

Annex 8
REHABILITATION AND SUSTAINABLE USE OF PEATLANDS
IN SOUTH EAST ASIA

MALAYSIA COMPONENT

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ACRONYMS

APMI	ASEAN Peatland Management Initiative
ASEAN	Association of South East Asian Nations
CFI	Continuous Forest Inventory project
DANIDA	Danish International Development Agency
DID	Department of Irrigation and Drainage
DoA	Department of Agriculture
DoE	Department of Environment
DWNP	Department of Wildlife and National Parks
EIA	Environmental Impact Assessment
EPU	Economic Planning Unit
ESA	Environmentally Sensitive Area
FDHQ	Forestry Department Headquarters
FDPM	Forestry Department Peninsula Malaysia
FR	Forest Reserve
FRD	Fire and Rescue Department
FRIM	Forest Research Institute Malaysia
GEC	Global Environment Centre
GEF	Global Environment Facility
Govt.	Government
IFAD/GEF	International Fund for Agricultural Development / Global Environment Facility
IRPA	Intensive Research
KDEB	Kumpulan Darul Ehsan Berhad
KPU	Kementrian Perindustrian Utama (Ministry of Primary Industries)
MaCGDI	Malaysian Centre for Geospatial Data Infrastructure
MDKS	Majlis Daerah Kuala Selangor
MMS	Malaysia Meteorological Service
MNS	Malaysian Nature Society
MoSTI	Ministry of Science, Technology and Innovation
MPIC	Ministry of Plantation Industries and Commodities
MPOA	Malaysian Palm Oil Association
NAHRIM	National Hydraulic Research Institute Malaysia
NAP	National Action Plan (on peatlands)
NGOs	Non Government Organisations
NPP	National Physical Plan
NRE	Natural Resources and Environment
NREB	Natural Resources and Environment Board (Sarawak)
NSD	National Security Department
NSPSF	North Selangor Peat Swamp Forest
PKPS	Perbadanan Kemajuan Pertanian Selangor (Selangor Agricultural Development Board)
PSF	Peat Swamp Forest
RIL	Reduced Impact Logging
RKK	
Sdn. Bhd.	Sedan Berhad
SEA	South East Asia
SFD	Selangor Forestry Department
SLM	Sustainable Land Management
TCPD	Town and Country Planning Department
UNDP	United Nations Development Programme
UNEP-GEF	United Nations Environment Programme – Global Environment Facility
UNISEL	Universiti Industri Selangor
WWF	World Wide Fund for Nature

1. SITUATION ANALYSIS

1.1 Context

1.1.1 Background

Malaysia consists of 13 states which are divided into two regions - Peninsular Malaysia with 11 states, and East Malaysia which is made up of two states, Sabah and Sarawak. Under the Malaysian constitution, land comes under the jurisdiction of the State Governments. As a result, the management of peatland areas in the country come under the jurisdiction of the State Government where the peatland is found.

Peatlands in Malaysia are the most widespread type of wetlands, occurring in more than six of the 13 states and covering an area of about 2.13 million (approximately 6.46% of the total land area). Peatlands possess a very delicate and unique ecosystem with important ecological functions and values. They are recognised as environmentally sensitive areas (ESA) under Section 6B of the Town and Country Planning 1976 (Act 172) in the National Physical Plan (NPP). The uses and values of peatlands in Malaysia can be categorised into those that pertain to socio-economics (eg. forestry, agriculture, infrastructure, community livelihood, etc) and those that pertain to protective or conservational purposes (eg. forest, flood mitigation, water supply and as carbon stores). However, threats to peatlands and their values are of great concern due to problems faced as a result of current management practices. One of the main problems faced in peatlands here is the issue of peatland fires, which has contributed to the annually recurring episodes of transboundary haze pollution in the SE Asian region.

The frequency of peatland fires have increased significantly in recent years and this is a major cause of concern, particularly for the Federal and the affected State Governments. At the federal level, the main institutions related to peatland management in Malaysia are linked to the Natural Resources & Environment (NRE) Ministry namely the Forestry Department Peninsular Malaysia, Department of Environment, Department of Irrigation and Drainage, as well as the Ministry of Agriculture. Various universities and non-governmental organisations (NGOs) have also been active in peatland assessment and conservation. The management of peatlands falls under the remit of the different state governments, with the lead agency being the state forestry departments. Although there are no specific existing policies for peatlands in the country, separate national policies have been developed for biodiversity, forestry, agriculture and wetlands. These policies deal with different aspects of peatland management. The need for a specific strategy or action plan related to peatlands has been proposed by some agencies.

It is expected that Malaysia will develop appropriate interventions to address the issue of peatland management, particularly the degradation of peatlands, its depleting resources and recurring fires, particularly by participating in this project. Malaysia aims at achieving a balance between conservation and development in peatlands and their surrounding areas through sustainable management and wise use. This is also in line with the implementation of the National Action Plan (NAP) for peatlands that has been developed to address the issue of peatland fires and associated haze and other related issues (Appendix G presents the draft NAP for Malaysia).

1.1.2 Status and Values of Peatlands

Peatlands are mostly found in the states of Selangor, Johor, Perak, Pahang, Sabah and Sarawak. The largest area of peat is found in Sarawak, which is more than 1 million ha (refer to Figure 1). Approximately 50% of the total peatland area in Malaysia is designated as permanent reserves. The remaining areas have been converted for other uses whilst some are still designated as state forests land (refer to Table 1).

In addition to acting as repositories for unique and important biodiversity, peatlands in Southeast Asia is of global importance because of its ability to store an estimated 120 billion tonnes of carbon or approximately 5% of the world's terrestrial carbon. The peatlands found in Malaysia significantly contribute to the global carbon store in this region, after Indonesia. Peatlands also play a critical role in the socio-economic well-being of the country, particularly for their ecological and hydrological value, their timber and non-timber forest products, water supply, flood control and many other social, environmental and economic benefits.

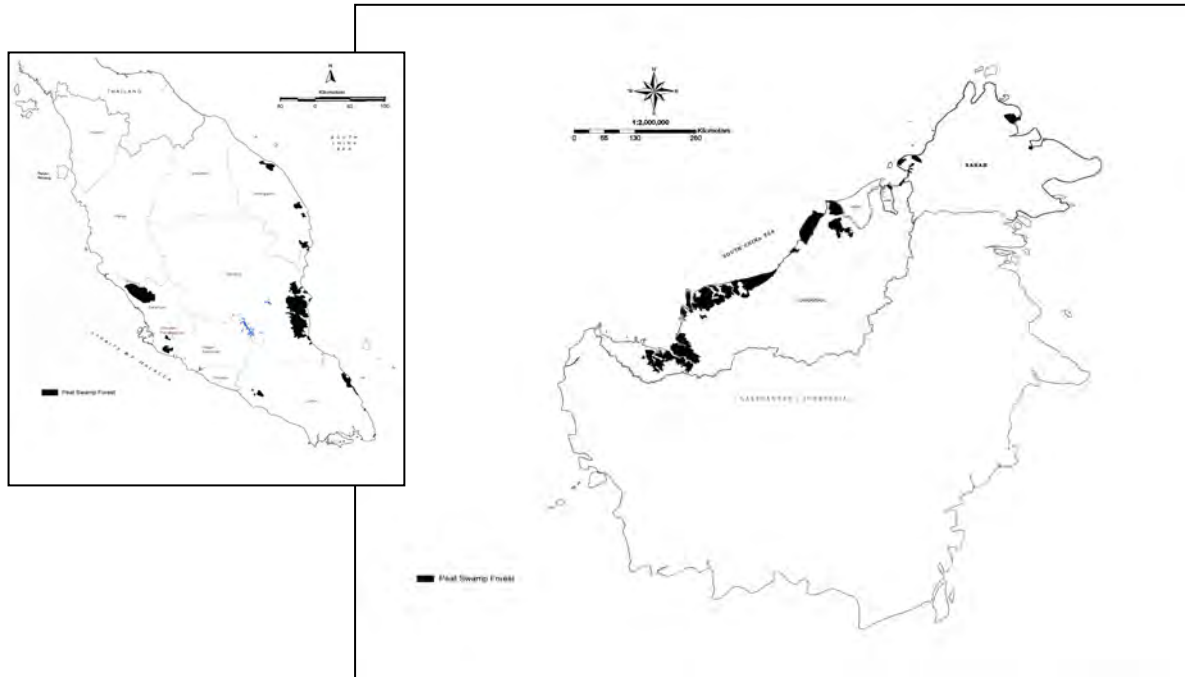


Figure 1: Distribution of Peatlands in Malaysia

Table 1: Distribution of Peatland and Their Status in Malaysia

(National Forestry Council, 2003)

	Total peatland area (ha)	Peatland Forest (ha)		Converted to other uses (ha)
		Permanent Reserves (ha)	Other Forests (ha)	
Peninsular Malaysia	717,000	190,757	109,243	417,000
Sarawak	1,289,114	771,000	349,000	169,114
Sabah	124,457	124,457	0	0
Total	2,130,571	1,086,214	458,243	586,114

Some of the important values of peatlands in the country are identified as follows:

i. Water Regulation

Peatlands in their natural state are water-logged due to a high water table and act as a large water reservoir, consequently playing an important role in water regulation. Important functions in

this aspect are flood mitigation and water supply, which contributes to the environmental security of human populations and ecosystems in its surrounding areas.

ii. Carbon Sequestration and Storage

Peatlands in the Southeast Asia play a role of global importance in storing an estimated 120 billion tonnes of carbon or approximately 5% of the global terrestrial carbon. Malaysia has the second largest extent of peatlands in Southeast Asia after Indonesia, most of which are still intact thus contributing to sequestering carbon from the atmosphere and acting as a store for large amounts of carbon.

iii. Biodiversity

Peatlands in Malaysia support significant biological diversity. In Peninsular Malaysia, 132 tree species were recorded in an area of 5ha in the Bebar Forest Reserve in Pahang (Ibrahim, 1995) and 107 tree species have been recorded in the North Selangor Peat Swamp Forest (Appanah *et al*, 1999). In Sarawak, according to Anderson (1963), 242 tree species were recorded in peatlands. Ibrahim (1995) stated that many of these species are endemic to this unique habitat – for example, 75% of the tree species found in peat swamp forest in Peninsular Malaysia are not found in other habitat types and some have a relatively restricted distribution.

Peat swamp forests are habitats or are part of the home range for rare and endangered mammals such as Malayan Tiger (*Panthera tigris malayensis*), Tapir (*Tapirus indicus*), Sumatran Rhino (*Dicerorhinus sumatrensis*) and Orang Utan (*Pongo pygmaeus*). Peat swamp forests also support a diverse bird community. Prentice and Aikanathan (1989) recorded 173 species of bird in the North Selangor Peat Swamp Forest of which 145 were breeding residents. Birds present include endangered species such as hornbills and the Short Toed Coucal. Peatland rivers, also known as 'black-water rivers' are important aquatic habitats for fish. These rivers often have a higher degree of localised endemism for fish species compared to other rivers, and they are also an important source of aquarium fish. Ng *et al* (1992) recorded more than 100 fish species in the North Selangor Peat Swamp Forest. Approximately 50% of these are restricted to black-water rivers.

iv. Socio-Economic Values

Peat swamp forests have been a source of timber and non-timber forest products. They are rich in high quality timber species such as Ramin (*Gonystylus bancanus*), Durian Paya (*Durio carinatus*) and a number of *Shorea* species. There are at least 120 timber species of commercial value and if harvested in a sustainable manner will continue to provide these resources for a very long period of time. Other non-timber plant products include rattan, asam kelubi, palm trees, *Pandanus*, scented wood trees species, medicinal plants, resin-producing trees and ornamental plants, for eg. wild ferns which are utilised and traded by local communities living around peatland areas.

Fish in peatland areas are important to the livelihood of local communities that live within or adjacent to peatlands. Surveys have shown that fish species are the main source of protein for local people and the indigenous communities living at Tasek Bera and the Southeast Pahang Peat Swamp Forest. Some local people sell these fish for a regular income (both edible and ornamental fish). Some of the fish species found here include the Giant Cat-fish (*Wallago leerii*), Blackwater Snakehead (*Channa bankanensis*), the peat swamp Barb (*Puntius rhomboocellatus*) and Chocolate Gouramy (*Sphearichthys osphromenoides*).

1.1.3 Management Issues, Threats & Root Causes of Peatland Degradation

Increasing pressures for land development (e.g. agriculture, infrastructure) have affected peatlands in Malaysia over the past 20 years. A number of these threats directly stem from or are associated to land conversion, especially for agricultural practices, that have been managed in an

unsustainable manner. These threaten the integrity of peat ecosystems and have resulted in significant loss of ecological support services eg. flood mitigation, prevention of saline water intrusion, sediment and toxic removal, groundwater recharge, micro-climate regulation etc. Many agricultural and plantation projects for oil palm, pulpwood, rice and various other crops on peatlands have failed due to unsuitable conditions and the application of inappropriate methods. In these last two decades, more than 1 million ha of peatlands in Malaysia has been converted for agricultural purposes. These land conversions have direct negative physical impacts on peatland ecosystems and its associated biodiversity. These impacts also have associated effects on remaining peatlands due to drainage, such as peat subsidence, fire and loss of vital ecological services.

Issues in the Harvesting of Timber

Peat soils are generally marginal to poor for agriculture, particularly those exceeding 2m in depth. Poor or unsustainable practices and the abandonment of agricultural projects leave the degraded peatlands vulnerable and susceptible to more negative impacts and threats, leading to further peatland degradation.

The uncontrolled rate of timber-harvesting constitutes a major threat to peatlands, especially when tracked excavators were introduced for the canal extraction system (i.e. large canals were constructed to drain water from peat swamp forests to facilitate easier access for heavy vehicles and for the extraction of timber). This system was recognised to be damaging to peatlands as it induced over-drainage and lowered the natural high water table when the area was abandoned, which led to subsidence, soil compaction and fire susceptibility. While this system has now been replaced in some sites with a more environment-friendly system (the *kuda-kuda* system), the effects from the previous system are continuing to negatively affect the existing peatlands.

Water Management Issues

One of the prominent characteristics of peatlands is its high water table. This naturally-occurring high water table is an important factor in their formation and for sustaining their stability. Over-drainage of peatlands can have detrimental effects to the ecosystem. The threats of over-drainage stem from forestry and agricultural practices in peatlands. Agricultural and forestry practices generally attribute to poor water management practices in peatlands, which significantly lower the water table leading to the drying and breaking-down of peat soils (i.e. peat subsidence). This in turn will affect the floral and faunal biodiversity. In severe cases of over-drainage, subsidence of up to 5m have been recorded over a period 20 years and such negative impacts could also be further enhanced during the dry season or droughts.

Peatland Fires and the Associated Haze Pollution

Peatland fires in the country and in the SE Asian region have had one common phenomenon in the past 20 years. They are often associated with periodic drought occurrences and closely-linked with forest clearance and drainage activities by the forestry and agricultural sectors. The El Niño cycles also play a significant role in peatland fire incidents. Detrimental impacts associated with peatland fire incidences are the negative effects on the socio-economy of local communities who are dependent on peatland resources, environmental pollution and the significant decrease or loss of important floral and faunal populations.

Inadequate Policies and Weak Institutional Framework

Currently, there is a lack of specific policies and guidelines related to sustainable peatland management in Malaysia. Existing policies and guidelines do not provide proper peatland management guideline, which further contributes to the unsustainable use and degradation of peatlands and their resources.

Inadequate Information on Peatland Management

There is currently inadequate information on sustainable peatland management due to a poor understanding of peatland ecosystems. It is also difficult to access existing information from the

respective government agencies, departments and ministries which relate to peatlands and their resources.

1.1.4 Policy and Institutional Framework

There is currently a lack of specific and harmonised policies/ legislation and guidelines pertaining to sustainable peatland management to meet sectoral needs (eg. forestry, agriculture, water management etc). The existing policies and legislations applicable to peatlands are currently administered as stand-alone by their respective government departments or agencies, which in turn might lead to gaps, conflicts and/ or overlaps pertaining to peatland management. In addition, there is also the issue of weak law enforcement.

Policies: The main policies related to peatlands are:

i. The National Physical Plan Policy (Approved in 2005)

The goal of the National Physical Plan (NPP) is the establishment of an efficient, equitable and sustainable national spatial framework to guide the overall development of the country towards achieving developed nation status by 2020. The NPP for Peninsular Malaysia (approved by the Cabinet and the National Physical Planning Council in April 2005) considers wetlands as being under-represented amongst all ecosystems and are under constant threat for short-term economic uses. It recommends that all important wetlands should be conserved and gazetted as Protected Areas and managed as environmentally sensitive areas where no development, agriculture or logging should be permitted except for low-impact tourism, research and education.

The NPP provides a strategic policy for the purpose of determining the general direction and trend for the physical development of the nation. It helps to strengthen national planning and coordinate sectoral agencies by providing the spatial expression to sectoral policies. One of the main objectives of the NPP is to optimise the utilisation of land and natural resources for sustainable development.

ii. The National Wetland Policy (2004)

The goal statement of the National Wetland Policy (NWP) is to sustainably management wetlands for their environmental and socio-economic functions, to ensure the continual progress and well-being of the country. This is followed by five main objectives, nine guiding principles and ten strategies for sustainable use of wetland resources and conservation of wetlands. This policy encompasses peatlands and calls for the sustainable and wise use of wetlands, with respect to their ecological characteristics.

iii. The National Agricultural Policy (2003)

Under this policy, there is an emphasis on increasing productivity through the efficient use of resources. It also discourages the opening up of new land for agriculture.

iv. The National Policy on the Environment (2002)

The National Policy on the Environment aims at the continued economic, social, and cultural progress of Malaysia and the enhancement of the quality of life of its people, through environmentally sound and sustainable development.

v. The National Policy on Biological Diversity (1998)

The vision of the National Policy on Biological Diversity is to transform Malaysia into a world centre of excellence in conservation, research and the utilisation of tropical biological diversity by the year 2020. The Policy Statement aims to conserve Malaysia's biological diversity and to ensure that its components are utilised in a sustainable manner for the continued progress and socio-economic development of the nation.

vi. The National Forest Policy (1978, Revised 1993)

This policy has been formulated to ensure sustainable forest resources management and development, including in peat swamp forests, in line with national interests and goals. The objectives of the policy include:

- To conserve and manage the nation's forest based on the principles of sustainable management
- To protect the environment as well as to conserve biological diversity, genetic resources and to enhance research and education
- To strengthen its provision to curb illegal encroachment

Legislation: The main legislation related to peatlands include the following:

i. The National Forestry Act (1984)

The National Forestry Act was formulated to update and standardise the various State Forest Enactments already in place and to facilitate the implementation of the National Forest Policy. The Act was amended in 1993, and subsequently adopted by the State Governments, to strengthen its provisions to curb illegal encroachment of forests and thefts of timber.

ii. The Environmental Quality Act (1974)

This Act, together with the Waters Act (1920), deals with regulations for pollution of inland waters and wetland areas. Orders passed pursuant to the act contain provisions for Environmental Impact Assessments (EIA). The Environmental Quality Order (1987) makes an Environmental Impact Assessment mandatory for 19 prescribe activities. The Environmental Quality Orders deal with specific projects, and do not take an overall view of the complex role of a particular site in the ecosystem. These Orders can be used to regulate individual projects (such as logging or mining concessions), but they cannot be used to prevent the fragmentation of a habitat, for example.

iii. The National Land Code (1965)

This Code divides land areas into four categories according to the intended main use of the area - agriculture, commercial, residential and industry. This Code is Federal legislation, but legally and administratively under the jurisdiction of the State Governments. This means that State Governments can acquire alienated land for development purposes.

iv. The Town and Country Planning Act (1976)

This Act was amended in 1996 and recognises conservation as an essential element of land use planning. The Act gives certain powers to both State and Local Governments to protect specific areas. The Act instructs the establishment of a State Planning Committee to oversee the general policy related to the planning of land areas within the local authority. It also calls for the local planning authorities to regulate and control planning in their area and to prepare development and structure plans.

v. The Local Government Act (1976)

Local authorities are mandated under Part VII and XII of the Local Government Act to establish and manage public places, including parks. The mandates may provide for the creation of small protected areas of natural habitat or for intensively managed parks.

1.2 BASELINE SCENARIO

Completed and Ongoing Projects

Prior to this proposed project, there have been a number of completed or on-going activities/projects related to peatlands in Malaysia (see Table 2). These projects were targeted at local or state level, addressing mostly sustainable usage and rehabilitation/ restoration of peat swamp forests. At present, there are two on-going GEF-funded projects in the country (Projects No 8 & 9 in Table 2). None of the projects listed in Table 2 has aimed at a multi-stakeholder approach to address the main issues pertaining to peatland management; the proposed Malaysia component of the IFAD/ GEF Project aims to adopt an integrated approach involving government departments, the private sector, the local community and NGOs.

The UNDP-GEF Project on *Conservation and Sustainable Use of Tropical Peat Swamp Forest and Associated Wetland Ecosystems* is currently being implemented at the state levels in Sabah, Sarawak and Pahang. It focuses on conservation (eg. forest rehabilitation and restoration of hydrological regime) and local economic activities; little is being done at the federal/ national level through this project. This proposed IFAD/GEF project complements the UNDP/ GEF project as it targets local, national and regional levels and addresses additional aspects such as capacity building, developing guidelines and policies. The proposed project will also build on the achievements of the UNDP-GEF project by adopting the project site at the Southeast Pahang Peat Swamp Forest as a demonstration site for this project, with documentation of lessons learned.

The other GEF funded project is the UNEP-GEF where a small grant was provided to Selangor State to implement a trial canal-blocking activity in the Raja Musa Forest Reserve to raise the water tables to try to reduce the incidences of fire. This was used as a testing ground to improve canal-blocking techniques and replicate successful blockings to other areas in the country.

Table 2: List of Projects Completed or On-Going Related to Peatlands in Malaysia

No.	Project Name	Funding Agency	Project Sites	Aspects Covered	Status
1	Sustainable Forest Management of Peat Swamp Forests in Peninsular Malaysia, 1997-1999	DANCED & Malaysia Gov.	Selangor	Forest management, ecology, hydrology, forest rehabilitation, logging	Completed
2	Rehabilitation of Degraded Peat Swamp Forests in North Selangor, 1997-1999	IRPA (Malaysian gov.)	Raja Musa FR, Selangor	Restoration	Completed
3	Sustainable Management of Peat Swamp Forests with special reference to Ramin, 2001-2004	FD Sarawak & Netherlands Gov.	Sarawak	Forest management, biodiversity conservation, ecology	Completed
4	Development and Management of Maludam National Park, 2001-2004	FD Sarawak & Netherlands Gov.	Sarawak	Management, conservation of peat swamp forest in national park	Completed
5	Conservation and Sustainable Use of Tropical Peat Swamp Forest and Associated Wetland Ecosystems, 2002-2005	DANIDA	Pahang and Sabah	Hydrology, timber resources assessment, forest rehabilitation	Completed
6	Development of Restoration Technique for Secondary Peat Swamp Forest in North Selangor, 2002-2005	IRPA (Malaysian gov.)	Sungai Karang FR, Selangor	Restoration	Completed
7	A Project on Blocking of Abandoned Logging Canals to Reduce Fire Risk of Peat Swamp Forest 2005-2006	Small grant project under UNEP-GEF peat project through GEC	Raja Musa FR, Selangor	Blocking of abandoned logging canal	Completed
8	Conservation and Sustainable Use of Tropical Peat Swamp Forest and Associated Wetland Ecosystems, 2002-2008	UNDP/GEF	Pahang, Sarawak and Sabah	Integrated forest management, biodiversity conservation	On-going

9	Optimum Harvesting Regimes for Peat Swamp Forests in Peninsular Malaysia, 2004-2007	KPU (conducted by FRIM)	Pahang	Forest management, harvesting	On-going
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It is envisaged that without the GEF intervention, the current problems and issues faced in Malaysia will continue to worsen into the future.

Issues in the Harvesting of Timber

It is predicted that the rate of timber-harvesting will continue to steadily increase. These unsustainable practices and their associated negative effects (eg. lowered water table, peat subsidence, fire susceptibility etc.) will deplete peatland resources and consequently, their vital ecological functions.

Water Management Issues

Over-drainage of peatlands for land conversion (eg. agriculture, infrastructure etc.) will continue to affect peatland ecological functions and their resources. This will lead to further drying and break-down of the peat soils as water tables remain constantly lowered. This negative impact will still continue to be further enhanced during El Niño periods, resulting in higher susceptibility to peatland fires.

Peatland Fires and their Associated Haze Pollution

Peatland fires and their associated haze pollution may continue to re-occur annually at a constant or increasing rate, further contributing to the transboundary haze pollution in the SE Asian region. This will, in turn, have further negative implications on the socio-economy of local communities dependent on peatland resources as well as on the national and regional economies; on the general health of human populations; on the well-being of the environment and biodiversity, and on global climate. Future El Niño cycles may induce further degradation of peatlands, with increased fire occurrences and their associated haze.

Policy and Institutional Framework

It is predicted that without the GEF intervention, there will continue to be a lack of specific and harmonised policies for peatland management, along with weak institutional arrangements.

Inadequate Information on Peatland Management

It is envisaged that information on peatland management will continue to be inadequate and limited understanding of peatland functions as a whole will persist, particularly for decision and policy-makers. This will lead to the implementation of unsustainable practices on peatlands resulting in an increase in the rate of peatland degradation.

2. STRATEGY

2.1 Project Strategy

The project is aimed at sustainable management of peatlands in Malaysia to address peatland degradation particularly peatland fires and their associated haze, as their impacts can be detrimental to the environment, health and socio-economics in the country. To address this issue, the project focuses on several aspects such as institutional strengthening, capacity building, awareness raising and demonstrating sustainable economic activities amongst stakeholders relevant to peatlands at national and local levels. The implementation of this country component also contributes to the regional component and overall project, as peatland degradation is a priority issue in the Southeast Asian region, particularly peatland fires and the associated transboundary haze pollution. Some project activities and outputs will naturally be beneficial at the regional level.

The proposed project activities and outputs complement those in the draft Malaysian NAP for peatlands. This means that the implementation of this project to address the issue of peatland fires and their associated haze due to peatland degradation is in keeping with national objectives and is in support of the goals and objectives of the ASEAN Peatland Management Initiative (APMI).

During the series of consultations to develop the Malaysia Component for this proposed IFAD/GEF project, priority issues to be addressed were identified (refer to Appendix H and see Table 3). The indicative activities and outputs in the project are targeted at national and local levels. A pilot site in the state of Selangor has also been identified. The project will also contribute to the regional component by working collaboratively with other ASEAN Member Countries to address the issue of peatland degradation, particularly peatland fires and their associated transboundary haze pollution. This is to be achieved through building and strengthening capacity amongst stakeholders and institutions, determining trends and changes of the nation's peatlands, develop and/ or adapt for sectoral needs and cross-cutting issues, showcasing best management practices within and outside the country, and rehabilitation. As such, there is a heavy focus on SLM 1 and SLM2 of the GEF strategies.

Table 3: Priority Issues in Malaysia in Descending Order [5-highest priority; 1-lowest priority]

Priority issues in Malaysia	Priority
Inadequate capacity for peatland management	5
Inadequate and overlapping policy and guidelines	5
Increasing occurrence of peat fires	5
Peatland biodiversity being rapidly lost	5
Large areas of peatland over-exploited and degraded	5
Inadequate funds for peatland management	5
Malaysia is partner in ASEAN Peatland Management Initiative (APMI)	5
Inadequate information on extent, status and resources of peatland	4
Difficulty of access to information related to peatlands	4
Fragmentation of peatlands and Increasing conflicts on between different land use options	4
Increasing flooding, water shortage as a result of degradation of peatlands	4
Degradation of forest resources in peatlands	4
Low productivity and high environmental costs for sustainable agricultural development	4
Welfare of local communities in peatlands and surrounding areas	4
Carbon sink and storage function being lost	4
Insufficient understanding on peat values and management options	3
Problems in developing infrastructure (roads, housing, industrial and other development)	3
Risk of future climate change impacts on peatlands	3
Low awareness of peatland values	2

2.2 Component Sub-Outcomes

Component Sub-Objective: To promote the sustainable management and rehabilitation of peatlands in Malaysia (and Selangor state, in particular) through capacity building, fire prevention and control and demonstration of best management practices in selected sites.

Overall Project Outcome 1: Capacity and institutional framework for sustainable peatland management in South East Asia strengthened

Component sub-outcome 1: Capacity and institutional framework for sustainable peatland management in Malaysia strengthened

Overall Project Outcome 2:	Reduced rate of degradation of peatlands in South East Asia
Component sub-outcome 2:	The degradation of peatlands in Malaysia due to fires minimised
Overall Project Outcome 3:	Integrated management and rehabilitation initiated at targeted peatlands
Component sub-outcome 3:	Best management practices at selected demonstration sites identified and practised
Overall Project Outcome 4:	Local communities and the private sector actively contributing to sustainable peatland management
Component sub-outcome 4:	Guidelines for selected sectors relating to peatland management prepared and adopted

2.3 Project Outputs & Activities

Component Sub-Outcome 1: Capacity and institutional framework for sustainable peatland management in Malaysia strengthened

Output 1.1: Policy and planning framework for peatland management strengthen at national level

There is an urgent need to enhance capacity for sustainable peatland management through the establishment of appropriate institutional mechanisms at the national and state levels; enhancing the capability of staff of key agencies; and improving the awareness of key stakeholders involved in the utilisation and management of peatlands due to poor understanding of peatland functions and inadequate or overlapping policies and guidelines pertaining to peatlands, which has resulted in the mismanagement of peatlands.

Activities

1.1.1: Implement and regularly update national policies on peatlands – particularly National Action Plan for Peatlands and National Wetland Policy through the National Wetland Committee.

1.1.2: Organise a campaign on sustainable peatland management and fire prevention with relevant awareness materials.

1.1.3: Develop training materials and conduct training (workshops, study tours and seminars) for key stakeholders on sustainable management and restoration of peatlands.

Proposed Partners: NRE, members of National Working Group on Peatlands, other related ministries and agencies, State government and related agencies, NGOs

Output 1.2: Capacity for peatland management in Selangor strengthened to support the up-scaling of good peatland management practices

There is insufficient capacity on peatland management and fire prevention and control in Selangor State. The following activities aim to enhance the relevant local and state level stakeholders and improve multi-stakeholder coordination related to sustainable peatland management.

Activities

1.2.1: Organize training courses for stakeholders (govt. agencies, the private sectors, local communities etc.) on peatland management.

1.2.2: Carry out an awareness programme on best management practices and fire prevention.

1.2.3: Strengthen the state-level multi-stakeholder committee and state working group for peatlands to improve coordination for peatland management.

Proposed Partners: State EPU, State FD, State TCPD, State FRD, State DID, State DoA, State DWNP, District Offices, District Offices, Tourism Selangor Sdn Bhd, research institutions and the private sector

Output 1.3: Peatland Education Centre at pilot site (North Selangor Peat Swamp Forest) established

North Selangor Peat Swamp Forest is the largest peat swamp forest in Selangor and one of the largest in Malaysia covering over 70,000ha. An established Centre can act as an information resource centre to educate the public and other relevant stakeholders on peatland ecosystem as there is a lack of its understanding at local and national level.

Activities

1.3.1: Provide inputs to the assessment of pilot site for specific public awareness activities.

1.3.2: Support the development of information materials for the pilot site.

Proposed Partners: State FD, State EPU, State DWNP, District Offices, Tourism Selangor Sdn Bhd, research institutions, NGOs

Output 1.4: Innovative financial mechanisms to support sustainable peatland management established

The following activities aim to identify funding sources to be able to carry on activities beyond the project period, since many activities can be viewed as long term.

Activities

1.4.1: Provide technical coordination and support to component

Proposed Partners: NRE, members of National Working Group on Peatlands, other related ministries and agencies, State government and related agencies, NGOs

Component Sub-Outcome 2: The degradation of peatlands in Malaysia due to fires minimised

Output 2.1 Status and trends of Malaysian peatlands determined

Current information on peatland extent and status is outdated or scattered among different agencies/ stakeholders at both national and state levels. Action is needed to improve the knowledge base and also make existing information more easily available. There is a need to determine the trends in peatland functions and peatland biodiversity in natural and degraded areas hence assist in identifying areas of national or international significance and areas with potential for rehabilitation.

Activities

2.1.1: Support the inventory of peatlands (National Forest Inventory 5) by Peninsular Malaysia Forest Department and record current status of peatlands in Peninsular Malaysia.

2.1.2: Undertake appropriate assessments on key issues including fire incidents and their root causes affecting biodiversity, carbon content and water resources.

2.1.3: Regular monitoring to determine changes or trends for management actions.

2.1.4: Identify priority areas for conservation measures for peatland biodiversity and implement initial activities.

Proposed Partners: NRE, FDPM, Sabah FD, Sarawak FD, FRIM, State government and related agencies, Research Institutions, Expert groups

Output 2.2: Degradation of peatlands by fire in Selangor State reduced

There is a need to reduce the incidence of peatland fires in Selangor as it is a regular occurrence which results in smoke haze and negative impacts on the local and adjacent areas.

Activities

2.2.1: Identify critical fire-prone areas at NSPSF and South Selangor peatlands and develop appropriate fire prevention measures for these areas and undertake regular monitoring through increased patrols and enforcement activities.

2.2.2: Test and verify a fire prediction and warning system at pilot site.

2.2.3: Promote the involvement of community and local land owners in fire prevention and control (including support to the State Forest Fire Team).

Proposed Partners: NRE, FDPM, State FD, JUPEM, MACRES, Malaysian Metreological Department (MMD), MaCGDI, State EPU, State FRD, State DWNP, District Offices, research institutions, NGOs, sectoral agencies and associations

Output 2.3: Guidelines for integrated peatland management developed and promoted

There are frequent fire incidences in peatlands in Malaysia, which are of great concern as they have negative impacts on the environment, health and socio-economics of the country. The following activities aim to address this issue and will also contribute to the reduction of transboundary haze pollution in the Southeast Asian region.

Activities

2.3.1: Provide support in the development of an integrated fire prediction and warning system (fire hazard map, hotspots, fire danger rating, fire scars map).

2.3.2: Promote ASEAN zero burning guidelines for fire prevention and control in peatlands in Malaysia through awareness activities.

