kilometres. The population of the state is 1.22 million ha and is mainly concentrated in the central zone of the state due to the existence of the State's capital (Kuantan) which is the main city of east coast. Labour force in Pahang is about 463,697 ha and is highly concentrated in the central zone partly due to the location of the trunk roads. On the other hand the number of unemployed persons of the working age population amounted to 16,254 people.

1.3.2 Social, cultural, economic and environmental aspects

Social and Cultural Aspects

The current labour force is predicted to increase to 877,325 people in the year 2020 while conversely the percentage of unemployment will decrease to 1.33% in the same as indicated in the table below.

Pahang State	1991		2000		2010		2020	
	No.	%	No.	%	No.	%	No.	%
Population	1,045,003		1,228,376		1,516308		1,815,131	
Working-age population	587,021	56.17	788,439	61.20	980,293	64.65	1,164,951	64.18
Total labor force	378,042	64.40	463,697	58.81	700,420	71.45	877,325	75.31
Labor force participation rate (%)	64.40		58.81		71.45		75.31	
Number of working population	359,088	94.99	447,443	96.49	679,306	96.99	853,112	97.24
Number of unemployment	18,954	1.81	16,254	1.26	21,113	1.39	24,213	1.33
Employment rate (%)	5.01		3.51		3.01		2.76	
Employment / population ratio	0.34		0.36		0.45		0.47	

UPEN Pahang, 2003

Wood-based industries are important industries in Malaysia. In term of social aspects, it plays significant roles in generating employments for source of income to the peoples. Sustainable timber supply will sustain the wood-based industries in both countries that significantly contribute in term of economic growth as well as social benefits. Crucial matter needs to be addressed is to manage and utilize the timber resources in sustainable manner to support the physical economic and socio-economic development of the countries and also to maintenance sound environment.

The orang asli (aboriginal people) constitutes about 3.84% of the total population of 56,176 people. The largest populations are located in the districts of Pekan, Rompin and Lipis. The orang asli can be categorised into

several subgroups as indicated in the table below. The largest sub group consist of Jakun and Semai with a population of 23,313 and 14,335 people respectively.

Population od sub-groups of the Orang Asli in Pahang (2005)

Senoi	Population	Proto Malay	Population	Negrito	Population
Temiar	12	Temuan	4717	Bateq	1360
Semai	14335	Semelai	4200		
Semoq Beri	2922	Jakun	23313		
Che Wong	652				
Jahut	4665				
TOTAL	22,586		32,230		1,360

Source: JHEOA Pahang, December 2005

The orang asli communities living around and close to the forests areas are also directly involved in forest-based jobs such as logging activities, enrichment planting and other restoration activities. The prosperity of the local community is also attainable through their involvement in wood industries, such as sawmill and other mills that produce some commercial finished products like moulding, dowels, joints, etc. At the same time, the forest is important for many local communities that depend on them for subsistence and cultural needs. As such the conservation and management of forests particularly production forests on a sustainable basis and for REDDES will have an impact on the local communities.

The project will identify gap in national data of forest degradation and the relevant findings will be effectively used for policy and advocacy specific to assessing forest degradation, taking into consideration the root causes and impacts. In particular, the project will provide policy recommendations on suitably implementing Sustainable Forest Management (SFM) in enhancing forest based carbon sinks, where the data will be made available to various parties, such as local communities, decision makers, private sector and forest planners in developing relevant activities under SFM to reduce emissions from forest degradation as a whole.

It is very pertinent that in the overall planning process, consideration of human basic needs (food and shelter) by local community is addressed in order to maintain their support in managing the resource sustainably. This project is expected to have positive impacts not only to the local community by ensuring that timber supply can be sustainably harvested to support direct and indirect employment, but also to the people that involve in downstream wood-based industries as well as the countries as a whole in term of economic development.

In addition, the success of the project will bring about increased knowledge and awareness on the importance of conserving forests, reducing forest degradation and the incentives available to achieve such goals.

Economic Aspect

Pahang is rich in diverse resources and its economic growth has increased gradually over the years. However, the economic development of Pahang has been generally slow compared to the west coast of Peninsular Malaysia. The economic sectors are divided into three categories namely primary, secondary and tertiary sectors. Agriculture, forestry and mining are categorised as primary sector. Manufacturing and construction falls under the secondary sector and others are under the tertiary sector as indicated the table below.

Sector	Year			Contribution to State's GDP (%)		
	1990	1995	2000	1990	1995	2000
Primary sector	**1,887.70**	**2,303.20**	**2,436.50**	**44.86**	**37.92**	**33.41**
Agriculture	1,817.80	2,229.20	2,350.30	43.20	36.70	32.23
Mining	69.90	74.00	86.20	1.66	1.22	1.18
Secondary sector	**660.30**	**1,424.60**	**1,908.40**	**15.69**	**23.46**	**26.17**
Manufacturing	545.60	1,178.30	1,650.30	12.97	19.40	22.63
Construction	114.70	246.30	258.10	2.73	4.06	3.54
Tertiary sector	**1,715.50**	**2,507.60**	**3,139.30**	**40.77**	**41.29**	**43.05**
Total Gross domestic production (GDP)	**4,263.50**	**6,235.40**	**7,484.20**			
Minus bank service & add import duty	-55.70	-161.70	-191.50	-1.32	-2.66	-2.63
Gross domestic production	**4,207.80**	**6,073.70**	**7,292.70**	**100.0**	**100.0**	**100.0**
Population	**1,066,400**	**1,189,600**	**1,312,230**			
GDP per capita	**3,945.80**	**5,105.70**	**5,557.60**			

UPEN Pahang, 2003

The primary sector used to be main contributor in economic growth (about 45%), however due depletion of resources and improved technology, currently the tertiary sector (41%) is the main contributor to the economy of Pahang. In the future, State predicted that the tertiary sector would lead economic growth of the state, followed by secondary and tertiary sectors.

The main contributors for the primary sector are commodity plantations such as oil palm and rubber. However, this industry has been declining over the years since 1998 and is being replaced by other agricultural activities such as fishery, food crops and livestock industry. The secondary sector has eventually experienced transition similar to the primary sector. Having developed rapidly since the 1970's and 80's when it was dominated by the

wood processing industry. This sector has switched to modern manufacturing such as food production, electric and electronic, rubber products and metal fabrication industry in the 90s. Lately, this sector has evolved into a more sophisticated industry such as petro-chemical and transportation equipment. On the other hand, the tertiary sector comprising tourism industry as services has grown rapidly over the years as the state has identified its potential and has been upgrading tourism destination (including eco-tourism) and infrastructure ever since.

The state aims to improve the well being of its people by eradicating and reducing poverty as well as equalising economic wealth. The poverty rate in Pahang is higher in the rural areas (12.5%) compared to the city (3%). The State has many development activities planned to strengthen its economic status with economic transformation being the first, where manufacturing and tourism are the main focus. In addition, the state has planned to diversify and improve its transportation system to enhance economic growth. Finally, the state has broadened it agricultural activities by branching out to new sectors such as fishery and other food crops. This will add additional pressure on the forest as the State look for land for development. Enhancing awareness on the additional value of forest on mitigation of climate change is important to ensure that forest land will be conserved. Potential incentives from REDDES will further support the conservation and sustainable management of forest resources.

Forestry is an important economic sector for Malaysia and for Pahang. As such it is to the advantage of the state and the country to manage the forest resources on a sustainable basis to ensure that economic benefits are accrued in the long run. Efforts have been undertaken to better manage the resource. However gradual degradation of the resources due to economic exploitation of productions forests is a major concern. It is thus of great importance that the project assess the extent of forest degradation and identify approaches to address the issues. Reducing forest degradation will also be economically advantageous in the long run to ensure forest remain productive and healthy. Indirectly, better retention of carbon stocks in the residual stand after logging will greatly reduce emissions and enhance sequestration potentials. The project will assess the effort made to reduce degradation and evaluate its costs and benefits under REDDES. Forest-dependent communities rely on forests for livelihood. Forests provide them source of food, other produce such as medicinal plants for traditional treatment, and employment. Changes or impediments in the ecological chain will affect the forest productivity and hence affect the economic gains of local community and the country.

Sustainable Forest Management (SFM) will provide alternatives to manage forests for sustainable production for present and future.

Environmental Aspect

Although the forest is relatively resilient ecosystem, its regenerative capacity will be greatly affected if disturbances incurred are beyond its withstanding limits. When this happens, the overall sustainability of the forest will be jeopardised. Thus, stringent measures must be taken so that the detrimental effects on the environment arising from forest production are kept minimum. The implementation of REDDES is expected to bring about positive impacts to the environment with lower impact management prescriptions and logging systems being tested.

The project will provide guidance in formulating environmental-related policies relevant to climate change, nature conservation and protection in near future. There will be more initiatives in protecting the forests through activities such as tree planting and use of recycled paper.

Malaysia has been experiencing relatively rapid economic growth and is expected to continue its economic growth. Expected gross domestic product was 7.2 % in 2010 is expected to exceed a healthy 5% growth in 2011 even under the current uncertain global economic scenario. An area that will be expected to expand is in the agricultural sector and the palm oil and rubber plantation sectors. This will add further pressure on natural forest lands. Pahang which is the largest state and the state with the largest forest area in Peninsular Malaysia will be expected to have the greatest pressure. The forests in Pahang are indeed highly diverse and rich in flora and fauna. There needs to be increased awareness on the need to conserve and better manage the forests for multiple benefits. There needs to enhanced promotion of the value of retaining forests not only for biodiversity but also for socio-economic gains. Thus the incentives under REDD+ or REDDES will complement efforts to ensure that the forests are protected and managed well. Efforts are being made by various agencies such as the Ministry of Natural Resources and Environment as well as the Forestry Department to promote the sustainable management of forests. This is being done through the implementation of forest certification schemes. However, such efforts increases the costs of planning and management of forests in the country particularly the State of Pahang where the forests sector is seen as important economic sector. Opportunity cost to convert forests particularly the State land forests to palm oil and rubber is very high as investments in these commodities have been enjoying high financial returns. Consequently, current efforts to conserve and better manage the forests resources will be expected to be significantly enhanced through the incentives under REDD+ and REDDES.

Forest degradation could be minimised through improved forest management that results in reduced damage to the residual stand following forest harvesting, and improved forest recovery both in terms of productivity (carbon stocks) as well as biodiversity within the cutting cycle. The improved forest management would require implementation of better planning, reduced removal of the large sized commercially valuable trees (while remaining economically viable) and reduced impact logging practices. Such efforts are

expected to increase the cost of forest management and thus pose a constraint for State Governments to implement effectively. The financial incentives under a REDD+ or REDDES mechanism will be expected to encourage State Governments to implement these improved management practices.

1.4 Expected outcomes at project completion

Upon completion of the project, it is expected that all parties involved directly or indirectly in the project will benefit in many forms as follows:

- Local communities are encouraged to undertake activities that are compatible to sustainable forest management practices, this in turn will ensure a continuous supply of forest resources such as wood to maintain the operation of the local industry and create employment opportunities, as well as sustain the livelihood of communities dependent on forests.

- Stakeholders at all levels are able to use relevant information in formulating guidelines for planning activities that are directed towards sustainable management of forests.

- Local government is able to formulate appropriate policy to reduce emissions from forest degradation and enhance the carbon sinks in the country.

The project addresses integral aspects of forest management and climate mitigation efforts of Malaysia. Forest management in Malaysia has been reported in to result in logging damage and as well as changes in species composition over cutting cycles. Although efforts are being implemented by the Forestry Departments in improving implementation of forest management practice in the field, there is still a need to address forest degradation by enhancing forest management prescriptions to improve conditions of residual stand, maintain forest structure and maintain species mix. New management practices that better maintain forest structure and species mix will be assessed in its capacity to address forest degradation. Enhancement of the forest structure is expected to reduce logging impacts on biodiversity particularly those that occupy and linked to the upper canopy biodiversity.

The proposed project is also expected to have positive impacts on forest related communities as less damage, improved biodiversity and better species mix that contribute to the overall sustainability of the forest will enhance their continued use of the forest for socio-economic activities.

The proposed project with the inclusion of financial incentives through payment for environmental services or through a REDD+ mechanism will increase the value of forest and enhance awareness on the need for better management and conservation. Increased economic returns from improved

management and conservation will also further contribute to efforts in ensuring the sustainability of the forest.

It is however expected that the implementation of these improvements will have cost implications in terms of direct costs as well as opportunity costs to the state. These cost will be captured and assessed. Stakeholders will have a better understanding of implications of improving forest management and mitigating climate change.

PART 2. PROJECT RATIONALE AND OBJECTIVES

2.1 Rationale

2.1.1 Institutional set-up and organizational issues

The Malaysian Ministry of Natural Resources and Environment (MNRE) is the responsible Designated National Authority (DNA) for UNFCCC. Climate-change-related committees led by the DNA include the National Committee on Clean Development Mechanism (NCCDM) and the National Committee on Climate Change (NCCC). The former committee is tasked to develop policies, implementation guidelines, receive and review CDM project proposals and monitor its status to inform the UNFCCC. The main role of the latter committee is to formulate and implement climate change policies including mitigation of GHG emissions, adaptation to climate change and implement national action plans related to climate change.

The Government of Malaysia (GoM) recognises that the impacts of climate change transcends across sectors, stakeholders and major group. Strategic responses are also necessary to strengthen the nation's position and readiness in combating and mitigating climate change. Hence, the National Policy on Climate Change was drafted and subsequently approved by the Malaysian cabinet in November 2009. Ten strategies were outlined followed by key actions to guide its implementation towards achieving its goals; to mainstream climate change through management and conservation of resources, integration of responses into national policies and strengthening institutional and implementation capacity. The policy was drafted based on consultations with over 1000 stakeholders.

Similarly, a number of stakeholder consultations through seminars, workshops and meetings were conducted under the guidance of NRE in relation to the issue on Reducing Emissions from Deforestation and Forest Degradation (REDD). As a result of these consultations, the national REDD Action Plan is currently being drafted. It is expected to be completed by June 2011. Alongside NRE, other relevant ministries and agencies involved in this effort include Ministry of Agriculture, Ministry of Plantation Industries and Commodities (which is also the Malaysian focal point for ITTO), forestry departments, local research institutes and universities.