2.3.3: Collate, adapt and promote guidelines for sustainable use of peatlands relating to the following sectors: forestry, agriculture (small-holders and large-scale estates) & infrastructure through awareness activities.

Proposed Partners: NRE, FRD, FDPM, MOSTI, MMD, NSD, NREB, MoA

Component Sub-Outcome 3: Best management practices at selected demonstration sites identified and practised

Output 3.1 Sustainable management options for peatlands showcased through demonstration projects

In Malaysia, there are several examples of good management practices. Demonstrating best management practices can be applied to peatland management for replication in other areas.

Activities

3.1.1: Document and promote best management practices of demonstration sites (e.g. Maludam NP, Sarawak; Loagan Bunut, Sarawak; Klias Forest Reserve, Sabah; S.E Pahang PSF, Pahang; United Plantation, Perak) to upscale good management practices for peatlands.

3.1.2: Facilitate visits and study tours to demonstration sites.

Proposed Partners: NRE, State Governments

Output 3.2 Integrated management strategies for North Selangor Peat Swamp Forest (NSPSF) and buffer zone adopted

The use of buffer zones can increase the protection status of the peatland ecosystem in the NSPSF as a whole.

Activities

3.2.1: Review and update the Integrated Management Plan for NSPSF and support implementation of initial activities.

3.2.2: Develop and promote approval of the management strategy for the NSPSF buffer zone to address land use conflicts and support implementation of initial activities.

Proposed Partners: State EPU, District Offices, State FD, State TCPD, State DWNP, State DoA, Fishery Department, State DID, private sector, local community.

Output 3.3 Rehabilitation of degraded peat swamp forest demonstrated in Raja Musa FR and adjacent buffer zone

Past fire incidences in peatlands in the Raja Musa Forest Reserve and in the adjacent buffer zone have led to peatland degradation. This has consequently affected the natural peatland functions in the area. The following activities aim to promote rehabilitation in degraded areas and to restore their natural functions.

Activities

3.3.1: Update and review the Rehabilitation Plan for the Raja Musa F.R and adjacent buffer zone.

3.3.2: Organize workshops for training on rehabilitation techniques for relevant local stakeholders.

3.3.3: Undertake and monitor results of rehabilitation activities including blocking of abandoned drains and replanting degraded areas.

3.3.4: Document experience and lessons learned and promote to other areas in Selangor State to upscale learning.

Proposed Partners: State FD, State TCPD, research institutions, private sector, local community

Component Sub-Outcome 4: Guidelines for selected sectors relating to peatland management prepared and adopted

Output 4.1 Sustainable economic activities in the buffer zone of NSPSF enhanced

These activities aim to reduce the negative impacts and threats to livelihood requirements of local communities living within or adjacent to peatland areas.

Activities

4.1.1: Support a study to review impacts of existing livelihood and economic activities (water supply, township development, plantation, etc.) on peatlands and recommend mitigation measures within the buffer zone (e.g. better agriculture plantation management, development of eco-zone to reduce peat fire and haze in Berjuntai Bestari Jaya township).

4.1.2: Promote community involvement in sustainable peatland management activities through developing options for sustainable livelihood activities (e.g. ecotourism, recreational activities and community forestry programmes).

Proposed Partners: State EPU, State FD, State TCPD, State DoA, State DWNP, Tourism Selangor Sdn. Bhd, private sector, local community

2.4 Key Indicators, Risks and Assumptions

Specific key indicators are the development and adoption of guidelines to meet the specific sectoral needs and cross-cutting issues. Regular updating the National Action Plan for peatlands is also a key indicator; it also contributes to the implementation of the APMS for the region. Enhanced awareness and multi-stakeholder cooperation amongst the relevant government departments and related agencies, the private sector and local communities is also an indicator to collectively address the issue of peatland degradation, particularly peatland fire and associated haze pollution, socio economics and environment. Increased media involvement and coverage of peatland fire and associated haze will also indicate the seriousness of the issues to the public and other stakeholders.

Critical assumptions for the component are indicated in the Logical Framework Analysis (see Appendix B). The two main assumptions are that the stability of the political and economic conditions in the country maintains, and that natural disasters which can have a vast detrimental impact to the environment do not occur during the project period.

2.5 Country Eligibility and Drivenness

Malaysia is one of 157 countries which signed the final text of the Convention on Biological Diversity (CBD) at the United Nation Conference on Environment and Development (UNCED) in 1992. Malaysia ratified the Covention on 24 June 1994. The worldwide implementation of the CBD began on 29 December 1993 when it received the necessary number of ratifications by governments. The CBD is the first global agreement to recognise that conservation of biological diversity is a common concern worldwide and that it should become an integral part of the development process in the country. It is a framework agreement that sets out principles for national actions. Malaysia's goal is to transform the country into a world centre of excellence in conservation, research and utilisation of tropical biological diversity by the year 2020.

Currently, there are several Multilateral Environment Agreements (MEAs) directly related to the forestry sector, among them:

- a. Convention on Biological Diversity (CBD) – as mentioned above.
CBD is an international agreement which focuses on conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources in a sustainable manner.
- b. Ramsar Convention (1994) which Malaysia ratified in 1994 and which accedes to the Convention on Wetlands of International Importance Especially as a Waterfowl Habitat.
- c. United Nations Framework Convention on Climate Change (UNFCCC)
Under the UNFCCC, aspects that are closely related to forestry are Land Use, Land Use Change and Forestry (LULUCF), and the Kyoto Protocol. The meeting adopted the modalities and procedures for afforestation and reforestation project activities under the CDM for the first commitment of the Kyoto Protocol.
- d. United Nations Convention to Combat Desertification (UNCCD)
Malaysia has ratified the UNCCD on 31 August 1998 which encompasses the steps to address land degradation through combating desertification and mitigating the effects of drought.
- e. Asia Forest Partnership (AFP)
The objective of AFP is to enhance sustainable forest management, to address issues related to illegal logging and timber trading, forest fires and forest law enforcement.

ASEAN Agreement on Transboundary Haze Pollution

This Agreement was ratified by Malaysia on 3 December 2002. It contains provisions on monitoring, assessment and prevention, technical cooperation and scientific research, mechanisms for coordination, lines of communication, and simplified customs and immigration procedures for disaster relief. The importance of addressing the issue of peatland degradation in the region was formally recognised. This has driven the government of Malaysia to work together with other ASEAN member countries to develop the APMI and the APMS to outline peatland management and protection measures for the next 15 years.

Involvement in ASEAN Peatland Management Initiative

The government of Malaysia initiated the development of an initiative in relation to fire, haze and peatlands following the 2002 Land and Forest Fire Conference held in Kuala Lumpur. The ASEAN Ministerial Meeting chaired by the then Malaysian Minister of Environment requested the ASOEN Haze Technical Task Force to develop the ASEAN Peatland Management Initiative (APMI) in collaboration with GEC. Since then, Malaysia has given full support to the development of the initiative through participating in various consultation meetings and workshops, as well as hosting the Second ASEAN Peatland Management Initiative Workshop in Kuala Lumpur in May 2005.

Status of preparation of National Action Plan

The preparation of NAP for Malaysia started during the one day meeting by stakeholders held on the 19th January 2006. The meeting was attended by more than 45 participants from various agencies and institutions related to peatland management, research and policy making. The meeting resulted in a draft NAP matrix that still needed further refining. A second meeting for NAP was held on the 15-16th February 2006 to further discuss in detail the national objectives, goals and specific actions that Malaysia would like to take for peatland management and sustainable use. The NAP is currently being circulated to a wider range of stakeholders (including research institutions and non-government organisations) for their input and comments.

2.6 Sustainability

The sustainability of the Project in Malaysia is assured by the country's strong commitment to address the issue of fires and associated transboundary haze in the region. As one of ten ASEAN member countries and among the five participating countries in the proposed IFAD/GEF project, collective collaboration to combat common problems will further be enhanced.

The institutional sustainability will be ensured by the direct involvement of relevant government departments and agencies pertaining to peatland management and conservation at national, state and local levels with the involvement of the private sector, non-government organisations, research institutions and the local communities. With the involvement of local communities, it is predicted that the project will ensure socio-economic security through developing and adopting sustainable income generation schemes whilst conserving or sustainably managing the peatland resources.

With regards to financial sustainability, it is envisaged that the project will explore funding mechanisms to support the sustainable peatland management in the country. The project also envisages that there will be an improvement in the sustainability of the environment due to applied sustainable and best management practices on peatlands.

2.7 Replicability

The proposed project consists of elements that can be replicated in other areas within or outside the country. Successful sustainable livelihood options can be a replicable model for sustainable livelihoods to other local communities living within or adjacent to peatland areas which are facing similar problems of degradation. Documented best management practices are to be disseminated to other relevant stakeholders and are envisaged to be replicated and applied in peatlands that have been degraded or managed in an unsustainable manner.

2.8 Stakeholder Involvement

The project aims to involve a whole range of stakeholders in project design, planning, implementation and monitoring. The interests of all stakeholders will be gathered through a prior consultative meeting. This will ensure that all stakeholders will agree and have the same understanding and approach towards achieving the same goal. Basically, the main stakeholders can be divided into the following categories:

- government agencies and institutions
- state agencies
- the private sector
- environmental NGOs

These stakeholders were invited for a consultation meeting with regard to the project proposal development and pilot site establishment. During implementation, there will be regular stakeholders meeting to determine the level of progress made and the outputs and activities have been achieved. The private sector will be contributing in terms of being involved in areas for rehabilitation. The Selangor State Government has committed to being involved in activities for forest rehabilitation and canal blocking activities in the Raja Musa FR. Federal government agencies and institutions will provide cooperation and to some extent technical advice (such as replanting techniques and methodology to be provided by FDPM, research by FRIM), while NGOs will be a part of the awareness raising and capacity building programme, enhancing knowledge on peatland management and bridging the gap between local communities, the private sector and government agencies.

Table 4: Main stakeholders Identified in Malaysia

Main Stakeholders	Responsibilities
Natural Resources and Environment	• Wetland Policy • National Action Plan

Forest Department Peninsular Malaysia Sabah Forestry Department Sarawak Forestry Department	• Permanent forest reserves management • Rehabilitation activities • Sustainable management activities • Training for capacity building • Fire prevention and control • Enforcement of environmental laws • Review or develop guidelines
Department of Irrigation and Drainage	• Water and drainage management • Review or develop guidelines
Department of Environment	• Peatland hotspots and fire and associated haze pollution • Law enforcement
Department of Wildlife and National Parks Peninsular Malaysia	• Biodiversity protection and conservation • Law enforcement
Natural Resources and Environment Board, Sarawak	• Biodiversity protection and conservation
Ministry of Plantation Industries and Commodities	• Economic activities • Agriculture • Disseminating information
Ministry of Agriculture	• Land use • Economic activities
Department of Agriculture	• Irrigation • Agriculture • Review or develop guidelines
Town and Country Planning Department	• Planning and zoning for land use • Sustainable development • Review or develop guidelines
Fire and Rescue Department	• Fire prevention and control training • Patrols and law enforcement
Research Institutions	• Research on forestry, agriculture • Research on community livelihood and economic • Disseminating information
Non-Government Organisations	• Enhancing public awareness • Disseminating information
Partners & Supporters	• Implement and support project and respective activities

Table 5: Proposed Main Project Partners for Selangor's Pilot Site

Pilot Area Project Partners	Roles and Responsibilities
Selangor State Forestry Department	• Permanent Forest Reserves management • Rehabilitation activities • Sustainable management activities • Information dissemination • Training for capacity building • Fire prevention and control • Enforcement of environmental laws
Town and Country Planning Department Selangor	• Planning and zoning for land use • Sustainable development
Fire and Rescue Department Selangor	• Fire prevention and control • Training
Department of Irrigation and Drainage	• Water and drainage management

Selangor	• Enforcement of environmental laws
Department of Environment Selangor	• Monitoring hotspots and fire occurrences • Enforcement of environmental laws
Department of Agriculture Selangor	• Promote best management practices • Promote use of best management practices for local communities • Land use conflicts • Economic activities • Enforcement of environmental laws
Department of Wildlife and National Parks Selangor	• Capacity building • Education centre • Enforcement • Wildlife sanctuary establishment • Wildlife inventory • Enforcement of environmental laws
Economic Planning Unit Selangor	• State-level coordination • Local community • Economic activities
Fishery Department Selangor	• Biodiversity • Water management • Community livelihood
District Offices	• Local level coordination • Buffer zone and • Community matters • Land use matters • Fire prevention
Tourism Selangor Sdn Bhd	• Promote eco-tourism • Economic activities
Private Sector	• Economic activities • Integrated economic development • Buffer zone
Majlis Daerah Kuala Selangor	• Land use • Community matters • Awareness and education • Enforcement • Fire matters
Research Institutions	• Research • Awareness and education • Information disseminating
Non Government Organisations	• Awareness and education • Technical support • Research

Main project executing institutions and organisations: Natural Resources and Environment (NRE), Forestry Department Peninsular Malaysia (FDPM); and the Global Environment Centre (GEC)

National Level

Ministry of Natural Resources and Environment (NRE)

- Conservation and Environmental Management Division



Forest Department Peninsular Malaysia



- | | |
|--|--|
| <ul style="list-style-type: none">• Sarawak Forestry Departments• Sabah Forestry Departments• State Forestry Departments• Forest Research Institute Malaysia• Department of Irrigation and Drainage• Department of Environment• Department of Wildlife and National Parks• National Hydraulic Research Institute Malaysia (NAHRIM)• Malaysian Centre for Geospatial Data Infrastructure (MaCGDI) | <ul style="list-style-type: none">• Land and Mines Department• National Mapping and Survey Department• Malaysian Oil Palm Board• Department of Agriculture• Malaysian Agricultural Research and Development Institute• Peninsular Malaysia Federal Town and Country Planning Department• Fire and Rescue Department• Global Environment Centre (GEC)• Wetlands International |
|--|--|

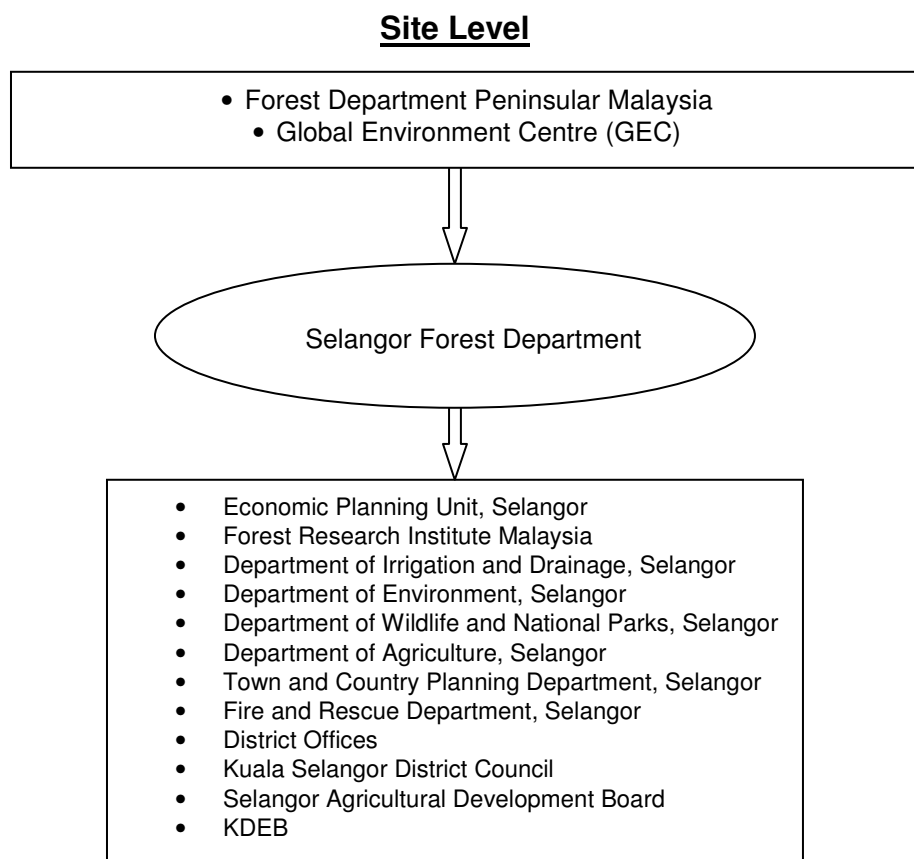


Figure 2: Institutions and Other Stakeholders Responsible for Peatland Management

3. PROJECT MANAGEMENT ARRANGEMENTS

3.1 Project Management and Implementation/ Execution Arrangements

The proposed national structure for coordination of Malaysia's National Action Plan on peatlands is proposed to act as a National Project Steering Committee for project management.

Table 2: Proposed Structure for Steering Committee for Project Management

	Secretariat	Members
National Wetland Committee	NRE (chaired by KSU/ TKSU)	
National Working Group on Peatlands (inter-agency incl. Sabah & Sarawak)	Forestry Department Peninsular Malaysia (FDPM)	
Task Force on key issues: a. Forestry b. Agriculture	a. Forestry Dept Pen. Malaysia b. Ministry of Agriculture (DoA)	Involving relevant stakeholders

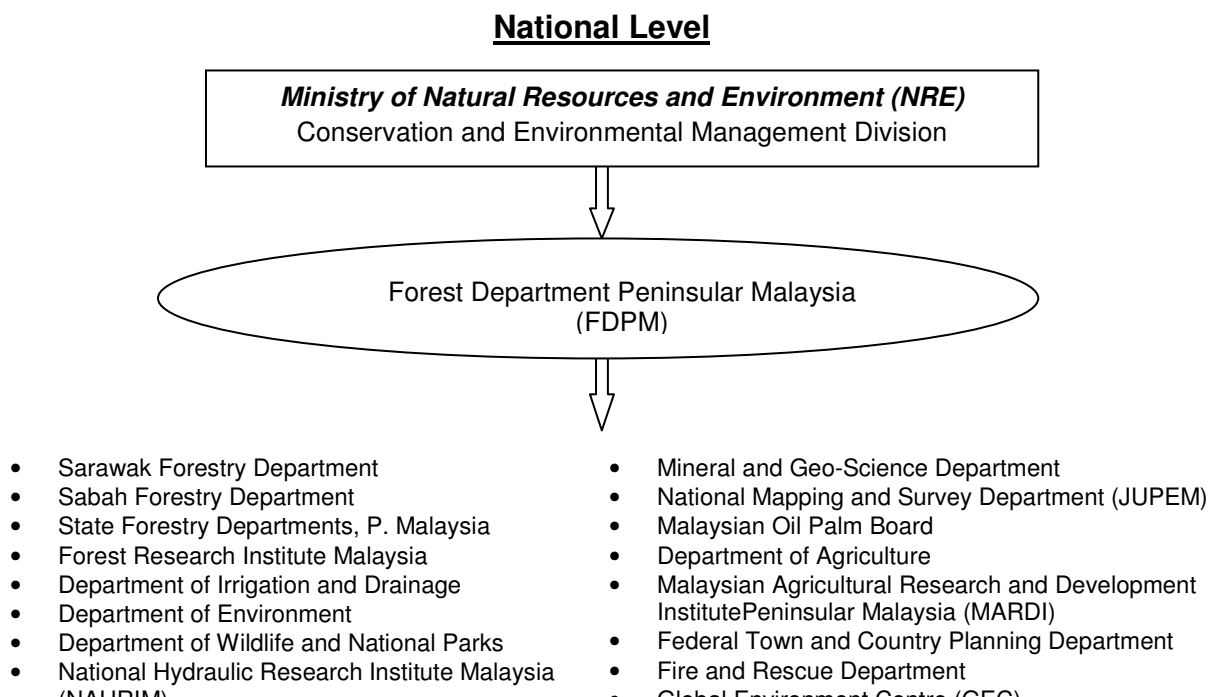
c. Research & Development	c. Forest Research Institute of Malaysia (FRIM)	
d. Water management	d. Dept of Irrigation and Drainage (DID)	
e. Fire (monitoring, warning, prevention)	e. Prime Minister Dept (BKN) – Fire & Rescue Dept. (FRD)	
f. Planning & Infrastructure	f. Town and Country Planning Dept (TCPD)	
g. Environment	g. Dept of Environment (DOE)	

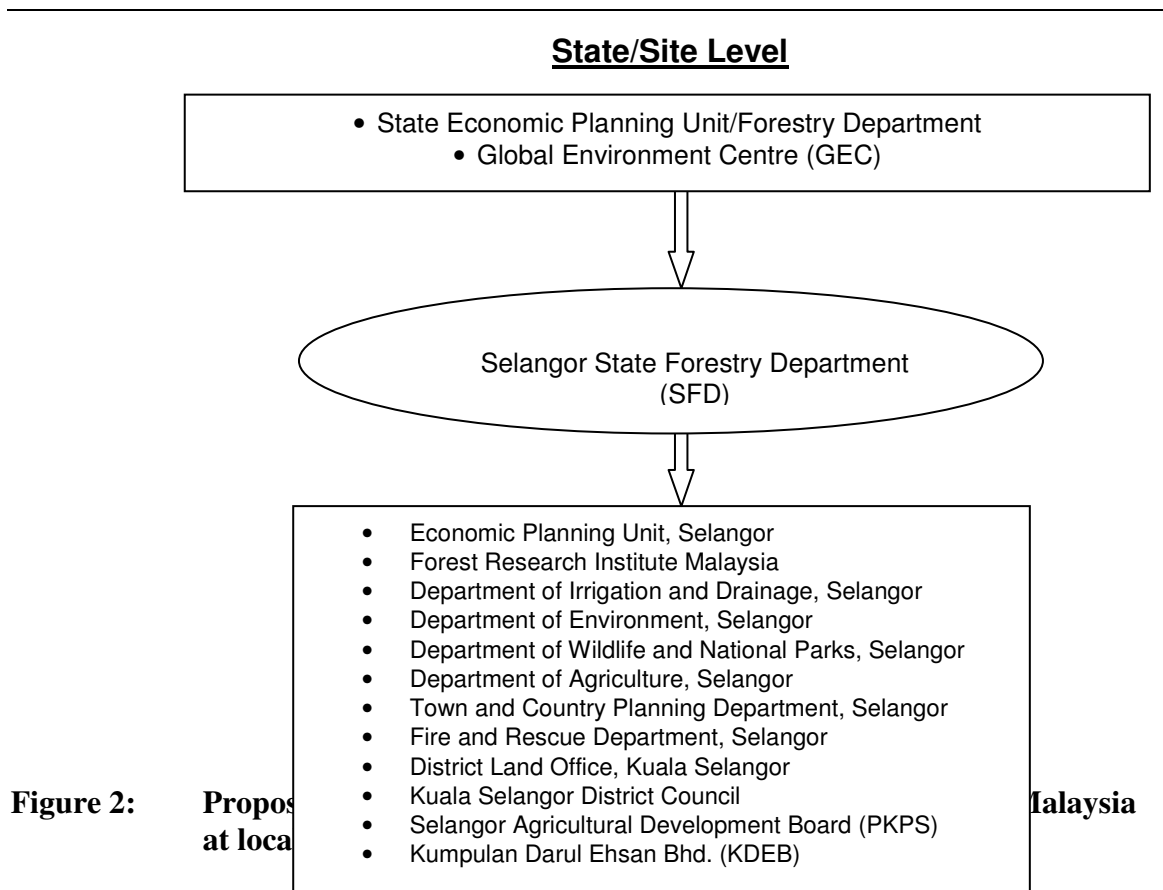
The proposed structure for project implementation at Selangor's pilot site is indicated in Table 3. It proposes to establish a State Committee to be chaired by the State Secretary of Selangor with the Secretariat being at State Economic Planning Unit (UPEN).

Table 3: Proposed Structure for Project Implementation at Pilot Site

	Secretariat	Members
State Committee on Peatlands	EPU (chaired by State Secretary)	
State Working Group on Peatlands (inter-agency)	a. SFD (overall secretariat) b. DoA c. FRIM d. DID e. DOE f. TCPD g. FRD	Involving relevant stakeholders

Figure 1: Institutions and Other Stakeholders Responsible for Peatland Management





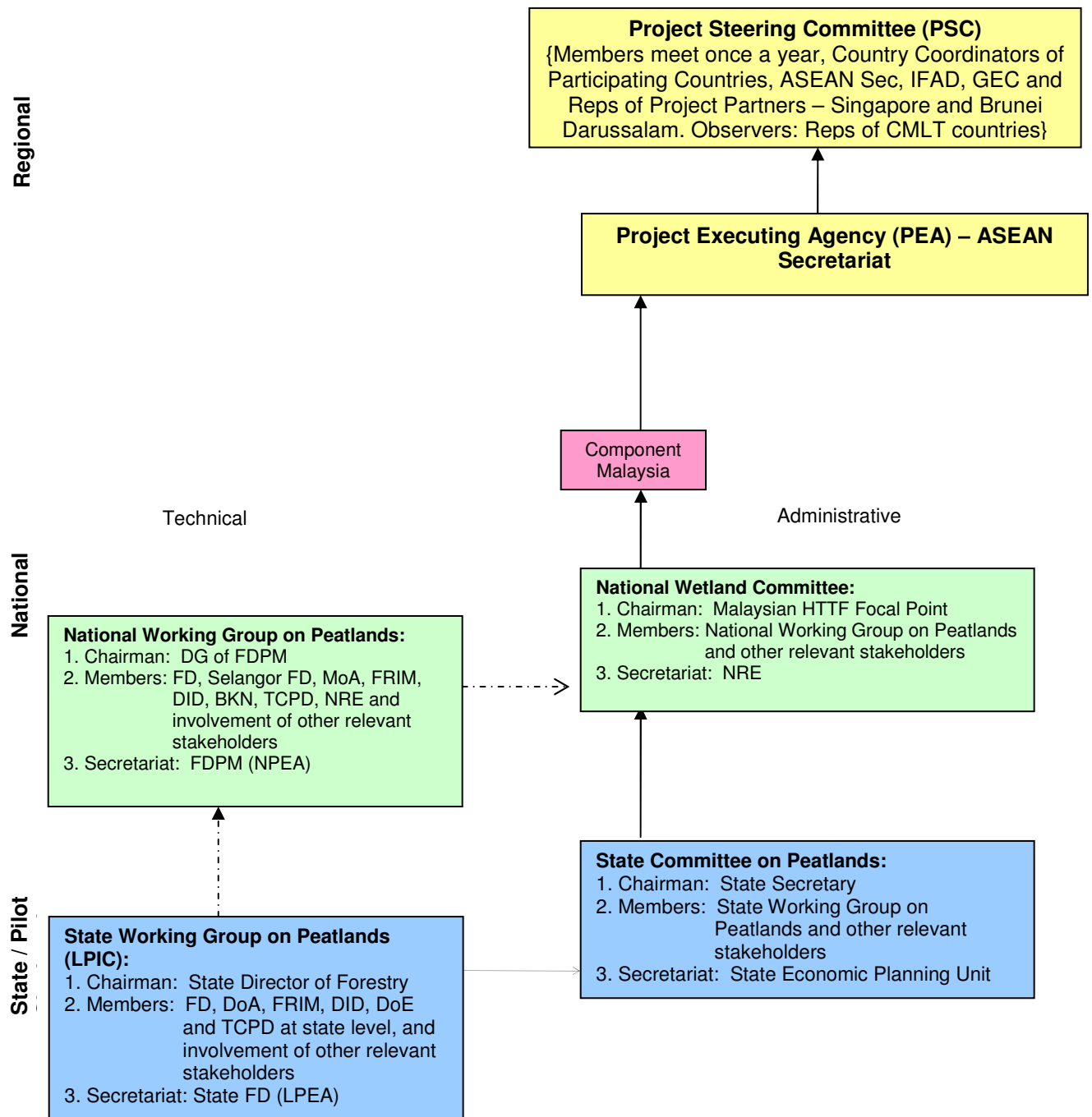


Table 1: Proposed Lead Agency under NPIC, Local Project Executing Agency (LPEA) and Private Sector Involved in the Country Components

Country	NPIC	NPEA	Country Coordinator	Country Expert	Financial Manager	LPIC	LPEA
Malaysia	National Wetland Committee	Forestry Department Peninsular Malaysia (FDPM), Ministry of Natural Resources and the Environment (NRE)	Zulkefli bin Mokhtar, Director, Forest Management Division, (FDPM)	To be confirmed	To be confirmed	State Committee on Peatlands - Selangor State Working Group on Peatlands	State Forestry Department, Selangor

4. PROJECT COSTS AND BUDGET

The proposed budget for the Malaysian component is spelled out in the table below at output and sub-outcome levels. The indicative total budget allocation requested from GEF will be **USD880,000** with a co-funding totalling to **USD1,380,457** (see Table 8). A more detailed budget at activity level is shown in the Appendix C. The outputs with their respective activities are to be implemented according to the Project Timeline (see Appendix E).

Table 8: Revised Budget For Malaysian Component

REVISED ACTIVITIES	REVISED GEF	REVISED CO-FUNDING	REVISED TOTAL
COMPONENT SUB-OUTCOME 1: Capacity and institutional framework for sustainable peatland management in Malaysia strengthened			
Output 1.1: Policy and planning framework for peatland management strengthened at national level	\$105,000	\$169,000	\$274,000
Output 1.2: Capacity for sustainable peatland management in Selangor State strengthened to support the up-scaling of good peatland management practices	\$67,000	\$83,000	\$150,000
Output 1.3: Pilot site (North Selangor PSF) established as a focus for educational and awareness activities for the public.	\$19,000	\$195,000	\$214,000
Output 1.4: Component technically supported	\$49,000	\$20,000	\$69,000
SUB-TOTAL SUB-OUTCOME 1	\$240,000	\$467,000	\$707,000
COMPONENT SUB-OUTCOME 2: The degradation of peatlands in Malaysia due to fires minimised			
Output 2.1: Status and trends of Malaysian peatlands determined.	\$125,000	\$189,000	\$314,000
Output 2.2: Degradation of peatlands by fire in Selangor State reduced.	\$80,000	\$157,000	\$237,000
Output 2.3: Guidelines for integrated peatland management in Malaysia developed and promoted.	\$57,000	\$75,000	\$132,000
SUB-TOTAL SUB-OUTCOME 2	\$262,000	\$421,000	\$683,000
COMPONENT SUB-OUTCOME 3: Best management practices at selected demonstration sites identified and practised			
Output 3.1: Sustainable management options for peatlands showcased through demonstration sites.	\$141,600	\$25,000	\$166,600
Output 3.2: Integrated management strategies for North Selangor PSF and buffer zone adopted.	\$40,000	\$210,757	\$250,757
Output 3.3: Rehabilitation of degraded peat swamp forest demonstrated in Raja Musa F.R and adjacent buffer zone.	\$90,000	\$96,700	\$186,700
SUB-TOTAL SUB-OUTCOME 3	\$271,600	\$332,457	\$604,057
COMPONENT SUB-OUTCOME 4: Guidelines for selected sectors relating to peatland management prepared and adopted			
Output 4.1: Sustainable economic activities in buffer zone of NSPSF enhanced.	\$80,000	\$130,000	\$210,000
SUB-TOTAL SUB-OUTCOME 4	\$80,000	\$130,000	\$210,000
Total Sub-Outcome	\$853,600	\$1,350,457	\$2,204,057
Project Administration & Support 3%	\$26,400	\$30,000	\$56,400
TOTAL PROJECT COSTS	\$880,000	\$1,380,457	\$2,260,457

5. MONITORING AND EVALUATION

Monitoring and evaluation will be conducted on a regular basis to ensure the project is managed efficiently and that targets of respective outputs and activities are met (refer to LFA in Annex B). This will also identify areas to improve efficiencies and maximise overall effectiveness of the project implementation when necessary. This activity will be the direct

responsibility of the National Executing Agency (NEA). The success of the project will be monitored and evaluated based on the successful implementation of the project outputs to achieve their respective sub-outcomes, along with their contribution to the Overall Project Sub-Objective. Internal assessment is to be provided by the NEA on a regular basis throughout the project.

Appendix A: Logical Framework for Malaysia

Summary
OVERALL PROJECT GOAL: To promote the sustainable management of peatlands in SE Asia to sustain local livelihoods to reduce poverty, reduce risk of fire and associated haze and contribute to global environmental management, particularly biodiversity conservation and climate change mitigation.
IMMEDIATE OBJECTIVE: To demonstrate, implement and upscale integrated management of peatlands in SE Asia through mainstreaming and improved governance, strengthened capacity and increased awareness, enhanced multi-stakeholder partnerships, and innovative approaches to maintain and rehabilitate identified critical peatland sites.

Outcomes and Outputs	Objectively Verifiable Indicators			Means of Verification	Critical Assumptions
	Indicators	Baseline	Target		
OVERALL PROJECT OUTCOME 1: Capacity and institutional framework for sustainable peatland management in South East Asia strengthened.	Peatland management strengthened	Limited capacity	Reduced degradation of peatland areas and incidence of peat fires	Reports on air quality improvement	Willingness of governments to reduce GHG emission
Output 1.1: Policy and planning framework for peatland management strengthened at national level	National Action Plan on Peatlands	Reviewed and revised on 14 July 2009	National Action Plans for Malaysia adopted and implementation initiated by Y1 and revised by Y4	Minutes of NPIC meetings/ Report to AATHP on Progress with APMS implementation	Willingness of governments to adopt new policies on peatland management
	National Wetland Policy	Endorsed by Cabinet but limited implementation	Review and strengthen peatland management issues in policy document by Y4	Minutes of NPIC meetings	Willingness of governments to adopt new wetland policy incorporating peatland management

	Communication and awareness strategy for fire prevention and peatland management	Limited knowledge	Awareness materials for stakeholders and the public. 3,000 leaflets, posters and booklets (each).	Project Progress report	-
Output 1.2: Capacity for sustainable peatland management in Selangor State strengthened to support the up-scaling of good peatland management practices.	Local level training on peatland & fire management	Limited trained personnel	Three training sessions; 150 people trained	Training reports/ Progress reportsNeeds/ Analysis Report/ Project Progress Report	Trained personnel remain in the region/ country to assist in achieving targets
	Multi-stakeholder coordinating committee in Selangor State	None	Committee set up involving relevant stakeholders and meeting twice a year	Minutes of the meetings	Local communities willing and motivated to participate
	State Action Plan	Non-existent	Plan developed by end Y2 and adopted by the Selangor State Government	Project Progress report/ Inception report	-
Output 1.3: Pilot site (North Selangor PSF) established as a focus for educational and awareness activities for the public.	Rehabilitation plan for public participation (CSR activities)	Non-existent	Rehabilitation plan developed in Y1 and initial implementation in Y2	Project Progress report	-
	Public awareness materials for pilot site developed	Non-existent	At least 3 different kinds of awareness material produced for distribution	Project Progress report	-

	No. of public events & participants	Non-existent	Five public events conducted (in conjunction with World Forestry Day, Environment Day, Family Day etc.) involving total 2,500 participants	Progress reports	-
Output 1.4: Component technically supported	Funds committed for NPEA activities	None	Operational office that will provide technical coordination and support to project component	Progress reports	-
OVERALL PROJECT Outcome 2: Reduced rate of degradation of peatlands in South East Asia	More peatland areas protected	Limited peatland areas are protected	Reduced peatland encroachment	Satellite images/ Remote sensing/ Reports	Willingness of the government to conserve peatland areas
Output 2.1: Status and trends of Malaysian peatlands determined.	Peatland Directory	Limited information available in Nat. Forest Inventory & Nat. Wetland Directory	Work plan incorporated within NFI 5; to start in Y2 and end by Y3	Progress reports	Existing data on peatlands made more accessible by cooperating depts/ agencies
	Assessments of peatlands in relation to biodiversity values, carbon content, water supply, fire, drainage & land-use change	Limited information available	Assessments completed for two critical peatland areas in Selangor by end Y3.	Progress reports	-

	Management actions guided by trends and changes in peatland areas	Irregular monitoring and updating of information	Management actions are guided by trends and changes in peatland areas through satellite images	Recommendations of mitigating actions and satellite imagery; Progress reports	-
	Priority areas for peatland biodiversity conservation identified	UNDP-GEF project have identified few key sites	Priority areas identified by Y3 and initial activities implemented by Y4	Progress reports	-
Output 2.2: Degradation of peatlands by fire in Selangor State reduced.	Critical fire-prone areas	Limited documentation available	Critical fire-prone areas identified through maps and reports to stakeholders in Y2	Progress reports	Peatland fires occur because of poor fire prevention measures.
	Fire prevention measures	Limited measures recommended	Effective fire prevention measures identified and being implemented	Progress reports	El-Nino during the project period could affect project results
	Strategy for fire monitoring and enforcement of prevention measures	Limited	Frequency of patrolling and enforcement activities increased especially during dry period to reduce fire incidences	Progress reports	Local communities willing and motivated to participate

	Local peatland fire prediction and warning system	None	Developed and tested in Y2. Operational by Y3.	Progress reports	-
	Private land owners and local communities involved in fire monitoring	Limited	No of private land owners and local communities involved in Forest Rescue Team at critical areas increased	Progress reports	-
Output 2.3: Guidelines for integrated peatland management in Malaysia developed and promoted.	Fire warning and prediction system	FDRS available but with limited capability	System developed and tested at one pilot site (see Act.2.2.3)	Progress reports	Willingness of stakeholders to accept guidelines and implement them
	Guidelines for peatland-use	Limited	Guidelines adapted, developed & approved by Y4.	Progress reports	Guidelines are easily implemented by stakeholders
	Guidelines for 3 identified sectors (infrastructure, agriculture and plantation development)	Limited	Guidelines available in Y2, approved by stakeholders for implementation in Y3	Progress reports	-
	Promotion of Guidelines	None	Total of 5,000 copies of the guidelines produced and circulated to stakeholders		-

OVERALL PROJECT Outcome 3: Integrated management and rehabilitation demonstrated and implemented at targeted peatlands	Enhancing sustainable management and use of peatlands	Limited integration of management practices between sectors	Promotion of integrated peatland management	Guidelines and reports	Adoption of guidelines by stakeholders
Output 3.1: Sustainable management options for peatlands showcased through demonstration sites.	Documents on BMP for demonstration sites	Demonstration sites identified	Three dialogues held to identify, document & promote BMP at three demonstration sites	Progress reports; reports from dialogues	State governments cooperate in selection of demonstration sites
	Study tours / visits to demo sites	None	Two study tours / visits	Progress reports	Access to demo sites are not limited
	Documentation of lessons learned	Limited publications	Compiled, produced and disseminated through the various project networks	Progress reports	-
Output 3.2: Integrated management strategies for North Selangor PSF and buffer zone adopted.	Integrated Management Plan for NSPSF	Needs reviewing & updating	Reviewed and updated	Progress reports	-
	Management strategy for the NSPSF buffer zone to address land use conflicts	Non-existent	Developed and finalised by Y3	State working group minutes/ State Exco reports	-
	Implementation of management strategy	Non-existent	Development actions at NSPSF buffer zone determined by management strategy	Progress reports	-

Output 3.3: Rehabilitation of degraded peat swamp forest demonstrated in Raja Musa F.R and adjacent buffer zone.	Rehabilitation plan for Raja Musa FR pilot site and adjacent buffer zone	Non-existent	Plan developed, approved and operational	Progress reports	Access to parts of the FR are not limited
	Workshop on rehabilitation techniques	limited	Relevant stakeholders participating in two workshops	Training reports/ Progress reports	BMP can be replicated in other areas
	Rehabilitation activities	limited	Area established for rehabilitation at 3 pilot plots/ areas and results monitored	Photographs and progress reports	-
	Documentation on learnings from rehabilitation	Non-existent	Learnings from rehabilitation documented and distributed through the project network	Progress reports	-
OVERALL PROJECT Outcome 4: Local communities and the private sector actively contributing to sustainable peatland management	Development of partnership between private sector and local communities	Non-existent	Formation of working groups (e.g. Friends of Peatland)	Number of CSR activities; Number of working groups	Acceptance of smart partnership by stakeholders
Output 4.1: Sustainable economic activities in buffer zone of NSPSF enhanced.	Results of review of existing livelihood and economic activities on peatlands	Limited information available	Resulted of review documented and distributed	Progress reports	Willingness to accept proposal for change and provide cooperation
	Study to reduce impacts of development on peatlands	Non-existent / limited	Report on study completed	Progress reports	Ideas proposed are workable on the ground
	Community alternative livelihood activities	Limited / on an ad-hoc basis	Initial alternative livelihoods tested at pilot site (NSPSF)	Progress reports	-

	Local farmers involvement in implementing water management plan	Limited knowledge on water management	Local farmers involved in water management and the BMP re. methods of land clearing and crop selection	Progress reports	-
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OUTPUTS SUMMARY

OUTPUTS	Regional/ Country Outputs ref.
OUTPUT 1.1: Policy and planning framework for peatland management strengthened at national level <u>SUB-OUTPUTS</u> Activity 1.1.1: Implement and regularly update national policies on peatlands – particularly National Action Plan for Peatlands and National Wetland Policy through the National Wetland Committee. Activity 1.1.2: Organise a campaign on sustainable peatland management and fire prevention with relevant awareness materials. Activity 1.1.3: Develop training materials and conduct training (workshops, study tours and seminars) for key stakeholders on sustainable management and restoration of peatlands.	
OUTPUT 1.2: Capacity for sustainable peatland management in Selangor State strengthened to support peatland mgmt practices <u>SUB-OUTPUTS</u> Activity 1.2.1: Organize training courses for stakeholders (govt. agencies, the private sectors, local communities etc.) on peatland management. Activity 1.2.2: Carry out an awareness programme on best management practices and fire prevention. Activity 1.2.3: Strengthen the state-level multi-stakeholder committee and state working group for peatlands to improve coordination for peatland management.	
OUTPUT 1.3: Peatland Education Centre at pilot site (North Selangor Peat Swamp Forest) established <u>SUB-OUTPUTS</u> Activity 1.3.1: Provide inputs to the assessment of pilot site for specific public awareness activities. Activity 1.3.2: Support the development of information materials for the pilot site and support activities for the pilot site.	
Output 1.4: Component technically supported <u>SUB-OUTPUTS</u>	

Activity 1.4.1: Provide technical coordination and support to component	
OUTPUT 2.1: Status and trends of Malaysian peatlands determined <u>SUB-OUTPUTS</u> Activity 2.1.1: Support the inventory of peatlands (National Forest Inventory 5) by Peninsular Malaysia Forest Department and record current status of peatlands in Peninsular Malaysia. Activity 2.1.2: Undertake appropriate assessments on key issues including fire incidents and their root causes affecting biodiversity, carbon content and water resources. Activity 2.1.3: Regular monitoring to determine changes or trends for management actions. Activity 2.1.4: Identify priority areas for conservation measures for peatland biodiversity and implement initial activities.	
OUTPUT 2.2: Degradation of peatlands by fire in Selangor State reduced <u>SUB-OUTPUTS</u> Activity 2.2.1: Identify critical fire-prone areas at NSPSF and South Selangor peatlands and develop appropriate fire prevention measures for these areas and undertake regular monitoring through increased patrols and enforcement activities. Activity 2.2.2: Test and verify a fire prediction and warning system at pilot site. Activity 2.2.3: Promote the involvement of community and local land owners in fire prevention and control (including support to the State Forest Fire Team).	
OUTPUT 2.3: Guidelines for integrated peatland management in Malaysia developed and promoted <u>SUB-OUTPUTS</u> Activity 2.3.1: Provide support in the development of an integrated fire prediction and warning system (fire hazard map, hotspots, fire danger rating, fire scars map). Activity 2.3.2: Promote ASEAN zero burning guidelines for fire prevention and control in peatlands in Malaysia through awareness activities. Activity 2.3.3: Collate, adapt and promote guidelines for sustainable use of peatlands relating to the following sectors: forestry, agriculture (small-holders and large-scale estates) & infrastructure through awareness activities (incorporates 2.3.4).	
OUTPUT 3.1: Sustainable management options from peatlands showcased through demonstration sites <u>SUB-OUTPUTS</u> Activity 3.1.1: Document and promote best management practices of demonstration sites (e.g. Maludam NP, Sarawak; Loagan Bunut, Sarawak; Klias Forest Reserve, Sabah; S.E Pahang PSF, Pahang; United Plantation, Perak) to upscale good management practices for peatlands. (merged with 3.1.1 and 3.1.4) Activity 3.1.2: Facilitate visits and study tours to demonstration sites. e.g. Princess Sirindhorn Centre, Phru Tho Daeng Thailand.	
OUTPUT 3.2: Integrated management strategies for NSPSF and buffer zone adopted <u>SUB-OUTPUTS</u>	

Activity 3.2.1: Review and update the Integrated Management Plan for NSPSF and support implementation of initial activities.	
Activity 3.2.2: Develop and promote approval of the management strategy for the NSPSF buffer zone to address land use conflicts and support implementation of initial activities.	
OUTPUT 3.3: Rehabilitation of degraded peat swamp forest demonstrated in Raja Musa FR and adjacent buffer zone	
<u>SUB-OUTPUTS</u> Activity 3.3.1: Update and review the Rehabilitation Plan for the Raja Musa F.R and adjacent buffer zone. Activity 3.3.2: Organize workshops for training on rehabilitation techniques for relevant local stakeholders. Activity 3.3.3: Undertake and monitor results of rehabilitation activities including blocking of abandoned drains and replanting degraded areas. Activity 3.3.4: Document experience and lessons learned and promote to other areas in Selangor State to upscale learning.	
OUTPUT 4.1: Sustainable economic activities in buffer zone of NSPSF enhanced <u>SUB-OUTPUTS</u> Activity 4.1.1: Support a study to review impacts of existing livelihood and economic activities (water supply, township development, plantation, etc.) on peatlands and recommend mitigation measures within the buffer zone (e.g. better agriculture plantation management, development of eco-zone to reduce peat fire and haze in Berjuntai Bestari Jaya township). Activity 4.1.2: Promote community involvement in sustainable peatland management activities through developing options for sustainable livelihood activities (e.g. ecotourism, recreational activities and community forestry programmes).	
OUTPUT 5.1 PROJECT MANAGEMENT <u>SUB-OUTPUTS</u> Activity 5.1.1: Project Administration & Support 3%	

Appendix B: Revised Budget and Co-Funding

REVISED ACTIVITIES	REVISED GEF	REVISED CO-FUNDING	REVISED TOTAL
COMPONENT SUB-OUTCOME 1: Capacity and institutional framework for sustainable peatland management in Malaysia strengthened			
Output 1.1: Policy and planning framework for peatland management strengthened at national level	\$105,000	\$169,000	\$274,000
Activity 1.1.1: Implement and regularly update national policies on peatlands – particularly National Action Plan for Peatlands and National Wetland Policy through the National Wetland Committee.	\$36,850	\$38,000	\$74,850
Activity 1.1.2: Organise a campaign on sustainable peatland management and fire prevention with relevant awareness materials.	\$28,150	\$47,000	\$75,150
Activity 1.1.3: Develop training materials and conduct training (workshops, study tours and seminars) for key stakeholders on sustainable management and restoration of peatlands.	\$40,000	\$84,000	\$124,000
Output 1.2: Capacity for sustainable peatland management in Selangor State strengthened to support the up-scaling of good peatland management practices	\$67,000	\$83,000	\$150,000
Activity 1.2.1: Organize training courses for stakeholders (govt. agencies, the private sectors, local communities etc.) on peatland management.	\$17,000	\$23,000	\$40,000
Activity 1.2.2: Carry out an awareness programme on best management practices and fire prevention.	\$20,000	\$50,000	\$70,000
Activity 1.2.3: Strengthen the state-level multi-stakeholder committee and state working group for peatlands to improve coordination for peatland management.	\$30,000	\$10,000	\$40,000
Output 1.3: Pilot site (North Selangor PSF) established as a focus for educational and awareness activities for the public.	\$19,000	\$195,000	\$214,000
Activity 1.3.1: Provide inputs to the assessment of pilot site for specific public awareness activities.	\$7,500	\$155,000	\$162,500
Activity 1.3.2: Support the development of information materials for the pilot site.	\$11,500	\$40,000	\$51,500
Output 1.4: Component technically supported	\$49,000	\$20,000	\$69,000
Activity 1.4.1: Provide technical coordination and support to component	\$49,000	\$20,000	\$69,000
SUB-TOTAL SUB-OUTCOME 1	\$240,000	\$467,000	\$707,000
COMPONENT SUB-OUTCOME 2: The degradation of peatlands in Malaysia due to fires minimised			
Output 2.1: Status and trends of Malaysian peatlands determined.	\$125,000	\$189,000	\$314,000

Activity 2.1.1: Support the inventory of peatlands (National Forest Inventory 5) by Peninsular Malaysia Forest Department and record current status of peatlands in Peninsular Malaysia.	\$47,000	\$30,000	\$77,000
Activity 2.1.2: Undertake appropriate assessments on key issues including fire incidents and their root causes affecting biodiversity, carbon content and water resources.	\$23,000	\$125,000	\$148,000
Activity 2.1.3: Regular monitoring to determine changes or trends for management actions.	\$20,000	\$24,000	\$44,000
Activity 2.1.4: Identify priority areas for conservation measures for peatland biodiversity and implement initial activities.	\$35,000	\$10,000	\$45,000
Output 2.2: Degradation of peatlands by fire in Selangor State reduced.	\$80,000	\$157,000	\$237,000
Activity 2.2.1: Identify critical fire-prone areas at NSPSF and South Selangor peatlands and develop appropriate fire prevention measures for these areas and undertake regular monitoring through increased patrols and enforcement activities.	\$40,000	\$102,000	\$142,000
Activity 2.2.2: Test and verify a fire prediction and warning system at pilot site.	\$20,000	\$10,000	\$30,000
Activity 2.2.3: Promote the involvement of community and local land owners in fire prevention and control (including support to the State Forest Fire Team).	\$20,000	\$45,000	\$65,000
Output 2.3: Guidelines for integrated peatland management in Malaysia developed and promoted.	\$57,000	\$75,000	\$132,000
Activity 2.3.1: Provide support in the development of an integrated fire prediction and warning system (fire hazard map, hotspots, fire danger rating, fire scars map).	\$10,000	\$20,000	\$30,000
Activity 2.3.2: Promote ASEAN zero burning guidelines for fire prevention and control in peatlands in Malaysia through awareness activities.	\$17,000	\$30,000	\$47,000
Activity 2.3.3: Collate, adapt and promote guidelines for sustainable use of peatlands relating to the following sectors: forestry, agriculture (small-holders and large-scale estates) & infrastructure through awareness activities.	\$30,000	\$25,000	\$55,000
SUB-TOTAL SUB-OUTCOME 2	\$262,000	\$421,000	\$683,000
COMPONENT SUB-OUTCOME 3: Best management practices at selected demonstration sites identified and practised			
Output 3.1: Sustainable management options for peatlands showcased through demonstration sites.	\$141,600	\$25,000	\$166,600
Activity 3.1.1: Document and promote best management practices of demonstration sites (e.g. Maludam NP, Sarawak; Loagan Bunut, Sarawak; Klias Forest Reserve, Sabah; S.E Pahang PSF, Pahang; United Plantation, Perak) to upscale good management practices for peatlands.	\$96,600	\$15,000	\$111,600
Activity 3.1.2: Facilitate visits and study tours to demonstration sites.	\$45,000	\$10,000	\$55,000
Output 3.2: Integrated management strategies for North Selangor PSF and buffer zone adopted.	\$40,000	\$210,757	\$250,757
Activity 3.2.1: Review and update the Integrated Management Plan for NSPSF and support implementation of initial activities.	\$15,000	\$70,000	\$85,000

Activity 3.2.2: Develop and promote approval of the management strategy for the NSPSF buffer zone to address land use conflicts and support implementation of initial activities.	\$25,000	\$140,757	\$165,757
Output 3.3: Rehabilitation of degraded peat swamp forest demonstrated in Raja Musa F.R and adjacent buffer zone.	\$90,000	\$96,700	\$186,700
Activity 3.3.1: Update and review the Rehabilitation Plan for the Raja Musa F.R and adjacent buffer zone.	\$40,000	\$25,000	\$65,000
Activity 3.3.2: Organize workshops for training on rehabilitation techniques for relevant local stakeholders.	\$15,000	\$10,000	\$25,000
Activity 3.3.3: Undertake and monitor results of rehabilitation activities including blocking of abandoned drains and replanting degraded areas.	\$20,000	\$55,000	\$75,000
Activity 3.3.4: Document experience and lessons learned and promote to other areas in Selangor State to upscale learning.	\$15,000	\$6,700	\$21,700
SUB-TOTAL SUB-OUTCOME 3	\$271,600	\$332,457	\$604,057
COMPONENT SUB-OUTCOME 4: Guidelines for selected sectors relating to peatland management prepared and adopted			
Output 4.1: Sustainable economic activities in buffer zone of NSPSF enhanced.	\$80,000	\$130,000	\$210,000
Activity 4.1.1: Support a study to review impacts of existing livelihood and economic activities (water supply, township development, plantation, etc.) on peatlands and recommend mitigation measures within the buffer zone (e.g. better agriculture plantation management, development of eco-zone to reduce peat fire and haze in Berjuntai Bestari Jaya township).	\$40,000	\$95,000	\$135,000
Activity 4.1.2: Promote community involvement in sustainable peatland management activities through developing options for sustainable livelihood activities (e.g. ecotourism, recreational activities and community forestry programmes).	\$40,000	\$35,000	\$75,000
SUB-TOTAL SUB-OUTCOME 4	\$80,000	\$130,000	\$210,000
Total Sub-Outcome	\$853,600	\$1,350,457	\$2,204,057
Project Administration & Support 3%	\$26,400	\$30,000	\$56,400
TOTAL PROJECT COSTS	\$880,000	\$1,380,457	\$2,260,457

Appendix C: Detailed Proposed Pilot Site Description

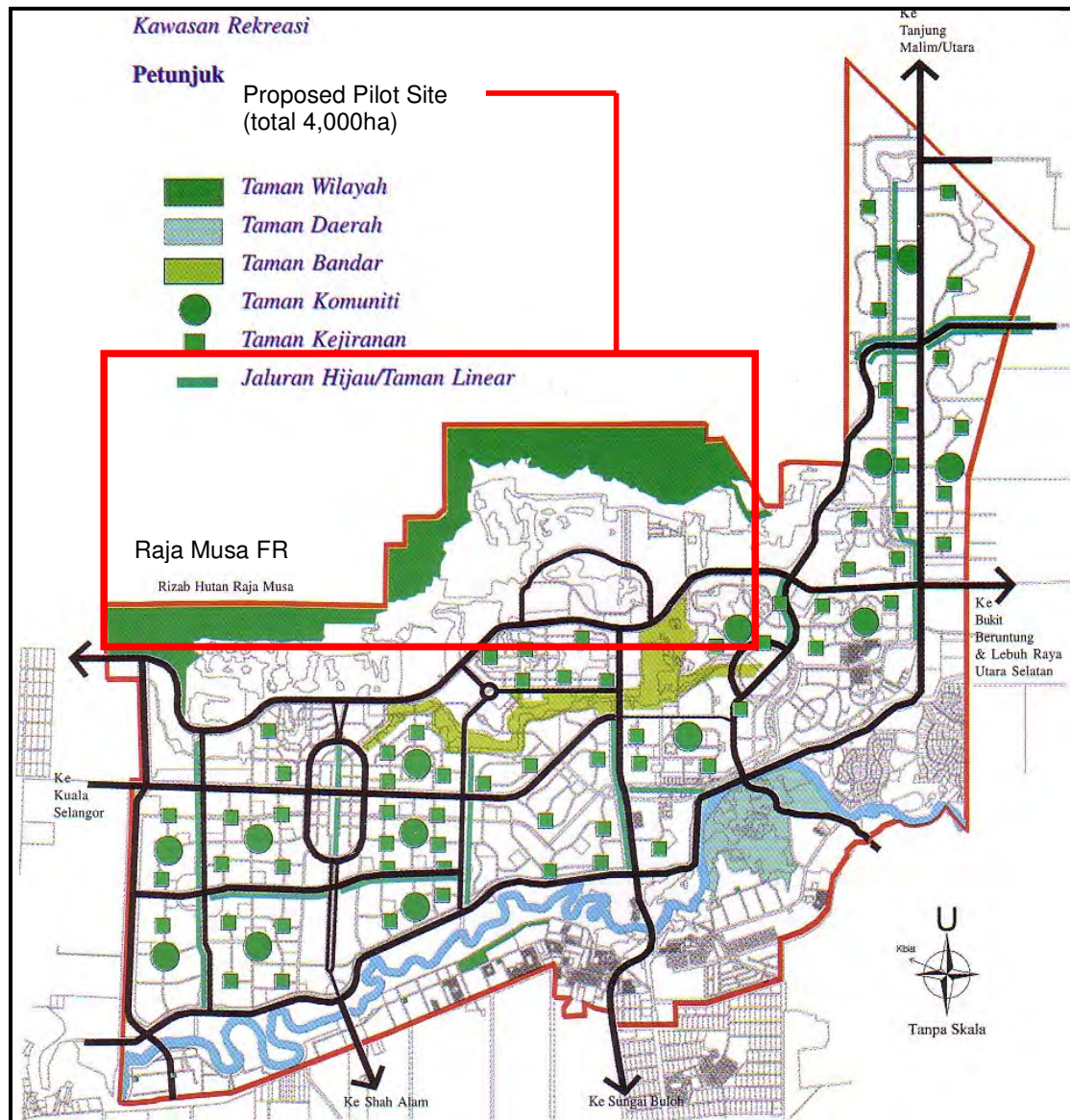


Figure 4: A Map of the Proposed Pilot Area

North Selangor Peat Swamp Forest (NSPSF) is the largest remaining forest area in the State of Selangor, covering an area of 73,660ha in the north-western part of the state. The peat swamp complex is divided into Sungai Karang FR in the North and Raja Musa FR in the South. Adjacent areas of the forest reserve have been cultivated for agriculture or undergone various development projects. Several parts of the NSPSF in the Raja Musa FR have been susceptible to fire in the past 10 years. An area of about 3,000ha of forest was burnt regularly over the last five years and has become grassland. Fires have been recorded in this area in most years during dry periods and with each fire the damaged area expands.

The total area for the Berjantai Bestari development is almost 12,000ha located in Batang Berjantai, which is 70km away from Kuala Lumpur. Berjantai Bestari Plan (RKK) was a result of the Selangor State Government's commitment to sustainable development. All planning, design, development and community management are to be based on a sustainable development model with emphasis on ecological integration and community well-being. It is

also part of the strategy to implement the Local Agenda 21 on sustainable development. The aim is to create a township that is balanced in terms of economic development, social well-being and environmental conservation, which is in line with the State's vision to achieve the status of a sustainable city. One of the sustainable development strategies of RKK is to use the approach of holistic land use planning, focusing on development that will not negatively impact the environment, but maintain environmentally sensitive areas (ESA) such as forest, rivers, lakes etc.

The proposed pilot area for integrated sustainable management and rehabilitation of peatlands covers a total of 4,000ha, which includes a portion of the Raja Musa FR and Berjuntai Bestari. About an area of 2,000ha comprises the permanent forest reserve (southern portion of the Raja Musa Forest Reserve), and another 2,000ha under the ownership of the private sector such as PKPS and KDEB. It has been agreed that the PKPS and KDEB land which are adjacent to the Raja Musa FR will be included as a pilot site, following a stakeholder consultation meeting held on the 6th February 2006.

Problems and Issues at the Proposed Pilot Site

Peat swamp forest or peatlands are areas particularly sensitive to water levels. The lowering of the water table results in the drying of peat which leads to a higher susceptibility to fire. The root causes of fires in peatlands are often related to the drainage and poor water management in the peat swamp forests and peatlands that cleared for agriculture or other purposes. It can be observed through satellite imagery (see Figure 5) that many areas which have previously been burnt, or areas that are highly susceptible to fires in the dry periods lie adjacent to the borders of the Raja Musa FR. The majority of these areas have also been drained for logging or agriculture development etc. The lack of proper management of this area would result in repeated and further burning of the forest. This could also be accelerated with the El Nino phenomenon.

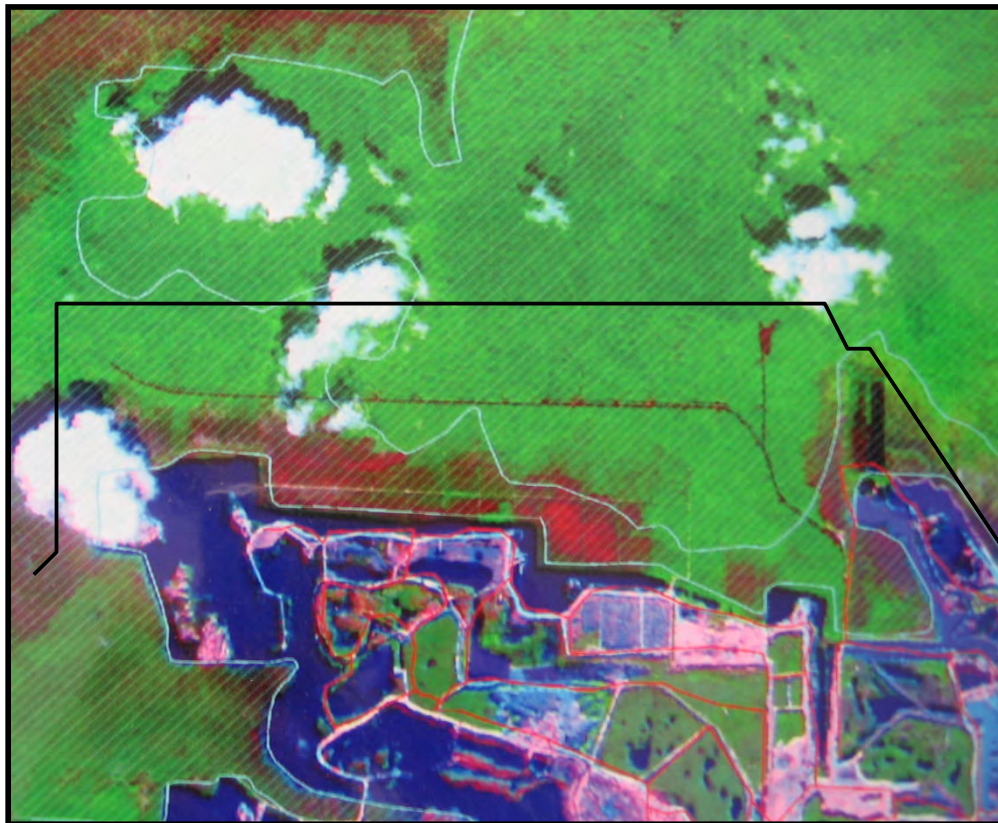


Figure 5: Satellite Imagery Showing Canals Used for Transporting Logs and Areas Prone to Fire at the Pilot Site

Fires have also occurred within the forest reserve. Several former logging canals within the Raja Musa Forest Reserve which are no longer being used continue to drain water out from the peat swamp forest to the adjacent river systems, often passing through the boundaries of the FR. The draining of water, especially during dry season had caused a dramatic lowering of the water table, making the area very susceptible to fire. More than 5000ha of forest, especially along the canals within the NSPSF was badly affected by fires from 1995-2005.

A lack of understanding on the nature of peat has often led to the mismanagement of this ecosystem. Lack of integration and proper planning between development agencies also results in the fragmentation of peat, hence causing its degradation and natural environment destruction.

This project aims to develop a sustainable management practices for peatlands through an integrated approach involving the rehabilitation of degraded sites, which could minimize occurrences of future peatland fires and their associated haze, and at the same time generate economical benefits for communities living in and around the peatlands.

Appendix D: Revised Project timeline for Malaysia and their outputs

Activities	Quarterly Period															
	Year 1 (2010)				Year 2 (2011)				Year 3 (2012)				Year 4 (2013)			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Outcome 1: CAPACITY FOR SUSTAINABLE PEATLAND MANAGEMENT IN SEA STRENGTHENED.																
Component Sub-Outcome 1: Capacity and institutional framework for sustainable peatland management in Malaysia strengthened																
Output 1.1: Policy and planning framework for peatland management strengthened at national level.																
Activity 1.1.1: Implement and regularly update national policies on peatlands – particularly National Action Plan for Peatlands and National Wetland Policy through the National Wetland Committee.																
Activity 1.1.2: Organise a campaign on sustainable peatland management and fire prevention with relevant awareness materials.																
Activity 1.1.3: Develop training materials and conduct training (workshops, study tours and seminars) for key stakeholders on sustainable management and restoration of peatlands.																
Output 1.2: Capacity for sustainable peatland management in Selangor State strengthened to support the up-scaling of good peatland management practices.																
Activity 1.2.1: Organize training courses for stakeholders (govt. agencies, the private sectors, local communities etc.) on peatland management.																
Activity 1.2.2: Carry out an awareness programme on best management practices and fire prevention.																
Activity 1.2.3: Strengthen the state-level multi-stakeholder committee and state working group for peatlands to improve coordination for peatland management.																
Output 1.3: Pilot site (North Selangor PSF) established as a focus for educational and awareness activities for the public.																
Activity 1.3.1: Provide inputs to the assessment of pilot site for specific public awareness activities.																
Activity 1.3.2: Support the development of information materials for the pilot site.																
Output 1.4: Component technically supported.																
Activity 1.4.1: Provide technical coordination and support to component.																
Outcome 2: REDUCED RATE OF DEGRADATION OF PEATLANDS IN SEA.																
Component Sub-Outcome 2: The degradation of peatlands in Malaysia due to fires minimized.																
Output 2.1: Status and trends of Malaysian peatlands determined.																
Activity 2.1.1: Support the inventory of peatlands (National Forest Inventory 5) by Peninsular Malaysia Forest Department and record current status of peatlands in Peninsular Malaysia.																
Activity 2.1.2: Undertake appropriate assessments on key issues including fire incidents and their root causes affecting biodiversity, carbon content and water resources.																
Activity 2.1.3: Regular monitoring to determine changes or trends for management actions.																
Activity 2.1.4: Identify priority areas for conservation measures for peatland biodiversity and implement initial activities.																
Output 2.2: Degradation of peatlands by fire in Selangor State reduced.																
Activity 2.2.1: Identify critical fire-prone areas at NSPSF and South Selangor peatlands and develop appropriate fire prevention measures for these areas and undertake regular monitoring through increased patrols and enforcement activities. (merged with 2.2.2)																

Activities	Quarterly Period															
	Year 1 (2010)				Year 2 (2011)				Year 3 (2012)				Year 4 (2013)			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Activity 2.2.2: Test and verify a fire prediction and warning system at pilot site.																
Activity 2.2.3: Promote the involvement of community and local land owners in fire prevention and control (including support to the State Forest Fire Team).																
Output 2.3: Guidelines for integrated peatland management in Malaysia developed and promoted.																
Activity 2.3.1: Provide support in the development of an integrated fire prediction and warning system (fire hazard map, hotspots, fire danger rating, fire scars map).																
Activity 2.3.2: Promote ASEAN zero burning guidelines for fire prevention and control in peatlands in Malaysia through awareness activities.																
Activity 2.3.3: Collate, adapt and promote guidelines for sustainable use of peatlands relating to the following sectors: forestry, agriculture (small-holders and large-scale estates) & infrastructure through awareness activities.																
Outcome 3: INTEGRATED MANAGEMENT AND REHABILITATION DEMONSTRATED AND IMPLEMENTED AT TARGETED PEATLANDS.																
Component Sub-Outcome 3: Best management practices at selected demonstration/ pilot sites identified and practised.																
Output 3.1: Sustainable management options for peatlands showcased through demonstration sites.																
Activity 3.1.1: Document and promote best management practices of demonstration sites (e.g. Maludam NP, Sarawak; Loagan Bunut, Sarawak; Klias Forest Reserve, Sabah; S.E Pahang PSF, Pahang; United Plantation, Perak) to upscale good management practices for peatlands.																
Activity 3.1.2: Facilitate visits and study tours to demonstration sites.																
Output 3.2: Integrated management strategies for North Selangor PSF and buffer zone adopted.																
Activity 3.2.1: Review and update the Integrated Management Plan for NSPSF and support implementation of initial activities.																
Activity 3.2.2: Develop and promote approval of the management strategy for the NSPSF buffer zone to address land use conflicts and support implementation of initial activities.																
Output 3.3: Rehabilitation of degraded peat swamp forest demonstrated in Raja Musa F.R and adjacent buffer zone.																
Activity 3.3.1: Update and review the Rehabilitation Plan for the Raja Musa F.R and adjacent buffer zone.																
Activity 3.3.2: Organize workshops for training on rehabilitation techniques for relevant local stakeholders.																
Activity 3.3.3: Undertake and monitor results of rehabilitation activities including blocking of abandoned drains and replanting degraded areas.																
Activity 3.3.4: Document experience and lessons learned and promote to other areas in Selangor State to upscale learning.																
Outcome 4: LOCAL COMMUNITIES AND THE PRIVATE SECTOR ACTIVELY CONTRIBUTING TO SUSTAINABLE PEATLAND MANAGEMENT.																
Component Sub-Outcome 4: Guidelines for selected sectors relating to peatland management prepared and adopted.																
Output 4.1: Sustainable economic activities in buffer zone of NSPSF enhanced.																
Activity 4.1.1: Support a study to review impacts of existing livelihood and economic activities (water supply, township development, plantation, etc.) on peatlands and recommend mitigation measures within the buffer zone (e.g. better agriculture plantation management, development of eco-zone to reduce peat fire and haze in Berjantai Bestari Jaya township).																
Activity 4.1.2: Promote community involvement in sustainable peatland management activities through developing options for sustainable livelihood activities (e.g. ecotourism, recreational activities and community forestry programmes).																