2.1.2 Stakeholder analysis

The formulation of this project proposal was conducted through a multi-stakeholder process. As the National Forestry CDM Secretariat, FRIM had conducted several stakeholder consultations with regards to REDD. The first being a workshop entitled "Seminar on Capitalising Forestry and Climate Change in Malaysia" on 11 August 2008. Part of the workshop highlighted and discussed the potential of REDD projects in Malaysia. The seminar took note comments and questions from the floor which consisted of 103 participants comprising of planters, researchers, academician, NGO's government

officials, decisions/policy makers, property developer and individuals involved in forest management, natural resource management, land use planning and development.

Some of key areas of concern highlighted by Stakeholders include:

- There is a crucial need to improve forest management systems and practices to support sustainable forest management. In particular the number of trees removed during harvesting in some operations are very high resulting in forest degradation.

- Many stateland forests (forest lands that are not forest reserves and are set aside for development) are in a poor state after logging but without any development. It is proposed that stateland forests could be conserved through payment of incentives under a credible mechanism such REDD or REDDES.

- Better valuation of forest for all values other than timber is needed to ensure that the economic value of the forest is properly reflected and that forest would not be continually lost due to economic gains.

- Forest degradation under the current management practices will be difficult to be assessed through remote sensing techniques and will need to consider the full cutting cycle.

- Incentive schemes such as the REDD or REDDES should properly designed and implemented to ensure that they get broad participation of stakeholders and will benefit Malaysia.

- Incentives to be provided should be well distributed particularly for the forest communities. There remains ambiguity on how this will be properly addressed.

Following this, FRIM again took the lead to draft a proposal for a REDD pilot project in 2009. The proposal was presented to a group of stakeholders on 11 September 2009, which included the Forestry Department of Peninsular Malaysia, state forestry departments of Sabah and Sarawak, timber concession companies and NGOs (see attendance list below). The main objective of the consultation was to obtain feedback from the relevant stakeholders on proposed objectives and activities of a pilot REDD project for Malaysia to be led by FRIM. The proposal was met with support and positive comments.

Some of the points highlighted previously was again tabled and discussed. Stakeholders indicated that the project should involve multi stakeholders to enhance the effective implementation at a later date. It was also highlighted that Malaysia is already implementing Reduced Impact logging and is assessed under a forest certification scheme. These already have increased the cost of forest management. Productions areas managed under the current

practices which are certified may not have degradation in terms of carbon stock over the cutting cycles in the long run. However, implementing REDD+ or REDDES should also support added co-benefits in the enhancement of biodiversity conservation. There is a clear need to enhance our capacity in undertaking REDDES projects in terms of better understanding the trends and impacts of forest degradation.

The Problem and Objective analysis presented in this proposal is a result of this consultation.

Stakeholder Analysis Table				
Stakeholder group	Characteristics	Problems, needs, interests	Potentials	Involvement in the project
Primary stakeholders				
Forestry Department Peninsular Malaysia	Custodian of forests in Peninsular Malaysia	Insufficient finance and capacity to reduce emissions from logging operation	To enhance capacity to improve and enforce low impact logging operation	Primary beneficiaries and directly involve in implementation
State Forestry Departments	Custodian of Forest in Pahang	Insufficient finance and capacity to reduce emissions from logging operation	To enhance capacity to improve and enforce low impact logging operation	Primary beneficiaries and directly involve in implementation
Secondary stakeholders				
Local governments (i.e. district offices, state government)	Local authority over resource management	Impact on socio-economic returns	Increase socio-economic returns and quality of life	Implementation of results at the local level
Private timber concessionaires i.e. Kumpulan Pengurusan Kayu-kayan Terengganu, (KPPK), Perak Integrated Timber Complex (PITC)	Forest Concessionaires involve in management of production forest	Lack of capacity, finance and skills in enhancing forest management practices	To increase skills of man power and adopt improved management practices	Provide support in the project research activities
Logging operators	Sub-contracted by the forestry departments	Lack of capacity and skills in enhancing forest management practices	To build capacity of human practices	Provide support in the project research activities
Tertiary stakeholders				
Local NGO i.e. Malaysian Nature Society (MNS), World Wide Fund For Nature (WWF) Malaysia	NGO involve in climate change issue	Lack means to finance awareness programmes	To implement awareness programmes to forest managers and communities	Collaboration in undertaking relevant activities
Research institutes and universities	Climate-change-related research and development	Lack of research opportunities, capacity and technology	Enhance capacity and provide collaborative research opportunities	Collaboration in undertaking relevant activities

2.1.3 Problem Analysis

Reducing the effects of climate change in the forest sector is largely achieved by reducing deforestation and forest degradation. Deforestation in Malaysia is stable and under control. In this regard, the source of emissions from forest degradation is the major concern. An initial step in this direction is to better understand the drivers of degradation. In Malaysia, the extent of forest degradation is not well understood. Consequently, a cost-effective approach will be undertaken to address the drivers identified drivers of forest degradation

A key problem here is the lack of information and knowledge on the extent of forest degradation particularly in managed production forest. Efficient assessment of forest degradation needs to be undertaken at the forest management unit to better understand the extent and processes involved. There are generally a lack of awareness and appreciation of the issues of emissions from forest degradation amongst forest managers and other key stakeholders and its negative impacts on the productivity of the stands.

In particular, impacts on the forest structure, species composition and biodiversity levels, are not very well understood and are often not properly assessed. Thus the effects of degradation may only be realised in the second or subsequent cutting cycles. Broad assessment using remote sensing techniques may not reveal through stand condition which has still significant forest cover. Current management practices which assesses stocking before logging to determine a suitable cutting regime does not fully take into consideration the original forest condition particularly during second and subsequent cuts. In this respect, the level of degradation may not be properly assessed. There is thus a need to better understand the level of degradation and formulate methods to properly account for them.

Assessment of the drivers of deforestation and degradation will be necessary to clarify the related issues and identify possible solutions to address them in the short and long terms. The assessment will be conducted through consultation with experts and major stakeholders. Particular reference will be made to Pahang to identify possible local circumstances. The assessment will also study available information and previous studies conducted on these aspects to facilitate efficient consultation process.

Since the planning and management of forest resources in Malaysia is done at the Forest Management Unit (FMU) level which is a State for Peninsular Malaysia, the approach to conduct the study for the State of Pahang as the largest FMU and with the largest forest area is appropriate. The level of forest degradation here is not well assessed in terms of forest carbon stocks and there is a lack of methods to reduce forest degradation. It would be very useful in Malaysia's efforts to address climate change through REDD+ and REDDES initiative to have reliable baseline data on the rates of forest degradation and subsequently identify and implement activities that will reduce forest degradation.

Related to this is the ability to measure, monitor and report carbon emissions from degradation based on globally acceptable methods. Measuring carbon stocks and

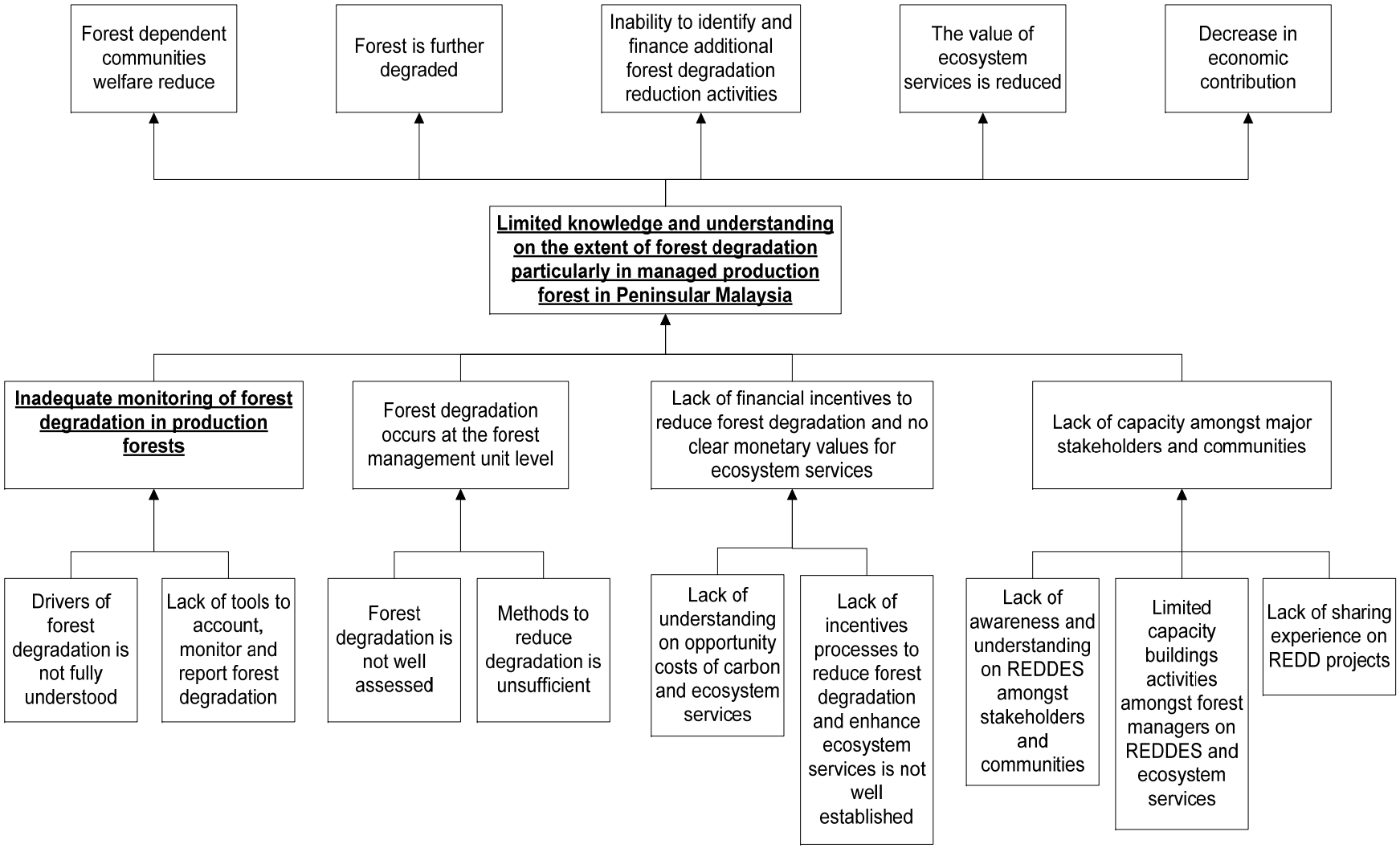
sequestration rates are currently not included under forest inventories conducted in forest management. The monitoring and reporting approaches that is complete and consistent will also need to be developed

There is clearly a lack of awareness and understanding on the provision of financial incentives on REDD+ and REDDES. To enable the successful implementation of the mechanisms there needs to a better knowledge and appreciation by the major stakeholders. There must be better understanding on what level of incentives are being made available, what needs to undertaken to acquire these incentives and the opportunity costs to borne by the State when the mechanism is implemented. For this there is clearly a need to enhance capacity amongst major stakeholders including forest communities on the costs and benefits of REDD+ and REDDES. Since there is no REDD or REDDES projects implemented in Malaysia to date, an increased understanding and capacity on all relevant aspects of REDD+ and REDDES would e crucial. Although there us some capacity in other countries in the region that is currently implementing REDD+ projects, such as Indonesia that has more than 40 REDD projects, there is a lack of opportunities available to learn from them. Learning from other countries that is ahead in the implementation of REDD+ projects would be very valuable for enhancing knowledge and capacity and will assist in more efficient implementation of the proposed project by adapting the experience gained from the region.

Currently some efforts have already been implemented to reduce forest degradation and enhance productivity of the resources. As such, generally there is a lack financial incentives to further improve the management practices to reduce emissions. Although the REDDES mechanism could provide such incentives, there is generally a lack of awareness on REDDES and limited capacity in undertaking red projects. The issue of forest degradation needs to be address to avoid continued emissions of GHG gases. Such degradation would contribute reduced forest productivity and thus economic returns and other environmental services from the forest would be reduced in the long-run.

The problem tree as indicated below was developed based on consultation with stakeholders.

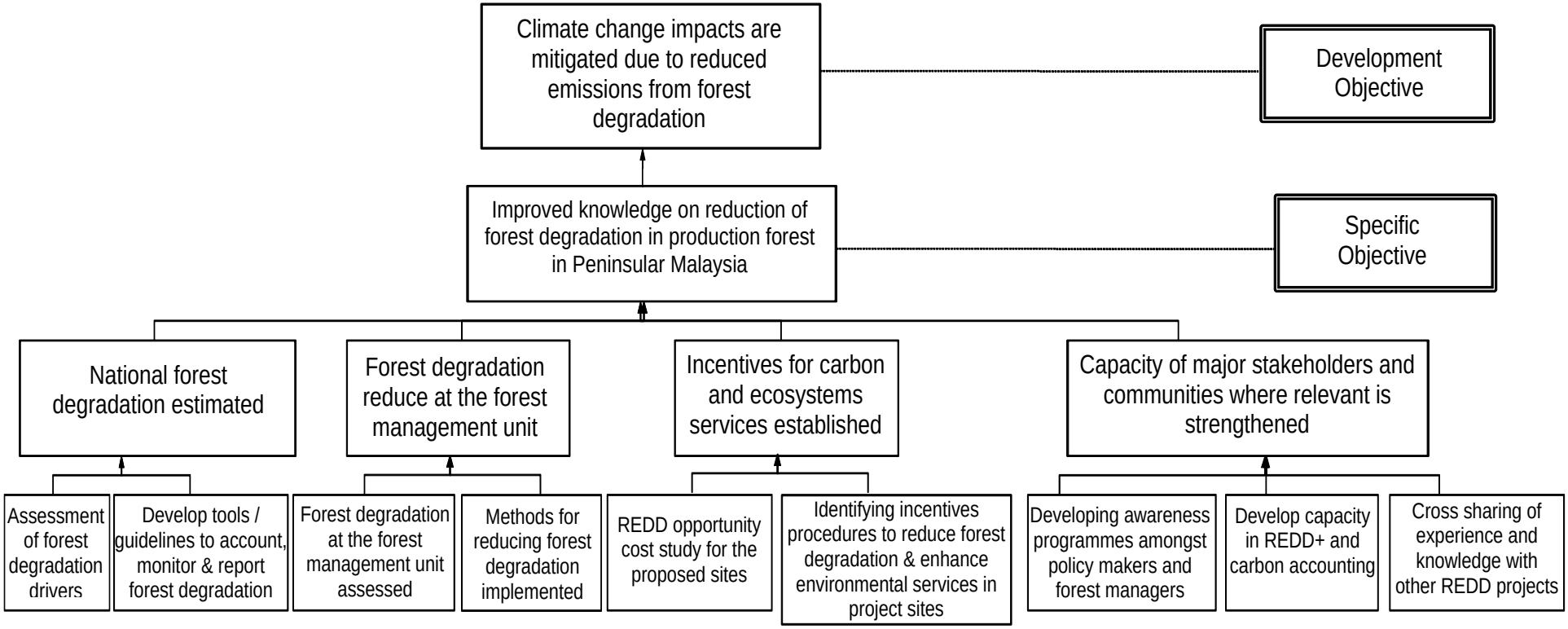
Problem Tree



2.1.4 Logical framework matrix

PROGRAM ELEMENTS	INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
Development Objective: Reduce forest degradation through improved management practice and enhance climate change mitigation	Improved forest management practices to reduce forest degradation by at least 5% from business as usual (BAU) are introduced at the national level	Project completion report. Reports from the federal and state forestry departments and/or other stakeholders.	State government adopts SFM as policy tools for climate change mitigation.
Specific Objective: Improve understand and knowledge on the extent forest degradation in managed production forest in Peninsular Malaysia	Supported mechanism to bring additional incentives in implementing SFM as important option in reducing emission from forest degradation by at least 5% from BAU will be pilot tested in at least one state by the end of the project.	Annual report, progress report, technical report, report, filed visit, training report, documentation.	Malaysian policy makers on various levels are committed to combat forest degradation.
Output 1: National forest degradation estimated	Data on forest degradation in peninsular Malaysia available and disseminated to all major stakeholders by the end of the project..	Technical report, report, field visit, stakeholder consultation report, guidelines.	State governments are committed to support efforts in reducing forest degradation.
Output 2: Forest degradation reduced at the forest management unit	By the end of the project, third party evaluation indicates that forest degradation was reduced at least one forest management unit.	Technical and third party evaluation report	State government of the forest management unit is committed to support efforts in reducing forest degradation.
Output 3: Incentives for carbon and ecosystems services established	Economic incentive framework of SFM as an important option for forest based climate change mitigation introduced to at least one state government by the end of the project.	Field visit, technical report	Malaysian policy makers on various levels are committed to combat forest degradation.
Output 4: Capacity of major stakeholders and communities where relevant is strengthened	Number of training courses undertaken. At least 120 participants trained in awareness of REDDES and carbon accounting. Project networking and information shared with at least two countries in the region.	Course/seminar notes/presentations, participant list, participant feedback forms, awareness modules/programmes, reports	Strong support and commitment from various stakeholders/ITTO member countries.

2.2 Objectives



2.2.1 Development objective and impact indicators

Climate Change Impacts are mitigated due to reduced emissions from forest degradation.

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The ecosystem services of tropical forests include mitigation of climate-change impacts, conservation of biodiversity, protection of watersheds that supply forest-dwelling and urban communities with high-quality water, provision of amenity and recreation services, and production of biomass as an alternative source of energy for fossil fuels. These and other services, including disaster prevention such as flood control and protection against landslides and tsunamis, and the maintenance of the overall resilience of ecosystems may be achieved simultaneously through sustainable forest management (SFM). Since the permanent forest reserves are well protected under the law, deforestation of such reserves would not be expected to be significant in Malaysia. As such, the main source of emissions will come from conversion of forests outside the permanent reserves (stateland forests) and through degradation of production forests within the permanent forest reserves mainly through commercial logging activities. Since, production forest constitute the bulk of the forest reserves in Malaysia (10.8 million ha), addressing forest degradation of production forests would thus contribute significantly to reducing emissions GHG gases forest the forestry sector. As such, this aspect is the key area being addressed under this project. The expected reduced emissions from the implementation of the project will be properly assessed and documented. These will be presented to the major stakeholders for feedback. The incentive mechanism developed will also be presented to the stakeholders. Upon getting feedback attempts will be made to implement the improved methods developed at the Pahang Forest Management Unit through existing administrative structure.

By implementing this project, it is expected that by the year 2020, improved forest management practices have reduce forest degradation in production forests by at least 10%. It is also expected that by 2020 further capitalization of payment for environmental services in productions forests will be materialised.

2.2.2 Specific objective and outcome indicators

To improve knowledge on reduction of forest degradation and enhance payments for ecosystem services

The project will identify the drivers of forest degradation through consultations with experts and key stakeholders. Ideas will also be sought from stakeholders of how best to address such drivers in the short and long-term periods. Addressing climate change issues would require a concerted effort at all levels and by everyone. A report on this consultation will be completed. In this regard, the project will endeavour to undertake programs to enhance the understanding and awareness in climate change issues particularly those related to forestry. Structured training will provided to key stakeholders such

as forestry departments and relevant state authorities on the climate change and REDD. In addition more general seminars will also be conducted. All these will be properly documented.

Efforts will be made to assess forest degradation under the current forestry practices as well as develop improved protocols to achieve sustainable forest management and further reduce emissions and enhance ecosystem services. By the end of the project in 2014, guidelines for improved protocols will be developed and technical reports will be completed for the assessment of current practices against improved prescriptions and logging techniques. Results are expected to be presented to stakeholders for comments. Stakeholder feedbacks will be documented. Discussions and efforts will be held to implement the protocols for the Pahang State FMU under available administrative set up.

The improved protocols will bring additional incentives in implementing SFM to reduce emission from forest degradation in Pahang by at least 5% by the end of the project.

It is expected that the project will encourage Pahang State Government to implement REDD+ or REDDES project to reduce forest degradation through the financial incentives provided. By the end of the project at least one incentive mechanism for payment for environmental services including reduction in carbon dioxide emissions will be introduced in Pahang.

An important requirement to ensure that REDD+ and REDDES is implemented in Pahang or in Malaysia is to enhance the awareness and increase knowledge at all levels on climate change such as the lack of knowledge on carbon dioxide emissions from forest degradation and the need to reduce the emissions through improved emissions. There is also a lack of awareness of REDD+ and REDDES to address these issues. The project will address this through capacity building activities to various levels involving policy maker, forest managers, administrators, researchers and NGOs. At least 120 professional as others at various relevant agencies will be involved in capacity building activities by the end of the project.

PART 3. DESCRIPTION OF PROJECT INTERVENTIONS

3.1 Outputs and activities

3.1.1 Outputs

Output 1: National forest degradation estimated

In addition to deforestation, forest degradation has also been identified as important source of emissions from the forestry sector. Continuous and unabated degradation will lead to deforestation. In most tropical countries including Malaysia, there are concerns that production forests set aside to be managed on a sustainable basis often will experience degradation due to poor management systems and poor logging practices. In this regard, the forest area will experience degradation after each cutting cycle. In many cases the forest will not be fully recovered before the subsequent cut is carried out, thus resulting in a depletion of the carbon stock. In Malaysia, the extent of forest degradation in terms of carbon stocks is still not well defined. In this output research activities would be conducted to ascertain the extent of forest degradation. Baseline information on the level of forest carbon stocks as well other values such species composition and forest structure will be assessed before and after logging under current forest management prescriptions and logging techniques. Assessment of carbon stocks will also be made to assess changes in forest carbon stocks for forest of various temporal categories such second and third cutting cycles. Data on the extent of forest degradation in Peninsular Malaysia will be made available to all major stakeholders.

Output 2: Forest degradation reduced at the forest management unit

Attempts will be made to measure the extent of forest degradation at the selected pilot project forest management unit, which is the state of Pahang. Although forest operations are conducted in the production forests by compartments, often the year after logging will not be sufficient to indicate the degree of forest recovery or the level of forest degradation. Since the logged forest are being managed on a 30-year cutting cycle, measures of degradation will have to take into consideration the age after logging and the ability of forest to recover within the cutting cycle.

In addition, improved protocols would be introduced and tested to enhance carbon retention and reduce degradation in the Pahang one forest management unit. In particular, reduced impact logging systems which reduce the construction of skid trails and maintaining forest structure will be tested to assess its potential in enhancing current management practices towards achieving sustainable forest management and enhancing carbon stocks. This represents a strong element of additionality and complementarity of the REDDES Programme under the ITTO.

Changes in carbon stocks under the improved forest management prescriptions and logging techniques will be assessed and compared with

current practice. Other aspects such as forest structure and species composition will also be assessed to better understand the value of forest in additions to carbon stocks.

Output 3: Incentives for carbon and ecosystems services established

The success of participation and implementation of projects under the REDD+ in mitigating climate change will depend on the modalities still being negotiated under the UNFCCC as well as the costs involved. It is thus pertinent to understand the costs involved in implementing REDD+ projects. Since additional efforts are being carried out to further reduce degradation and enhance sustainable forest management, the cost involved and opportunity cost foregone by forest owners will have to be accounted. Such information will also be useful for requesting incentives for the protection of ecosystems services. In this output all these costs will be accounted for based on the pilot study area. Enhanced ecosystems services from the forest from improved management will also result in an increase in the benefits rendered to forest dependent communities. An improved residual stand will result in better conservation of flora and fauna as well as improve forest recovery. This will result in added benefit to the forest communities.

A document on the provision of incentives for carbon and services will be developed and presented to key stakeholders including the Pahang State Economic Planning Unit, Pahang State and Federal Forestry Departments as well as relevant Federal Ministries. Based on the feedbacks received, the incentive mechanism will be finalised and submitted to the Pahang State Government for consideration. These documents will made available to the public in the projects website to be developed.

Output 4: Capacity of major stakeholders and communities where relevant is strengthened

As the research project involves exploring new areas in the planning and management of forest in relation to climate change it is expected many new skills and capacity can be built. The input from external experts working together with local experts will be very valuable in the exchange of skills and experience. It is thus important that the project be implemented focusing on this capacity building both via on-the-job training as well as more formal classroom training involving not only FRIM personnel but also relevant people from other agencies and organisations. The project should be undertaken in such a manner that by the end of the project, sufficient skill would have been built locally to enable effective implementation of nation-wide climate change policies and action plans. Trained personnel will also be able to transfer knowledge and technologies to be applied in other parts of the country and the region. This will be achieved by providing training in awareness of REDDES and carbon accounting to at least 120 participants. Trained personnel will also be able to transfer knowledge and technologies to be applied in ASEAN the region through training activities.

All training activities will be documented. Proper evaluations of the training by the participants will also be implemented to ensure continuous improvements. Training reports will be reported to the Project Steering Committee and be available in the project website.

3.1.2 Activities

For Output 1:

The following activities will be covered under the output on national forest degradation estimated:

1. Assessment of forest degradation drivers

In order to address forest degradation, it is necessary to identify the major drivers that lead to forest degradation in Malaysia. In these regard, information will collected on this aspects and consultations with stakeholders through workshops and direct discussions will be held to not only identify the drivers but to also find means of addressing them. At least one stakeholder consultation will be held to finalise the drivers.

2. Develop tools/guidelines to account, monitor and report forest degradation

Assessment of forest degradation on a national basis will be carried out based on existing data that is available. In this regard, methods and approaches will have to be developed for the accounting, monitoring, reporting and verifying (MRV) of forest degradation. Guidelines will be formulated for the MRV which is necessary for the implementation of REDD+. The tools will be disseminated to major stakeholders through at least one training workshop and stakeholder consultation.

For Output 2:

The following activities will be covered under the output 2 on Forest degradation reduced at the forest management unit:

1. Forest degradation at the forest management unit assessed

   Assessment of forest degradation will be made on the pilot project site in the state of Pahang, which is a forest management unit. A two stage sampling design using a combination of remote sensing and ground inventory will be used in the assessment of forest degradation. It is generally accepted that forest degradation will be more difficult to assess just from satellite data and thus sufficient ground samples covering various

stages of forest degradation or forest recovery will have to be placed. Methods for accounting of various carbon pools will be established.

2. Methods for reducing forest degradation implemented

Estimating the current state of degradation will not be sufficient for mitigating climate change through REDD+. Efforts will have to be in place to reduce the forest degradation. In this regard, improved harvesting systems that requires significantly reduces the construction of skid trails will be tested. Such a harvesting system such as the “log fisher” is available and tests on a small scale had shown promise in reducing damage and reducing degradation. The proved methods will be tested and compared with current practice in terms of its impacts on the residual carbon stocks. The method will be observed in at least one harvesting block.

For Output 3:

The following activities will be covered under the output 3 on incentives for carbon and ecosystems services established

1. REDD opportunity cost study for the proposed sites

The implementation of improved methods to reduce forest degradation as indicated in activity 2 of output 2 will involve additional costs. The new harvesting system (log fisher) will involve higher cost of operations. Such costs will be estimated to assess its applicability under a REDD+ mechanism. The study to assess opportunity costs will be conducted in the Forest Management Unit.

2. Identifying incentives procedures to reduce forest degradation and enhance environmental services in project sites

Currently carbon and other related environmental services are not yet effectively integrated into sustainable forest management in Malaysia which has traditionally focused on timber and, to a lesser extent, on non-timber forest products. The inclusion of enhanced management and harvesting protocols would not only enhance carbon stocks but are also expected to enhance other environmental services such the conservation of biodiversity and enhanced protection of soil and water resources. Assessment will be made on such environmental services and procedures for providing incentives would be developed at the Forest Management Unit pilot site in Pahang.

For Output 4:

1. Developing awareness programmes amongst policy makers and forest managers

   Increasing awareness of climate change and REDDES to the major stakeholders is of utmost importance if mitigation efforts conducted under REDDES is to be successful. Programmes on enhancing awareness such as workshops, informal talks by experts, demonstration activities will be carried out for major stakeholders. Guidelines and reports generated by the project will be published and made available for the stakeholders. At least two workshops involving at least 120 participants will be conducted to enhance awareness amongst the stakeholders.