Appendix E: Threats Impacts and Root Causes of Peatland Degradation

Threats [caused by human action]	Impacts [direct and indirect effect of human action on ecosystem]	Relative * Importance {Scale 1-5: 1= Very important and 5= low importance}	Root Causes						
			Lack of capacity	Unclear/ weak regulations	Poor law enforcement	Unsustainable practices	Inadequate envt. mgmt	Lack of knowledge	
Over-drainage for deforestation/ logging	Degradation of peat substrate Natural hydrology of peatlands affected - lowers the high water table Subsidence and soil compaction Fires	1		+	+	+	+	+	
Land clearance/ conversion for agriculture	Loss of forest cover& peat soil content; lowers water level in peatlands Affects hydrology of adjacent peatlands Might affect survival of commercial timber species Fires	1		+		+		+	
Agricultural practices - intensive use of fertilizers, agrochemicals	Pollution in waterways of peat swamp forests Soil erosion Release of soil leachates	2	+	+		+	+	+	
Fire	Loss of biodiversity/ specially-niche species Health hazard through air pollution Socio-economic of local villagers affected	1	+	+	+	+	+		
Over-harvesting of target species/ non-timber forest products	Further reduction in viable populations of species already under threat Loss of value resource Loss of species diversity Other dependent species affected	2	+	+		+		+	
Destructive fishing techniques - small mesh	Reduction in fish stock	2		+	+	+	+		

Threats [caused by human action]	Impacts [direct and indirect effect of human action on ecosystem]	Relative * Importance {Scale 1-5: 1= Very important and 5= low importance}	Root Causes						
			Lack of capacity	Unclear/ weak regulations	Poor law enforcement	Unsustainable practices	Inadequate envt. mgmt	Lack of knowledge	
nets, poisoning									
Development infrastructure - dams, weirs or tidal gates, road and railway networks, transmission lines, oil and water supply lines	Natural hydrology of peatlands affected	2		+		+	+	+	
Pond aquaculture - abstraction of groundwater	Natural hydrology of peatlands affected Fresh groundwater resource reduced Intrusion of saline water Coastal wells salinised	3		+		+		+	
Water pollution from industries	Harmful substances accumulate in peat soils and are released in large concentrations into waterways	3		+			+	+	
Spread of exotic species	Competition with native species for resources	3				+	+	+	

Appendix F: Record of Consultations in preparation of the project

	Title of the Meeting	Agencies	Location	Date	Participants
1.	Project Brief Meeting	NRE-FDHQ-GEC	NRE, Wisma Sumber Alam Putrajaya	30 December 2005	5
2.	Malaysian National Action Plan on Peatland	NRE-FDPM-GEC	Hotel Quality City Centre, KL	19 January 2006	32
3.	Discussion/Meeting on Malaysian component	FDHQ-GEC	FDHQ, Kuala Lumpur	25 January 2006	6
4.	Malaysian Sub-Component 'Stakeholder'	SSFD-FDPM	SSFDept.. Shah Alam	6 February 2006	19
5.	2 nd Malaysian National Action Plan, Malaysian Sub-Component and Pilot Site on Peatland	NRE-FDHQ-GEC	FDHQ, Kuala Lumpur	15 – 16 February 2006	24
6.	Pilot site Group Meeting	FDHQ-SSFD-UPEN-GEC	SSFDept.. Shah Alam	21 March 2006	10
7.	2 nd Malaysian Sub-Component 'Stakeholder'	FDPM-SSFD-DEC	De Palma Inn, Kuala Selangor	24 March 2006	27
8.	3 rd Malaysian National Action Plan and Malaysian Sub-Component on Peatland	FDPM	FDHQ, Kuala Lumpur	30 March 2006	17
9.	Working group meeting/discussion on Malaysian component	FDHQ-GEC	FDHQ Kuala Lumpur	14 April 2006	6
10.	Malaysian National Action Plan on Peatland	NRE-FDPM-GEC	Corus Hotel, Port Dickson, N Sembilan	19 Jan 2007	32

Appendix G: Updated Draft National Action Plan (NAP) for peatlands – in file

Annex 9
REHABILITATION AND SUSTAINABLE USE OF PEATLAND FOREST
IN SOUTH EAST ASIA

PHILIPPINES

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ACRONYMS

APMI	ASEAN Peatland Management Initiative
APMS	ASEAN Peatland Management Strategy
ASEAN	Association of South East Asian Nations
CLOA	Certificate of Land Ownership Agreement
DAO	Department Administrative Order
DAR	Department of Agrarian Reform
DENR	Department of Environment and Natural Resources
IPAS	Integrated Protected Areas System
MTPDP	Medium Term Development Plan
NAP	National Action Plan
NIPAS	National Integrated Protected Areas System
PACAP	Philippine-Australian Community Assistance Programme
PAMB	Protected Area Management Board
PAWB	Protected Areas and Wildlife Bureau
UNCBD	United Nations Convention on Biological Diversity

1. SITUATION ANALYSIS

1.1 CONTEXT

1.1.1 Background

Work on peatlands in the Philippines is in its infancy, there having been very few targeted studies on peat areas. Andriess (1988) undertook some surveys of peatlands in the mid 1980s, including parts of the Agusan Marsh and the Visayas. The IPAS surveys in 1991 briefly described peatland near Bunawan in the Agusan Marsh, whilst surveys during the consultation workshops for this project in November and December 2005 yielded more information on additional areas of peatland in the Agusan Marsh and the Leyte Sab-a Basin peatland. This included a possible peat dome at Caimpugan in the Agusan Marsh, the first peat dome to be described for the Philippines. However, these have mostly been brief studies and there has been very little or no work on the flora and fauna of the peatlands, nor their hydrology or pedology. There is little doubt that there are other areas of peatlands waiting to be described.

1.1.2 Distribution and Status of Peatlands

There are two areas in the Philippines where substantial areas of peat have been found: the Agusan Marsh and the Leyte Sab-a Basin. There has been a lack of targeted surveys for peatlands, but information indicates that there are almost certainly other areas. The location of these areas is shown in Figure 1.



Figure 1: Areas where peatlands have been confirmed (green triangle) and areas where peat probably occurs (red triangles) in the Philippines.

The Sab-a Basin is a west-east elongated basin close to the north coast of Leyte separated from it by a metamorphic ridge. The total area is c. 3,088 ha of which 44% has been reclaimed for agriculture. The remaining unutilised peatland (1,740 ha) in the eastern half of the basin consists of small remnant areas of swamp forest and sedge/grass peat swamp (ADB 2000). The two smaller peat basins in the area Daguitan (210 ha) and Kapiwaran (430 ha) have mostly been converted to agricultural land.

The Agusan Marsh may hold the largest area of peatland in the Philippines. At present, there is no reliable estimate of the area and distribution of peat within Agusan Marsh. Two areas of peatland within the marsh have been confirmed – one just to the north of Bunawan, the vegetation of which has mostly been cleared and burned, and the other to the west of Caimpugan, which exhibits the characteristics of a peat dome, the forest of which is mostly intact except close to the Hibong River. There may be other areas of peat within the marsh, especially in *Terminalia copelandii*/ *Metroxylon sagu* forests in the northwest portion of the marsh.

Peat may also be present in the following areas:

- Ligawasan Marsh in Mindanao, the largest marshland area in the Philippines
- Dolongan area in Basey, Western Samar (Bureau of Soils, 1975. Soil Survey of Samar Provinces, Philippines. Reconnaissance Soil Survey and Soil Erosion Survey)
- Southern Leyte (Whitmore 1984) as cited in Draft Philippine Plant Conservation Strategy.
- Mt. Pulag in Northern Luzon (Leonard Co, pers. comm.)
- Surigao del Norte, Northeastern Mindanao (areas overlying ultramafic rocks) (Edwino Fernando, pers. comm.)
- Naujan Lake, Mindoro Oriental: herbaceous marshland adjacent to the west of the lake (Arne Jensen pers. comm.)
- Pangasinan floodplains

1.1.3 Value of peatlands

Hydrology and Water Regulation

Many peatlands are very important for reducing flood peaks and for maintenance of base flows in rivers during dry periods, the peat acting as a sponge, absorbing water during wet periods and releasing it slowly. This service is particularly important in the Agusan Marsh, which is situated in the middle reaches of the Agusan River, not on the coastal plains. The value of the peatland in the marsh in reducing flood peaks in downstream areas with important settlements is likely to be substantial. The contribution to dry season base flows in the Agusan River and maintenance of groundwater levels is also probably high. Likewise, the peatland in the Leyte Sab-a Basin has the capacity to absorb and hold a lot of water during the rainy season, releasing it slowly to maintain base flows in the outflow rivers. Both peatlands are also probably significant in preventing penetration of saline water up rivers due to this contribution to minimum flows in the rivers during dry periods.

Carbon Storage

Although the Philippines has relatively little peatlands compared to other countries, the peatlands of the Philippines still have an important role to play in the storing and sequestration of carbon from the atmosphere. Despite this small area, it seems that much of the peatlands in the Philippines is still intact and is actively accumulating carbon from the atmosphere.

Biodiversity Values

The limited information available suggests that biodiversity values of Philippine peatlands are high. Considering the high level of endemism of the Philippine flora, the botanical survey of peatland areas may yield undescribed species. Moreover, at the ecosystem level of biodiversity, there seems to be a unique vegetation assemblage on the Caimpugan peat dome, which is different from the vegetation community found on peat domes in nearby northwest Borneo.

There have been no faunal surveys in Philippine peatlands, although wild boar and deer are found in the Agusan Marsh. The endemic Philippine Tarsier has been reported from the Leyte Sab-a Basin peatlands, which also hosts a resident Little Egret population. Please note that CI-Philippines has just

finished a faunal and botanical survey of Caimpugan Peatlands but the results have not been published yet.

Aesthetic Values

High scenic values are found in identified Philippine peatlands, including the striking forests of Lanipao (*Terminalia copelandii*) in both the Agusan Marsh and the Leyte Sab-a Basin. Both peatlands are surrounded by uplands, from which impressive views of the peatlands can be gained.

Socio-Economic Values

Peatlands are also important to local communities as a source of wood like timber and firewood for domestic needs and non wood products like the *Frimbistylis globulosa*, locally known as “tikog” for mat making and other livelihood purposes. Important peatlands in both Agusan and Leyte Sab-a have been drained and converted to agriculture.

1.1.4 Management Issues and Threats Related to Peatlands

Main problems faced in management of peatlands

Since peat is a fairly rare soil type in the Philippines, there is a fundamental lack of awareness of what peat is, its properties and appropriate management strategies for peatlands in all sectors, from local people to NGOs and government agencies. Linked to this, there is very limited capacity for managing peatlands wisely and no national institutional framework for managing peatlands.

This means that there is a great danger that peatlands may be degraded through activities which do not take into account the special properties of peat. For example, areas of peatland in the Leyte Sab-a Basin and the Agusan Marsh have been cleared for agriculture, but have been abandoned after a few years due to poor yields. In addition, the Agusan Marsh faces substantial migration from other parts of the Philippines, with these farmers being familiar only with agriculture on mineral soils. Land clearance activities are increasing in the Agusan Marsh and may pose a threat to intact peatlands. There is substantial clearing of land immediately to the west of the Caimpugan peat, which may threaten the unique vegetation communities by a combination of fire and lowering of the water table.

Large scale development projects including irrigation components also pose a threat to the Agusan Marsh and the Leyte Sab-a Basin. In the basin, some peatlands have been converted to agriculture by the defunct Leyte Sab-a Development Authority. Likewise, the Department of Agrarian Reform (DAR) continues to issue Certificate of Land Ownership Agreement (CLOAs) over the remaining peatlands. In the Agusan Marsh, 4,000 ha of the marsh may be declared as Alienable and Disposable for the purposes of irrigation. It is not clear whether this is in a peatland area. With these two examples, it is clear that peatlands may be converted to agriculture without any kind of land suitability assessment, which makes the identification of peatland areas in the Philippines all the more urgent.

These threats make it imperative that peatlands are identified and mapped so that appropriate development strategies can be implemented.

Without the ASEAN Peatland Management Initiative (APMI), there is little likelihood that issues on peatlands conservation and sustainable use would have been addressed in the Philippines. The Philippines can benefit greatly from the experience and knowledge gained by other countries in ASEAN in the sustainable management of peatlands, so that information exchange and cooperation with relevant authorities in these other countries is highlighted as a priority in the National Action Plan (NAP).

1.1.5 Policy and legislation related to peatland

A recent review of Philippine Policy and Legislation related to wetlands emphasized the main points that may relate to peatlands as summarised below (Luna 2005):

- There is no policy or legislation relating specifically to peatlands in the Philippines, although there are policies and laws which are aimed at wetlands in general that would include peatlands.
- The Water Code of the Philippines (Presidential Decree No. 1067) declares wetlands as part of the public domain and cannot be alienated.
- The multi-sectoral Protected Area Management Board (PAMB) has jurisdiction over peatlands

within the National Integrated protected Areas System (NIPAS), such as the Agusan Marsh.

Institutions responsible for peatland management

At present, there are no institutions directly responsible for peatland management on a national basis. The Philippines is signatory to the Convention on Wetlands, more commonly known as the Ramsar Convention, since 1994. PAWB as its designated administrative authority is expected to provide guidance in the wise use and management directions over peatlands since by definition, peatlands are considered part of wetlands. PAWB, in close coordination with other DENR units and other government and non-government organisations, led the proposal development process for this IFAD/GEF Project.

PAWBs would be responsible for conservation issues for individual peatlands within protected areas such as Agusan Marsh Wildlife Sanctuary. One of the key activities recommended by the National Action Planning workshop held in Manila, Philippines in February 2006 was the setting up of an inter-agency working group which would oversee the development of an institutional framework for peatland management both at the national and local levels.

1.2 BASELINE SCENARIO

Without the proposed interventions detailed in this proposal, the present situation described below is likely to continue into the future:

- With the very low level of awareness of peat and the fragility of peatland systems, the peatlands in the Philippines may all but disappear during the five-year life span of the proposed intervention. This low level of awareness is exemplified by the classification of the stunted peat swamp forest on deep peat in the central raised plain of the Caimpugan peat dome. This had been classified as regenerating brush previously due to the low stature of the trees; and has been described in some survey documents as mossy forest due to the abundance of mosses and lichens.
- With the lack of knowledge of the area and distribution of peatlands in the country, some may be lost before they have been documented.
- There have been almost no studies on peatlands in the Philippines to date, and it is unlikely that many studies would be undertaken in the future without the project interventions. In particular, the fauna of peat areas has hardly been studied.
- The institutional framework for sustainably managing peatlands is very weak, whilst there is no guiding policy for the use of peatlands. The institutional framework will remain weak, with little likelihood of peatlands being managed sustainably and no integration of peatland issues and concerns in land use planning.
- Migration of settlers into and around peatland areas is an important issue in the Philippines. The settlers have no knowledge of using peatland areas for agriculture so that the natural vegetation is cleared for agriculture, but the areas are abandoned after a few years due to low yields. Without consultations and awareness-building with these communities, peat areas will continue to be degraded through conversion and abandonment.

Specifically, lack of the proposed interventions will result in further degradation of peatland areas:

1. Loss of globally important biodiversity

The Philippine peatlands are of global importance in terms of ecosystem diversity. The Caimpugan peat dome is the first peat dome to be described in the Philippines, and the vegetation assemblage differs from that of peat domes in Borneo. Thus, the Caimpugan bog plain ecosystem may be the only representative of this particular type in the world. Moreover, given the high level of floral endemism in the Philippines, there may be many species which remain to be described.

2. Loss of valuable functions that peatlands provide

The peatlands that have been documented so far in the Philippines are not coastal peat swamps, but are found in low-lying basins or in the middle reaches of large rivers. Downstream of these peatlands areas, there are major towns, valuable agricultural lands and a high development of infrastructure. Clearance of the natural vegetation, drying out and decomposition of peat will result in a substantial loss

of the flood regulating capacity of these peatland areas, with the possibility of increased intensity and duration of flooding in the downstream areas leading to high economic losses and loss of livelihood.

3. Occurrence of localised haze episodes

Although the areas of peatlands in the Philippines are limited, their continued degradation will result in increased susceptibility of degraded areas to fire, with haze episodes affecting communities around the peatland areas.

4. Increased poverty in communities in and around peatland areas

Without the significant project interventions aimed at creating awareness amongst local people, consultations on options for sustainable use and the implementation of demonstration projects, the livelihood options for local people will decrease, leading to an increased incidence of poverty amongst these communities.

Ongoing Activities Related to Peatlands

National Activities

At present, there are no projects relating specifically to peatlands. However, there are a few projects that may affect peatland areas. The Philippine-Australian Community Assistance Programme (PACAP) is working in the Agusan Marsh and is looking into developing community-based livelihood activities and protection efforts for Caimpugan peatlands. The Caimpugan peat area is the candidate site. The other project is the Agusan River Basin master plan being developed through an Asian Development Bank Technical Assistance Project. Activities under this plan have the capacity to affect peatland areas throughout the Agusan Marsh through alteration of river flow patterns upstream. There is a need, therefore, to harmonize on-going initiatives in the area. Conservation International-Philippines was preparing to carry out a botanical survey of the Caimpugan peat area and a wider hydrological study in February 2008.

Involvement in ASEAN Peatland Management Initiative (APMI)

Formal involvement of the Philippines in the APMI commenced with the designation of a senior official of the DENR as its APMI focal point. The Protected Areas and Wildlife Bureau (PAWB) also participated in the second APMI workshop held in Malaysia in May 2003. The draft NAP for the Sustainable Use of Philippine Peatlands fully supports the ASEAN Peatland Management Strategy.

Status of Preparation of National Action Plan

From 2 to 3 February 2006, the National Action Planning workshop was held in Manila, Philippines. The draft NAP was presented at the Second Project Preparation Planning Working Group Meeting in Pekanbaru, Indonesia from 22 to 25 February 2006. An inter-agency meeting held in Manila on 31 March 2006 recommended that a joint Department Administrative Order (DAO) be issued by the key Departments involved in the NAP instead of an Executive Order which might take time to be approved. The NAP was further refined at a local stakeholders meeting in Manila for personnel from the two pilot sites of Agusan Marsh and Leyte Sab-a Basin on 27 January 2008, followed by a "National Action Plan For Peatlands Validation Workshop" for all concerned stakeholders on the following day.

The key issues in the NAP are: Creating awareness; Building capacity; Creating an institutional framework; Conducting an inventory and assessment; and Ensuring the sustainable management of peatlands.

2. STRATEGY

2.1 Project Strategy

In support of the goals and objectives of the ASEAN Peatland Management Initiative and the draft Philippine Peatlands NAP, the project is designed to ensure that the sustainable management of peatlands in the country is achieved for the benefit of the affected communities and the conservation of biodiversity.

Having established that the root causes of peatland degradation arise not only from pervasive poverty, but from lack of institutional framework, knowledge, and capacity of concerned stakeholders in sustainable peatland management, the project focuses on awareness raising, capacity building and institutional strengthening at both the national and local levels. It also ensures that participatory processes are in place from identification to implementation, including the monitoring and evaluation phase of project activities, so that the ultimate project benefits redound to the local communities living within and near peatland areas.

A key strategy to develop sustainable uses of peatlands by local communities and conservation measures for areas of high biodiversity is the implementation of trial projects with local communities in pilot sites. Two pilot sites are proposed for the project: The Caimpugan peat area in the Agusan Marsh and Sab-a Basin Peatland on Leyte Island in the Visayas.

Caimpugan Peatland, Agusan Marsh

This is an undisturbed peat area, possibly a peat dome, with an extensive area of stunted peat swamp forest at its centre. Its biodiversity value is likely to be very high. It is envisaged that activities would be mainly focused on the areas at the periphery, where land clearance activities threaten the integrity of the peatland. Pilot projects will demonstrate land use strategies which will keep the peatland intact. The experience of other ASEAN countries will be drawn upon in developing these strategies. Development of ecotourism in the Caimpugan peat area will also be investigated.

Leyte Sab-a Basin Peatland

As described in the introduction, the Leyte Sab-a Basin peatland has a total area of c. 3,088 ha of which 44% has been reclaimed for agriculture. The remaining unutilised peatland (1,740 ha) in the eastern half of the basin consists of small remnant areas of swamp forest and sedge/grass peat swamp. This site presents a good opportunity to try out rehabilitation strategies with local communities for cleared peatland, to implement pilot projects for use of suitable peatlands for agriculture using wetland crops and for the development of ecotourism activities.

2.2 Component Sub-Outcomes

- | | |
|--------------------------|---|
| Component Sub-outcome 1: | Capacity in relevant agencies/ institutions and other concerned stakeholders on peatland management strengthened in the Philippines |
| Component Sub-outcome 2: | Creating an enabling environment for the conservation and sustainable use of peatlands in the Philippines |
| Component Sub-outcome 3: | Land use planning, zoning and rehabilitation measures carried out in suitable peatland sites |
| Component Sub-outcome 4: | Community-led demonstration projects formulated and implemented at the pilot sites |

2.3 Component Outputs & Activities

Component Sub-outcome 1: Capacity in relevant agencies/ institutions and other concerned stakeholders on peatland management strengthened in the Philippines

Output 1.1 A core group of peatland managers/ experts established at national, local and community levels

At present, there are no experts on the ecology and sustainable use of peatlands in the Philippines. This output will result in expertise being available at the national and local levels, benefiting from expertise and experience from other ASEAN countries.

Activities

- 1.1.1 Conduct a training needs analysis and develop suitable training modules, including alternative learning systems for community based activities.
- 1.1.2 Source expertise to train and develop a core group of peatland managers/ experts at

the national and local level and implement training courses.

- 1.1.3 Support the transfer of technology for peatland management, including practical training, from other ASEAN countries; e.g. cross visits, exchange programs.
- 1.1.4 Conduct on-the-job training/ workshops/ seminars for communities around the pilot sites on participatory assessments to improve local knowledge of sustainable use of peatlands.

Output 1.2 Peatland management enhanced by better coordination between concerned agencies and other stakeholders and policies developed

There is a need to apply existing relevant laws, to develop legislation and policies, and to develop an institutional structure for the management of peatlands. The potential for wisely managing peatlands is almost non-existent at present.

Activities

- 1.2.1 Set up inter-agency national and local working groups to review existing laws and policies and recommend policies and an institutional structure for the management of peatlands.
- 1.2.2 Conduct legislative forum on ASEAN Agreement on Transboundary Haze Pollution to facilitate Philippine's ratification
- 1.2.3 Develop, adopt and implement the NAP for peatlands
- 1.2.4 Develop and support networks of concerned stakeholders for information exchange and sharing of experiences.

Output 1.3 Awareness of peatlands raised at national and local levels through an information and education campaign

Awareness of peatlands, their properties and the issues surrounding them, is virtually non-existent. Through training workshops and locally-appropriate materials, awareness will be raised among a broad range of stakeholders.

Activities

- 1.3.1 Enhance existing communication plan for peatlands
- 1.3.2 Conduct lectures and presentations for government agencies, Local Government Units and members of civil society.
- 1.3.3 Develop locally-appropriate materials (comics and posters) in local languages and make these available to communities in and around pilot sites.
- 1.3.4 Hold community assemblies and dialogues to increase the level of awareness of peatlands in the communities
- 1.3.5 Develop web page on peatlands/peat portal

Output 1.4 Sustainable funding mechanism for peatland management identified and secured

Apart from this project, there is virtually no funding for peatland projects in the Philippines. It is important to start to identify funding sources to be able to carry on activities beyond the project period, since many activities can be viewed as long-term.

Activities

- 1.4.1 Identify donor agencies, requirements and explore options for funding, including the corporate social/environmental portfolio
- 1.4.2 Source funds from donor agencies to carry on project activities beyond the project period.
- 1.4.3 Explore carbon funding under the Climate Change Portfolio

Component sub-outcome 2: Creating an enabling environment for the conservation and sustainable use of peatlands in the Philippines

Output 2.1 Peatlands suitable for sustainable use and conservation activities identified

There is virtually no information available on peatland areas in the Philippines besides the two pilot sites. Targeted surveys over the Philippines to identify peatland areas have not been carried out. With these activities, the local communities will be involved in surveys and land use assessments and the identification of priority areas for conservation and sustainable use.

Activities

- 2.1.1 Carry out immediate surveys of probable peatlands in the Philippines
- 2.1.2 Map peatland areas; perform participatory land use assessments and socio-economic surveys in relation to community uses of peatlands in these areas.
- 2.1.3 Identify peatland areas suitable for conservation activities and identify priority activities for these areas.

Output 2.2 A local guide for planners and developers in peatlands and peatland buffer zones prepared

There is an almost total lack of knowledge of peatlands and their fragility among developers and planners, such that a locally-appropriate guide to development is urgently needed.

Activities

- 2.2.1 Conduct meetings with the relevant stakeholders on issues of development in peatland areas.
- 2.2.2 Prepare guidelines for planners and developers of peatlands to suit the local scenario.

Component sub-outcome 3: Land use planning, zoning and rehabilitation measures carried out in suitable peatland sites

Output 3.1 Land use-planning activities including iterative consultations and zoning of land use at the project pilot sites developed and implemented

Prior to the implementation of project activities of rehabilitation, demonstration projects and conservation, it is important to specifically identify the sites for each of the proposed activities in conjunction with local communities.

Activities

- 3.1.1 Conduct consultations with stakeholders in pilot sites regarding zoning of activities.
- 3.1.2 Develop zoning and land use plans for the pilot sites.

Output 3.2 Hydrological regime restored and replanting carried out at the pilot sites by the community

The local community will be involved in drawing up specific rehabilitation plans in restoration works such as blocking drains and replanting of degraded areas, instilling a sense of ownership of the projects. This should lead to long-term success of the rehabilitation measures.

Activities

- 3.2.1 Conduct consultation meetings with the local community on rehabilitation measures.
- 3.2.2 Develop and implement a site-level restoration plan for the hydrology and biodiversity of the pilot sites by the local community.

Component sub-outcome 4: Community-led demonstration projects formulated and implemented at the pilot sites

Output 4.1 Demonstration projects in sustainable use of peatlands at the pilot sites managed by local people developed and implemented

Through consultations with local communities, specific demonstration projects will be developed and implemented. Again, community involvement in all aspects of project preparation, planning and implementation is seen as key to the long-term success of the projects.

Activities

- 4.1.1 Organise and conduct workshops for possible demonstration projects on sustainable use of peatlands at pilot sites managed by local people.
- 4.1.2 Prepare a proposal on the options for demonstration projects at the two pilot sites and evaluate these options.
- 4.1.3 Develop the demonstration projects at the sites e.g. ecotourism and livelihood programs.
- 4.1.4 Organise the community (and inputs) for the demonstration projects.

2.4 Key Indicators, Risks and Assumptions

The key indicators for the aforementioned outputs and activities can be categorized into the following:

- Nature and extent of capacity building and awareness raising activities undertaken and the number of people who participated and/ or benefited from these capacity building and awareness raising exercises and materials initiated by the project.
- Number of technical working committees formed and operational at both the national and local levels.
- On pilot site implementation, the number of sustainable use plans developed and implemented including the number of demonstration projects developed and in place for the two pilot sites.

The critical assumption would be mainly on the willingness and support of the concerned national and local stakeholders from both the government and civil society to participate and undertake the proposed project activities.

2.5 Country Eligibility and Drivenness

The Philippines ratified the United Nations Convention on Biological Diversity (UNCBD) in October 1993, the United Nations Framework Convention on Climate Change in August 1994, and the United Nations Convention to Combat Desertification in February 2000. It is also a party to the Ramsar Convention since 1994. Having ratified these four conventions and initiated efforts to implement programs to meet its obligations, the country is eligible to access GEF's support and resources to continue and generate greater contribution to global environmental benefits.

The GEF project will have significant contribution to the following Philippine Development Plans on environment and sustainable development:

- Medium Term Development Plan (MTPDP)
- Philippine Agenda 21
- National Biodiversity Strategy and Action Plan
- National Action Plan to Combat Desertification, Land Degradation, Drought and Poverty
- National Action Plan on Climate Change
- National Wetlands Action Plan

Most of the proposed project activities under this project are based on the priorities set by the Draft National Action Plan on Sustainable Use of Philippine Peatlands (Appendix I). In addition, it also supports the enhancement of implementation of the National Integrated Protected Areas System Act (NIPAS). NIPAS is landmark legislation that aims to protect unique, outstanding and biologically important public lands that are habitats of rare and endangered species of plants and animals.

2.6 Sustainability

The proposed project aims to ensure sustainability of the beneficial impacts resulting from the project activities beyond the project period.

Institutional sustainability

The Project intends to build on/ or enhance as much as possible, existing institutional structures such as the Task Force on Wetlands established under the Sub-Committee on Biodiversity of the Philippine Council for Sustainable Development and the National Wetlands Committee under the UNEP/ GEF Regional Project on *Reversing Environmental Degradation in the South China Sea*.

At the site level, members of the multi-sectoral Protected Area Management Board for Agusan Marsh Caimpugan peatlands will be utilised for site level implementation. National and local inter-agency committees, working groups and networks and formal agreements like Memorandum of Agreement (MOAs), and other coordination mechanisms will be explored and instituted. All of the above efforts also help ensure that even if there are unavoidable changes in national and local leadership, proper guidance is provided to continue the initiative.

Financial sustainability

To ensure financial sustainability, identification of sustainable financing mechanism is also a major priority activity. A conference for donors shall be convened to engage partners in sustaining activities within and beyond the project period.

Social Sustainability

The project has been developed through iterative consultations with key stakeholders to instill in them a sense of ownership of the initiative. Most of the site level activities are designed to be carried out by the local stakeholders themselves to optimise local engagement.

Awareness raising and capability building initiatives are targeted at all levels and are designed not only to change knowledge levels but also to lead to eventual adoption of sustainable use management practices and wise use policies on peatlands.

At the community level, pilot income-generating demonstration projects based on the current usage of peatlands will be planned at each pilot site. This is aimed at easing or deflecting pressures away from the peatlands.

2.7 Replicability

Results from the pilot sites will be properly documented and packaged for replication to the other peatland sites in the country. Most of the local policies and guidelines shall be published as protocols (step by step “recipes”) for possible adoption by other concerned stakeholders within or near peatlands. The establishment of information sharing networks is another way of providing other stakeholders access to information concerning the successes and lessons learned.

2.8 Stakeholder Involvement Plan**General strategy for stakeholder involvement**

There is a need to have a cross-sectoral cooperation and coordination in the implementation of this GEF project to ensure the rationalization and harmonization of national and site-based efforts. **Appendix H** provides a detailed record of the consultations undertaken for the identification of the appropriate activities for the Philippine Component. The same participatory, iterative and multi-sectoral approach will be the main strategy for stakeholder involvement in the project implementation phase. This will be covered by a Memorandum of Agreement among concerned parties which clearly specifies the roles, obligations and deliverables. Multi-sectoral and inter-agency national and local technical working groups shall be created to function as project implementation/ steering committees and oversee project implementation at both the national and site level. **Appendix F** provides the proposed project management framework.

Main Project partners:

- National Government Agencies principally: Department of Environment and Natural Resources, Bureau of Soils and Water Management of the Department of Agriculture and other members of the Inter-Agency Working Group (ITWG) on Peatlands which is proposed to be created as part of the activity to be funded by this proposed project.
- Concerned local government units in Leyte and Agusan del Sur
- National and site-based NGOs
- Academe
- Philippine Australian Community Assistance Program Agusan Office
- Propegemus Foundation, a site-based NGO, contracted to implement the PACAP's funded project in Caimpugan Peatlands.
- Conservation International-Philippines
- Local communities at the project sites

Main Project Executing Institutions:

- DENR will coordinate activities at the national level, in close coordination with DA and other members of the ITWG

- At the site level, it will be the Agusan Marsh Protected Area Management Board (PAMB) who is expected to undertake site level activities in Caimpugan Peatlands.
- The LGU shall take an active role in Leyte Sab-a, a non-NIPAS area, in close partnership with the field offices of key national agencies involved in peatland management such as the DENR and the DA.

Table 1: Description of the involvement of key national agencies and local government units and other concerned stakeholders

Institution/Organization/Stakeholder	Expected Roles/Nature of participation
DENR	National coordination, policy formulation, linkage/ networking, fund sourcing, technical assistance
Department of Agriculture	Policy formulation, technical assistance and support in areas of agriculture, soil and water management
Departments of Interior and Local Government, Tourism, Science and Technology, Economic and Development Authority, National Commission on Indigenous Peoples and other national agencies mentioned in the NAP	Policy formulation and technical assistance pertaining to their areas of concerns and jurisdictions
Agusan Marsh Protected Area Management Board	Local coordination, site policy formulation, networking and fund sourcing
Local Government units	Local coordination, site policy formulation, networking and linkage/ networking, fund sourcing
Academe (national and site based)	Training, technical support in inventory and assessments and research related activities
National Non-Government Organizations	Advocacy and awareness raising; fund sourcing
Site-Based NGOs	Advocacy and awareness raising; Project co-operator, co-implementer
Peoples Organizations/Community Based Organizations/local communities	Co-operator, co-implementer

3. PROJECT MANAGEMENT ARRANGEMENTS

3.1 Project Implementation and Execution Arrangements

The Department of Environment and Natural Resources (DENR) through the Protected Areas and Wildlife Bureau (PAWB) will execute and implement the project. A National Project Implementation (Steering) Committee to be chaired by the APMI Focal Point shall be established to oversee project implementation with members from key agencies with peatland related functions.

A National Inter-Agency Technical Committee on Peatlands shall support the (NPIC) at the national level to be composed of concerned government agencies, non-government agencies and Academe with peatland related concerns to provide technical advice and recommend specific institutional and policy recommendations for the implementation of the Peatland NAP and the project activities. It is proposed to be co-chaired by the DENR-Protected Areas and Wildlife Bureau (PAWB) and the Department of Agriculture's Bureau of Soil and Water Management. PAWB shall be designated to undertake project activities at the national level and shall act as the secretariat to the NPIC. Local Project Implementation Committees and Execution Agencies (LPIC and LPEC) shall also be established at the pilot sites.

For the Caimpugan peatlands, a sub-committee on peatlands shall be formed as the LPEA from the existing Agusan Marsh Protected Area Management Board to be co-chaired by the DENR and the LGU

San Francisco. The Protected Area Superintendent shall act as the Secretariat and the lead implementer at the site level.

In Leyte, a LPEA shall be formed to be co-chaired by LGU Alang-Alang and DENR Region 8 with the Municipal Environment and Natural Resources Office the Municipal Planning and Development Coordinator, Alang-alang shall be the lead implementer, in close coordination with DENR Region 8 and DA-ATI. Working committees may be formed, whenever necessary for local communities to ensure smooth implementation of project activities at the site level.

Table 2: Proposed Lead Agencies in the Philippine Country Component

NPIC	NPEA	Country Coordinator	Country Expert	Financial Manager	LPIC	LPEA
National Project Implementation Committee (chaired by APMI National Focal Point)	Protected Areas and Wildlife Bureau (PAWB), Department of Environment and Natural Resources (DENR)	Armida P. Andres	To be confirmed	Roselyn Batarra	Agusan Marsh Working Committee chaired by the DENR Region 13 Leyte Sab-a Working committee chaired by the DENR Region 8	Local Government Unit of Alang-Alang (in close coordination with DENR 8) and the Protected Area Management Board through the Protected Area Superintendent (PASu) in close coordination with LGU San Francisco

The proposed project management structure and the membership composition are elaborated in Appendix F.

4. PROJECT BUDGET AND CO-FUNDING

Table 3: Summary of the budget for the Philippine Component

	COSTS (USD)	CO-FUNDING (USD)	REQUESTED GEF FUNDING (USD)
Outcome 1: Capacity in relevant agencies/ institutions and other concerned stakeholders on peatland management strengthened in the Philippines			
Output 1.1	107,567	46,025	61,542
Output 1.2	134,915	92,760	42,155
Output 1.3	69,845	35,535	34,310
Output 1.4	10,100	4,200	5,900
<i>Sub Total Outcome 1</i>	<i>322,427</i>	<i>178,520</i>	<i>143,907</i>
Outcome 2: Creating an enabling environment for the conservation and sustainable use of peatlands in the Philippines			
Output 2.1	93,800	73,250	20,550
Output 2.2	13,057	10,350	2,707
<i>Sub Total Outcome 2</i>	<i>106,857</i>	<i>83,600</i>	<i>23,257</i>
Outcome 3: Land use planning, zoning and rehabilitation measures carried out in suitable peatland sites			
Output 3.1	31,900	15,425	16,475
Output 3.2	55,270	25,550	29,720
<i>Sub Total Outcome 3</i>	<i>87,170</i>	<i>40,975</i>	<i>46,195</i>
Outcome 4: Community-led demonstration projects formulated and implemented at the pilot sites			
Outcome 4.1	83,546	46,905	36,641
<i>Sub Total Outcome 4</i>	<i>83,546</i>	<i>46,905</i>	<i>36,641</i>
Project Administration & Support	32,000	20,000	12,000
TOTAL PHILIPPINES BUDGET	632,000	370,000	262,000

Most of the co-funding for the Philippines component is sourced from the Government.

Further details of the budget can be found in Appendix B.

5. MONITORING AND EVALUATION

Details of the monitoring and evaluation activities are attached as Appendix G.

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APPENDICES

Appendix A: Logical Framework Analysis

Appendix B: Budget and Co-Funding

Appendix C: Project Timeline

Appendix D: Pilot and Demonstration Sites Description

Appendix E: Proposed Management Framework

Appendix F: Monitoring and Evaluation

Appendix G: Record of Consultations in preparation of the project

Appendix H: National Action Plan

APPENDIX A: Project Logical Framework Analysis (Two years)

Summary					
OVERALL PROJECT GOAL: To promote the sustainable management of peatlands in SE Asia to sustain local livelihoods to reduce poverty, reduce risk of fire and associated haze and contribute to global environmental management, particularly biodiversity conservation and climate change mitigation.					
IMMEDIATE OBJECTIVE: To demonstrate, implement and upscale integrated management of peatlands in SE Asia through mainstreaming and improved governance, strengthened capacity and increased awareness, enhanced multi-stakeholder partnerships, and innovative approaches to maintain and rehabilitate identified critical peatland sites.					
PHILIPPINE Component Sub-objective: To promote the sustainable management and rehabilitation of peatlands through awareness raising, capacity building and enhanced inter-agency cooperation for the benefit of the local community and the conservation of biodiversity					
Outcomes, Outputs and Activities	Objectively Verifiable Indicators			Means of Verification	Critical Assumptions
	Indicators	Baseline	Target		
OVERALL PROJECT OUTCOME 1: Capacity and institutional framework for sustainable peatland management in South East Asia strengthened.					
Sub-outcome 1: Capacity in relevant agencies/ institutions and other concerned stakeholders on peatland management strengthened in the Philippines					

OUTPUT	INDICATORS	BASELINE	TARGET	MEANS OF VERIFICATION	CRITICAL ASSUMPTIONS
OUTPUT 1.1 A core group of peatland managers/ experts established at national, local and community levels	1. No. of workshops/ meetings convened & Training Needs Analysis (TNA)	1. None	1. Two TNA FGD/workshops/ mtgs convened & TNA completed	1. Progress Report/ Minutes of mtgs	Expertise available in the region to carry out training.
	2. No. of training modules developed	2. None	2. One training module developed	2. Progress Report	Identified participants willing to learn.
	3. No. of managers/ experts trained	3. None	3. 15 people trained as peatland managers/ experts	3. Progress report	
	4. No. of participants sent for cross visits/ exchange programs	4. None	4. 15 people send for cross visits/ exchange programs	4. Reports from exchange programs	
	5. No. of experts contracted, core group	5. None	5. 1 expert and a core group established	5. Minutes of core grp mtg	
	6. No. of participants involved in on the job-training	6. None	6. Total of 15 people at 2 pilot sites attend training on participatory assessment	6. Training/ Progress report	
	7. Information from pilot sites	7. None	7. Relevant information gathered from participatory assessments on the 2 pilot sites	7. Assessment reports / progress reports	

OUTPUT 1.2 Peatland management enhanced by better coordination between concerned agencies and other stakeholders and policies developed	1. National Project Implementation Committee formed		1. NPIC Set-up and meets semi-annually	1. Records of meetings	Willingness of stakeholders to become involved in working groups/ networks and share information.
	2. Inter-agency TWG 3. No. of site-based TWGs, no. of consultations conducted 4. Policies addressing specific issues of peatland mgmt 5. Summit of stakeholders conducted 6. Operation of networks for information and/ or sharing of experiences 7. NAP endorsed by the Philippine Council for Sustainable	1. Existence of National Wetlands Committee 2. None 3. Existence of wetland-related policies 4. None exists 5. None exists 6. None exists 7. No NAP legally in place	2. One set up at national level with 4 annual meetings & 22 participants 3. One TWG for each site, 4 consultations each year, for 20 people from different agencies/ inst's 4. Policies and programs reviewed and developed 5. 1 summit organized 6. Networks operationalized 7. NAP legally adopted and implemented	2. TWG reports/ minutes 3. Project annual reports 4. Progress reports 5. Progress reports	Support from relevant sectors in government. Willingness of government to adopt new policies regarding peatlands. NAP endorsed

	Development (PCSD)				
Output 1.3: Awareness of peatlands raised at national and local levels through an information and education campaign	1. No. of participants at lectures and presentations 2. No. of locally-appropriate tri-media materials produced and distributed 3. No. of assemblies and dialogues conducted, no. of participants and stakeholders	1. About 100 participants at consultation workshops in Leyte Sab-a, Agusan Marsh, and the NAP (introductory lectures on peatlands were provided) 2. 1000 copies of Peat Flyers in English, Waray and Bisaya versions were produced with the support of AADCP project in 2008 3. About 50 community members joined the consultation workshops in Leyte Sab-a, Agusan Marsh, and the NAP (introductory lectures on	1. 120 stakeholders participate in lectures and presentations 2. 1,000 copies of comics in 3 languages available and distributed at pilot sites 500 posters in 2 languages available and distributed at pilot sites 1 video documentary on Philippine Peatlands produced 3. Four assemblies completed, with c. 100 people per assembly; Local communities in and surrounding peatland areas with a fuller understanding of peatlands and	1. Progress/evaluation reports; Attendance records 2. Project Annual reports; Records of their distribution 3. Project Annual Report; Attendance figures Awareness level surveys (pre- and post-evaluation surveys)	Government agencies, LGUs and members of civil society interested and willing to participate Expertise available for translation of IEC materials into local languages Local communities interested and motivated to participate

		peatlands were provided)	issues affecting them		
OUTPUT 1.4: Sustainable funding mechanism for peatland management identified and secured	1. Donors meeting convened 2. Funds committed and released	1. None 2. None	1. Meetings convened with donor agencies 2. Funding available to continue activities at project end	1. Progress reports 2. Progress reports	Staff time set aside to secure funding
OVERALL PROJECT OUTCOME 2: Reduced rate of degradation of peatlands in South East Asia					
COMPONENT SUB-OUTCOME 2: Creating an enabling environment for the conservation and sustainable use of peatlands in the Philippines					
Output 2.1: Peatlands suitable for sustainable use and conservation activities identified	1. No of days of survey; No of land use assessments completed 2. No. of sites surveyed 3. Prioritised activities for conservation	1. ADB Land-Use Assessment Report 1999 for Leyte Sab-a; Initial assessment of Agusan Marsh; CPPAP Management Plan for Agusan Marsh; 2. Nov 2005 surveys (Campugan); ADB River basin report 3. CI Philippines Biological Survey result 4. Limited sites identified	1. 30 days of surveys completed in peatland areas and land use assessments completed per site 2. Six sites surveyed 3. Prioritised activities for conservation identified	1. Progress report 2. Survey reports 3. Progress report	Expertise for mapping peatland in the Philippines available
Output 2.2: A local guide for planners and developers in peatlands	1. Translated regional guide	1. None	1. Regional guide translated and adapted to	1. Records/ Minutes of meetings	Regional component produces

and peatland buffer zones prepared	2. No. of small group meetings convened	2. None	Philippine situation 2. Small group meetings convened with developers/ planners to highlight needs and promote guidelines	2. Minutes of the meeting/ Progress reports	guide which can then be adapted to the Philippine situation
OVERALL PROJECT OUTCOME 3: Integrated management and rehabilitation demonstrated and implemented at targeted peatlands					
COMPONENT SUB-OUTCOME 3: Land use planning, zoning and rehabilitation measures carried out in suitable peatland sites					
OUTPUT 3.1: Land use-planning activities including iterative consultations and zoning of land use at the project pilot sites developed and implemented	1. No. of consultations conducted; no. of stakeholders involved 2. Land-use and zoning plan developed	1. Limited consultations 2. ADB Land-Use; Assessment Report 1999 for Leyte Sab-a; Initial assessment of Agusan Marsh; CPPAP Management Plan for Agusan Marsh; PACAP management plan	1. Four one day consultations carried out at two pilot sites covering 12-16 barangays with 25 people at each consultation 2. Zoning plans developed and approved by all stakeholders through consultations	1. Records of consultations 2. Progress reports	Stakeholders willing to participate in developing a land-use and zoning plan
OUTPUT 3.2: Hydrological regime restored and replanting carried out at the pilot sites by the community	1. No of consultation meetings	1. None	1. One-day meetings convened at 2 pilot sites involving 30 participants for developing action plan for rehabilitation	1. Records of meetings/ Attendance records	Suitable pilot projects identified and local people willing to participate

	2. Rehabilitation plan 3. Area rehabilitated (ha) 4. Equipment procured	2. Non-existent 3. Limited 4. None	measures 2. Plan developed and implemented 3. Three ha sites under rehabilitation per site 4. Equipment (water gates etc) procured for restoration of hydrological regime	2. Progress reports 3. Photo-documentation of rehabilitation activities/ areas 4. Progress reports	
OVERALL PROJECT OUTCOME 4: Local communities and the private sector actively contributing to sustainable peatland management					
COMPONENT SUB-OUTCOME 4: Community-led demonstration projects formulated and implemented at the pilot sites					
Output 4.1: Demonstration projects in sustainable use of peatlands at the pilot sites managed by local people developed and implemented	1. Workshops for formulation of demonstration projects; no. of communities organized; no. of workshop participants 2. Demo projects 3. No. of equipment,	1. None 2. None 3. None	1. 2-day workshops for formulation of demonstration projects convened at 2 pilot sites, with 25 people per meeting from 3 - 4 barangays in the pilot sites 2. Demo projects developed and implemented; 2 community organisers in place for 30 days in selected barangays 3. Equipment and inputs bought and	1. Records of workshops/ Attendance records 2. Progress reports/ Records at demo projects 3. Progress	Suitable pilot projects identified and local stakeholders willing to participate

	inputs and materials procured		available to local people; Materials for ecotourism development procured for 2 pilot sites; Ecotourism business plans developed	reports/ Procurement forms	
ACTIVITIES					
OUTPUT 1.1: A core group of peatland managers/ experts established at national, local and community levels <u>ACTIVITIES</u> 1.1.1 Conduct a training needs analysis and develop suitable training modules, including alternative learning systems for community based activities. 1.1.2 Source expertise to train and develop a core group of peatland managers/ experts at the national and local level and implement training courses. 1.1.3 Support transfer of technology for peatland management, including practical training, from other ASEAN countries; e.g. cross visits, exchange programs (with regional support). 1.1.4 Conduct on-the-job training/ workshops/ seminars for communities around the pilot sites on participatory assessments to improve local knowledge of sustainable use of peatlands.					
OUTPUT 1.2: Peatland management enhanced by better coordination between concerned agencies and other stakeholders and policies developed <u>ACTIVITIES</u> 1.2.1 Set up inter-agency national and local working groups to review existing laws and policies and recommend policies and an institutional structure for the management of peatlands. 1.2.2 Conduct legislative forum on ASEAN Agreement on Transboundary Haze Pollution to facilitate Philippine's ratification. 1.2.3 Develop, adopt and implement the NAP for Peatlands. 1.2.4 Develop and support networks of concerned stakeholders for information exchange and sharing of experiences.					
OUTPUT 1.3: Awareness of peatlands raised at national, local, and community levels through an information and education campaign <u>ACTIVITIES</u> 1.3.1 Enhance existing communication plan for peatlands. 1.3.2 Conduct lectures and presentations for government agencies, Local Government Units and members of civil society. 1.3.3 Develop locally-appropriate materials (comics and posters) in local languages and make these available to communities in and around pilot sites.					

1.3.4 Hold community assemblies and dialogues to increase level of awareness of peatlands in the communities. 1.3.5 Develop web page on peatlands/peat portal (with Regional Component support).
OUTPUT 1.4: Sustainable funding mechanism for peatland management identified and secured. <u>ACTIVITIES</u> 1.4.1 Identify donor agencies, requirements and explore options for funding, including the corporate social/environmental portfolio. 1.4.2 Source funds from donor agencies to carry on project activities beyond the project period. 1.4.3 Explore carbon funding under the Climate Change Portfolio (with Regional component support).
OUTPUT 2.1: Peatlands suitable for sustainable use and conservation activities identified <u>ACTIVITIES</u> 2.1.1 Carry out immediate surveys of probable peatlands in the Philippines. 2.1.2 Map confirmed peatlands, perform participatory land use assessments and socio-economic surveys in relation to community uses of peatlands in these areas. 2.1.3 Identify peatland areas suitable for conservation activities and identify priority activities for these areas.
OUTPUT 2.2: A local guide for planners and developers in peatlands and peatland buffer zones prepared <u>ACTIVITIES</u> 2.2.1 Conduct meetings with the relevant stakeholders on issues of development in peatland areas. 2.2.2 Prepare and promote guidelines for planners and developers in and around peatlands to suit the local scenario.
OUTPUT 3.1: Land use planning activities including iterative consultations and zoning of land use at the project pilot sites developed and implemented <u>ACTIVITIES</u> 3.1.1 Conduct consultations with stakeholders in pilot sites regarding zoning of activities. 3.1.2 Develop zoning and land use plans for the pilot sites.
OUTPUT 3.2: Hydrological regime restored and replanting carried out at the pilot sites by the community <u>ACTIVITIES</u> 3.2.1 Conduct consultation meetings with the local community on rehabilitation. 3.2.2 Develop and implement a site-level restoration plan for the hydrology and biodiversity of the pilot sites by the local community.
OUTPUT 4.1: Demonstration projects in sustainable use of peatlands at the pilot sites managed by local people developed and implemented <u>ACTIVITIES</u> 4.1.1 Organise and conduct workshops for possible demonstration projects at pilot sites on sustainable use of peatlands managed by

local people.

4.1.2 Prepare a proposal on the options for demonstration projects at the two pilot sites and evaluate these options.

4.1.3 Develop the demonstration projects at the sites e.g. ecotourism and livelihood programs.

4.1.4 Organise the community (and inputs) for the demonstration projects.

APPENDIX B: BUDGET AND CO-FUNDING FOR THE PHILIPPINES COMPONENT

ACTIVITIES		GEF	Co-Funding	Total
OVERALL PROJECT OUTCOME 1: Capacity and institutional framework for sustainable peatland management in Southeast Asia strengthened				
COMPONENT SUB-OUTCOME 1: Capacity in relevant agencies/ institutions and other concerned stakeholders on peatland management strengthened in the Philippines				
OUTPUT 1.1	A core group of peatland managers/ experts established at national, local and community levels	61,542	46,025	107,567
Act 1.1.1	Conduct a training needs analysis and develop suitable training modules, including alternative learning systems for community based activities	2,907	6,990	9,897
Act 1.1.2	Source expertise to train and develop a core group of peatland managers/ experts at the national and local level and implement training courses	21,915	15,940	37,855
Act 1.1.3	Support the transfer of technology for peatland management, including practical training, from other ASEAN countries; e.g. cross visits, exchange programs	24,000	11,450	35,450
Act 1.1.4	Conduct on-the-job training/ workshops/ seminars for communities and the pilot sites on participatory assessments to improve local knowledge of sustainable use of peatlands	12,720	11,645	24,365
OUTPUT 1.2	Peatland management enhanced by better coordination between concerned agencies and other stakeholders and policies developed	42,155	92,760	134,915
Act 1.2.1	Set up inter-agency national and local working groups to review existing laws and policies and recommend policies and an institutional structure for the management of peatlands	30,180	67,909	98,089
Act 1.2.2	Conduct legislative forum on ASEAN Agreement on Transboundary Haze Pollution to facilitate Philippine's ratification	6,890	10,424	17,314
Act 1.2.3	Develop, adopt and implement the NAP for peatlands	2,325	5,253	7,578
Act 1.2.4	Develop and support networks of concerned stakeholders for information exchange and sharing of experiences	2,760	9,174	11,934
OUTPUT 1.3	Awareness of peatlands raised at national and local levels through an information and education campaign	34,310	35,535	69,845
Act 1.3.1	Enhance existing communication plan for peatlands	2,425	2,625	5,050
Act 1.3.2	Conduct lectures and presentations for government agencies, Local Government Units and members of civil society	12,765	14,900	27,665
Act 1.3.3	Develop locally-appropriate materials (comics and posters) in local languages and make these available to communities in and around pilot sites	10,500	7,000	17,500
Act 1.3.4	Hold community assemblies and dialogues to increase the level of awareness of peatlands in the communities	7,420	6,770	14,190
Act 1.3.5	Develop web page on peatlands/ peat portal	1,200	4,240	5,440
Output 1.4	Sustainable funding mechanism for peatland management identified and secured	5,900	4,200	10,100

Act 1.4.1	Identify donor agencies, requirements and explore options for funding incl the corporate social/ envt portfolio	5,900	4,200	10,100
Act 1.4.2	Source funds from donor agencies to carry on project activities beyond the project period			
Act 1.4.3	Explore carbon funding under the Climate Change Portfolio			
SUB-TOTAL SUB-OUTCOME 1		143,907	178,520	322,427
OVERALL PROJECT OUTCOME 2: Reduced rate of degradation of peatlands in South East Asia				
COMPONENT SUB-OUTCOME 2: Creating an enabling environment for the conservation and sustainable use of peatlands in the Philippines				
OUTPUT 2.1	Peatlands suitable for sustainable use and conservation activities identified	20,550	73,250	93,800
Act 2.1.1	Carry out immediate surveys of probable peatlands in the Philippines	12,000	34,775	46,775
Act 2.1.2	Map peatland areas, perform participatory land use assessments and socio-economic surveys in relation to community uses of peatlands in these areas	7,350	33,600	40,950
Act 2.1.3	Identify peatland areas suitable for conservation activities and identify priority activities for these areas	1,200	4,875	6,075
OUTPUT 2.2	A local guide for planners and developers in peatlands and peatland buffer zones prepared	2,707	10,350	13,057
Act 2.2.1	Conduct meetings with the relevant stakeholders on issues of development in peatland areas	1,332	3,450	4,782
Act 2.2.2	Prepare guidelines for planners and developers of peatlands to suit the local scenario	1,375	6,900	8,275
SUB-TOTAL SUB-OUTCOME 2		23,257	83,600	106,857
OVERALL PROJECT OUTCOME 3: Integrated management and rehabilitation initiated at targeted peatlands				
COMPONENT SUB-OUTCOME 3: Land use planning, zoning and rehabilitation measures carried out in suitable peatland sites				
OUTPUT 3.1	Land use planning activities including iterative consultations and zoning of land use at the project pilot sites developed and implemented	16,475	15,425	31,900
Act 3.1.1	Conduct consultations with stakeholders in pilot sites regarding zoning of activities	5,000	5,120	10,120
Act 3.1.2	Develop zoning and land use plans for the pilot sites	11,475	10,305	21,780
OUTPUT 3.2	Hydrological regime restored and replanting carried out at the pilot sites by the community	29,720	25,550	55,270
Act 3.2.1	Conduct consultation meetings with the local community on rehabilitation measures	3,650	4,050	7,700
Act 3.2.2	Develop and implement a site-level restoration plan for the hydrology and biodiversity of the pilot sites by the local community	26,070	21,500	47,570
SUB-TOTAL SUB-OUTCOME 3		46,195	40,975	87,170
OVERALL PROJECT OUTCOME 4: Local communities and the private sector actively contributing to sustainable peatland management				
COMPONENT SUB-OUTCOME 4: Community-led demonstration projects formulated and implemented at the pilot sites				

Output 4.1	Demonstration projects in sustainable use of peatlands at the pilot sites managed by local people developed and implemented	36,641	46,905	83,546
Act 4.1.1	Organise and conduct workshops for possible demonstration projects on sustainable use of peatlands at pilot sites managed by local people	4,350	2,050	6,400
Act 4.1.2	Prepare a proposal on the options for demonstration projects at the two pilot sites and evaluate these options		1,175	1,175
Act 4.1.3	Develop the demonstration projects at the sites e.g. ecotourism and livelihood programs	31,200	39,000	70,200
Act 4.1.4	Organise the community (and inputs) for the demonstration projects	1,091	4,680	5,771
SUB-TOTAL SUB-OUTCOME 4		36,641	46,905	83,546
Administration and Management Accounting, auditing, management) (4.8%)		12,000	20,000	32,000
GRAND TOTAL PHILIPPINES BUDGET		262,000	370,000	632,000

APPENDIX C: TIME SCHEDULE FOR PROJECT ACTIVITIES

OVERALL PROJECT OUTCOME/COMPONENT SUB-OUTCOME/ OUTPUT/ACTIVITY	YEAR 1				YEAR 2			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
COMPONENT SUB-OUTCOME 1: Capacity in relevant agencies/ institutions and other concerned stakeholders on peatland management strengthened in the Philippines								
OUTPUT 1.1 A core group of peatland managers/ experts established at national, local and community levels								
1.1.1 Conduct a training needs analysis and develop suitable training modules, including alternative learning systems for community based activities								
1.1.2 Source expertise to train and develop a core group of peatland managers/experts at the national and local level and implement training courses.								
1.1.3 Support transfer of technology for peatland management, including practical training, from other ASEAN countries; e.g. cross visits, exchange programs.(with regional support)								
1.1.4 Conduct on-the-job training/ workshops/ seminars for communities around the pilot sites on participatory assessments to improve local knowledge of sustainable use of peatlands.								
OUTPUT 1.2 Peatland management enhanced by better coordination between concerned agencies and other stakeholders and policies developed								
1.2.1 Set up an inter-agency national and local working groups to review existing laws and policies and recommend policies and an institutional structure for the management of peatlands								
1.2.2 Conduct legislative forum on ASEAN Agreement on Transboundary Haze Pollution to facilitate Philippine's ratification								
1.2.3 Develop, adopt and implement the NAP for Peatlands								
1.2.4 Develop and support networks of concerned stakeholders for information exchange and sharing of experiences								
OUTPUT 1.3: Awareness of peatlands raised at national, local and community levels through an information and education campaign								
1.3.1 Enhance existing communication plan for peatlands								
1.3.2 Conduct lectures and presentations for government agencies, Local Government Units and members of civil society								
1.3.3 Develop locally-appropriate materials (Comics and posters) in local languages and make these available to communities in and around pilot sites.								

	YEAR 1				YEAR 2			
1.3.4 Hold community assemblies and dialogues to increase level of peatlands awareness in the communities								
1.3.5 Develop web page on peatlands/ peat portal (with Regional Component support)								
OUTPUT 1.4: Sustainable funding mechanism for peatland management identified and secured								
1.4.1 Identify donor agencies, requirements and explore options for funding, ,including the corporate social/environmental portfolio								
1.4.2 Source funds from donor agencies to carry on project activities beyond the project period								
1.4.3 Explore carbon funding under the Climate Change Portfolio (with Regional component support)								
COMPONENT SUB-OUTCOME 2: Creation of an enabling environment for the conservation and sustainable use of peatlands in the Philippines								
OUTPUT 2.1: Peatlands suitable for sustainable use and conservation activities identified								
2.1.1 Carry out immediate surveys of probable peatlands in the Philippines								
2.1.2 Map peatland areas, perform participatory land use assessments and socio-economic surveys in relation to community uses of peatlands in these areas								
2.1.3 Identify peatland areas suitable for conservation activities and identify priority activities for these areas								
OUTPUT 2.2: A local guide for planners and developers developed in peatlands and peatland buffer zones prepared								
2.2.1 Conduct meetings with the relevant stakeholders on issues of development in peatland areas								
2.2.2 Prepare guidelines for planners and developers of peatlands to suit the local scenario								
COMPONENT SUB-OUTCOME 3: Land use planning, zoning and rehabilitation measures carried out in suitable peatland sites								
OUTPUT 3.1: Land use planning activities including iterative consultations and zoning of land use at the project pilot sites developed and implemented								
3.1.1 Conduct consultations with stakeholders in pilot sites regarding zoning of activities								
3.1.2 Develop zoning and land use plans for the pilot sites								
OUTPUT 3.2: Hydrological regime restored and replanting carried out at the pilot sites by the community								
3.2.1 Conduct consultation meetings with the local community on rehabilitation measures								

	YEAR 1				YEAR 2			
3.2.2 Develop and implement a site level restoration plan for the hydrology and biodiversity of the pilot sites by the local community								
COMPONENT SUB-OUTCOME 4: Community-led demonstration projects formulated and implemented at the pilot sites								
Output 4.1: Demonstration projects in sustainable use of peatlands at the pilot sites managed by local people developed and implemented								
4.1.1 Organise and conduct workshops for possible demonstration projects at pilot sites on sustainable use of peatlands managed by local people								
4.1.2 Prepare a proposal on the options for demonstration projects at the two pilot sites and evaluate these options								
4.1.3 Develop the demonstration projects at the sites e.g. ecotourism and livelihood programs								
4.1.4 Organise the community (and inputs) for the demonstration projects								

APPENDIX D: Description of pilot sites

Two pilot sites have been chosen for the Philippines, one in the Leyte Sab-a Basin on Leyte island, and one, the Caimpugan peatland, in the Agusan Marsh in Mindanao (Figure 1). There have been virtually no studies of peatlands in the Philippines, in contrast to most other countries in the region. It is probable that there are other peatlands waiting to be described, most likely additional areas in the Agusan Marsh, and areas in the Ligawasan Marsh in the southwest portion of Mindanao. It is hoped that project activities at the two pilot sites will increase awareness of peatland and peatland issues in the Philippines and will act as a showcase for sustainable utilisation, livelihood options and biodiversity conservation in peatland.



Figure 2: Location of the two pilot sites

1. CAIMPUGAN PEATLAND, AGUSAN MARSH, AGUSAN del SUR, MINDANAO

1.1 Description

During a consultation workshop held at Bunawan, at the eastern side of the Agusan Marsh in early November 2005, some participants reported the existence of a “pygmy forest” west of Barangay Caimpugan in the northeast of the marsh. This area was the subject of much discussion and seems to be a place valued by the indigenous peoples for its spiritual importance. This area lies to the west of the Hibong River and east of the elongated Lake Casiwangan.

This area was visited on 5 November 2005, starting from the Hibong River to the east of the forest. The mineral soils to the west of the Hibong River have been mostly cleared for rice, with a few isolated patches of swamp forest characterised by *Terminalia copelandii*. Tall forest is reached c 1.2 km from the river and the substrate was confirmed to be peat. This tall peat swamp forest is characterised by a stilted rooted species, *Calophyllum cf. sclerophyllum*

with *Tristanopsis* species with bright orange bark. The forest was open enough to allow a relatively thick growth of *Pandanus* sp to c 3 m high and the climbing fern *Stenochlaena palustris*. The canopy height was c 25 –30m and the species richness appeared low.

The tall forest is c 1 km in width and there is a transition in which the character of the forest changes abruptly, with the trees being much lower and pole-like with the canopy height only up to c 7 m. The species composition seems broadly similar to the high forest, with a *Tristanopsis* species being dominant. After a further 50 m, the forest becomes even lower, with the tree height being only up to c 4 m. Again, the species seemed to be broadly similar to the high forest, with *Tristanopsis* very common, together with a *Syzygium* species and *Calophyllum* species. It is not known at present whether these are stunted forms of the same species found in the high forest, or different species.

The substrate was a red-brown peat at least 2 m deep, with little evidence of sand or clay.

This stunted forest gives every appearance of a nutrient deficient forest, reminiscent of heath forest on poor sandy soils in Borneo, and also of the open low forest on the tops of peat domes in Borneo. There are also other indicators of low nutrient status: *Nepenthes* cf *gracilis* is common in the stunted forest, but was not recorded in the outer high forest. Dodder *Cassytha filiformis* (Lauraceae), a parasitic climber, is also common, being typically found on nutrient deficient soils on Borneo.

The peat area here may be up to 1,000 ha in size and from satellite images, it seems that the stunted forest is surrounded by a ring of taller forest. It is possible that this is a peat dome which has developed between the Hibong and Agusan rivers, with the stunted forest being found on nutrient-deficient deeper peat. If this proves to be the case, this may be the first record of a peat dome in the Philippines and as such, the stunted forest represents a unique, rare and fragile ecosystem. The area lies wholly within the Agusan Marsh Wildlife Sanctuary (AMWS), which has been designated as a Ramsar site.

The Caimpugan peat is in the characteristic position in which these peat domes are formed; i.e. between two rivers. It has to be confirmed that this is a peat dome by measuring the peat depth away from the river, but a possible scenario for the development of the Caimpugan peat area is given below. Before clearance for rice culture, the area immediately adjacent may have been freshwater swamp forest (i.e. on mineral soil) dominated by *Terminalia copelandi* which gradually merged into peat swamp forest on shallow peat. These areas would have been subjected to flooding by the river and the input of water relatively high in nutrients. The forest would have been relatively high. Flooding by flowing water in the areas close to the river would have reduced the build-up of peat. In contrast, the areas away from the river would not be subject to regular flooding by the river and would only receive inputs of nutrients from rainfall, leading to a low level of nutrients in the areas of deeper peat and the stunted character of the forest.

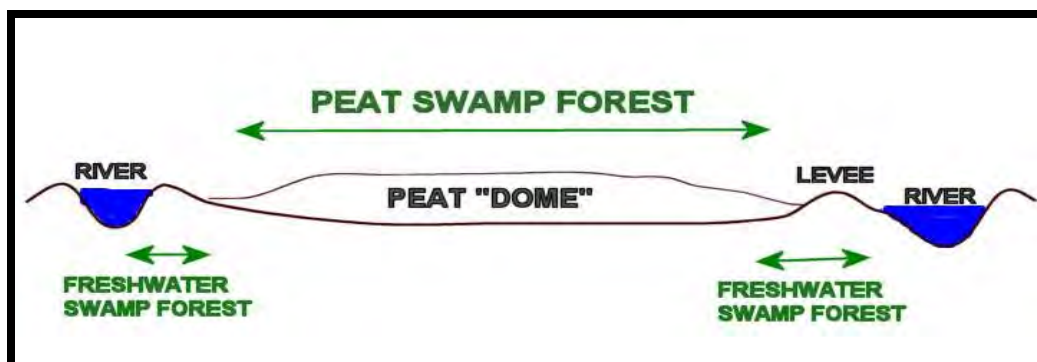


Figure 3: A peat dome developed between two rivers, a probable scenario for the development of the Caimpugan peat area.

1.2 Rationale for Choice as a Pilot Site

Although the Caimpugan peat area is not under severe threat at present, there are indications that clearance (which almost always involves the use of fire) is taking place close to the edge of the peat around Casiwangan Lake to the west. Evidence from more recent remote images indicates that the number of clearings has increased in the intervening 14 years. Clearance by fire during an El Nino event could lead to serious damage to the Caimpugan peat area. Thus, the potential threat to the peat area is high.