2. Develop capacity in REDD+ and carbon accounting

   Many aspects of REDD+ are still evolving including international negotiations. Project implementers and relevant stakeholders will have to keep abreast with the information and technology. Knowledge and experience of at least 30 project implementers and stakeholders will be enhanced through capacity building activities. Participation in training opportunities both in local and international forum will be made available. Opportunities for effective participation of at least 5 forest sector representatives in international climate change negotiations will also made available.

3. Cross sharing of experience and knowledge with other REDD projects in the region.

   Several REDD+ projects have been initiated and are on-going in the region. To maximise benefits from the knowledge and experience generated from such projects, cross project learning visits will be undertaken to selected projects outside Malaysia. Such cross project learning activities would provide help stimulate knowledge generation enhance cooperation in forestry within the region. Cross learning opportunities will be made available to at least 10 participants involved in the project.

All the deliverables developed from the 4 outputs above such as the guidelines, methods, stakeholder consultations and training activities will documented and reported to the Project Steering Committee and reports would be available in the project website. Continuous discussion and consultations with key stakeholders particularly the Pahang State Forestry Department, the Forestry Department Headquarters in Kuala Lumpur, the Ministry of Natural Resources and Environment Malaysia will be conducted to ensure that the project is in line with the goals and aspirations of the state and the mechanism to be implemented will pragmatic and implementable.

3.2 Implementation approaches and methods

The project will be executed by the Forest Research Institute of Malaysia (FRIM). Both FRIM and the Forestry Department are under the Ministry of Natural Resources and Environment (NRE) thus providing a direct link between research and policy formulation that is based on existing government structures (thereby increasing sustainability). The REDD Unit under the MNRE will also be involved in the monitoring and implementation of the project. The Federal Forestry Department also provides an institutional avenue to link the project research activities into the Pahang State forestry planning processes. A Project Steering Committee (PSC) will be established to govern the implementation of the project. The PSC will provide guidance on matters pertaining to the implementation of the project and ensure that the project is directed towards achieving its intended goals. It will enable the coordination of different agencies involved in the project. A national Technical Working Group (TWG) will be established to provide advice on technical issues as well as to provide the linkage with State Forestry Department decision-making processes.

The project will be conducted mainly through the implementation at the forest management Unit Level which is the state of Pahang. Pahang is the largest state in Peninsular Malaysia consisting of about 3.6 million hectare, of which 1.98 million ha or 55% of the land is covered by forests. Forestry sector in Pahang is a very important economic sector and continues to contribute significantly to it socio-economic development. Pahang also has the largest protected areas consisting of national parks and watersheds. There are a significant population of local communities and Orang Asli (aborigines) in the state of Pahang that are dependent on the forest for subsistence. In this respect, the project will consider the impacts of REDDES project on them. They will be consulted in the project planning and implementation and their representatives will be able to participate in the project monitoring through the Project Steering Committee.

The initiation and subsequent implementation of the activities of the project will be contingent upon the timely provision by GoM through the Implementing Agency, FRIM, of the adequate facilities and services, including secondment of staff, required for the effective operation of the project. The equipment, components and materials acquired for the project will be the responsibility of the Implementing Agency, FRIM, and will be inventoried in a manner that is consistent with FRIM regulations.

FRIM is in a good position to implement the project successfully as it has produced substantial research material and has attracted international research support. FRIM has demonstrated its ability to successfully implement similar research projects in the past and with the support of Malaysian stakeholders such as the federal and state governments, environmental NGOs and forest concessionaires.

3.3 Work plan

Outputs and Activities	Responsible Party	Schedule (in months)																																			
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Output 1: National forest degradation estimated																																					
1.1. Assessment of forest degradation drivers	Ministry of Natural Resources and Environment (MNRE), Forest Research Institute Malaysia (FRIM), Forestry Department Peninsular Malaysia (FDPM)	■	■	■	■	■	■	■	■	■	■	■	■																								
1.2. Develop tools/guidelines to account,monitor and report forest degradation	FRIM, FDPM and consultant													■	■	■	■	■	■	■	■	■	■	■	■												
Output 2: Forest degradation reduce at the forest management unit																																					
2.1. Forest degradation at the forest management unit assessed	FRIM, FDPM and consultant	■	■	■	■	■	■	■	■	■	■	■	■																								
2.2. Methods for reducing forest degradation implemented	National Expert, Consultant													■	■	■	■	■	■	■	■	■	■	■	■												
Output 3: Incentives for carbon and ecosystems services established																																					
3.1. REDD opportunity cost study for the proposed sites	FRIM, State FD, National Expert, Consultant																									■	■	■	■	■	■						
3.2. Identifying incentives procedures to reduce forest degradation and enhance environmental services in project sites	National Expert, Consultant																													■	■	■	■	■	■		
Output 4: Capacity of major stakeholders and communities where relevant is strengthened																																					
4.1. Developing awareness programmes amongst policy makers and forest managers	Government agencies, NGO, Communities Group, Private Sector								■	■	■							■	■	■															■	■	■
4.2. Develop capacity in REDD+ and carbon accounting	Government agencies, NGO, Communities Group, Private Sector																			■	■	■	■	■	■												
4.3. Cross sharing of experience and knowledge with other REDD projects	National Expert, Government agencies, FRIM											■	■											■	■											■	■

3.4 Budget

3.4.2 Master Budget Schedule

Outputs/ activities	Description	Budget Component	Quantity			Units	Unit Cost (USD)	Total Cost (USD)	ITTO (USD)			Executing Agency (USD)		
			1st Year	2nd Year	3rd Year				1st Year	2nd Year	3rd Year	1st Year	2nd Year	3rd Year
Output 1	*National forest degradation estimated*													
Activity 1.1	*Assessment of forest degradation drivers*													
	Person Month of International Consultant	14	0.5			Person-month	7,500	3,750	3,750					
	DSA for International Consultant	31.2	14			pax	300	4,200	4,200					
	Mission Costs	32.2	1			package	3,500	3,500	3,500					
	Person Month of Senior Local Consultant	11	1			Person-month	5,000	5,000	5,000					
	DSA for Senior Local Consultant	31.1	10			pax	200	2,000	2,000					
	Person Month of Local Consultant	11	1			Person-month	1,500	1,500	1,500					
	DSA for Local Consultant	31.1	14			pax	200	2,800	2,800					
	Transportation - Local consultant	33.1	14			package	200	2,800	2,800					
	Stakeholder consultation (40 participants)	15	40			pax	150	6,000	6,000					
	3 Meetings (10 participants per meeting)	15	30			pax	100	3,000	3,000					
	Person Month of Local Senior Researcher	11	7			Person-month	3,000	21,000				21,000		
	DSA for Local Senior Researcher	31.1	30			pax	200	6,000	6,000					

Outputs/ activities	Description	Budget Component	Quantity			Units	Unit Cost (USD)	Total Cost (USD)	ITTO (USD)			Executing Agency (USD)		
			1st Year	2nd Year	3rd Year				1st Year	2nd Year	3rd Year	1st Year	2nd Year	3rd Year
	2 Transportation - Local Senior Researcher	33.1	14			package	200	2,800	2,800					
	Administrative assistant	11.4	12			Person-month	1,000	12,000	12,000					
	Office supplies	54	1			package	1,000	1,000	1,000					
	Office rental	41	1			package	1,000	1,000				1,000		
	Sundry	61	1			package	500	500	500					
	Project Coordinator	11.1	12			Person-month	3,000	36,000				36,000		
	Auditing	62	1			package	1,000	1,000	1,000					
	Workstation	44.1	1			unit	5,000	5,000	5,000					
	TOTAL Activity 1.1							**120,850**	**62,850**			**58,000**		
Activity 1.2	*Develop tools/guidelines to account,monitor and report forest degradation*													
	Person Month of International Consultant	14		1		Person-month	7,500	7,500		7,500				
	DSA for International Consultant	31.2		10		pax	300	3,000		3,000				
	Person Month of Local Consultant	11		1		Person-month	5,000	5,000		5,000				
	DSA for Local Consultant	31.1		16		pax	150	2,400		2,400				
	Transportation - Local consultant	31.1		4		package	200	800		800				
	4 Meetings (20 participants per meeting)	15		80		pax	100	8,000		8,000				
	Person Month of Local Senior Researcher	12		7		Person-month	3,000	21,000					21,000	
	DSA for Local Senior Researcher	31.1		35		pax	200	7,000		7,000				

Outputs/ activities	Description	Budget Component	Quantity			Units	Unit Cost (USD)	Total Cost (USD)	ITTO (USD)			Executing Agency (USD)		
			1st Year	2nd Year	3rd Year				1st Year	2nd Year	3rd Year	1st Year	2nd Year	3rd Year
	Transportation - Local Senior Researcher	33.1		7		package	200	1,400		1,400				
	Administrative assistant	11.4		12		Person-month	1,000	12,000		12,000				
	Office supplies	54		1		package	1,000	1,000		1,000				
	Office rental	41		1		package	1,000	1,000					1,000	
	Sundry	61		1		package	500	500		500				
	Project Coordinator	11.1		12		Person-month	3,000	36,000					36,000	
	Auditing	62		1		package	1,000	1,000		1,000				
	TOTAL Activity 1.2							**107,600**		**49,600**			**58,000**	
Output 2	*Forest degradation reduce at the forest management unit*													
Activity 2.1	*Forest degradation at the forest management unit assessed*													
	Purchase of SPOT images	51	12			package	2,000	24,000	24,000					
	Purchase of DGPS	44.2	1			package	500	500	500					
	Person Month of Local Senior Remote Sensing Consultant	11	1			Person-month	5,000	5,000	5,000					
	DSA for Local Senior Remote Sensing Consultant	31.1	7			pax	200	1,400	1,400					
	Person Month of Local Remote Sensing Expert	12	2			Person-month	2,000	4,000				4,000		
	DSA for Local Remote Sensing Expert	31.1	14			pax	200	2,800	2,800					
	Person Month of Local Remote Sensing Assistant	12.1	4			Person-month	1,000	4,000				4,000		

Outputs/ activities	Description	Budget Component	Quantity			Units	Unit Cost (USD)	Total Cost (USD)	ITTO (USD)			Executing Agency (USD)		
			1st Year	2nd Year	3rd Year				1st Year	2nd Year	3rd Year	1st Year	2nd Year	3rd Year
	DSA for Remote Sensing Assistant	31.3	90			pax	100	9,000	9,000					
	Person Day of Field Crew	12.3	360			Person-day	50	18,000	18,000					
	Sub-contract for Field crew	21	240			pax	25	6,000	6,000					
	Vehicle rental	43	120			package	100	12,000	12,000					
	Soil and Leaf Litter analysis	53	1000			unit	5	5,000	5,000					
	Survey equipment set (hypsometer, diameter tape)	44.2	1			package	5,000	5,000	5,000					
	Person Month of Local Senior Researcher	12	2			Person-month	3,000	6,000				6,000		
	DSA for Local Senior Researcher	31.1	7			pax	200	1,400	1,400					
	Person Month of Local Researcher	11	4			Person-month	2,000	8,000				8,000		
	DSA for Local Researcher	31.1	30			pax	200	6,000	6,000					
	Person Month of Local Research Assistant	12.1	8			Person-month	1,000	8,000				8,000		
	DSA for Local Research Assistant	31.3	500			pax	100	50,000	50,000					
	Vehicle rental	43	64			package	100	6,400	6,400					
	TOTAL Activity 2.1							**182,500**	**152,500**			**30,000**		
Activity 2.2	*Methods for reducing forest degradation implemented*													
	Person Month of International Consultant	14		0.5		Person-month	7,500	3,750		3,750				
	DSA for International Consultant	31.2		7		pax	300	2,100		2,100				
	Mission Costs	32.2		1		package	3,500	3,500		3,500				

Outputs/ activities	Description	Budget Component	Quantity			Units	Unit Cost (USD)	Total Cost (USD)	ITTO (USD)			Executing Agency (USD)		
			1st Year	2nd Year	3rd Year				1st Year	2nd Year	3rd Year	1st Year	2nd Year	3rd Year
	Person Month of Senior Local Consultant	13		1		Person-month	5,000	5,000		5,000				
	DSA for Senior Local Consultant	31.1		7		pax	200	1,400		1,400				
	Person Month of Local Consultant	11		1		Person-month	1,500	1,500		1,500				
	DSA for Local Consultant	31.1		7		pax	150	1,050		1,050				
	Transportation - Flights	33.1		15		package	400	6,000		6,000				
	Field crew	12.3		240		pax	50	12,000		12,000				
	Person Month of Local Senior Researcher	12		2		Person-month	3,000	6,000					6,000	
	DSA for Local Senior Researcher	31.1		14		pax	200	2,800		2,800				
	Person Month of Local Researcher	11		2		Person-month	2,000	4,000					4,000	
	DSA for Local Researcher	31.1		60		pax	200	12,000		12,000				
	TOTAL Activity 2.2							**61,100**		**51,100**			**10,000**	
Output 3	*Incentives for carbon and ecosystems services established*													
Activity 3.1	*REDD opportunity cost study for the proposed sites*													
	Person Month of Senior Local Consultant	13			0.5	Person-month	5,000	2,500			2,500			
	DSA for Senior Local Consultant	31.1			14	pax	200	2,800			2,800			
	Person Month of Local Consultant	11			3	Person-month	1,500	4,500			4,500			
	DSA for Local Consultant	31.1			30	pax	150	4,500			4,500			

Outputs/ activities	Description	Budget Component	Quantity			Units	Unit Cost (USD)	Total Cost (USD)	ITTO (USD)			Executing Agency (USD)		
			1st Year	2nd Year	3rd Year				1st Year	2nd Year	3rd Year	1st Year	2nd Year	3rd Year
	Person Month of Local Senior Researcher	12			2	Person-month	3,000	6,000						6,000
	DSA for Local Senior Researcher	31.1			14	pax	200	2,800			2,800			
	Sub-contract for Enumerator	22			140	pax	25	3,500			3,500			
	Vehicle rental	43			28	package	100	2,800			2,800			
	Administrative assistant	11.4			12	Person-month	1,000	12,000			12,000			
	Office supplies	54			1	package	1,000	1,000			1,000			
	Office rental	41			1	package	1,000	1,000						1,000
	Sundry	61			1	package	500	500			500			
	Project Coordinator	11.1			12	Person-month	3,000	36,000						36,000
	Auditing	62			1	package	1,000	1,000			1,000			
	TOTAL Activity 3.1							**80,900**			**37,900**			**43,000**
Activity 3.2	*Identifying incentives procedures to reduce forest degradation and enhance environmental services in project sites*													
	Person Month of Senior Local Consultant	13			0.5	Person-month	5,000	2,500			2,500			
	DSA for Senior Local Consultant	31.1			7	pax	200	1,400			1,400			
	Person Month of Local Senior Researcher	12			2	Person-month	3,000	6,000						6,000
	DSA for Local Senior Researcher	31.1			28	pax	200	5,600			5,600			
	Person Month of Local Consultant	11			2	Person-month	1,500	3,000						3,000
	DSA for Local Consultant	31.1			10	pax	150	1,500			1,500			

Outputs/ activities	Description	Budget Component	Quantity			Units	Unit Cost (USD)	Total Cost (USD)	ITTO (USD)			Executing Agency (USD)		
			1st Year	2nd Year	3rd Year				1st Year	2nd Year	3rd Year	1st Year	2nd Year	3rd Year
	3 Meetings (10 participants per meeting)	15			30	pax	100	3,000			3,000			
	TOTAL Activity 3.2							**23,000**			**14,000**			**9,000**
Output 4	*Capacity of major stakeholders and communities where relevant is strengthened*													
Activity 4.1	*Developing awareness programmes amongst policy makers and forest managers*													
	Person Month of Local Senior Consultant	13		0.5		Person-month	7,500	3,750		3,750				
	DSA for International Consultant	31.2		14		pax	300	4,200		4,200				
	Mission Costs	31.2		1		package	3,500	3,500		3,500				
	Person Month of Senior Local Consultant	13		1		Person-month	5,000	5,000		5,000				
	DSA for Senior Local Consultant	31.1		14		pax	200	2,800		2,800				
	Person Month of Local Consultant	11		1		Person-month	1,500	1,500		1,500				
	DSA for Local Consultant	31.1		14		pax	150	2,100		2,100				
	Person Month of Local Senior Researcher	12		10		Person-month	3,000	30,000					30,000	
	DSA for Local Senior Researcher	31.1		21		pax	200	4,200		4,200				
	Resource person	12		5		pax	400	2,000		2,000				
	DSA for Assistant	12.1		30		pax	25	750		750				
	Transportation (land)	33.1		14		package	100	1,400		1,400				

Outputs/ activities	Description	Budget Component	Quantity			Units	Unit Cost (USD)	Total Cost (USD)	ITTO (USD)			Executing Agency (USD)		
			1st Year	2nd Year	3rd Year				1st Year	2nd Year	3rd Year	1st Year	2nd Year	3rd Year
	Transportation (airline)	32.1		10		package	400	4,000		4,000				
	Meeting (50 participants)	15		150		pax	100	15,000		15,000				
	TOTAL Activity 4.1							**80,200**		**50,200**			**30,000**	
Activity 4.2	*Develop capacity in REDD+ and carbon accounting*													
	Workshop/Seminar (Local)	33		10		package	1,000	10,000		10,000				
	Workshop/Seminar (International)	32			10	package	3,000	30,000			30,000			
	TOTAL Activity 4.2							**40,000**		**10,000**	**30,000**			
Activity 4.3	*Cross sharing of experience and knowledge with other REDD projects*													
	Site visit (Regional)	32	10			package	3,000	30,000	30,000					
	Publication	61			400	copy	50	20,000			20,000			
	TOTAL Activity 4.3							**50,000**	**30,000**		**20,000**			
	Sub Total								**245,350**	**160,900**	**101,900**	**88,000**	**98,000**	**52,000**
	TOTAL							**746,150**	**508,150**			**238,000**		
	Executing Agency Management Cost (8%)							**19,040**						
	ITTO Project Monitoring & Administration							**101,812**						
	GRAND TOTAL							**867,002**						

3.4.2 Consolidated budget by component

Consolidated Yearly Project Budget
(featuring Input and Unit Costs)

	Budget Components	Input	Unit Costs	TOTAL	YEAR 1	YEAR 2	YEAR 3
10	**Project Personnel**						
	11. National Experts (Long term)	24.0	$ 2,500.00	$ 60,000.00	$ 40,500.00	$ 12,000.00	$ 7,500.00
	11.1. Project Coordinator	36.0	$ 3,000.00	$ 108,000.00	$ 36,000.00	$ 36,000.00	$ 36,000.00
	11.4. Administrator	36.0	$ 1,000.00	$ 36,000.00	$ 12,000.00	$ 12,000.00	$ 12,000.00
	12. Other Personnel	32.0	$ 2,531.25	$ 81,000.00	$ 10,000.00	$ 59,000.00	$ 12,000.00
	12.1. Assistant 1	42.0	$ 303.57	$ 12,750.00	$ 12,000.00	$ 750.00	$ -
	12.3. Other labour	600.0	$ 50.00	$ 30,000.00	$ 18,000.00	$ 12,000.00	$ -
	13. National Consultants (Short term)	3.5	$ 5,357.14	$ 18,750.00	$ -	$ 13,750.00	$ 5,000.00
	14. International Consultants	2.0	$ 7,500.00	$ 15,000.00	$ 3,750.00	$ 11,250.00	$ -
	15. Fellowships and Training	330.0	$ 106.06	$ 35,000.00	$ 9,000.00	$ 23,000.00	$ 3,000.00
	15.1. Training 1 (specify beneficiaries)	0.0	$ -	$ -	$ -	$ -	$ -
	19. Component Total	**1,105.5**	**$22,348.02**	**$ 396,500.00**	**$ 141,250.00**	**$ 179,750.00**	**$ 75,500.00**
20	**Sub-contracts**						
	21. Sub-contract (forest inventory)	240.0	$ 25.00	$ 6,000.00	$ 6,000.00	$ -	$ -
	22. Sub-contract (economic survey)	140.0	$ 25.00	$ 3,500.00	$ -	$ -	$ 3,500.00
	29. Component Total	**380.0**	**$ 50.00**	**$ 9,500.00**	**$ 6,000.00**	**$ -**	**$ 3,500.00**
30	**Travel**						
	31. Daily Subsistence Allowance	0.0	$ -	$ -	$ -	$ -	$ -
	31.1. National Experts/Consultants	407.0	$ 190.54	$ 77,550.00	$ 22,400.00	$ 36,550.00	$ 18,600.00
	31.2. International Consultants	46.0	$ 369.57	$ 17,000.00	$ 4,200.00	$ 12,800.00	$ -
	31.3 Others	590.0	$ 100.00	$ 59,000.00	$ 59,000.00	$ -	$ -
	32. International Travel	20.0	$ 3,000.00	$ 60,000.00	$ 30,000.00	$ -	$ 30,000.00
	32.1. National Experts/Consultants	10.0	$ 400.00	$ 4,000.00	$ -	$ 4,000.00	$ -
	32.2. International Consultants	2.0	$ 3,500.00	$ 7,000.00	$ 3,500.00	$ 3,500.00	$ -
	33. Local Transport Costs	10.0	$ 1,000.00	$ 10,000.00	$ -	$ 10,000.00	$ -
	33.1. National Experts/Consultants	64.0	$ 225.00	$ 14,400.00	$ 5,600.00	$ 8,800.00	$ -
	33.2. International Consultants	0.0	$ -	$ -	$ -	$ -	$ -
	33.3. Others	0.0	$ -	$ -	$ -	$ -	$ -
	39. Component Total	**1,149.0**	**$ 8,785.11**	**$ 248,950.00**	**$ 124,700.00**	**$ 75,650.00**	**$ 48,600.00**
40	**Capital Items**						
	41. Premises	3.0	$ 1,000.00	$ 3,000.00	$ 1,000.00	$ 1,000.00	$ 1,000.00
	43. Vehicles	212.0	$ 100.00	$ 21,200.00	$ 18,400.00	$ -	$ 2,800.00
	44.1. Computer Equipment (specify)	1.0	$ 5,000.00	$ 5,000.00	$ 5,000.00	$ -	$ -
	44.2. Forestry Equipment (specify)	2.0	$ 2,750.00	$ 5,500.00	$ 5,500.00	$ -	$ -
	49. Component Total	**218.0**	**$ 8,850.00**	**$ 34,700.00**	**$ 29,900.00**	**$ 1,000.00**	**$ 3,800.00**
50	**Consumable Items**						
	51. Raw materials	12.0	$ 2,000.00	$ 24,000.00	$ 24,000.00	$ -	$ -
	53. Utilities	1,000.0	$ 5.00	$ 5,000.00	$ 5,000.00	$ -	$ -
	54. Office Supplies	3.0	$ 1,000.00	$ 3,000.00	$ 1,000.00	$ 1,000.00	$ 1,000.00
	59. Component Total	**1,015.0**	**$ 3,005.00**	**$ 32,000.00**	**$ 30,000.00**	**$ 1,000.00**	**$ 1,000.00**
60	**Miscellaneous**						
	61. Sundry	403.0	$ 53.35	$ 21,500.00	$ 500.00	$ 500.00	$ 20,500.00
	62. Auditing	3.0	$ 1,000.00	$ 3,000.00	$ 1,000.00	$ 1,000.00	$ 1,000.00
	69. Component Total	**406.0**	**$ 1,053.35**	**$ 24,500.00**	**$ 1,500.00**	**$ 1,500.00**	**$ 21,500.00**
70	**National Managment Costs**						
	71. Executing Agency Management Costs (15%)			$ 35,700.00	$ 13,200.00	$ 14,700.00	$ 7,800.00
	72. Focal Point Monitoring			$ -			
	79. Component Total			**$ 35,700.00**	**$ 13,200.00**	**$ 14,700.00**	**$ 7,800.00**
	SUBTOTAL			**$ 781,850.00**	**$ 346,550.00**	**$ 273,600.00**	**$ 161,700.00**
80	**Project Monitoring and Administration**						
	81. ITTO Monitoring and Review			$ 24,000.00	$ 8,000.00	$ 8,000.00	$ 8,000.00
	82. ITTO midterm, final, ex-post Evaluation Costs			$ 15,000.00		$ 5,000.00	$ 10,000.00
	83. ITTO Programme Support Costs (8%)			$ 43,772.00	$ 20,268.00	$ 13,912.00	$ 9,592.00
	89. Component Total			**$ 82,772.00**	**$ 28,268.00**	**$ 26,912.00**	**$ 27,592.00**
90	**Refund of Pre-Project Costs (Pre-project budget)**						
100	**GRAND TOTAL**			**$ 864,622.00**			

3.4.3 ITTO budget by component

Yearly Project Budget By Source - ITTO

Annual Disbursements	Total	Year 1	Year 2	Year 3
Budget Components				
10. Project personnel	**$ 161,500.00**	$ 54,250.00	$ 82,750.00	$ 24,500.00
20. Sub-contracts	**$ 9,500.00**	$ 6,000.00	$ -	$ 3,500.00
30. Duty travel	**$ 248,950.00**	$ 124,700.00	$ 75,650.00	$ 48,600.00
40. Capital items	**$ 31,700.00**	$ 28,900.00	$ -	$ 2,800.00
50. Consumable items	**$ 32,000.00**	$ 30,000.00	$ 1,000.00	$ 1,000.00
60. Miscellaneous	**$ 24,500.00**	$ 1,500.00	$ 1,500.00	$ 21,500.00
Subtotal 1	**$ 508,150.00**	**$ 245,350.00**	**$ 160,900.00**	**$ 101,900.00**
80. ITTO Monitor. Evaluation. Costs				
81. Monitoring and Review Costs (effective estimation)	**$ 24,000.00**	$ 8,000.00	$ 8,000.00	$ 8,000.00
82. Evaluation Costs (effective estimation)	**$ 15,000.00**	$ -	$ 5,000.00	$ 10,000.00
Subtotal 2	**$ 547,150.00**			
83. Program Support Costs (8%)	**$ 43,772.00**			
84. Donor Monitoring Costs	**$ -**			
90. Refund of Pre-Project Costs	**$ -**			
ITTO TOTAL	**$ 590,922.00**			

3.4.4 Executing agency budget by component

Yearly Project Budget By Source - E. Agency/Host Government

Annual Disbursements	Total	Year 1	Year 2	Year 3
Budget Components				
10. Project personnel	**$ 235,000.00**	$ 87,000.00	$ 97,000.00	$ 51,000.00
20. Sub-contracts	**$ -**	$ -	$ -	$ -
30. Duty travel	**$ -**	$ -	$ -	$ -
40. Capital items	**$ 3,000.00**	$ 1,000.00	$ 1,000.00	$ 1,000.00
50. Consumable items	**$ -**	$ -	$ -	$ -
60. Miscellaneous	**$ -**	$ -	$ -	$ -
70. Executing Agency Management Costs (15%)	**$ 35,700.00**	$ 13,200.00	$ 14,700.00	$ 7,800.00
EXECUTING AGENCY/HOST GOVT. TOTAL	**$ 273,700.00**	**$ 101,200.00**	**$ 112,700.00**	**$ 59,800.00**

3.4.5 Other sources budget by component

Yearly Project Budget By Source - Others

Annual Disbursements	Total	Year 1	Year 2	Year 3
Budget Components				
10. Project personnel	**$ -**	$ -	$ -	$ -
20. Sub-contracts	**$ -**	$ -	$ -	$ -
30. Duty travel	**$ -**	$ -	$ -	$ -
40. Capital items	**$ -**	$ -	$ -	$ -
50. Consumable items	**$ -**	$ -	$ -	$ -
60. Miscellaneous	**$ -**	$ -	$ -	$ -
OTHERS TOTAL	**$ -**	**$ -**	**$ -**	**$ -**

3.4.6 Activity and Component

Overall Project Budget By Activity and Component (in U.S. Dollars)