By Malaysian or Indonesian standards, the area of peat is not very large. However, if the area proves to be a peat dome, with deep peat on a central plain at the top of the dome, there may be a considerable amount of peat here; i.e. a large carbon store which is actively accumulating carbon.

The stunted peat swamp forest is probably a very rare ecosystem and so its biodiversity value is very high. The area is nationally significant and is probably globally significant - the composition of the plant community seems to be different from similar areas in Borneo and may be unique to the Philippines.

The peat area seems to have high spiritual value for the indigenous people (Manobo) in the area, although the number of settlers from outside the marsh is high. Increasing the general awareness of the spiritual values attached to the area and associated taboos may aid in its conservation. Moreover, it is important that these values and beliefs be documented.

The implementation of project activities at this pilot site should achieve two main aims: firstly, to develop sustainable land use practices around the intact peatland in partnership with local people; and secondly to protect an area which has a very high biodiversity value.

1.3 Proposed Objectives and Activities

Draft objectives and activities were developed from the consultation and site assessment visit in early November 2005. A second consultation of stakeholders was organised in January 2006, at which these draft objectives and activities were presented. These were refined and are given below. Thus, they represent two rounds of consultation with stakeholders in the area.

It must be stressed that, in contrast to many other ASEAN countries, the peatlands of the Philippines have hardly been studied. Therefore, the activities below include rapid inventory and assessments of other potential areas of peatland within the Agusan Marsh.

Objective 1: Determine extent and map distribution of peatlands within Agusan Marsh

Rationale: Aside from the Caimpugan peat area, there are probably other areas of peat in the Agusan Marsh, most likely in the Terminalia copelandii/ Metroxylon sagu forest in the northwest of the marsh. Some of these areas may be priorities for conservation considering their rarity in the Philippines and their fragility.

Activities

- Identity potential peatland areas from existing maps and remote images
- Conduct targeted rapid assessments of potential peatland areas
- Set up a GIS to display the distribution of peatlands in the marsh, their status and vegetation assemblages; and to monitor changes in area and status

Objective 2: Raise awareness of peatland and its values; and strengthen capacity of different stakeholders to protect and sustainably manage peatland in the Agusan Marsh

Rationale: *Awareness of peatlands and their characteristics is at a very low level. Many people do not know what peat is. Whilst the indigenous peoples within the marsh are familiar with peat, the area is subject to substantial migration from other parts of the Philippines. These migrants, who are used to working on mineral soils, have no experience of appropriate management practices in areas with peat soils, which leads to clearance and then abandonment after a few years due to poor yields.*

Activities

- Conduct short training courses for national and field personnel from NGOs and government agencies on the following topics: properties of peat, values of peatlands, threats and management issues
- Develop a guide for planners and developers for peatlands
- For migrants in peatlands, conduct community assemblies on properties of peat, agricultural management and sustainable use

Objective 3: Prevent degradation of peatlands in the Agusan Marsh

Rationale: *The intact, undisturbed peatland of Caimpugan contains unique vegetation assemblages which have a very high biodiversity value. There may be substantial areas of peatland which have been cleared for agriculture and it is vitally important that appropriate land use practices are implemented to prevent further degradation.*

Activities

- Work with indigenous peoples to document indigenous knowledge and management systems with regard to peatlands in the marsh
- Work with partners to identify developments eg. irrigation and flood control measures which might adversely affect peatlands in the marsh and work with developers to avoid or minimise adverse impacts
- Work with local government agencies and the Agusan Marsh Wildlife Sanctuary (AMWS) Protected Area Management Board (PAMB) to ensure that the undisturbed areas of the Caimpugan peatland, and any other undisturbed areas identified in the future, are maintained / designated and included as part of the AMWS

Objective 4: Ensure sustainable use of peatlands and other land around the periphery of the Caimpugan peat area

Rationale: *Inappropriate land use practices in and around peatlands in the marsh may threaten their integrity. Moreover, since there is so little awareness of sustainable use of peatlands in the Philippines, it is important that projects demonstrating sustainable land use strategies drawn from experiences in other ASEAN countries are implemented.*

Activities

- Work with local people around the periphery of peatlands in the marsh to ensure sustainable land use by implementing demonstration projects of appropriate land uses in peatlands
- Develop alternative livelihoods

1.4 Stakeholder Involvement Plan For The Caimpugan Peatland Pilot Site

General strategy for stakeholders:

Memorandum of Agreement (MoA)

Main project partners:

PAMB, Department of Environment and Natural Resources (DENR), PG-Agusan Del Sur Local Government Units (LGUs) San Francisco, Bunawan and Talacogon; Concerned NGOs

1.5 General Activities

In addition to the proposal of the Caimpugan peat areas as a suitable pilot site for the project, several other useful activities for the Agusan Marsh peatland were highlighted during the consultation and assessment trips. Some of these activities may be appropriate for this project; others would have to be implemented through other means. These proposed activities are:

1. A review of the boundaries and zoning of the protected area should be undertaken. All peatlands within the floodplain on the Agusan River should be within the Agusan Marsh Wildlife Sanctuary (AMWS). Peat still holding forest should be zoned for strict protection, with a buffer zone for controlled use surrounding the peat swamp forest.
2. The beliefs held by the Manobo associated with the Caimpugan peat areas should be documented as a contribution to safeguarding their cultural heritage.

2. LEYTE SAB-A BASIN PEATLAND

2.1 DESCRIPTION

The Leyte Sab-a Basin covers c. 90,000 hectares covering the northeastern plains of Leyte from the region of Tolosa northwest to Carigara Bay. It is the largest water catchment area in Leyte fed by numerous springs, small rivers and aquifers at the edge of the basin and through local rainfall.

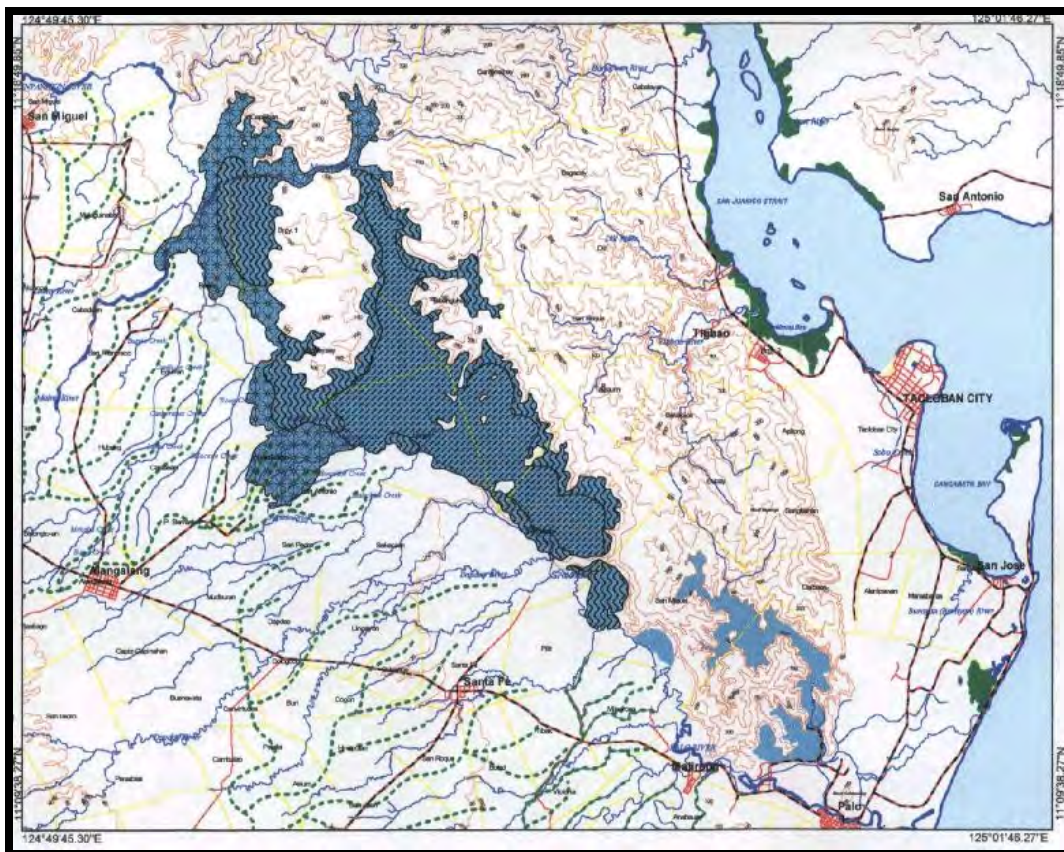


Figure 4: Map of the Leyte Sab-a Basin

In 1999, a detailed study of the swamp area of Sab-a basin was undertaken by the Orient Integrated Development Consultants Incorporated (OIDCI), in cooperation with the Environment Natural Resources Consultants Incorporated (ENRCI) as part of the ADB-funded Second Irrigation Systems Improvement Project in Leyte (OIDCI 1999). This technical assistance project studied the optimal land-use of the swamps and marshlands particularly regarding the impact of proposed land use on natural habitats, wildlife and public health.

OIDCI studied the Kapirawan, Daguitan and the Sab-a swamps located in the Sab-a basin. The first two have largely been converted to agriculture. The Sab-a swamp is the largest of the three and covers about 3,088 hectares. Three soil mapping units were identified in Sab-a swamp namely: the Palo Clay loam, a mixture of Dolongan peat and mineral soils, and the Dolongan peat soils largely found on the eastern half of the swamplands (Figure 4). The peat thickness ranges from 3 m to more than 5 m in depth. The ground water table is nearly always near the surface. The poor physical condition and nutrient deficiencies of this soil make it unsuitable for crop production.

Non- irrigated agriculture is the dominant land use in the western half while the eastern part of the swamp particularly the mid section is dominated by wetland forest. The lower part of the eastern half is mostly boggy areas dominated by sedges and low grasses. A total of 63 faunal species were recorded with 27 categorized as endemic.

Conversion of the northwest quadrant and the southern tip of the basin was recommended for agricultural use (1,349 ha) and total protection for the eastern quadrant for biodiversity conservation: 1,739 ha consisting of the wetland forest, bog areas and sedge/ grassland on the eastern half side of Sab-a. The plan included the adoption of a protected area management concept provided for in the NIPAS Act. Within this framework, a multiple system anchored on community-based resource management approaches will be employed through zonation and participatory management. The core plan include provisions for zoning and land use management, IEC, watershed management, ecotourism and livelihood management, monitoring, implementation mechanisms and institutional development. (OIDCI 1999).

A. Eastern side

In the eastern side, the remaining wetland forest described in the OIDCI's 1999 report has apparently decreased and has been subjected to further conversion. Actual transects of the forested area were not undertaken because of the uncertainty of water depth. Panoramic shots were instead taken along the Municipal Road crisscrossing the eastern side Barangays Divisoria and Tabangohay in the Municipality of Alang-alang and Barangay San Isidro in the Municipality of Sta Fe.

Instead of a big contiguous wetland forest, only patches or belts of forest remain. Even from a distance, it is apparent that the remaining forests are dominated by *Terminalia copelandii*. Giant pandan species were also observed in disturbed forests.

The swampy portion of San Isidro and Barangay Divisoria in Alang-Alang was the former site of BANCOM, a big agricultural corporation which started operating in the area in 1978 aiming to transform an area of Sab-a into a prime commercial agricultural production area. Accordingly, BANCOM brought in scientist from IRRI, PhilRICE and the Academe. The area was drained and planted to a variety of crops such as sorghum, maize, rice and others but all its efforts failed and altogether abandoned their plans for the area.

According to one of the farmer participants, he regularly witnesses the area being razed by fire, the longest he can remember was when there was a prolonged drought in the 1980's when the fire went on for about a month.

In Barangays Divisoria and Tabangohay, some of the farmer beneficiaries under the Agrarian Reform Program continue to cut and convert the remaining forest into agricultural farms. This is going on despite the fact that some of them abandon their areas because of very low productivity.

B. Western side

Most of the western side have been converted to non-irrigated farmlands. Some of the farmers construct drainage to avoid planting in chest deep mud. Sporadic areas under peat as evidenced by creeks with tea colored water flowing in them seem to have been abandoned and are now covered with grasses and sedges especially along the road traversing Barangay Magsaysay. It was observed that some farmers practice leaving behind

patches from 50-100 sq. meters of *Metroxylon sagu* or lumbia or patches of *Terminalia copelandii*.

In Barangay Veterano, it was noticed that some farmers dry tikog, *Frimbistylis sp.* in their backyard. Tikogs are important materials for mat and other handicraft making and can be a viable alternative or support livelihood to rice farming. Also in the low lying hills of this Barangay, there is a 41 hectare Industrial Tree Plantations planted to Bagras, *Eucalyptus deglupta*, *Acacia mangium* and other exotic tree species. The area is classified as timberland.

In Brgy. Langit, a big portion of grasslands seems to dominate the surrounding with noticeable presence of a tree species from the family Moraceae. It was not verified whether, they are in fallow or have been abandoned due to low productivity. Tea colored water in creeks is also present in the area indicating the presence of peat on site.

From the local stakeholders consultation, held on 7 December 2005, the following issues were highlighted:

- The communities themselves acknowledged that there is still continuous cutting of remaining wetland forest either to supply the communities' basic wood requirements or to pave the way for draining and eventual conversion to agriculture. The group also noted that many farmers had to abandon converted areas due to low productivity. Those that were able to sustain production observed decreasing harvests through time while some are getting harvests that are not optimal. For example, expected optimal harvest in a given hectare is about 150-200 cavans but farmers say they are only getting as low as 50 cavans.
- Improved water management to sustain agricultural production in converted areas was identified as an important need by the local community. This could build on the existing innovations in water management systems developed by the local farmers. Construction of small fishponds was also cited as a viable livelihood activity.
- Given a wide array of floral and faunal resources, uniqueness of wetland/ peatland ecosystem and accessibility (the area is only 30-45 minutes drive from Tacloban City), the stakeholders identified development of the site for ecotourism and educational tour destination as a viable program for the site. At present, the DA-ATI Training Center, a 30-hectare facility located in the Sab-a complex, has a proposal to showcase agricultural and rural development with the use of applied technologies through demonstration and instructional farm area development and for other related purposes. This is a green tourism program which will highlight diversified agri-fishery project, diversified agri-fishery, protected area/ habitats and wildlife sanctuary. Strategies include employment of multi-sectoral and interagency participation in agri-fishery ecotourism planning, empowerment of local and host communities through community participation.
- It was apparent that the participants have zero knowledge on peatlands including their values and benefits. Every participant recognized the need for public awareness campaigns for peatlands to be done during barangay or village assemblies in all concerned barangays. The objective is to enlighten the farmers about the negative implications with the continuous conversion of areas, particularly areas where Dolongan peat dominates.
- They agreed to recommend the conservation of the remaining wetland forests for protection through passage and strict implementation of resolutions at the barangay, municipal, and provincial levels. At the national level this can be done through the inclusion of the area as part of the protected area under NIPAS as originally proposed by OIDCI or AS CRITICAL HABITAT through the Republic Act 9147, otherwise known as the Wildlife Resources Act of 2001.
- Since the area is characterized by mix land classification i.e., timberland and

alienable and disposable lands, there might be a need to explore management arrangements through Memorandum of Agreements or Memorandum of understanding with legitimate landholders. This necessarily requires tenure survey of affected areas through the Department of Agrarian Reform, the main agency issuing Certificate of Land Ownership Agreements (CLOAs) to qualified farmer beneficiaries.

- The participants recommended that Sab-a Swamp be included as part of the pilot sites for the Philippines under the multi-country PDF-B project. It can highlight the lessons learned in the decade long massive conversion of swamp, peatlands included, into agricultural areas. It can also help the local communities adopt improved agricultural technologies, including water management. At the same time, it can also highlight community effort to save the remaining wetland forest from further conversion.

2.2 Rationale for Choice as a Pilot Site

There is little knowledge of how to utilise peatlands sustainably for agriculture in the Sab-a Basin. From the consultation workshop held with local stakeholders, there is a good degree of enthusiasm to be part of the project and to implement pilot projects concerned with livelihood options.

This site presents a good opportunity to implement pilot projects on the use of suitable peatlands for agriculture using wetland crops, to try out rehabilitation strategies with local communities for cleared peatland, and for the development of ecotourism activities. The ecotourism activities would focus on the remnant areas of wetland forest in the basin. The presence of an agricultural training institute on-site is likely to facilitate the development of these activities.

2.3 Proposed Objectives and Activities for Peatlands in the Leyte Sab-a Basin

Objective 1: Raise awareness of local stakeholders on peatland and its values

Rationale: *Awareness of peatlands and their values is practically non-existent.*

Activities

- Conduct short training courses for national and field personnel from NGOs and government agencies on the following topics: properties of peat, values of peatlands, threats and management issues
- Hold community assemblies and dialogues to increase the level of awareness of the communities of peatlands
- Develop peatland IEC materials in the local language

Objective 2: Strengthen capacity of different stakeholders to protect and sustainably manage peatlands in the Leyte Sab-a Basin

Rationale: *Certificate of Land Ownership Agreement (CLOA) holders and other migrants are used to working on mineral soils and have no experience of appropriate management practices in areas with peat soils.*

Activities

- Develop modules and conduct local workshops on properties of peat, agricultural management and sustainable use
- Work with local people in the area to ensure sustainable land use by implementing demonstration projects on appropriate land use in peatlands
- Develop a guide for planners and developers on peatlands and adjoining ecosystems

Objective 3: Prevent degradation of peatlands in the Leyte Sab-a Basin

Rationale: *The remaining lanipao (Terminalia copelandii) in Leyte Sab-a have a significant ecological role as well as in the conservation of biodiversity. For areas that have been converted to agriculture, there is a need to identify and implement appropriate land use practices to prevent further degradation of the peatlands.*

Activities

- Document current approaches in managing agriculture in converted peatlands and identify areas for improvement
- Provide protection status to the eastern portion of the peatlands at the barangay, municipal, provincial and national levels
- Identify and implement alternative livelihood strategies to ease or deflect pressure away from peatlands
- Stop further conversion of timberland into (Alienable and Disposable (A&D) lands

Objective 4: Develop Leyte Sab-a Peatlands as a prime ecotourism destination

Rationale: *The area has high potential for nature-based tourism given its remaining tracts of lanipao forest, aesthetic values, diverse flora and fauna, facilities such as the Agricultural Training Institute (ATI) Training Center; and its proximity to Tacloban City. DA-ATI has a draft proposal for ecotourism in the area.*

Activities

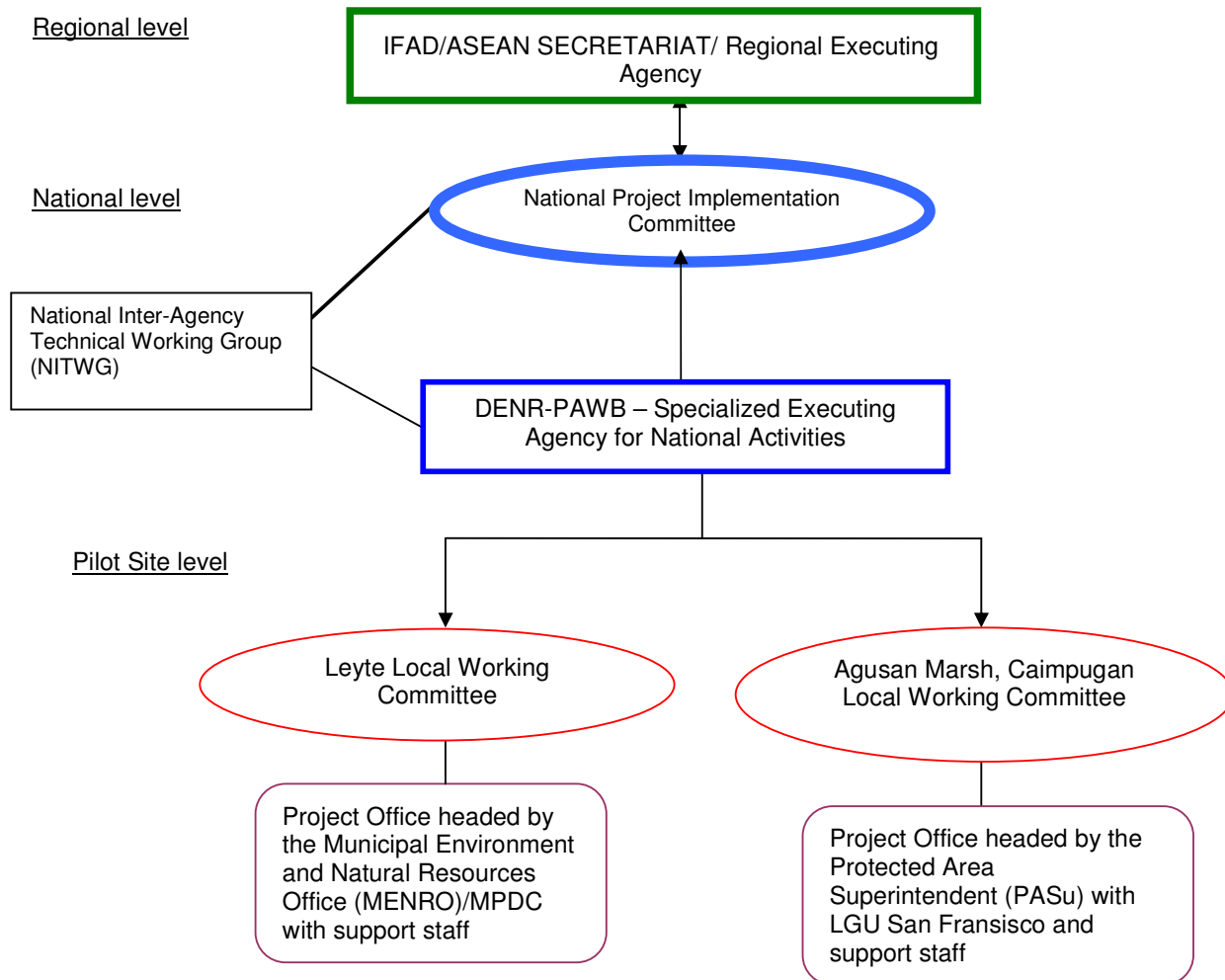
- Conduct comprehensive multi-stakeholder site assessment to identify and develop ecotourism products for the area
- Implement training on tour guiding and nature interpretation in concerned local communities

2.5 Stakeholder Involvement Plan

General strategy for stakeholders:	Memorandum of Agreement (MoA)
Main project partners:	GU Alang Alang, Sta Fe, Palo, San Miguel and Tacloban City, Provincial Government, Leyte, DENR, Department of Agriculture-Agricultural Training Institute (DA-ATI), Department of Agrarian Reform (DAR), concerned NGOs

Main project executing institutions and organisations?

APPENDIX E: Proposed Management Framework for the Philippine Component



A. National Project Implementation Committee:

Chair : APMI National Focal Point

Members : Director, Foreign Assisted and Special Project Office (FASPO)
 Director, Protected Areas and Wildlife Bureau (PAWB)
 Director, Forest Management Bureau (FMB)
 Director, Ecosystems Research and Development Bureau (ERDB)
 Director, Bureau of Soils and Water Management (BSWM-DA)
 Director, Bureau of Fire Protection

Secretariat : Country Coordinator

Functions: Adopt GEC recommended roles and responsibilities

Role:

- Report to the ASEAN Secretariat regarding project progress.

- Overall country authority for oversight, management and implementation.
- Approve Country Annual Work Plan and Budgets.
- Review progress of implementation by country and pilot site levels.
- Submit technical and financial reports to the ASEAN Secretariat.
- Resolve management issues.

Meetings: Bi-Annually (once a year) - either independently or back-to-back just before with the annual ASEAN Committee under COP to AATHP.

B. National Coordinator: Protected Areas and Wildlife Bureau (to designate National/County Coordinator)

Functions: Adopt RPEA recommended roles and responsibilities

Functions:

- The official channel of communication with ASEAN and RPEA for the Project.
- Responsible for day-to-day management of the Country Component.
- Coordinate the implementation of the Country Component.
- Supervise and develop the National Work Plan and Budget for the Country Component.
- Responsible to appoint a Country Expert for support in the technical aspects of the Country Component.
- Supervise and prepare technical and financial reports for the Country Component, with support from the NPEA and Finance Manager.
- Review quarterly progress and financial reports on the Country Component.
- Assist in organizing monitoring and evaluation missions for the Country Component.
- Assist in securing additional financial resources for project implementation from national sources.
- Organise meetings with relevant stakeholders at national level.

C. National Inter-Agency Working Group on Peatlands:

Co-Chairs: DENR - PAWB and DA-BSWM

Members: FMB, FASPO, ERDB, Environmental Management Bureau (EMB), DILG-Bureau of Fire Protection (BFP), DILG –Bureau of Local Government, National Economic Development Authority (NEDA) Agriculture Staff, National Irrigation and Administration, National Water Resources Board, National Museum of the Philippines, Department of Science and Technology, Department of Agrarian Reform, Bureau of Fisheries and Aquatic Resources, National Commission on Indigenous Peoples, Philippine National Police + concerned members of NGOs and Academe.

Recommended roles and functions:

- Reviews and recommends policies, legislative, administrative and institutional measures and issuances relative to sustainable peatland management.
- Recommends appropriate and sustainable use strategies to effectively implement the National Action Plan on Philippine Peatlands and the IFAD/GEF Project.

D. Pilot Site Level Working Committee

LEYTE:

Co chair: LGU Alang-alang and DENR 8

Members : DA-ATI, DAR Region 8, BSWM R8, LGU Sta Fe, LGU Tacloban City, PPDO Leyte, Barangays, Tabangohay, Divisoria, Langit, San Isidro and New Era, and representative from Academe and site-based NGOs and peoples organizations

Secretariat: MENRO/MPDC, Alang-Alang

AGUSAN :

Co-Chair: DENR 13 and LGU San Francisco

Members : PPDO, LGU Talacogon, LGU Rosario, LGU Bunawan, Barangay Caimpugan, DA Region 13, NCIP R13, Other concerned barangays, + representatives from Academe and site-based NGOs and peoples organizations.

Secretariat : Protected Area Superintendent (PASu) , Agusan Marsh

Functions:

- Oversees pilot level management
- Coordinates and implements local level activities and output.
- Reports to the NSC in line with GEF requirements
- Organizes meetings with relevant stakeholders at local level pilot site
- Prepares Annual Budget
- Facilitates Evaluation Mission at the local level
- Links with relevant partners and supporters.

E. Pilot Site Project Office or local lead agency:

LEYTE: Municipal Environment and Natural Resources Office, in close coordination with DENR Region 8 and DA-ATI

AGUSAN: Protected Area Superintendent Office, in close coordination with LGU San Francisco

F: Village level working committees (option)

APPENDIX F: MONITORING AND EVALUATION

OVERALL PROJECT OUTCOME/COMPONENT SUB- OUTCOME/ OUTPUT/ACTIVITY	Period for Completion Of Activity (months)	Indicators of Success	Means of Verification
OVERALL PROJECT OUTCOME 1: Capacity for sustainable peatland management in Southeast Asia strengthened			
COMPONENT SUB-OUTCOME 1: Capacity in relevant agencies/ institutions and other concerned stakeholders on peatland management strengthened in the Philippines			
OUTPUT 1.1 A core group of peatland managers/ experts established at national, local and community levels			
1.1.1 Conduct a training needs analysis and develop suitable training modules, , including alternative learning systems for community based activities	0-6	2 TNA FGDs/workshops/meetings convened TNA completed Training modules developed	TNA workshop reports/ records Completed and approved TNA report Completed and approved training modules available and ready for implementation
1.1.2 Source expertise to train and develop a core group of peatland managers/experts at the national and local level and implement training courses.	6-12	Expertise procured for training of core group 15 experts and a core group established	Expert contracted for training core group Records/reports of training courses
1.1.3 Support transfer of technology for peatland management, including practical training, from other	3-12	Cross visits/exchange programs undertaken for 15 people	Post visit reports from participants

OVERALL PROJECT OUTCOME/COMPONENT SUB- OUTCOME/ OUTPUT/ACTIVITY	Period for Completion Of Activity (months)	Indicators of Success	Means of Verification
ASEAN countries; e.g. cross visits, exchange programs.			
1.1.4 Conduct on-the-job training/ workshops/ seminars for communities around the pilot sites on participatory assessments to improve local knowledge of sustainable use of peatlands.	9-15	2 5 day on- the – job training on participatory field assessments undertaken for 15 people at 2 pilot sites Relevant information gathered from participatory assessments on the 2 pilot sites	Record of training/workshop Assessment survey reports
OUTPUT 1.2 Peatland management enhanced by better coordination between concerned agencies and other stakeholders and policies developed			
1.2.1 Set up an inter-agency national and local working groups to review existing laws and policies and recommend policies and an institutional structure for the management of peatlands	0-24	One set up at national level with 4 annual meetings & 22 participants One TWG for each site, 4 consultations each year, for 20 people from different agencies Policies and programs reviewed and developed Networks operationalized	Records of ITWG meetings Institutional structure/framework in place
1.2.2 Conduct legislative forum on	13-24	Philippines ratifies AATHP	Ratification Document

OVERALL PROJECT OUTCOME/COMPONENT SUB- OUTCOME/ OUTPUT/ACTIVITY	Period for Completion Of Activity (months)	Indicators of Success	Means of Verification
ASEAN Agreement on Transboundary Haze Pollution to facilitate Philippine's ratification			
1.2.3 Develop, adopt and implement the NAP for Peatlands	0-24	NAP ADOPTED THROUGH PCSD RESOLUTION	IMPLEMENTATION OF NAP ACTIVITIES
1.2.4 Develop and support networks of concerned stakeholders for information exchange and sharing of experience	13-24	4 consultations each year completed for 20 people from different agencies/communities at 2 pilot sites	Records of meetings Establishment of networks and working groups
OUTPUT 1.3 Awareness of peatlands raised at national, local, and community levels through an information and education campaign			
1.3.1 Enhance existing communication plan for peatlands	0-6		
1.3.2 Conduct lectures and presentations for government agencies, Local Government Units and members of civil society	9-12	120 stakeholders participate in lectures and presentations	Progress/ evaluation reports Attendance records
1.3.3 Develop locally-appropriate materials (comics and posters) in local languages and make these available to communities in and around pilot sites.	7-12	1,000 copies of comics in 3 languages available and distributed at pilot sites 500 posters in 2 languages available and distributed at pilot sites 1 video documentary on Philippine Peatlands	

OVERALL PROJECT OUTCOME/COMPONENT SUB-OUTCOME/ OUTPUT/ACTIVITY	Period for Completion Of Activity (months)	Indicators of Success	Means of Verification
1.3.4 Hold community assemblies and dialogues to increase level of awareness of peatlands in the communities	0-24	4 assemblies completed, with c. 40 people per assembly Local communities in and surrounding peatland areas with a fuller understanding of peatlands and issues affecting them	Project Annual Report Attendance figures Awareness level surveys (pre- and post-evaluation surveys)
1.3.5 Develop web page on peatlands/peat portal (with Regional Component support)	13-18	Information shared and disseminated via internet	Web page up and running with regular updates
OUTPUT 1.4: Sustainable funding mechanism for peatland management identified and secured			
1.4.1 Identify donor agencies, requirements and explore options for funding, including the corporate social/environmental portfolio	13-24	Meetings convened with donor agencies	Project Terminal Review
1.4.2 Source funds from donor agencies to carry on project activities beyond the project period	13-24	Funding available to continue activities at project end	Project Terminal Review
1.4.3 Explore carbon funding under the Climate Change Portfolio (with Regional component support)	13-24	Funding available to continue activities at project end	Project Terminal Review
OVERALL PROJECT OUTCOME 2: Reduced rate of degradation of peatlands in South East Asia			
Sub-outcome 2: Creation of an enabling environment for the conservation and sustainable use of peatlands in the Philippines			

OVERALL PROJECT OUTCOME/COMPONENT SUB- OUTCOME/ OUTPUT/ACTIVITY	Period for Completion Of Activity (months)	Indicators of Success	Means of Verification
OUTPUT 2.1: Peatlands suitable for sustainable use and conservation activities identified			
2.1.1 Carry out immediate surveys of probable peatlands in the Philippines	0-12	30 days of surveys completed in peatland areas and land use assessments completed per site	Survey reports Inventory publication
2.1.2 Map peatland areas, perform participatory land use assessments and socio-economic surveys in relation to community uses of peatlands in these areas	3-12	5-day surveys completed per site	Land-use assessment reports Socio-economic survey reports
2.1.3 Identify peatland areas suitable for conservation activities and identify priority activities for these areas	13-19	Priority peatlands for conservation identified with priority activities for each site	Final survey report with recommendations
OUTPUT 2.2: A local guide for planners and developers in peatlands and peatland buffer zones prepared			
2.2.1 Conduct meetings with the relevant stakeholders on issues of development in peatland areas	13-24	Small group meetings held with developers/planners to highlight issues	Records of meetings
2.2.2 Prepare guidelines for planners and developers of peatlands to suit the local scenario	13-19	Regional guide adapted to Philippine situation and translated	Developers guide for Philippine peatlands distributed to relevant agencies
OVERALL PROJECT OUTCOME 3: : Integrated management and rehabilitation demonstrated and implemented at targeted			

OVERALL PROJECT OUTCOME/COMPONENT SUB- OUTCOME/ OUTPUT/ACTIVITY	Period for Completion Of Activity (months)	Indicators of Success	Means of Verification
peatlands			
COMPONENT SUB-OUTCOME 3: Land use planning, zoning and rehabilitation measures carried out in suitable peatland sites			
OUTPUT 3.1: Land use planning activities including iterative consultations and zoning of land use at the project pilot sites developed and implemented			
3.1.1 Conduct consultations with stakeholders in pilot sites regarding zoning of activities	13-19	4 1-day consultations convened at 2 pilot sites involving 25 participants covering 10-12 barangays	Records of consultations Attendance records
3.1.2 Develop zoning and land use plans for the pilot sites	13-19	Zoning plans (with maps) developed and approved by all stakeholders through consultations	Zoning plans with maps
OUTPUT 3.2: Hydrological regime restored and replanting carried out at the pilot sites by the community			
3.2.1 Conduct consultation meetings with the local community on rehabilitation measures	13-19	1-day meetings convened at 2 pilot sites involving 30 participants for developing an action plan for rehabilitation	Records of meetings
3.2.2 Develop and implement a site level restoration plan for the hydrology and biodiversity of the pilot sites by the local community	13-24	3 ha sites under rehabilitation at each of the pilot sites	Action plan for rehabilitation measures Progress reports Photodocumentation of rehabilitation activities Monitoring of growth of planted tress

OVERALL PROJECT OUTCOME/COMPONENT SUB-OUTCOME/ OUTPUT/ACTIVITY	Period for Completion Of Activity (months)	Indicators of Success	Means of Verification
OVERALL PROJECT OUTCOME 4: Local communities and the private sector actively contributing to sustainable peatland management			
COMPONENT SUB-OUTCOME 4: Community-led demonstration projects formulated and implemented at the pilot sites			
Output 4.1: Demonstration projects in sustainable use of peatlands at the pilot sites managed by local people developed and implemented			
4.1.1 Organise and conduct workshops for possible demonstration projects at pilot sites on sustainable use of peatlands managed by local people	13-19	2-day workshops for formulation of demonstration projects convened at 2 pilot sites, with 25 people per meeting from 3-4 barangays in the pilot sites	Records of workshops Attendance records
4.1.2 Prepare a proposal on the options for demonstration projects at the two pilot sites and evaluate these options	13-19	Proposal prepared	Report on options for demonstration projects and recommendations as to best options
4.1.3 Develop the demonstration projects at the sites e.g. ecotourism and livelihood programs	19-24	Materials for ecotourism development and livelihood programs procured for 2 pilot sites	Records of purchase and distribution
4.1.4 Organise the community (and inputs) for the demonstration projects	13-24	2 community organisers in place for 30 days in selected barangays Equipment and inputs bought and	Reports from community organisers Records of purchases and their distribution

OVERALL PROJECT OUTCOME/COMPONENT SUB- OUTCOME/ OUTPUT/ACTIVITY	Period for Completion Of Activity (months)	Indicators of Success	Means of Verification
		available to local people	

APPENDIX G: RECORD OF CONSULTATIONS UNDERTAKEN FOR THE PHILIPPINE PROPOSAL DEVELOPMENT

- November 4, 2005 – Stakeholder's Consultation Workshop in Bunawan Agusan del Sur
- December 6, 2006 - Stakeholder's Consultation Meeting at the DA-Agricultural Training Center in Leyte Sab-a, Municipality of Alang-alang Leyte
- January 19, 2006 – 2ND Stakeholders Consultation in Diwata Lodge, San Fransisco Agusan del Sur
- February 2-3, 2006 - National Action Planning Workshop on Sustainable Use of Philippine Peatlands
- February 20, 2006 – Leyte Group Meeting
- March 8, 2006 - PAWB Technical Review Committee (TRC) meeting
- March 20, 2006 - Leyte Group Meeting
- March 28, 2006 - Meeting with LGU and DENR 13 in San Fransisco, ADS
- March 31, 2006 - Inter-agency Writeshop for the final proposal
- 27 January 2008 - Local stakeholder validation workshop to update NAP
- 28 January 2008 - National and local stakeholder workshop to validate NAP
- 21 February 2008 - Small group meeting with selected members of the ad-hoc NITWG for the output of the validation workshop and project review/amendment of the proposed IFAD/GEF proposal re: agreements during the 4th PPPWG held in Malaysia.