	BUDGET COMPONENTS																	
OUTPUTS / ACTIVITIES + Non-Activity Based Expenses	10. Project Personnel		20. Sub-Contracts		30. Duty Travel		40. Capital Items		50. Consumable Items		60. Miscella-neous		Year	GRAND TOTAL
Output 1: National forest degradation estimated														
Activity 1.1: Assessment of forest degradation drivers	88,250.00	IE	-		24,100.00	I	6,000.00	IE	1,000.00	I	1,500.00	I	Y1	120,850.00
Activity 1.2: Develop tools/guidelines to account,monitor and report forest degradation	89,500.00	IE	-		14,600.00	I	1,000.00	E	1,000.00	I	1,500.00	I	Y2	107,600.00
Subtotal 1	**177,750.00**	**IE**	-		**38,700.00**	**I**	**7,000.00**	**IE**	**2,000.00**	**I**	**3,000.00**	**I**		**228,450.00**
Output 2: Forest degradation reduce at the forest management unit														
Activity 2.1: Forest degradation at the forest management unit assessed	53,000.00	IE	6,000.00	I	70,600.00	I	23,900.00	I	29,000.00	I	-		Y1	182,500.00
Activity 2.2: Methods for reducing forest degradation implemented	32,250.00	IE	-		28,850.00	I	-		-		-		Y2	61,100.00
Subtotal 2	**85,250.00**	**IE**	**6,000.00**	**I**	**99,450.00**	**I**	**23,900.00**	**I**	**29,000.00**	**I**	**-**			**243,600.00**
Output 3: Incentives for carbon and ecosystems services established														
Activity 3.1: REDD opportunity cost study for the proposed sites	61,000.00	IE	3,500.00	I	10,100.00	I	3,800.00	IE	1,000.00	I	1,500.00	I	Y3	80,900.00
Activity 3.2: Identifying incentives procedures to reduce forest degradation and enhance environmental services in project sites	14,500.00	IE	-		8,500.00	I	-		-		-		Y3	23,000.00
Subtotal 3	**75,500.00**	**IE**	**3,500.00**	**I**	**18,600.00**	**I**	**3,800.00**	**IE**	**1,000.00**	**I**	**1,500.00**	**I**		**103,900.00**
Output 4: Capacity of major stakeholders and communities where relevant is strengthened														
Activity 4.1: Developing awareness programmes amongst policy makers and forest managers	58,000.00	IE	-		22,200.00	I	-		-		-		Y2	80,200.00
Activity 4.2: Develop capacity in REDD+ and carbon accounting	-		-		40,000.00	I	-		-		-		Y2, Y3	40,000.00
Activity 4.3: Cross sharing of experience and knowledge with other REDD projects	-		-		30,000.00	I	-		-		20,000.00	I	Y1, Y3	50,000.00
Subtotal 4	**58,000.00**	**IE**	-		**92,200.00**	**I**	-		-		**20,000.00**	**I**		**170,200.00**
Subtotal (ITTO)	**161,500.00**		**9,500.00**		**248,950.00**		**31,700.00**		**32,000.00**		**24,500.00**			**508,150.00**
Subtotal (E. Agency)	**235,000.00**		-		-		**3,000.00**		-		-			**238,000.00**
Subtotal (Others)	-		-		-		-		-		-			-
TOTAL	**396,500.00**		**9,500.00**		**248,950.00**		**34,700.00**		**32,000.00**		**24,500.00**			**746,150.00**

(I) - Contribution of the ITTO

(E) - Contribution of the Executing Agency / Host Government

(O) - Contribution from Other Sources

3.5 Assumptions, risks, sustainability

3.5.1 Assumptions and risks

The project involves a number of stakeholders with different interests from all levels of local institution; the national, state, district and also regional level. Thus, risks perceived from the collaboration may include conflict arise from miscommunication and differences in opinions.
Thus, several approaches will be taken should such scenarios emerge:

- Dialogue to involve different stakeholders in activities requiring decision-making, especially in formulating policy and strategy

Approach local communities to understand their challenges in implementing sustainable forest management practices and help solve any issues wherever necessary.

The successful implementation of the proposed project would be very much dependent on the cooperation of Pahang State authorities. The assumptions here is the incentives to be provided to address degradation would be adequately attractive enough for the involvement of the State. In this regard, consideration needs to be given to transaction costs to implement project, the opportunity costs foregone in carrying improved forest and the price of carbon under the REDD+ or REDDES mechanism. If these costs are high and incentive provided are not attractive, there will be a high risk that the project may not be successful.

There is also a potential risk that there is insufficient capacity to undertake the project successfully. To avoid such risks, the implementing agency for the project will be fully engaged for the successful implementation of the project. The available expertise and experience by FRIM in undertaking project such as accounting of carbon stocks for the forestry sector in the preparation of Malaysia's Second National Communication will enable FRIM to more implement this project effectively.

3.5.2 Sustainability

The long term commitment of the FRIM and sustained partnerships with related stakeholders such as the private sector, national experts and local communities, will be crucial to the success and sustainability of such a programme. The project will undertake stakeholder consultations for creating a sense of ownership among stakeholders which is expected to ensure their full commitment to the project. Commitment and engagement of key stakeholders will assist in the effective and smooth implementation of the project and the sustainability of activities after completion.

Institutional and Technical Sustainability

The programme builds upon relevant initiatives and strengths that already exist within the FRIM. FRIM has a Climate Change Program that is dedicated to carrying research in climate change issues and currently REDD+ and REDDES are important aspects identified. In addition, there are other programs with relevant expertise that is able to support the Climate Change Program in implementing the activities under the proposed project. Among others expertise are available in forest resource assessment and monitoring using remote sensing and GIS technologies, expertise in socio-economics to assess costs and benefits of REDD+ and REDDES, as well as forest ecology and management.

Since the modalities for REDD+ are still being negotiated and countries are required to carry out readiness project, the project will be conducted through a learning by doing approach with reference to experiences of other REDD projects within the region and relevant decisions and guidelines available under the UNFCCC.

Social sustainability

The project will be implemented with proper consultation with the Pahang state authorities, local communities and relevant NGOs to ensure their commitment and support for the project. Relevant stakeholders will be continuously consulted and engaged through technical and project steering committee meetings or where appropriate direct discussions.

Political Sustainability

The project is in line with Malaysia's Policy on Climate Change and Malaysia's commitment to the UNFCCC. In principle, Malaysia supports the implementation of REDD+ as a mitigation measure to address issues of climate change. In addition, the project is also in line with the government's aspiration to better conserve and manage forest resources on a sustainable basis. The proposed co-benefits of the project in enhancing biodiversity conservation are in line with Malaysia's policy on biodiversity. Consequently, there is sufficient political support to ensure that the project is implemented properly and that outputs would be relevant and would be supported beyond the completion of the project.

Economic Sustainability

The project is focused on creating financial incentives and thus would be relevant to the Malaysia and the Pahang State government. Malaysia is currently preparing its REDD+ strategy and will put in place relevant mechanism for conducting REDD+ and REDDES projects including ensuring that financial incentives received are properly managed and benefits enjoyed by the relevant stakeholders.

The project addresses some core issue related to forest degradation in managed production forests in Malaysia. Some of these issues is related to the high intensity of trees being removed through the cutting limit approach being implemented under the current Selective Management System (SMS). There are also issues related to the changes in forest structure and species composition particularly the commercially valuable species. The project will proposed improved management practices to reduce forest degradation and emissions. This is in line with current forest policy to manage forest on a sustainable basis. The improved methods will be packaged and presented to key stakeholders for discussions. Assessment will be made to estimate impacts on costs of improved methods. Assessment of possible incentives under a suitable REDD+ or REDDES scheme will also be proposed. The proposed methods will be assessed on its impacts in improving current practices.

PART 4 IMPLEMENTATION ARRANGEMENTS

4.1 Organization structure and stakeholder involvement mechanisms

4.1.1. Executing agency and partners

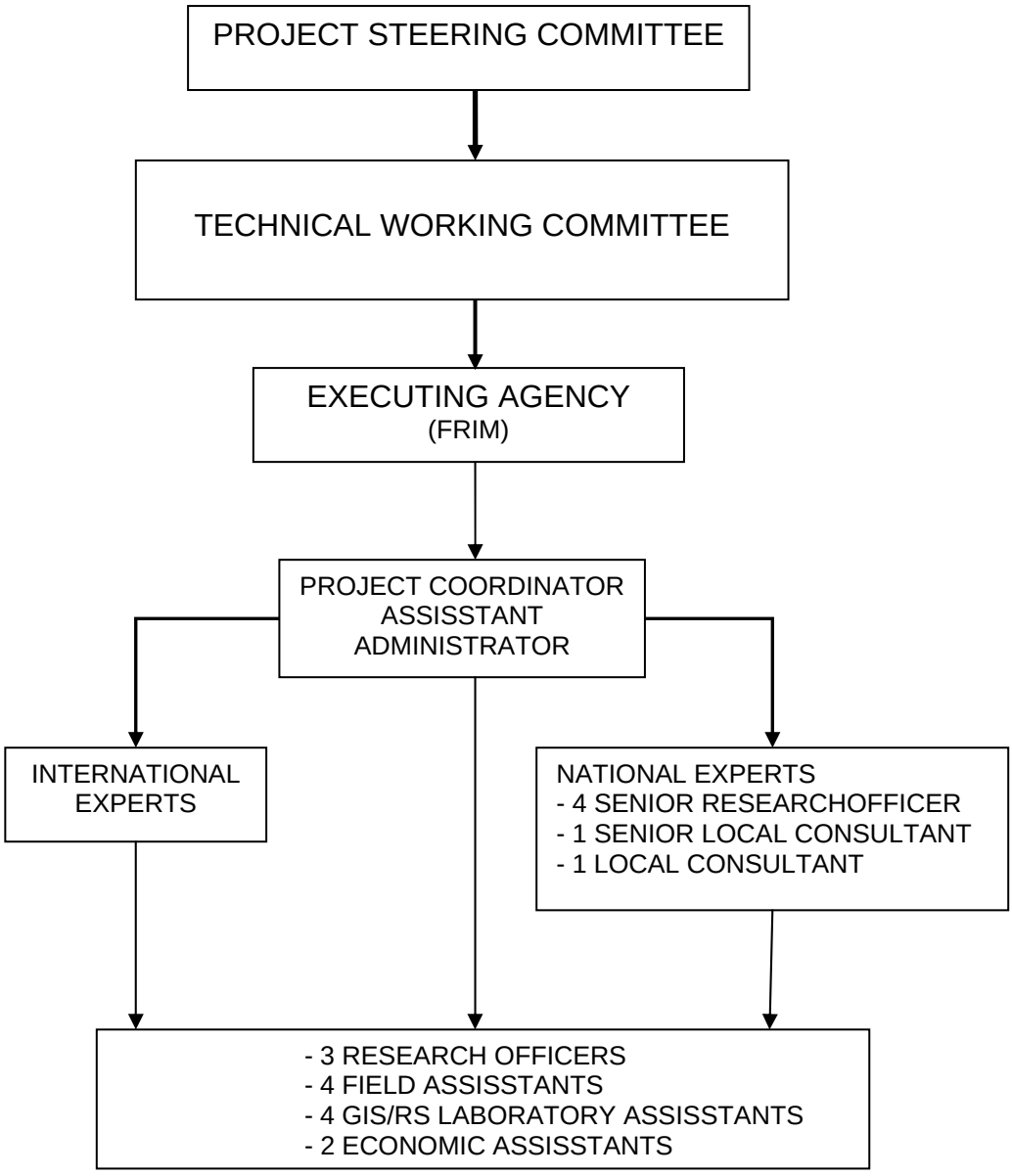
The executing agency of the project will be the Forest Research Institute of Malaysia (FRIM) which will responsible to coordinate and implement the project activities and also managing the ITTO fund. The executing and implementing agency will be involved in the project from the preparation until completion of the project.

Executing agency will work together with Forestry Department Peninsular Malaysia (FDPM), the REDD Unit under MNRE, local community groups and associations, Malaysian Environmental NGO (MENGO) such as Malaysian Nature Society (MNS), universities and other relevant institutions to implement the project activities. If necessary, activities will be implemented through sub-contracts with local NGO's such as WWF and consultancies for efficiency purposes.

4.1.2. Project management team

A Project Coordinator will be assigned for the project who will be the overall person in charge of the project implementation. The Project Coordinator will report to the Executing Agency as well as to ITTO in consultation with the Technical Working Committee and Project Steering Committee. The Project Coordinator should be a qualified and credible senior researcher who has the responsibility for the planning of the day to day project activities and overall project management.

The management structure of the project is presented in the following diagram:


PROJECT STEERING COMMITTEE
TECHNICAL WORKING COMMITTEE
EXECUTING AGENCY
(FRIM)
PROJECT COORDINATOR
ASSISSTANT
ADMINISTRATOR
INTERNATIONAL
EXPERTS
NATIONAL EXPERTS
- 4 SENIOR RESEARCHOFFICER
- 1 SENIOR LOCAL CONSULTANT
- 1 LOCAL CONSULTANT
- 3 RESEARCH OFFICERS
- 4 FIELD ASSISSTANTS
- 4 GIS/RS LABORATORY ASSISSTANTS
- 2 ECONOMIC ASSISSTANTS

4.1.3. Project steering committee

The Project Steering Committee (PSC) will be established to govern the implementation of the project. The PSC will provide guidance on matters pertaining to the implementation of the project and ensure that the project is directed towards achieving its intended goals.

The members of the PSC include the following:

- MNRE
- ITTO
- REDDES donor countries
- FRIM
- Forestry Department Headquarters
- Pahang State Forestry Department
- Local NGO
- Department of Aboriginal Affairs
- Economic Planning Unit

At the same time, a Technical Working Group (TWG) will also be established to give advice on technical matters and facilitate the data collection and analysis. The members of the TWG are as follows:

- FRIM
- Local Universities
- Forestry Department Headquarters
- Pahang State Forestry Department
- Local NGO
- Wildlife Department
- Timber Associations
- Association for local communities

4.1.4. Stakeholder involvement mechanisms

Responsibilities and roles assigned to key stakeholders in this project are as follows:

a) Forest Research Institute Malaysia

- Monitor coordination of all parties in implementing project according to objectives and activities proposed
- Manage fund within project budget and in accordance with ITTO guidelines and procedures
- Prepare and submit all project reports to ITTO on time
- Maintain a smooth flow in executing the project collaborating with all relevant agencies

b) The Ministry of Natural Resources and Environment, Malaysia

- Facilitate FRIM and ITTO in executing the project in phases
- Coordinate meeting and dialogue to be organized throughout the duration of the project
- The REDD Unit will be involved in the implementation of the project

c) Forestry Department of Peninsular Malaysia

- Provide technical support to forestry related work
- Share information relevant to forest aspect of REDD+ Mechanism
- Involved in the implementation of the project with FRIM

d) Role of other stakeholders (Forestry cooperatives / Private sectors / NGO)

- Active engagement in implementing activities under sustainable management practices
- Involvement in training activities to capacity-build professional personnel for the project

e) Role of local communities

- Participation in the process of developing strategy
- Involvement in training activities
- Involvement in program and activities related to SFM initiative in order to reduce forest degradation

4.2 Reporting, review, monitoring and evaluation

a) Project Progress Report.

The first project progress report will be submitted to ITTO six months after the project start-up or at least 4 months before the date of the monitoring visitis (or Steering Committee meetings) and 2 months before every Council Sessions (in May and November).

b) Project Completion Report

This will be submitted within three months after Project Completion.

c) Project Technical Reports.

Project Technical Reports will be prepared for activities where technical results are expected, i.e. the achievements of the Project Outputs.

d) Monitoring, Review and Steering Committee's Visits.

The Project Steering Committee meeting will be held annually or as necessary. ITTO monitoring visits, if considered still necessary, will be arranged after the achievement of the respective outputs according to the Workplan.

e) Evaluation

Evaluation will be conducted during the last quarter before completion of the Project.

4.3 Dissemination and mainstreaming of project learning

4.3.1. Dissemination of project results

Results from the project will be presented and endorsed by the executing agency and relevant agencies through the project steering committee and consultation with key stakeholders. Following that, the information will be disseminated through workshops, seminars, publications, website, and hand-out documents.

Project documents and reports will be presented to the project steering committee for comments, feedback and endorsement. Relevant reports will also be included in the projects website for broader dissemination. Direct hands–on training will be provided to staff of the forestry departments and Pahang state authorities. At least two workshops involving at least 120 participants will be conducted to enhance awareness amongst the stakeholders. Trained personnel will also be able to transfer knowledge and technologies to be introduced in at least two countries in the region. The results of the project will be presented to relevant stakeholders in the ASEAN region through a workshop. Cross-learning experience based on the results and experience of members from the region based on their own REDDES project will be arranged to enhance the capacity of Malaysia stakeholders.

4.3.2. Mainstreaming project learning

Present experiences of managing the project will serve as future reference in developing potential schemes of similar capacity in reducing emissions. Improved understanding policy formulation will be useful in crafting policies in near future.

Current Forest policies has included the role of forest in mitigating climate change impacts. However, specific forest activities such as reducing degradation has yet to be integrated into forest planning and management. Some on the constraints are due to the lack of information and capacity to

account for emissions from forest degradation in the production forests. The assumption is that the current management practices sustain forest yields and thus productivity is maintained. Indirectly carbon stocks are also maintained. However, current forest harvesting practices have been reported to result in residual stands that are less productive and altered species mix. This will result in forest degradation and enhance emissions. It is hoped that the proposal to enhance current management prescriptions and harvesting techniques to reduce forest degradation will be integrated into current forest planning and management through existing administrative structure under the relevant State and Federal authorities.

ANNEX 1. PROFILES OF THE EXECUTING AND COLLABORATING AGENCIES

The Forest Research Institute Malaysia, or better known as FRIM, has earned a name for itself in the field of tropical forest conservation and research. It is a statutory body governed under the Ministry of Natural Resources and Environment, and is currently headed by Director-General Dato' Dr. Abdul Latif Mohmod.

FRIM consists of five research divisions. The forestry and environment division provides data, standards and guidelines for managing our natural forests on a sustainable basis. The forest products division provides services of testing of furniture and fire doors. The Natural Products division focuses on the development of forest-based industries which include medicinal and aromatic plants. The biotechnology division involves in creating new planting material through genetic engineering. The forest biodiversity division provides consultancy and training on wood identification, tree and disease identification.

Besides, FRIM has identified 17 priority research areas under the 9th Malaysia Plan (2006-2010). Specific projects are written up in consonance with these 17 areas identified to apply for Intensification of Research in Priority Areas Grant (IRPA) funding. FRIM's research programme for the period 2001-2005 can be summarized as follows:

IRPA R&D in Priority Areas (8th Malaysia Plan 2000-2005)

Theme	Research Theme
01	Sustainable forest management (SFM) – natural forests
02	Sustainable forest management (SFM) – planted forests
03	Forest protection, conservation and biodiversity
04	Role of forests in the enhancement of environmental quality
05	Policy, trade and economics of forestry
06	Forest products technology
07	New technology in wood and biocomposites
08	New Technology in pulp & paper
09	Herbal fragrance & flavor and nutraceutical products
10	New products and value-addition of non-wood resources
11	Policy, trade and economic of forest-based industry

IRPA R&D In Priority Areas for Spices and Herbs

Theme	Research Theme
01	Development of raw materials
02	Technology for processing and production of herbal products
03	Standards for herbal products
04	Genetic diversity

ANNEX 2. TASKS AND RESPONSIBILITIES OF KEY EXPERTS PROVIDED BY THE EXECUTING AGENCY

No	Name	Professional Education	Position in present organization	Experience relevant to the project	Task in the project
1	Dr. Shamsudin Ibrahim	PhD	Division Director	Head of Forestry Division	Sustainable Forest Management and Biodiversity
2	Dr. Samsudin Musa	PhD	Senior Research Officer	Head of the Climate Change Program and involved in climate change negotiations	Project Leader Assessment of Forest Degradation
3	Dr Norini Haron	PhD	Senior Research Officer	Director of Research and Corporate Planning Division and Chair of the Forestry CDM Secretariat	Economic Component Payment for Environmental Services
4	Dr Ismail Harun	PhD	Senior Research Officer	Head of Natural Forest Program	Sustainable Forest Management
5	Dr Khali Aziz	PhD	Senior Research Officer	Head of Geoinformation Program	Monitoring and Analysis of Satellite Data
6	Dr Christine Fletcher	PhD	Senior Research Officer	Head of Forest Ecology Branch and Assoc. Member of the Forestry CDM Secretariat	Assessment of Forest Degradation
6	Dr Elizabeth Philip	PhD	Senior Research Officer	Head of REDD Unit MNRE	Assessment of Forest Degradation
7	Dr Abd Rahman Kassim	PhD	Senior Research Officer	Head of Water Quality Program	Ecosystem Services
8	Dr. Ismail Parlan	PhD	Senior Research Officer	Head of Wetland Management Unit	Assessment of Forest Degradation
9	Azian bt. Mohti	Master degree	Research Officer	Research Officer at the Climate Change Program	Assessment of Forest Degradation

ANNEX 3. TERMS OF REFERENCE OF PERSONNEL AND CONSULTANTS AND SUB-CONTRACTS FUNDED BY ITTO

Term of Reference for Project International Consultants and National Experts

1. **International Consultant for Output 1 Activities 1.1**

Competencies:

The consultant should possess solid knowledge of national policies and programmes, as related to climate change specifically SFM and REDD. Demonstrated experience in project development, implementation or management, especially in design of climate change mitigation projects.

Responsibilities: The consultant will support the efforts in focused areas as follows:
(1) In consultations with national experts implementing assessment and analyses of national forest degradation (2) prepare technical project documents, including addressing comment and input from reviewers, with support from national experts within the duration of the project.

Qualification/Time/Payment: Requires at least a Masters degree in environmental sciences or a relevant field. The duration of assignment will be within the period allocated by the project. At least 8 years of professional experience of which at least 5 years was spent in applying SFM or REDD related methodologies in planning and consulting work. Rate of payment is US$ 7, 500 per month.

2. **Local Senior Consultant for Output 1. Activity 1.1**

Competencies:

The consultant should possess solid knowledge of SFM and familiar with methodologies related to forest degradation assessment at ground. Demonstrated experience in field work specifically applying SFM in REDD Mechanism.

Responsibilities: The consultant will support the efforts in focused areas as follows:
(1) Undertake a field mission and guide field crews in assessing forest degradation, with support from international consultant (2) Work closely with international consultant and country offices in preparing documents within the duration of the project.

Qualification/Time/Payment: Requires at least a Masters degree in forestry sciences or a relevant field. The duration of assignment will be within the period allocated by the project. At least 8 years of professional experience of which at least 5 years was spent in applying SFM in planning and consulting work. Rate of payment is US$ 5, 000 per month.

3. **Local Senior Researcher for Output 1. Activity 1.1**

Competencies:

The expert should possess technical expertise and knowledge in SFM and REDD activities. Demonstrated experience in the relevant field.

Responsibilities: The expert will support the efforts in focused areas as follows:
(1) Arrange for meetings and discussions in consultation with stakeholders and consultant (2) Work closely with international consultant and country offices in preparing documents within the duration of the project.

Qualification/Time/Payment: Requires at least a Masters degree in forestry sciences or a relevant field. The duration of assignment will be within the period allocated by the project. At least 5 years of professional experience of which at least 3 years was spent in applying SFM in planning and consulting work. Rate of payment is US$ 2, 000 per month.

4. **Local Consultant for Output 1. Activity 1.1**

Competencies:

The consultant should possess considerable knowledge of forest management and REDD activities and familiar with methods of sampling and forest inventory at field.

Responsibilities: The consultant will support the efforts in focused areas as follows:
(1) Arrange for meetings and discussions in consultation with stakeholders and consultant (2) Work closely with international consultant and country offices in preparing documents within the duration of the project.

Qualification/Time/Payment: Requires a Masters degree in forestry sciences or a relevant field. The duration of assignment will be within the period allocated by the project. At least 3 years of professional experience in the relevant field. Rate of payment is US$ 1, 500 per month.

5. **International Consultant for Output 1. Activity 1.2**

Competencies:

The consultant should possess knowledge and skills in drafting and formulating guidelines and tools at national level specifically related to REDD+. Demonstrated experience in project development, implementation or management, especially in design of climate change mitigation projects.

Responsibilities: The consultant will support the efforts in focused areas as follows:
(1) Guide the project formulation team to develop an operational viable document that focuses on tools for forest degradation accounting (2) Conduct discussion with key stakeholders in the process of consultation.

Qualification/Time/Payment: Requires at least a Masters degree in forestry sciences or a relevant field. The duration of assignment will be within the period allocated by the project. At least 8 years of professional experience of which at least 5 years was spent in applying SFM in planning and consulting work. Rate of payment is US$ 7, 500 per month.

6. **Local Senior Researcher for Output 2. Activity 1.2**

Competencies:

The expert should possess solid knowledge and analytical skills with specialization in GIS methods, software and data processing.

Responsibilities: The expert will support the efforts in focused areas as follows:
(1) Arrange for meetings and discussions in consultation with stakeholders and consultant (2) Work closely with international consultant and country offices in preparing documents within the duration of the project.

Qualification/Time/Payment: Requires a Masters degree in forestry sciences or a relevant field. The duration of assignment will be within the period allocated by the project. At least 5 years of professional experience of which at least 3 years was spent in applying SFM in planning and consulting work. Rate of payment is US$ 3,000 per month.

7. **Local Consultant for Output 1. Activity 1.2**

Competencies:

The consultant should possess considerable knowledge of forest management and REDD activities and familiar with methods of sampling and forest inventory at field.

Responsibilities: The consultant will support the efforts in focused areas as follows:

(1) Arrange for meetings and discussions in consultation with stakeholders and consultant (2) Work closely with international consultant and country offices in preparing documents within the duration of the project.

Qualification/Time/Payment: Requires a Masters degree in forestry sciences or a relevant field. The duration of assignment will be within the period allocated by the project. At least 3 years of professional experience in the relevant field. Rate of payment is US$ 1, 500 per month.

8. **International Remote Sensing Consultant for Output 2. Activity 2.1**

Competencies:

The expert should possess solid knowledge and analytical skills with specialization in GIS methods, software and data processing.

Responsibilities: The consultant will support the efforts in focused areas as follows:
(1) Undertake processing of spatial information and preparation of digital maps and derived quantitative data (2) Responsible for interpretation of satellite images and digital data for assessing present land use and forest degradation.

Qualification/Time/Payment: Requires a Masters degree in forestry sciences or a relevant field. The duration of assignment will be within the period allocated by the project. At least 5 years of professional experience of which at least 3 years was spent in applying SFM in planning and consulting work. Rate of payment is US$ 7, 500 per month.

9. **Local Senior Remote Sensing Consultant for Output 2. Activity 2.1**

Competencies:

The expert should possess solid knowledge and analytical skills with specialization in GIS methods, software and data processing.

Responsibilities: The consultant will support the efforts in focused areas as follows:
(1) Undertake processing of spatial information and preparation of digital maps and derived quantitative data (2) Responsible for interpretation of satellite images and digital data for assessing present land use and forest degradation.

Qualification/Time/Payment: Requires a Masters degree in quantitative geography, preferably with knowledge of GIS and Remote Sensing. At least 5 years of professional experience of which at least 3 years was spent in applying GIS and Remote Sensing methods in planning and consulting work, preferably in regional or forestry planning. The duration of assignment will be within the period allocated by the project. Rate of payment is US$ 5, 000 per month.

10. **Local Researcher for Output 2. Activity 2.1**

Competencies:

The expert should possess technical expertise in resource assessment specifically on levels forest degradation and land use planning. Demonstrated experience in conducting REDD activities in forest management unit level.

Responsibilities: The expert will support the efforts in focused areas as follows:
(1) Study and compile forest sector information and identify levels of forest degradation at forest management units (2) Conduct discussions with key stakeholders in the process of consultation

Qualification/Time/Payment: Requires a Masters degree in environmental sciences or a relevant field. The duration of assignment will be within the period allocated by the project. At least 5 years of professional experience of which at least 3 years was spent in applying SFM or REDD+ related methodologies in planning and consulting work. Rate of payment is US$ 3, 000 per month.

11. **International Consultant for Output 2. Activity 2.2**

Competencies:

The expert should possess expertise and knowledge on REDD and SFM. Relevant experience in consulting work related to the field.

Responsibilities: The consultant will support the efforts in focused areas as follows:
(1) To formulate recommendation on methods for reducing forest degradation (2) Work closely with country offices in the related field.