Individual Consultations

- November 3, 2005 - Members of the ADB-TA Consultants on Master Planning for Agusan River Basin
- December 20, 2005 - Dr. Jose Rondal, Division Chief, Soil Conservation and Management Division, Bureau of Soil and Water Management
- December 22, 2005 - Members of the National Wetlands Committee for the UNEP/GEF-South China Sea Project.
- March 10, 2006 - Mr. Christopher Morris, ADB Water Resources Specialist
- March 28, 2006 - CTI and Woodfields Consultant, ADB-TA on Agusan River Basin
- April 4, 2006 - Mr. Jojo Fajardo, Agusan Coordinator, Philippine Australia Community Assistance Program (PACAP)
- February 25, 2008 - Meeting with Mayor Loreto Yu of LGU Alang-Alang, RTD Felipe Calub and Ms. Corazon Makabenta of DENR Region 8, Mr. Jaime Ubanos and RTD Mario Eludo of DENR-Caraga re: commitment for co-funding (side meeting during the Protected Areas Wildlife and Coastal Zone Management Sectoral Conference in Tacloban City, Leyte, Feb. 24-28, 2008)

November 19, 2009 – Country Inception Meeting.

APPENDIX H: NATIONAL ACTION PLAN (Feb. 2008 version)

Please note that we have provided the printed copy of NAP. The NAP is due for adoption by the Philippine Council for Sustainable Development. It will form part of the updated National Wetlands Action Plan

**PROJECT ON REHABILITATION AND SUSTAINABLE USE
OF PEATLAND FOREST IN SOUTH EAST ASIA**

VIETNAM

**PROJECT ON REHABILITATION AND SUSTAINABLE USE
OF PEATLAND FOREST IN SOUTH EAST ASIA**

VIETNAM

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ACRONYMS

MARD	Ministry of Agriculture and Rural Development
MLWISW	Ministry of Labour, War Invalids and Social Welfare
MONRE	Ministry of Natural Resources and Environment
MOIP	Ministry of Investment and Planning
MOET	Ministry of Education and Training
VEA	Vietnam Environment Administration Agency
VFPA	Vietnam Forest Protection Agency
FIPI	Forest Investment and Planning Institute
PPC	Provincial People Committee
DPC	District People Committee
PC	People Committee
UMTNP	U Minh Thuong National Park
UMHNP	U Minh Ha National Park
NP	National Park
RHIER	Royal Holloway Institute of Environment Research

In Vietnam, forest lands cover about 12.3 million ha, of which about 10 million ha are natural forests and about 2.2 million ha are other forest types. In the Mekong Delta, peat lands dominate and peat swamp *Melaleuca* forests occur over about 12,000 ha. Vietnam has a comparatively small area of peatlands compared to its regional neighbours. They are found in many parts of Vietnam, but occur mainly in the Lower Mekong Delta (in the U Minh area being located in Ca Mau and Kien Giang provinces) and are estimated to cover about 24,000ha. A large area of peatlands here has been designated as protected areas as the U Minh Thuong and U Minh Ha National Parks.

Table 1: Recorded Peatlands in Vietnam

Locations		Reserves	
Provinces	Districts	Area (ha)	Million tons
Lang Son	Binh Gia, Na No	7	0,3
Bac Ninh	Yen Phong	5	0.06 – 0.2
Ha Nam	Ba Sao, Kim Bang, Tam Chuc	31	7.3
Ninh Binh	Gia Son, Son Ha	13	2.0
Quang Tri	Gio Linh	6	0,15
TT – Hue	Phong Dien	31	1.5 – 2.0
Binh Dinh	My Thang	9	-
Dak Lak	Cu M'Gar	7	-
Lam Dong	Bao Loc, Di Linh	12	-
Dong Nai	Long Thanh	30	0.4
Tay Ninh	Trang Bang	25	0.4
Long An	Duc Hue, T.Hoa, T. Thanh	72	-
Tien Giang	Tan Phuoc	21	-
Ben Tre	Binh Dai	17	-
An Giang	Tri Ton	62	16.4
Kien Giang	An Minh	2,900	-
Ca Mau	T. V. Thoi,	7,531	14.0

(-) recorded, but no inventory

Peat swamp forests play a critical role in the economy and ecology of the Mekong Delta, particularly in providing timber and non-timber forest products and helping in flood control. However, the area has been affected by a number of land use impacts. In Vietnam, peatland areas have declined through human activities, particularly by drainage for agriculture and forestry among others. A measurable area of peatlands in the Lower Mekong Delta and central areas of Vietnam have been exploited for uses such as for fuel and as fertilizer. These activities have resulted in many problems not only in the peatlands but in surrounding areas.

1.1.2. Threats to Peatlands and Root Causes of Peatland Degradation

The main threats to peatlands and their impacts and root causes in Vietnam have been identified in Appendix I. Although significant progress has been made in peatland fire control in Vietnam, fires still persists and remain a threat. One such example is the very destructive fire at the U Minh Thuong National Park in the years 2000 and 2002. There is increasing recognition that peatland drainage is one of the main root causes of these forest fires, and that to prevent fires it is important to address the root causes such as the inappropriate development strategies, subsidies and incentive measures which encourage peatland drainage and degradation and inappropriate water management systems.

The conversion of peatlands into other land use types, namely for logging and agriculture in the interest of economic gain, is mainly due to a lack of knowledge about peatlands and their ecological values. There has been limited research in the past about peatlands in Vietnam and management decisions have been based on this lack of information. Capacity for peatland management is also limited – there is no comprehensive strategy for the management of peatlands; no integrated strategy for the management of fire and water in peatlands; insufficient tools and equipment for fire control and combating and a lack of trained staff in peatland management.

Policies and institutional arrangements for the management of peatlands are still weak and inappropriate. The existing system governing land-use on peatlands (agriculture and peat extraction) does not provide for incentives and mechanisms for the re-naturalization of degraded peatlands. There

is no single agency coordinating all decisions affecting peatlands. Instead, the agencies concerned with the different sectors have differing backgrounds and interests and approach peatland management in an un-coordinated manner, leading to conflict in policies and the degradation of peatlands.

For example, the forestry sector is in charge of the forest, forest fire, and the conservation of wildlife in peatlands. Meanwhile, fishery resources are managed by the fishery sector, hydrology is managed by the irrigation sector, the land area itself is under the jurisdiction of the land administration sector, and peat is managed by the industry sector. Limited inter-sectoral cooperation in water resource management, land use planning and coastal zone management remains a major obstacle to peatland management. On the other hand, lack of a logical, scientifically grounded, transparent and cross-sectoral decision-making scheme about degraded peatlands remains a key factor contributing to continued degradation.

Although the conservation and rehabilitation of sensitive areas (eg. Peatlands) is envisaged in numerous sectoral plans and programs, the reality is that there is no cross-sectoral dialogue on the future of degraded peatlands that takes into account multi-disciplinary information (including scientific arguments) and which involves local stakeholders. The prevailing situation is characterized by a lack of coordination and enforcement of sectoral plans and programs that, in principle, support rehabilitation and conservation of degraded peatlands.

A limited knowledge of peatlands has also led to inappropriate consideration of the hydrology of peatlands. This has increased the risk of fires and accelerated the decomposition of peat by exposing it to air. For example, one common practice in fire management in Vietnam is the construction of canals to 'break' the fires to stop them spreading once they have started. Studies have now proven that the building of canals increases water loss from peatlands, lowers the water table, accelerates the oxidization of peat and increases the risk of fires.

In addition, poverty and the dependency on peatland resources of local communities living in and around peatland areas have also contributed significantly to the declining trend of peatlands. These communities have short-term needs for production lands, and combined with the lack of appreciation of the values of peatlands, they convert large areas of peatlands into agricultural land. Peatland ecosystems are very rich in resources that could meet the everyday needs of these people. However human pressure on peatlands has led to the over-exploitation of peatland resources. Illegal poaching activities have also increased water loss and fire risks in peatlands.

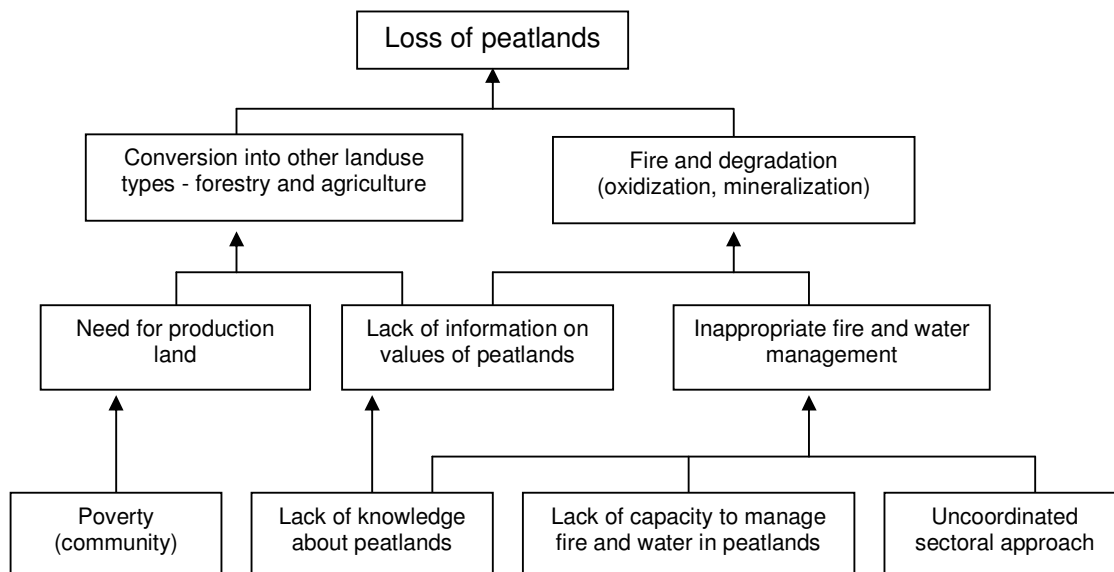


Figure 3: Root Causes of Peatland Degradation in Vietnam

Table 2: Loss of peatland in U Minh Thuong National Park, Vietnam

Year	Area (ha)
Before 1975	> 40,000
1978	31,000
1983	8,000
2003	2,900

1.1.3. Country Policy Context

Although peatlands play an important role in environmental protection, ecosystem, biodiversity, and in the socio-economic development of many communities, there has not been any specific law or policy directly related to peatlands. Peatlands use is governed by separate policies related to forest management, agricultural development, environmental protection and nature conservation. There is no harmonized policy related to the management of peatlands.

Listed below are legislation that is related to peatland management in Vietnam:

- Law on Forestry Protection (2004)
- Law on Environmental Protection (1993)
- Law on Land (2005)
- Decree No. 09/2006/ND-CP: Forest Fire Control
- Edict No. 21/2002/CT-TTg: intensify activity for forest fire control and prevention
- Decision No. 801/QĐ/1986: Pine and *Melaleuca* forest fire control
- Decision No. 08/2001/QĐ-TTg: Regulations of forest management
- Decree No. 109/2003/ND-CP: Conservation and Sustainable Use for Wetland Areas
- Decision No. 04/2004/QĐ- BTNMT: Action Plan for Conservation and Sustainable Use of Wetlands in Period of 2004 – 2010
- Decree No. 27/2005/ND-CP: Guidelines for Implementation of Law of Fishery Resource.

There is no one single agency coordinating all decisions affecting peatlands. A broad range of ministries and agencies share the responsibilities for peatland management, namely these sectoral agencies:

- Land administrative sector
- Agricultural and rural development sector
- Fishery sector
- Forestry sector
- Environmental protection sector
- Hydrology sector
- Mineral management sector

1.2. BASELINE SCENARIO

1.2.1. National activities

At present there are no projects that relate directly to peatlands alone. Peatland management is addressed as part of several projects on nature conservation, forest and agricultural production, socio-economic development for communities living in and around peatland areas.

There is a national project for forest rehabilitation which aims to restore forest in bare land, including in the peatland areas of the Lower Mekong Delta. This project is being funded by MARD and is being implemented throughout the whole country.

A national project for community livelihood development and for poverty-alleviation in rural areas has been funded by MARD and the Ministry of Labor, War Invalids and Social Welfare (MLWISW). The communities living in and around the peatland areas have been included and have benefited from this project. Project goals are to alleviate poverty through sustainable resource use and management.

A five year action plan for natural parks focusing on biodiversity conservation and community livelihood development was initiated in UMTNP and its buffer zone. The UMTNP action plan has received funds from related government agencies to implement components of the action plan that related to it.

Table 3: List of projects related to peatlands at UMTNP

No.	Name of projects	Donners	Duration
1	National project on poverty-alleviation	MARD (MoLWISW)	2001 -2010
2	National project on forests (5 million ha)	MARD	2001 -2010
3	National project of fish resources protection	MARD	2005 -2010
4	The 5 Year Action Plan of UMTNP	National Multisector-agencies	2002 -2007
5	Kien Giang Biosphere Reserve	GTZ	2008 -2010
6	Conservation and Sustainable Use of Natural Conservation in Mekong Delta	VEC	2009 - 2010

1.2.2 International Activities

There were some international activities in peatland areas, particularly in the U Minh Thuong National Park (UMTNP). These projects concerned building the capacity of managers and local government staff at the National Park and initiating community livelihood projects for those living in and around the peatland area.

From 1998-2002, a project called the UMTNP Conservation & Community Development Project was implemented by CARE International in Vietnam. The long-term objective of the project was the conservation and management of UMTNP through the socio-economic development of participating buffer zone communities and the strengthening of the management capacity for reserve management.

A project entitled *Decision-support Systems for Ecosystem-based Wetland Management* through functional zonation of land use was funded by RHIER of London University, and was implemented in one area of the peatlands at UMTNP. The project only concentrated on the status of the ecosystem of the *Melaleuca* forest.

At present, a project related to peatlands in the Mekong Delta is being carried out by Cantho University. This project is looking at restoration and wise use of peatlands in the U Minh Ha National Park.

1.2.3 Involvement in ASEAN Peatland Management Initiative (APMI)

The objectives of this GEF project have been designed in response to the objectives of the APMI which provides a regional framework for the conservation and sustainable use of peatlands in Southeast Asia. Under the initiative, Vietnam is developing a comprehensive management strategy and action plan for the management of its peatlands. The APMI also strengthens information exchange between Southeast Asian countries, promotes regional partnerships between individuals and agencies working on peatlands; and links on-going projects on peatlands within the Southeast Asian countries.

A peatland management strategy and a National Action Plan will address sustainable management of peatlands in Vietnam for the longer term. The National Action Plan is being designed through collaboration with the ASEC and GEC. It will address four main issues i.e. strengthening national capacity, supporting actions to minimise peatland degradation, demonstrating restoration options and sustainable management strategies and empowering local communities to take the lead in resource management. The National Action Plan for peatlands will identify and initiate activities at national and local levels, as well as provide support for information exchange in a regionally coordinated multi-country project.

A draft NAP matrix was designed during the PDF-B phase and circulated within Vietnam for discussion. It was discussed at the Second PPPWG meeting in Indonesia and subsequently finalised. The final draft is awaiting by the relevant government agencies in Vietnam.

2. STRATEGY

Large areas of globally important tropical peatlands in Southeast Asia are under threat from land clearance, degradation and fire, jeopardising their natural functions as reservoirs of biodiversity, carbon stores and hydrological buffers. Many development projects on tropical peatlands have failed through a lack of understanding of the ecological functions of these ecosystems. Utilisation of this resource for agriculture or plantation crops requires drainage which, unavoidably, leads to irreversible loss of peat through subsidence, resulting in severe disturbance of the substrate and creating problems for cultivation.

Therefore, the project will look at formulating strategies for implementing improved sustainable management of tropical peatlands, in conjunction with stakeholders, based upon evaluation of existing data and collection of additional bio-physical, hydrological and socio-economic information. In addition, it will strengthen and develop country research and institutional capability for the collection and evaluation of environmental, technological and socio-economic information to formulate and implement 'wise use' strategies for tropical peatlands.

The Vietnam component strategy is the main body of the document corresponding to ASEAN's strategy for rehabilitation and sustainable management of peatlands. Specific strategies and action plans are spelled out in this section, providing a holistic and integrated perspective on rehabilitation and sustainable management of peatland areas regionally, nationally, and locally.

The component strategy represents implementation approaches for the integrated management and sustainable use of peatlands, with a view to bringing about the following benefits:

- promoting national partnership arrangements among government agencies, the private sector and other stakeholders;
- enabling the concerned organizations and programmes, operating at all levels, to promote synergistic and cumulative impacts of their efforts and expertise for the benefit of the country and other stakeholders;
- providing the multi-sectors and other stakeholders with a set of guidelines, references, and examples for assisting in the development of strategies, policies, and implementation plans to address specific national, local, and sectoral needs.

2.1 Project Strategy

The strategy recognizes the socio-economic and political conditions among the countries of the SE Asian region. Its implementation will enable strategic partners to pool their resources to work together for a common goal. The strategy adopts a strategic, programmatic and problem-oriented approach to ensure effective response from policy and management interventions. It takes a long-term view in programme implementation, which depends on national capacity and resources.

The project will help expedite the implementation of the Vietnam peatland management strategy and its associated National Action Plan. The main focus of the project will follow the NAP objectives including activity plans at the provincial and local level in areas with extensive peatlands, as outlined below:

- Strengthen policies and institutional arrangements for peatland management and strictly enforce policies and rules for the management and conservation of peatlands.
- Stop the further conversion and/ or drainage of deep peat and peat domes and maintain and restore the hydrology of peatland systems to prevent fires, minimize GHG emissions, and maintain ecological services.
- Improve the current forestry, agriculture and plantation management practices to ensure that they contribute to the sustainability of peatlands.

- Promote international studies to assess the role of peatlands in mitigating climate change and the potential future impacts of climate change and land use on the peatland carbon pool.
- Undertake an assessment of the vulnerability of peatlands to climate change and extreme events. Effectively disseminate the knowledge generated by the scientific community for use by decision makers and to support the assessment processes and later develop adaptation strategies to guide peatland managers, in particular plantation operators.
- Strengthen activities for monitoring changes in the status of tropical peatlands to guide wise management.

2.2 Overall Project Goal and Objectives

Component Sub-Objective: To promote sustainable management and rehabilitation of peatlands in Vietnam through capacity building, improved inter-sectoral management and demonstration of best practices at a selected site.

Component Sub-Outcome 1: Capacity for sustainable peatland management in Vietnam strengthened

Component Sub-Outcome 2: The degradation of peatlands in Vietnam minimised through forest management and fire control

Component Sub-Outcome 3: Peatlands in UMTNP sustainably managed and rehabilitated

Component Sub-Outcome 4: The local community at UMTNP less dependant on peatlands for their livelihood

2.3 Project Outputs

Component Sub-Outcome 1: Capacity for sustainable peatland management in Vietnam strengthened

Output 1.1 The degradation of peatlands in Vietnam minimised through the implementation of a national management plan on Peatlands

Activities

- 1.1.1 Develop implementation strategy for the National Action Plan for the conservation and sustainable use of peatlands.
- 1.1.2 Promote the peatland NAP to relevant key stakeholders
- 1.1.3 Strengthening legislation, policies and institutional framework for improved integrated peatland management
- 1.1.4 Technical guidance and coordination for component

Output 1.2 Awareness of peatland management in Vietnam raised

Activities

- 1.2.1 Produce awareness materials and conduct awareness activities to improve understanding of peatland management issues in Vietnam to key stakeholders and local communities living around UMT and UMH National Parks

Component Sub-Outcome 2: The degradation of peatlands in Vietnam minimised through forest management and fire control

Output 2.1 Management of peatlands in Vietnam Enhanced

Activities

- 2.1.1. Carry out an assessments to fill gaps in the inventory of peatlands in Vietnam
- 2.1.2. Promote the incorporation of peatland conservation into land use planning - water resource management, agriculture and forest management

- 2.1.3. Promote measures for fire prevention and control in peatlands

Component Sub-Outcome 3: Peatlands in UMTNP sustainably managed and rehabilitated

Output 3.1 Support the implementation of a site management plan for UMTNP

Activities

- 3.1.1 Conduct field assessments of peatlands at UMTNP, and contribute to the refinement and implementation of the park management plan and development of plans for the buffer zone.
- 3.1.2 Provide training and support for staff of relevant agencies on participatory management involving the local community.

Component Sub-Outcome 4: The local community at UMTNP less dependant on peatlands for their livelihood

Output 4.1 Communities in buffer Zone of UMTNP obtaining alternative sustainable livelihood.

Activities

- 4.1.1 Conduct a socio-economics survey and prepare a proposal for sustainable livelihood projects with local communities at UMTNP.
- 4.1.2 Develop a sustainable community livelihood project with local communities in and around the pilot site (UMTNP) to decrease pressures on globally significant biodiversity.
- 4.1.3 Document lessons learned from the experience of the sustainable livelihoods project and disseminate information to others.

2.4 Key Indicators, Risks and Assumptions

Key indicators, risks and assumptions of project implementation are indicated in the logical framework Analysis (see Appendix B).

2.5 Country Eligibility and Drivenness

An inventory of peatlands is an important task for the sustainable management of peatlands in Vietnam. Therefore, the task will be implemented according to priority for the whole country, particularly in the Lower Mekong Delta where large areas of peatlands can be found. Peatland values and its biodiversity have played an important role in the conservation and wise use; surveys will consequently be carried out to identify those in peatlands. The results of research will be issued and disseminated to key stakeholders and staff of relevant agencies aiming to increase awareness and improve their knowledge of the sustainable management of peatlands.

Forest fires have resulted in environmental pollution and peatland degradation. Integrated management is needed to prevent and control forest fires in peatlands and will also be considered as one of the main components of the project. Lessons learned from the experience of integrated water and fire management in peatlands at the pilot site could be applied in other peatlands in the Mekong Delta and other parts of Vietnam.

2.6 Sustainability

All project components for rehabilitation and sustainable use of peatlands in the Lower Mekong Delta will surely be based on scientific information, not only in the Lower Mekong Delta but also in other peatlands of SE Asia.

2.7 Replicability

The project will see the demonstration on-the-ground of the sustainable management of peatlands, which can be replicated in other parts of the Lower Mekong Delta and other peatlands throughout the country.

2.8 Stakeholder Involvement Plan

Several strategies will be applied when formulating and implementing an integrated management plan for the wise use of peatlands. There is need to have cross-sectoral cooperation and coordination to ensure the management of national and site-based efforts. Therefore, a multi-sectoral and multi-stakeholder approach is the strategy for stakeholder involvement. On a regional basis, inter-agency cooperation between Southeast Asian countries will also be initiated particularly with regards to information and awareness activities, and in the exchange of experience in peatland management.

The participatory and consultative approach adopted during project preparation will continue to be a fundamental principle during project implementation. Involvement of all stakeholders is critical to achieve the project's objectives at national level and at the pilot sites, as well as for disseminating lessons learned.

Main project partners

National government agencies:

- Vietnam Environmental Administration (VEA) – Ministry of Environment and Natural Resources (MONRE)
- Ministry of Agriculture and Rural Development (MARD)
- Ministry of Fishery Resource
- Related agencies directly under Ministries

Local government agencies

- People's Committee of Kien Giang province
- People's Committee of An Minh District
- People's Committee of Villages in buffer zone of UMTNP

Pilot site - the U Minh Thuong National Park

A number of other agencies have been involved in providing input into the management of UMTNP. These include:

- Forest Inventory Planning Institute (FIPI) - has been involved in providing technical advice on the management of the *Melaleuca* Forests of UMTNP.
- The Institute of Ecology of Biological Resources (IEBR) and BirdLife International (BLI) - have just completed an inventory of wetlands in the Delta. They have also proposed a strategy for the management of wetlands in the Delta.
- Department of Soil Science and Land Management, University of Can Tho - has been working on issues related to the livelihoods of local people.

Main project executing institutions and organizations

The national institutional arrangements relating to the management of peatland areas need to be considered carefully during the management and implementation of project activities. The following principle agencies are involved in policy-making, planning and management of peatlands and environmental sectors in Vietnam:

- **The Ministry of Natural Resource and Environment (MONRE)**

Plays an important role in cooperation with sectoral agencies and will preside over project operation.

Characterized by a small projects should not need the setting Steering Committee Project. Therefore MONRE will be responsible all of project activities. The MONRE will however decide to set up a temporary consultant board to evaluate and assess the contents of project activities.

Some organizations will participate as consultants for project activities such as:

- Ministry of Agriculture and Rural Development (MARD)
- Vietnam Forestry Protection Agency (FPA)
- Vietnam Nature Conservation Agency (NCA)
- U Minh Thuong National Park (UMTNP)
- Vietnam Environmental Administration Agency (VEA).

- **Vietnam Environmental Administration Agency (VEA)**

Through MONRE, VEA is responsible for policy development and the coordination of biodiversity and environmental matters of peatlands in a national context. Therefore, it will implement the project at the national level. VEA will also be responsible for coordination with the various agencies to assess current legislation and policy in peatland management and identify gaps. It will also be responsible for monitoring and evaluating the project.

Under the delegation of MONRE, VEA is also responsible in international cooperation with other organizations and NGOs to design the project proposals on peatland management. Therefore, it will be the central agency for the implementation of the project during the project period.

In addition, VEA nominates two staffs as national coordinator and national expert who will be responsible during period of project activities:

National coordinator is responsible for project management generally and participate the national and regional meeting during project period.

National expert is considered as an associate specialist between VEA and U Minh Thuong National Park and local government to organize project implementation in Pilot Site and other project activities. National expert also will be responsible to prepare indeed data for national and regional meetings.

A Project Working Group will be established under chair of VEA, the PWG members including as follows:

- Director of VEA (Chair)
- Project Coordinator
- National Expert of peatland Project
- Vice-Director of the FPA Region III at HCM city
- Vice-Director of UMTNP

- **The Ministry of Agriculture and Rural Development (MARD)**

Has a wide range of responsibilities for the management of natural resources including water management, agricultural development, forestry and protected areas management. MARD is one of the main partners of the project. There are several departments relevant to this project namely Forest Protection, Irrigation and Water Management. MARD will work with VEA to assess current legislation related to forest and peatland management. It will also cooperate with the relevant agencies to implement the National Action Plan for peatland management in Vietnam.

During project implementation, MARD will also provide new policies to ensure the sustainable socio-economic development of communities living in and around peatland areas. It will also provide guidelines for water management and agricultural production in peatlands. It will also drive the community livelihood project in the buffer zone of the UMTNP pilot site.

- **Vietnam Forest Protection Agency (FPA) Region III at HCM city:**

FPA III will co-operate with local agencies to develop project activities under support of National Expert. Based on approved activities in Vietnam Country Component, VEA and VFPA together will chose reliable partners to design a detail proposal for each activity. Each detail proposal will have to be approved by VEA and relevant agencies.

- **Vietnam Forestry Protection Agency**

The Agency is also responsible for all aspects of forest plantation management, timber and other forest production activities. Under the project, it will assess the current legislation and policy of forest control and wild animal management in peatland areas, and suggest appropriate resolution for fire control and prevention.

- **Other relevant Government Agencies**

Other relevant agencies include agencies of the Ministry of Planning and Investment, the Sub-Institute of Forest Inventory and Planning and the General Department for Land Administration, which is responsible for the co-ordination of activities in peatland areas in the Lower Mekong Delta.

- **People's Committee of Kien Giang Province (PPC)**

Kien Giang PPC is the local government agency working in cooperation with national and local levels on peatland management and protection. The pilot site at UMTNP comes under the purview of the Kien Giang Provincial government. This makes the PPC automatically responsible to promote the implementation of the project at the local level.

- **People's Committee of An Minh District**

The local communities living in and around UMTNP are governed under district PC authorities. Related district agencies such as agriculture, forestry, socio-economic are also dependent on local executive authorities. Therefore, the district PC and related branches will be the crucial stakeholders in the project. These local stakeholders will cooperate in the field of fire control and sustainable socio-economic development of communities in the buffer zone of the national park.

- **U Minh Thuong National Park**

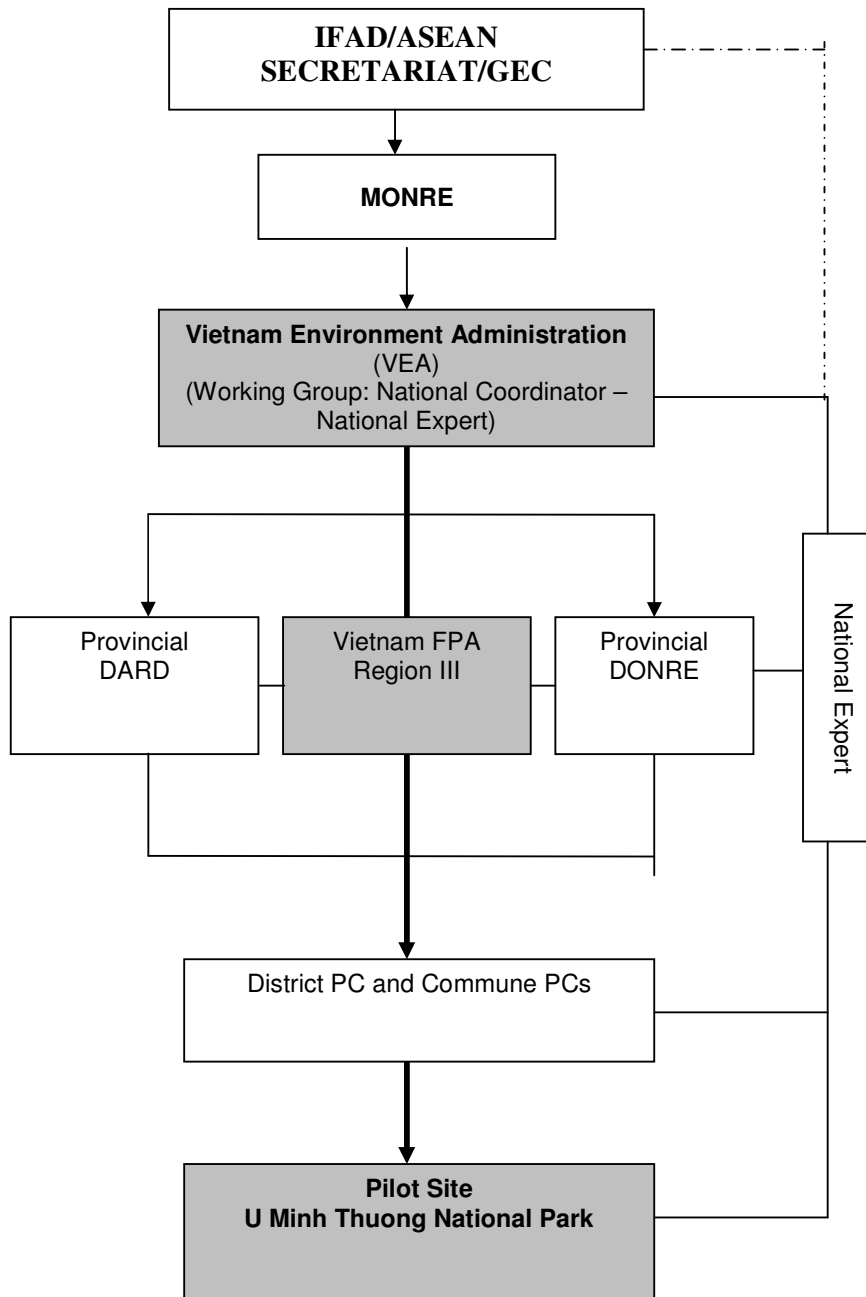
UMTNP Board will be responsible for the development and implementation of main activities at the pilot site. In addition to peatland management, this will involve cooperating with local government to support the livelihood of communities in the buffer zone.