Qualification/Time/Payment: Requires a Masters degree in forestry sciences or a relevant field. The duration of assignment will be within the period allocated by the project. At least 5 years of professional experience of which at least 3 years was spent in applying SFM in planning and consulting work. Rate of payment is US$ 7, 500 per month.

12. **Local Senior Consultant for Output 2. Activity 2.2**

Competencies:

The expert should possess expertise and knowledge on REDD and SFM. Relevant experience in consulting work related to the field.

Responsibilities: The consultant will support the efforts in focused areas as follows:
(1) Work with international consultant in formulating recommendation on methods for reducing forest degradation (2) Work closely with country offices in the related field.

Qualification/Time/Payment: Requires a Masters degree in forestry sciences or a relevant field. The duration of assignment will be within the period allocated by the project. At least 5 years of professional experience of which at least 3 years was spent in applying SFM in planning and consulting work. Rate of payment is US$ 5, 000 per month.

13. **Local Senior Researcher for Output 2. Activity 2.2**

Competencies:

The expert should possess expertise and knowledge on REDD and SFM. Relevant experience in consulting work related to the field.

Responsibilities: The expert will support the efforts in focused areas as follows:
(1) Study and compile forest sector information and identify levels of forest degradation at forest management units (2) Conduct discussions with key stakeholders in the process of consultation

Qualification/Time/Payment: Requires a Masters degree in environmental sciences or a relevant field. The duration of assignment will be within the period allocated by the project. At least 5 years of professional experience of which at least 3 years was spent in applying SFM or REDD+ related methodologies in planning and consulting work. Rate of payment is US$ 3, 000 per month.

14. **Local Consultant for Output 2. Activity 2.2**

Competencies:

The expert should possess expertise and knowledge on REDD and SFM. Relevant experience in consulting work related to the field.

Responsibilities: The expert will support the efforts in focused areas as follows:
(1) Arrange for meetings and discussions in consultation with stakeholders and consultant (2) Work closely with international consultant and country offices in preparing documents within the duration of the project.

Qualification/Time/Payment: Requires a Masters degree in environmental sciences or a relevant field. The duration of assignment will be within the period allocated by the project. At least 5 years of professional experience of which at least 3 years was spent in applying SFM or REDD+ related methodologies in planning and consulting work. Rate of payment is US$ 1, 500 per month.

15. **Local Senior Economist for Output 2. Activity 3.1**

Competencies:

The expert should possess solid knowledge and analytical skills with specialization in GIS methods, software and data processing.

Responsibilities: The consultant will support the efforts in focused areas as follows:
(1) Undertake processing of spatial information and preparation of digital maps and derived quantitative data (2) Responsible for interpretation of satellite images and digital data for assessing present land use and forest degradation.

Qualification/Time/Payment: Requires a Masters degree in quantitative geography, preferably with knowledge of GIS and Remote Sensing. At least 5 years of professional experience of which at least 3 years was spent in applying GIS and Remote Sensing methods in planning and consulting work, preferably in regional or forestry planning. The duration of assignment will be within the period allocated by the project. Rate of payment is US$ 5, 000 per month.

16. **Local Senior Researcher for Output 2. Activity 3.1**

Competencies:

The expert should possess technical expertise in resource assessment specifically on levels forest degradation and land use planning. Demonstrated experience in conducting REDD activities in forest management unit level.

Responsibilities: The expert will support the efforts in focused areas as follows:
(1) Study and compile forest sector information and identify levels of forest degradation at forest management units (2) Conduct discussions with key stakeholders in the process of consultation

Qualification/Time/Payment: Requires a Masters degree in environmental sciences or a relevant field. The duration of assignment will be within the period allocated by the project. At least 5 years of professional experience of which at least 3 years was spent in applying SFM or REDD+ related methodologies in planning and consulting work. Rate of payment is US$ 3, 000 per month.

17. **Local Consultant for Output 2. Activity 3.1**

Competencies:

The expert should possess technical expertise in resource assessment specifically on levels forest degradation and land use planning. Demonstrated experience in conducting REDD activities in forest management unit level.

Responsibilities: The expert will support the efforts in focused areas as follows:
(1) Arrange for meetings and discussions in consultation with stakeholders and consultant (2) Work closely with international consultant and country offices in preparing documents within the duration of the project.

Qualification/Time/Payment: Requires a Masters degree in environmental sciences or a relevant field. The duration of assignment will be within the period allocated by the project. At least 5 years of professional experience of which at least 3 years was spent in applying SFM or REDD+ related methodologies in planning and consulting work. Rate of payment is US$ 1, 500 per month

Annex 4. RECOMMENDATIONS OF ITTO EXPERT PANEL

ANNEX X: Responses to reviewer comments

Reviewer Comment*	Amendment(s) made**	Page #***
Comment 1: Section 1.2.1 *Needs to provide an explanation on how the proposal is relevant to specific items* **Comment 1:**	*Additional text to further clarify section 1.2.1 on Conformity to ITTO objectives and priorities has been given under:* *(3) Compliance with ITTA 2006 Objectives article 1* *(4) Compliance with ITTO Action Plan 2008-2011* *(5) Compliance with ITTO Policy Development series No 15* *(6) Compliance with ITTO Themetic Program; REDDES*	*6* *6* *7* *8*
Comment 2: Section 1.3. *More specific information on the project area (State of Pahang) is needed. Particularly the description of economic and environmental aspects is too weak.*	*Section 1.3 have been further elaborated on the sections on:* *1.3.1gepgraphical location – information on extent and demography included* *1.3.2 Social, cultural, economic and environmental aspects – significant information has been included on the socio-economic aspects of the Pahang State FMU including several tables. Information also provided on local communities particularly the orang asli people.*	*10* *11-16*
Comment 3: Section 1.4 *More description on the main outcomes of the project is needed. Attention should be given to the potential contribution of the project to the national policy development relating to reducing forest degradation. This section needs further development and explanation*	*Further description provided on expected outcom of the proposed project. Description on the main outcome particulalry reducing emissions from degradation through improved forest management prescriptions and logging system.*	16-17
Comment 4: Section 2.1.2 *More elaboration on the proposed involvement of key stakeholders in the project is needed. Custodian of Forest in "Sabah" in the State Forestry Departments in the stakeholder analysis table should be "Pahang"? as the project area is not directly related to Sabah.*	*The proposed involvement of key stakeholders has been further elaborated . Additional text included on the key areas of concern highlighted by the stakeholders.* *Text amended from Sabah to Pahang – included in Table on Satekholder analysis*	*18-20* *21*
Comment 5: ***Section 2.1.3 Section Problem analysis*** *Need to define the key problem to be addressed by the*	*The Problem Analysis has been reworded to better reflect the Key Problem and underlying causes, consistent with the Problem Tree:* *The key probelm has been changed to "limited*	*22*

Reviewer Comment*	Amendment(s) made**	Page #***
project in relation to forest degradation. For instance, the key problem could be considered as "limited information and knowledge on the extent of forest degradation in particularly in managed production Peninsula Malaysia" in consistent with 2.1.3. Increased emissions are a consequence of this key problem (which will be addressed by the project). In addition, need to elaborate the identified main causes of the key problem in a concise way	*information and knowledge on the extent of forest degradation in particularly in managed production Peninsula Malaysia"* *Additional text has been included to clarify the key probelm identified*	
Comment 6: Problem tree…..Need to refine the key problem (see above) Consider merging the second cause (Forest degradation concurs at the FMU level into the first cause.	*The key problem has been reworded as such:* *"Limited knowledge snd understanding on the extent of forest degradtion particularly in managed production forest in Peninsular" on reduction of forest degradation and enhance payments for ecosystem services." A proposed by the reviewer* *This is not only consistent with 2.1.3 but also with the Specific Objective in the Objective Tree.* *The first and second cause are two seperate and different causes. The first cause refers to the lack of knowledge or guidelines to identify the drivers of forest degradation and methods to account and assess forest degradation. The second cause refers to the lack of forest degradation assesment and implementation of forest degradation reduction practices at the forest management unit (FMU). Both causes would require different sets of activities.*	24
Comment 7: Section 2.1.4 Logical Framework matrix *Need to refine the specific objective (see above) in line with the revised key problem. Improve the indicators for the development and specific objectives in a measurable way.*	*The indicator for the Development Objective now includes a measurable indicator:* *Improved forest management practices to reduce forest degradation by at least 5% from business as usual (BAU) are introduced at the national level* *The indicator for the Specific Objective now includes a measurable indicator:* *Supported mechanism to bring additional incentives in implementing SFM as important option in reducing emission from forest degradation by at least 5% from BAU will be pilot tested in at least one state by the end of the project.*	25
Comment 8: Section 2.2.1 **Development objective and impact indicators**... Not clear. Verifiable Impact indicators need to be defined	*A verifiable impact indicator have been included:* *Additional text included to highlight impact indicators. Specific text on verifiable indicators*	27

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	included: *By the end of the project, end project reports will indicate that improved forest management practices have reduce forest degradation by at least 5% from business as usual (BAU) will be introduced at the national level.*	
Comment 9: Section 2.2.2 **Specific objective and outcome indicators**... Not clear. Verifiable Outcome indicators need to be defined	*A verifiable impact indicator have been included:* *A supported mechanism to bring additional incentives in implementing SFM to reduce emission from forest degradation by at least 5% from BAU will be pilot tested in at least one state by the end of the project.*	27-28
Comment 10: Section 3.1.1 Outputs *Excellent presentation, but quantification is required*	*Additional text bon quantification for each of the 4 otputs is included:* *Output 1: Additional text included to clarify* *Data on the extent of forest degradation in Peninsular Mlaysia will be made available to all major stakeholders.* *Output 2:* *In addition, improved protocols would be introduced and tested to enhance carbon retention and reduce degradation in at least one forest management unit.* *Output 3:* *In this output an economic incentive framework of SFM as an important option for forest based climate change mitigation will be introduced to at least one state government by the end of the project.* *Output 4:* *This will be achieved by providing training in awareness of REDDES and carbon accounting to at least 120 participants. Trained personnel will also be able to transfer knowledge and technologies to be introduced in at least two countries in the region.*	29-31
Comment 11: Activities... Excellent presentation, but quantification is required	*Additional text on quantification for the actvities are provided. All actvities will be documented and presented to the Projcet Steering committee, where appropriate to to stakeholders and will be placed under the web for wider dissemination*	31-35
Comment 12 Section 3.3 **Work plan**…..Implementation of Activity 4.1 (Developing awareness..) could be done in Year 1 and	*Awareness programmes is also now been included in Year 1 and Year 3*	36

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Year 3 as well.		
Comment 13 Section 3.4.1 **Master Budget Schedule**…..Table 3.4.5 (Activity and Component) should be improved into Master Budget Schedule based on the standard format illustrated in the ITTO Manual for Project Formulation	*This table was not autometically generated when using the ITTO ProTool and as such was not included in othe orignal proposal submitted. The ProTool automatically generated the rest of the Tables. However, we have included a Master Budget Schedule as Table 3.4.1 as required. Consequently the other Tables were renumbered accordingly*	37-44
Comment 14 Section 3.4.3 **ITTO Budget by Component**…..Standard presentation. Recalculate the ITTO Program Support Costs (8%) from the amount of the subtotal. Increase ITTO monitoring & review costs to US$ 8000/year (throughout the budget) and increase total accordingly (also on cover page)	*ITTO Program Support Costs has been recalculated in Table 3.4.3 based on Table 3.4.2 (items 10 to 82). ITTO monitoring and review has been increased from US$ 4000/yr to US$ 8000/yr in both Tables. This resulted in an increase of US$12000 for three years. Consequently, the budget for the ITTO compnents had increased to US$609,962.00. The total budget has also increased to US$ 867,002.00*	1, 36-37
Comment 15 Section 3.4.4 **Executing Agency Budget by Component**…..EA's management costs should be included as EA counterpart contribution	*An EA 8% Management Cost as required in the ITTO Manual has been included. This has resulted in an increase of the EA contribution by US$19,040.00. Accordingly the totals in the Consolidated budget Table and the cover page have also changed.*	37
Comment 16 Section 3.5.1 *Risks are not addressed, please revise*.	*Additional text has been included to address project risks. This include the need for cooperation from mthe Pahang State governmnet where the project is being implemented and that the incentives provided to reduce degradation would be adequate for projects to be fully implemented*	40
Comment 17 Section 3.5.2 *It would be useful to add elaboration on how the project outcome will be further used in connection with the existing national policy and strategy relating to forest degradation/SFM. Will the improved knowledge on reduction of forest degradation and enhanced payments for ecosystem services be extended to other states (in Peninsula Malaysia, Sabah or Sarawak)?*	*Additional text has been included to clarify the implementation of the outcome from this project. This include integration of improved management prescriptions and harvesting systems into current policy and practices*	41
Comment 18 Section 4.1.1 **Executing Agency and Partners**….. *Clear but it would be useful to identify local NGOs*	*The Malaysian Environmental NGOs (MENGO) is a network of local NGOs committed towards enhancing the environmental sustainability agenda. They have been included as one of the partners to the Executing Agencies. More specifically MMNS and WWF has been mentioned*	42

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Comment 19: Section 4.1.3 **Project Steering Committee**….. *Members of the PSC need to include a representative (s) of ITTO and REDDES donor countries*	*ITTO and REDDES donor countries is included as PSC members:* *The members of the PSC include the following:* • ITTO • REDDES donor countries • *MNRE* • *FRIM* • *Forestry Department Headquarters* • *Pahang State Forestry Department* • *Local NGO* • *Department of Aboriginal Affairs* • *Economic Planning Unit*	44
Comment 20: Section 4.3.1 *Dissemination of Project results - Too general, needs to be more specific*	*Additional text has been included clarify the dissemination of project results with more specific actvities*	46
Comment 21: Section 4.3.2 *Mainstreaming Project Learning - Too general, needs to be more specific*	*Addtional text has been included to provide more specific approaches to mainstreaming project learning. It is the ultimate aim to have the project methods be integrated into current project palnning and management. However this process will ahve to be undertaken through available adminsitrative setup.*	46-47

Please expand table as needed

* *In this column please insert the individual reviewer comments*
** *In this column please describe which change(s) you made (see examples)*
*** *In this column please insert the page number where changes have been made*