- **Local communities**

The local communities will be the target for awareness raising activities on peatland management and rehabilitation issues as well as the sustainable livelihood activities.

3. PROJECT MANAGEMENT ARRANGEMENTS

3.1 Project Management and Implementation/ Execution Arrangements



4. PROJECT COSTS AND BUDGET

Table 4: Indicative allocation break-down for Vietnam component

Vietnam component	%	GEF Allocation	Indicative Co-funding
		USD	USD
National	5	21,000	30,000
Pilot site	82	171,000	249,000
Other areas of peatland	4	28,000	36,000
Management, evaluation and coordination	9	11,000	20,000
Total	100	230,000	335,000

5. MONITORING AND EVALUATION

Regular monitoring and evaluation of the project will be carried out based on the indicators included in the logical framework matrix.

Detailed schedules for project reviews will be developed by the project manager, in consultation with other stakeholders during the early stages of project initiation, and incorporated into the Project Inception report. The project will be subjected to tripartite review at least once every twelve months. The project will be monitored and evaluated following standard GEF monitoring and evaluation procedures. Reporting procedures for nationally executed projects will apply.

APPENDIX A: INCREMENTAL COST MATRIX

	BASELINE RESULTS	ALTERNATIVE STRATEGY		INCREMENT
		RESULTS		
OVERALL PROJECT OUTCOME 1: Capacity for sustainable peatland management in South East Asia strengthened				
COMPONENT SUB-OUTCOME 1:Capacity for sustainable peatland management in Vietnam strengthened				
Output 1.1: The degradation of peatlands in Vietnam minimised through the implementation of the National Action Plan on Peatlands				
Act. 1.1.1. Develop implementation strategy for the National Action Plan for the conservation and sustainable use of peatlands	No national peatland management plan	A national peatland management plan developed for national and local levels	Increment	\$15,000
			Of which:	
			GEF	\$5,000
			Government (In Cash)	\$10,000
			Government (In kind)	
	\$0	\$15,000		
Act. 1.1.2. Promote the peatland NAP to relevant key stakeholders	No previous training workshops on peatland	Knowledge about peatland management of key stakeholders improved	Increment	\$10,000
			Of which:	
			GEF	\$5,000
			Government (In Cash)	\$5,000
			Government (In kind)	
	\$0	\$10,000		
Act. 1.1.3. Strengthening legislation, policies and institutional framework for improved integrated peatland management	No previous framework for strengthening legislation and policies for peatland management	Framework for legislation and policies established and improved for better management	Increment	\$10,000
			Of which:	
			GEF	\$5,000
			Government (In Cash)	\$5,000
			Government (In kind)	
	\$0	\$10,000		
Act 1.1.4 Technical guidance and coordination for component	Very few technical guidance for peatland management	A guidance for peatland management activities and cooperation between activity components	Increment	\$40,000
			Of which:	
			GEF	\$20,000
			Government (In Cash)	\$20,000
			Government (In kind)	
	\$0	\$40,000		
Sub-Total Output 1.1	\$0	\$75,000	Increment	\$75,000
			Of which:	
			GEF	\$35,000
			Government (In Cash)	\$40,000
			Government (In kind)	
Output 1.2 : Awareness of peatland management in Vietnam raised				
Act. 1.2.1. Produce awareness materials and conduct awareness activities to improve understanding of peatland management issues in Vietnam to key stakeholders and local communities living around UMT and UMH National Parks	Very few awareness materials available	Awareness materials produced and distribute to key stakeholders/ relevant agencies	Increment	\$40,000
			Of which:	
			GEF	\$20,000
			Government (In Cash)	\$20,000
			Government (In kind)	
	\$0	\$40,000		
Sub-Total Output 1.2	\$0	\$40,000	Increment	\$40,000
			Of which:	
			GEF	\$20,000
			Government (In Cash)	\$20,000
			Government (In kind)	

			Government (In kind)	
Sub-Total Outcome 1	\$0	\$115,000	Increment	\$115,000
			<i>Of which:</i>	
			GEF	\$55,000
			Government (In Cash)	\$60,000
			Government (In kind)	
OVERALL PROJECT OUTCOME 2: Reduced rate of degradation of peatlands in South East Asia				
COMPONENT SUB-OUTCOME 2: The degradation of peatlands in Vietnam minimised through forest management and fire control				
Output 2.1 : Mannagement of peatlands in Vietnam Enhanced				
Act. 2.1.1. Carry out an assessments to fill gaps in the inventory of peatlands in Vietnam	No previous inventory carried out in Vietnam	Inventory of peatland in Vietnam (particularly in Mekong Delta)	Increment	\$20,000
			<i>Of which:</i>	
			GEF	\$10,000
			Government (In Cash)	\$10,000
			Government (In kind)	
	\$0	\$20,000		
Act.2.1.2. Promote the incorporation of peatland conservation into land use planning - water resource management, agriculture and forest management	Strategy for fire prevent and control in management of forest fire too general	An integrated strategy for fire management to prevent and control fire in peatland areas	Increment	\$55,000
			<i>Of which:</i>	
			GEF	\$20,000
			Government (In Cash)	\$35,000
			Government (In kind)	
	\$0	\$55,000		
Act. 2.1.3. Promote measures for fire prevention and control in peatlands	Evaluation for forest fire in UMTNP after 2002	Monitoring and evaluation for management of forest fire in peatlands carried out	Increment	\$39,000
			<i>Of which:</i>	
			GEF	\$14,000
			Government (In Cash)	\$25,000
			Government (In kind)	
	\$0	\$39,000		
Sub-Total Output 2.1	\$0	\$114,000	Increment	\$114,000
			<i>Of which:</i>	
			GEF	\$44,000
			Government (In Cash)	\$70,000
			Government (In kind)	
Sub-Total Outcome 2	\$0	\$114,000	Increment	\$114,000
			<i>Of which:</i>	
			GEF	\$44,000
			Government (In Cash)	\$70,000
			Government (In kind)	
OVERALL PROJECT OUTCOME 3: Options for integrated management and rehabilitation of peatlands tested.				
COMPONENT SUB-OUTCOME 3: Peatlands in UMTNP sustainably managed and rehabilitated				
Output 3.1: Support implementation a site management plan for UMTNP				
Act. 3.1.1. Conduct field assessments of peatlands UMTNP, and contribute to the refinement and implementation of the park management plan and developoment of plans for the buffer zone.	Previous assessments generally of peatland and its values too general	Peatlands assessed in detail, more area of rehabilitated peatlands and site management plan for sustainable use of peatlands in effect	Increment	\$70,000
			<i>Of which:</i>	
			GEF	\$30,000
			Government (In Cash)	\$40,000
			Government (In kind)	
	\$30,000	\$100,000		
Act. 3.1.2. Provide training and support for staff of relevant agencies on participatory management involving the local	Some previous activities supported from CARE to conduct sustainable	Cooperation between National Park and local communities in peatland management, more than	Increment	\$30,000
			<i>Of which:</i>	
			GEF	\$15,000

community	management for local communities in buffer zone	90% of illegal activities reduced and community can participate in management	Government (In Cash)	\$15,000
			Government (In kind)	
	\$20,000	\$50,000		
Sub-Total Output 3.1	\$50,000	\$150,000	Increment	\$100,000
			<i>Of which:</i>	
			GEF	\$45,000
			Government (In Cash)	\$55,000
			Government (In kind)	
Sub-Total Outcome 3	\$50,000	\$150,000	Increment	\$100,000
			<i>Of which:</i>	
			GEF	\$45,000
			Government (In Cash)	\$55,000
			Government (In kind)	
OVERALL PROJECT OUTCOME 4: Local communities and the private sector actively contributing to sustainable peatland management				
COMPONENT SUB-OUTCOME 4: Local community at UMTNP less dependant on peatlands for their livelihood				
Output 4.1: A sustainable community livelihood project at UMTNP developed and implemented				
Act. 4.1.1 Conduct a socio-economics survey on the livelihood of local communities at UMTNP	No previous evaluation of livelihood conditions of local community at UMTNP	Current socio-economic condition and options for livelihoods available	Increment	\$30,000
			<i>Of which:</i>	
			GEF	\$10,000
			Government (In Cash)	\$20,000
			Government (In kind)	
	\$0	\$30,000		
Act. 4.1.2 Develop a sustainable community livelihood project with local communities in and around the pilot site (UMTNP) to decrease pressures on globally significant biodiversity	A community livelihood project carried out in buffer zone supported by CARE from 1999 – 2003. No livelihood project developed in buffer zone of UMTNP	100% of local community (68 households) participating in livelihood project	Increment	\$155,000
			<i>Of which:</i>	
			GEF	\$55,000
			Government (In Cash)	\$100,000
			Government (In kind)	
	\$0	\$30,000		
Act. 4.1.3 Document lessons learned from the experience of the sustainable livelihoods project and disseminate information to others	No previous document describing experience of sustainable livelihood projects	Documents showing experiences of livelihood projects in local community and 500 of these documents disseminated to relevant agencies	Increment	\$20,000
			<i>Of which:</i>	
			GEF	\$10,000
			Government (In Cash)	\$10,000
			Government (In kind)	
Sub-Total Output 4.1	\$20,000	\$225,000	Increment	\$205,000
			<i>Of which:</i>	
			GEF	\$75,000
			Government (In Cash)	\$130,000
			Government (In kind)	
Sub-Total Outcome 4	\$20,000	\$225,000	Increment	\$205,000
			<i>Of which:</i>	
			GEF	\$75,000
			Government (In Cash)	\$130,000
			Government (In kind)	
TOTAL	\$70,000	\$604,000	INCREMENT	\$534,000
			<i>Of which:</i>	
			GEF	\$219,000

			Government (In Cash)	\$315,000
			Government (In kind)	
Cost percentage for project management and evaluation (5%)	\$0	\$31,000	Increment	\$31,000
			Of which:	
			GEF	\$11,000
			Government (In Cash)	\$20,000
			Government (In kind)	
TOTAL COST	\$70,000	\$635,000	INCREMENT	\$565,000
			Of which:	
			GEF	\$230,000
			Government (In Cash)	\$335,000
			Government (In kind)	
TOTAL	TOTAL BASELINE	TOTAL ALTERNATIVE STRATEGY	TOTAL INCREMENTAL COST	
	\$70,000	\$635,000		\$565,000
			Project costs	\$534,000
			Admin & support	\$31,000
			Total	\$565,000
			Of which:	
			GEF project costs	\$219,000
			GEF admin & support	\$11,000
			GEF total	\$230,000
			Government co-finance	\$315,000
			Gov admin & Support	\$20,000
			Co-finance total	\$335,000

Appendix B: Logical framework analysis

Summary
OVERALL PROJECT GOAL: To promote the sustainable management of peatlands in SE Asia to sustain local livelihoods, reduce risk of fire and associated haze and contribute to global environmental management
IMMEDIATE OBJECTIVE: To support and demonstrate integrated management of peatlands in SE Asia through strengthened capacity, multi-stakeholder partnerships, and testing of innovative approaches and rehabilitation in pilot sites.
COMPONENT SUB-OBJECTIVE: To promote sustainable management and rehabilitation of peatlands in Vietnam through capacity building, improved inter-sectoral management and demonstration of best practices at a selected site.

Outcomes, Outputs and Activities	Objectively Verifiable Indicators			Means of Verification	Critical Assumptions
	Indicators	Baseline	Target		
OVERALL PROJECT OUTCOME 1: Capacity for sustainable peatland management in South East Asia strengthened					
COMPONENT SUB-OUTCOME 1:Capacity for sustainable peatland management in Vietnam strengthened					
Output 1.1: The degradation of peatlands in Vietnam minimised through the implementation of the National Action Plan on Peatlands	▪ National peatland management plan ▪ NAP- Strategy and framework for action for sustainable management of peatlands. ▪ Recommendations for policy adjustments on protection regulations for peatland management ▪ Number of staff trained in peatland management	▪ Limited information ▪ Most staff lack knowledge on peatland values	▪ Mgmt Plan finalised & includes peatlands for conservation ▪ Approved by the Government and operational ▪ Changes ratified by MONRE/ the government & operational ▪ 30 % staff trained	Progress reports Training workshop reports ▪ Progress reports ▪ Final printed copy of NAP ▪ Progress reports Working group notes/ minutes	The Government is open to the recommendations for improved protection of peatlands
Output 1.2 : Awareness of peatland management in Vietnam	▪ Awareness materials on	▪ Limited	• Materials on	▪ Awareness materials	

Outcomes, Outputs and Activities	Objectively Verifiable Indicators			Means of Verification	Critical Assumptions
	Indicators	Baseline	Target		
raised	peatland management ▪ Baseline surveys	▪ Limited	peatland management in general produced - Materials for pilot site (UMTNP) produced - Reports from baseline surveys completed	▪ Progress reports ▪ Progress reports	
OVERALL PROJECT OUTCOME 2: Reduced rate of degradation of peatlands in South East Asia					
COMPONENT SUB-OUTCOME 2: The degradation of peatlands in Vietnam minimised through forest management and fire control					
Output 2.1 : Mannagement of peatlands in Vietnam Enhanced	▪ Inventory of peatland areas ▪ Research reports on peatlands in Vietnam ▪ Booklets and CDs on peatlands in Vietnam ▪ High risk areas for fire . ▪ Strategy for forest fire prevention in peatlands with high risk for fire.	▪ Not available ▪ Limited ▪ Limited ▪ Limited information available ▪ Non-existent	▪ Inventory of all peatland areas in country published by MONRE ▪ Reports published by MONRE ▪ Booklets and CDs published by VEA ▪ Most high risk areas in the country identified ▪ Strategy formulated & operational	▪ GIS map ▪ Progress reports ▪ Progress reports ▪ Progress reports ▪ Progress reports ▪ Strategy document ▪ Progress reports ▪ Report on monitoring and evaluation of fire management	Access to peatlands and information about peatlands is not restricted
OVERALL PROJECT OUTCOME 3: Options for integrated management and rehabilitation of peatlands tested					
COMPONENT SUB-OUTCOME 3: Peatlands in UMTNP sustainably managed and rehabilitated					
Output 3.1: Support implementation a site management plan for UMTNP	▪ Site management plan for UMTNP ▪ Buffer zone management plan ▪ Tourism master	▪ Non existent ▪ Draft and incomplete ▪ Non-existent	▪ Developed and operational ▪ Finalised and operational ▪ Developed and	▪ Progress reports ▪ Progress reports ▪ Progress reports	Political and economic stability permits departmental responsibilities to

Outcomes, Outputs and Activities	Objectively Verifiable Indicators			Means of Verification	Critical Assumptions
	Indicators	Baseline	Target		
	- plan - Number of staff at UMTNP completed training on peatland management	Limited	- operational 80% of staff trained in peatland management	- Training workshop report - Progress report	be met in full
OVERALL PROJECT OUTCOME 4: Local communities and the private sector actively contributing to sustainable peatland management					
COMPONENT SUB-OUTCOME 4: A sustainable community livelihood project at UMTNP implemented					
Output 4.1: A sustainable community livelihood project at UMTNP developed and implemented	- Survey report on socio-economic status of local communities - Sustainable livelihood project - Report on lessons learned/ awareness material	- Limited information available - Almost 100% local communities (68 households) supported and participating in project - None	- Survey completed and report ready - At least 3 project proposals approved by Government and/ or NGOs - One project operational - Information disseminated to other interested groups	- Progress reports - Progress reports - Progress reports/ awareness material - Workshop and training reports	Increased livelihood of communities living around UMTNP leads to reduced pressure on peatlands

Appendix C: Detailed Indicative Budget and Co-funding

Outcome/Outputs/Activities	Contribution requested		Total
	from GEF	Co-Funding	
OVERALL PROJECT OUTCOME 1: Capacity for sustainable peatland management in South East Asia strengthened			
COMPONENT SUB-OUTCOME 1: Capacity for sustainable peatland management in Vietnam strengthened			
Output 1.1: The degradation of peatlands in Vietnam minimised through the implementation of the National Action Plan on Peatlands			
Act. 1.1.1. Develop implementation strategy for the National Action Plan for the conservation and sustainable use of peatlands	\$5,000	\$10,000	\$15,000
Act. 1.1.2. Promote the peatland NAP to relevant key stakeholders	\$5,000	\$5,000	\$10,000
Act. 1.1.3. Strengthening legislation, policies and institutional framework for improved integrated peatland management	\$5,000	\$5,000	\$10,000
Act 1.1.4 Technical guidance and coordination for component	\$20,000	\$20,000	\$40,000
Sub-Total Output 1.1	\$35,000	\$40,000	\$75,000
Output 1.2 : Awareness of peatland management in Vietnam raised			
Act. 1.2.1. Produce awareness materials and conduct awareness activities to improve understanding of peatland management issues in Vietnam to key stakeholders and local communities living around UMT and UMH National Parks	\$20,000	\$20,000	\$40,000
Sub-Total Output 1.2	\$20,000	\$20,000	\$40,000
Sub-Total Outcome 1	\$55,000	\$60,000	\$115,000
COMPONENT SUB-OUTCOME 2: The degradation of peatlands in Vietnam minimised through forest management and fire control			
Output 2.1 : Mannagement of peatlands in Vietnam Enhanced			
Act. 2.1.1. Carry out an assessments to fill gaps in the inventory of peatlands in Vietnam	\$10,000	\$10,000	\$20,000
Act.2.1.2. Promote the incorporation of peatland conservation into land use planning - water resource management, agriculture and forest management	\$20,000	\$35,000	\$55,000
Act. 2.1.3. Promote measures for fire prevention and control in peatlands	\$14,000	\$25,000	\$39,000
Sub-Total Output 2.1	\$44,000	\$70,000	\$114,000
Sub-Total Outcome 2	\$44,000	\$70,000	\$114,000
COMPONENT SUB-OUTCOME 3: Peatlands in UMTNP sustainably managed and rehabilitated			
Output 3.1: Support implementation a site management plan for UMTNP			
Act. 3.1.1. Conduct field assessments of peatlands UMTNP, and contribute to the refinement and implementation of the park management plan and development of plans for the buffer zone.	\$30,000	\$40,000	\$70,000
Act. 3.1.2. Provide training and support for staff of relevant agencies on participatory management involving the local community	\$15,000	\$15,000	\$30,000

Outcome/Outputs/Activities	Contribution requested		Total
	from GEF	Co-Funding	
Sub-Total Output 3.1	\$45,000	\$55,000	\$100,000
Sub-Total Outcome 3	\$45,000	\$55,000	\$100,000
COMPONENT SUB-OUTCOME 4: Local community at UMTNP less dependant on peatlands			
Output 4.1: communities in buffer Zone of UMTNP obtaining alternative sustainable livelihood			
Act. 4.1.1. Conduct a socio-economics survey and prepare a proposal for sustainable livelihood projects with local communities at UMTNP	\$10,000	\$20,000	\$30,000
Act. 4.1.2. Develop a sustainable community livelihood project with local communities in and around the pilot site (UMTNP) to decrease pressures on globally significant biodiversity	\$55,000	\$100,000	\$155,000
Act. 4.1.3. Document lessons learned from the experience of the sustainable livelihoods project and disseminated information to others	\$10,000	\$10,000	\$20,000
Sub-Total Output 4.1	\$75,000	\$130,000	\$205,000
Sub-Total Outcome 4	\$75,000	\$130,000	\$205,000
Sub-total	\$219,000	\$315,000	\$534,000
project management (5%)	\$11,000	\$20,000	\$31,000
Total Cost	\$230,000	\$335,000	\$565,000

Appendix D: Demonstration Site and Pilot Sites Description

PILOT SITE

U Minh Thuong National Park is located in the Lower Mekong Delta in southern Vietnam, in Kien Giang province and is proposed as a pilot site for the project. This is a large area of peat in the Mekong Delta with an extensive area of peat swamp *Melaleuca* forest in the middle range.

Current Status of UMTNP

UMTNP covers a total area of 21,800ha and is divided into a core zone and a buffer zone. The core zone covers an area of 8,509ha, consisting of 2,851ha of *Melaleuca* forest and *Melaleuca* mixed with *Phragmites* grassland, 2,428ha of grasslands and 1,737ha of *Melaleuca* in various stages of re-growth after fire. The remaining 493ha is made up of open water areas. The buffer zone, surrounding the core zone and covering an area of 13,291ha, is largely cleared agricultural land, but it contains a water-bird breeding colony in the north-western corner where there is a small forest area covering 1,200ha that is home to c. 11,000 water birds.

UMTNP lies 0.5-0.7m above sea level. Soils have been formed by deposition of alluvial sediment from the Mekong River system. With soil formation, mangrove forests evolved, depositing masses of organic material that gradually raised the soil depth to a point where there was no longer a tidal impact and *Melaleuca* ecosystems began to form. The *Melaleuca* forests continued to return masses of organic material to the soil and brought about the appearance of two main soil types: peat soil and acid sulphate soil.

UMTNP supports one of the last two significant areas of peat swamp forest remaining in Vietnam (the other one being U Minh Ha), and is recognised as one of the three highest priority sites for wetland conservation in the Mekong Delta. The U Minh Thuong peat swamp forest also plays a crucial role in the prevention of acidification of topsoil and surface water, storing fresh water, serving as a spawning and nursery area for fish and shellfish, and filtering surface water. As such, it also provides significant environmental and livelihood benefits for surrounding communities.

Biodiversity in UMTNP

UMTNP supports a range of wetland habitats, including a semi-natural *Melaleuca* forest, seasonally inundated grassland and open swamp. Most of buffer zone consists of paddy fields with small patches of *Melaleuca* plantation. The *Melaleuca* forest is home to an important breeding colony of waterbirds. UMTNP has a number of other biodiversity values, including being one of only three sites in the world known to support a population of Hairy-nosed Otter (*Lutra sumatrana*). The wetland forest of the U Minh region supports some of the highest avian biodiversity in the Mekong Delta.

Water birds: A total of 185 bird species from 43 families have been recorded, including thirteen species which are listed in the IUCN Red List of Global Conservation Concern as having important conservation value.

Amphibians and reptile: Seven species of amphibians representing three families have been recorded. All amphibians were characteristic of disturbed habitats and are of low conservation significance. Previous surveys recorded 34 species of reptiles representing ten families. Eight of these reptile species are listed in the Vietnam Red Data Book and four are listed in the IUCN Red List. The Yellow-headed Temple Turtle *Hieremys annandalii* found here is listed as endangered in the IUCN Red List 2000. Several specimens were identified in captivity in the buffer zone area as pets or for trade.

Other mammals: 24 species of mammals belonging to 10 families and 7 orders were identified. Ten of these 24 mammal species are nationally or globally threatened, including 4 species listed in the Red Data Book of Vietnam (2000), 5 species listed in the IUCN Red List (2000) and 5 species listed in the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

Threats

The construction of canals through peatlands, whether for fire fighting purposes or as a means to provide logging access or to convert land to agriculture, lowers the ground water level. Once peat dries out excessively, its natural sponge-like properties and hence its water regulating capacity is lost (and cannot be recovered) and it is susceptible to fire.

A system of dykes and canals in and around the core zone was constructed for fire control. As a result, the core zone is dissected by six canals and surrounded by two more, while the buffer zone contains more than 21 canals. While fire is a natural part of the ecology of *Melaleuca* forest, an inappropriate hydrological management regime at the national park has led to low water levels during the dry season and drying out of the peat layer, thereby increasing the frequency and severity of fires, several of which occurred in 2002.

A buffer zone development board was established by the Provincial Peoples Committee of Kien Giang Province to manage the buffer zone which covers an area of 13,291ha. There are about 20,000 people (3,675 families) living in the buffer zone. Families on average received a land area of 3.2ha. The majority of families in the buffer zone are of Kinh ethnicity, with a small percentage of Khmer. It is via the buffer zone development board that the park has a role in buffer zone development. The UMTNP Management Board helped implement the state-funded buffer zone program mostly through infrastructure development such as roads, electricity, health care clinics and schools.

The Impact of Forestry on Peatlands

From 1975 until the 1990s, some plantations and state-farm were established on peatlands leading to a direct loss of peatlands and their associated habitats. In some cases even today, forestry is having a detrimental impact not only on underlying but also adjacent peatland habitats. An audit of damage and threat to the U Minh site identified forestry as one of the most significant activities having a detrimental impact on the peatland areas at U Minh Thuong and U Minh Ha.

Where forests exist on peat, the water level in the peat is lowered through drainage which causes the peat to dry out and crack. Research has also identified hydrological impacts on peatlands up to 50m beyond the edge of a forest, including changes in surface water flow and surface shape. Road building and the use of fertilizers and herbicides can also affect both underlying and adjacent peatlands, particularly in the buffer zone.

The long-term future of peatlands depends very much on decisions that are made regarding the communities living around the peatlands and the economic development in the area.

Needs for Implementation of Project for Rehabilitation and Sustainable Use of Peatlands in the UMTNP

One of the largest area of peatlands in Vietnam occurs in U Minh Thuong which has been established as a nature reserve. There has been so much concern about protecting the *Melaleuca* natural forest in the coastal zone in the Lower Mekong Delta Basin, but less importance has been placed on understanding the values and functions of peatlands. For example, there was great concern that the fire incidence in UMTNP had damaged a large area of *Melaleuca* forest, but not as much concern about degradation of peatlands and the loss of biodiversity.

An action plan for the UMTNP was designed when it was recommended as a National Park. Some components of the action plan have been implemented since 2002, but some shortcomings remain and have resulted in many problems for the rehabilitation and sustainable use of peatlands in and around the national park.

The problems have been the result of the following main causes:

- existing capacity for integrated management of peatlands are inadequate, resulting in ineffective management and its consequences;
- lack of awareness of conservation values which result in poor support for site conservation efforts from national and local government;
- lack of inter-sectoral cooperation in land use planning and little consideration for biodiversity conservation;

- although there is growing concern for wetlands in major government programmes in Vietnam to restore floodplain wetlands, there is little concern for peatlands;
- existing legislation have specific weaknesses, policies & plans are not integrated, national budgets do not provide adequate resources for conservation sites, and other financial mechanisms are not used; and
- lack of appropriated support and concern for livelihood of local communities living in and around the peatlands of UMTNP.

Existing capacity for site management is limited throughout the range of project sites. Staff of UMTNP lack the skills for modern conservation management techniques, in particular in relation to community co-management, conflict resolution and integrated wetland and watershed management.

There is a lack of formalized stakeholder participation in site management, hampering effective integrated management. Owing to this lack of opportunity for participation combined with low conservation awareness levels, local communities rarely have a good understanding of the conservation objectives of nature reserves and how they can contribute. This often alienates conservation management authorities from local communities and can result in high levels of encroachment and illegal activities. While conditions at the project sites vary enormously, some are subject to intense human utilization for agriculture, grazing, fishing and other uses. It is necessary to recommend U Minh Thuong National Park as a pilot site for the Project on Rehabilitation and Sustainable Use of Peatlands in Vietnam. This is considered as a component of the NAP for Vietnam. Results of activities in the peatland area at UMTNP could be replicated in other peatlands in the country, such as the U Minh Ha National Park.

Appendix E: Project Timetable

Weeks	Year 1								Year 2							
	1-6	7-12	13-18	19-24	25-30	31-36	37-42	43-48	1-6	7-12	13-18	19-24	25-30	31-36	37-42	43-48
OVERALL PROJECT OUTCOME 1: Capacity for sustainable peatland management in South East Asia strengthened.																
COMPONENT SUB-OUTCOME 1: Capacity for sustainable peatland management in Vietnam strengthened																
Output 1.1: The degradation of peatlands in Vietnam minimised through the implementation of a national management plan																
Act. 1.1.1. Develop implementation strategy for the National Action Plan for the conservation and sustainable use of peatlands																
Act. 1.1.2. Promote the peatland NAP to relevant key stakeholders																
Act. 1.1.3. Strengthening legislation, policies and institutional framework for improved integrated peatland management																
Act 1.1.4 Technical guidance and coordination for component																
Output 1.2 : Awareness of peatland management in Vietnam raised																
Act. 1.2.1. Produce awareness materials and conduct awareness activities to improve understanding of peatland management issues in Vietnam to key stakeholders and local communities living around UMT and UMH National Parks																
OVERALL PROJECT OUTCOME 2: Reduced rate of degradation of peatlands in South East Asia																
COMPONENT SUB-OUTCOME 2: The degradation of peatlands in Vietnam minimised through forest management and fire control																
Output 2.1 : Information on peatlands in Vietnam documented																
Act. 2.1.1. Carry out an assessments to fill gaps in the inventory of peatlands in Vietnam																
Act.2.1.2. Promote the incorporation of peatland conservation into land use planning - water resource management, agriculture and forest management																
Act. 2.1.3. Promote measures for fire prevention and control in peatlands																
OVERALL PROJECT OUTCOME 3: Options for integrated management and rehabilitation of peatlands tested.																
COMPONENT SUB-OUTCOME 3: Peatlands in UMTNP sustainably managed and rehabilitated																
Output 3.1: Support implementation a site management plan for UMTNP																
Act. 3.1.1. Conduct field assessments of peatlands UMTNP, and contribute to the																

	Year 1								Year 2							
Weeks	1-6	7-12	13-18	19-24	25-30	31-36	37-42	43-48	1-6	7-12	13-18	19-24	25-30	31-36	37-42	43-48
refinement and implementation of the park management plan and development of plans for the buffer zone.																
Act. 3.1.2. Provide training and support for staff of relevant agencies on participatory management involving the local community																
OVERALL PROJECT OUTCOME 4: Local communities and the private sector actively contributing to sustainable peatland management																
COMPONENT SUB-OUTCOME 4: A sustainable community livelihood project at UMTNP implemented																
Output 4.1: Develop and implement a sustainable community livelihood project at UMTNP																
Act 4.1.1. Conduct a socio-economics survey on the livelihood of local communities at UMTNP.																
Act 4.1.2. Develop a sustainable community livelihood project with local communities in and around the pilot site (UMTNP) to decrease pressures on globally significant biodiversity.																
Act 4.1.3. Document lessons learned from the experience of the sustainable livelihoods project and disseminate information to others																

Appendix F: Threats, Impacts and Root Causes of Peatland Degradation in Vietnam

Threats [caused by human action]	Impacts [direct and indirect effect of human action on ecosystem]	Relative * Importance {Scale 1-5: 1= Very important and 5= low importance}	Root Causes						
			Inappropriate devt strategy	Inadequate envt mgmt	Lack of capacity	Lack of knowledge	Unclear/ weak legislation	Pressure on land	Poverty
Over-drainage for deforestation/ logging	Degradation of peat substrate Natural hydrology of peatlands affected - lowers the high water table Subsidence and soil compaction Fires	1	+	+		+	+	+	
Land clearance/ conversion for agriculture	Loss of forest cover, peat soil content & water level in peatlands Affects hydrology of adjacent peatlands Fires	1	+	+		+	+	+	+
Agricultural practices	Pollution in waterways due to unregulated use of fertilizers Peat is oxidized due to exposure and carbon is released	2		+		+	+	+	
Fire	Loss of biodiversity/ specially-niche species Health hazard through air pollution Affects socio-economic activity - eg. tourism	1		+	+	+	+	+	
Canals to defragment peatlands to stop fires	Degradation of peat substrate Natural hydrology of peatlands affected - lowers the high water table Subsidence and soil compaction	2		+	+	+	+		

Threats [caused by human action]	Impacts [direct and indirect effect of human action on ecosystem]	Relative * Importance {Scale 1-5: 1= Very important and 5= low importance}	Root Causes						
			Inappropriate devt strategy	Inadequate envt mgmt	Lack of capacity	Lack of knowledge	Unclear/ weak legislation	Pressure on land	Poverty
	Fire is induced								
Peat extraction	Degradation of peat substrate Land degradation Biodiversity affected	2		+		+	+		+
Over-harvesting of target species/ non-timber forest products	Further reduction in viable populations of species already under threat Loss of value resource Loss of species diversity Other dependent species affected	2		+		+	+		+
Illegal poaching	Loss of species diversity Loss of value resource Other dependent species affected	2		+		+	+		

APPENDIX H: RECORDS OF CONSULTATIONS UNDERTAKEN FOR VIETNAM PROPOSAL DEVELOPMENT

September 2005	Meeting with UMTNP's staffs in An Minh District, Kien Giang Province
September 2005	Stakeholder's Consultation Workshop in Hanoi
September 2005	National Action Plan Workshop on Peatland Management of Vietnam
November 2005	Workshop on Water and Fire Management in Wetlands
December 2005	Meeting with UMTNP's staffs in An Minh District, Kien Giang Province
March 2006	Meeting with UMTNP, Sub-FIPI in HCM City
January 2008	Meeting with UMTNP and U Minh Ha National Park's staffs in Ca Mau and Kien Giang Provinces
March 2009	Meeting between VEA and GEC at Hanoi

Individual Consultations

October 2005	Meeting with staffs of Management Steering Board of Mekong Wetlands Biodiversity Programme (MWBP) UNDP/GEF
October 2006	Members of Provincial DARD's staffs at Kien Giang Province
November 2005	Meeting with staffs of Institute for Ecology and Biological Resource
November 2005	Meeting with specialists at Cantho University
December 2005	Meeting with managers of MWBP on activities of sustainable management of peatland UNDP/GEF
January 2006	Meeting with staffs of CARE-Vietnam
February 2006	Meeting with Sub-Institute for Water Resource Planning
March 2006	Meeting with Sub-Institute for Forestry Science (Sub-IFS)
March 2006	Meeting with staffs of Institute for Ecology and Biological Resource
April 2009	Meeting with staff Forest Management Department and UMH National Park
August 2009	Meeting and surveys in U Minh Thuong National Park
September 2009	Meeting with UMTNP Management Board

REHABILITATION AND SUSTAINABLE USE OF PEATLANDS IN SOUTH EAST ASIA

REGIONAL COMPONENT

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1. SITUATION ANALYSIS

1.1 Context

Tropical lowland peatlands are normally formed between rivers in low-lying coastal areas or floodplains where periodic flooding occurs. Partially decomposed organic matter accumulates over thousands of years due to the lack of oxygen under waterlogged conditions to form peat, a soil defined as containing at least 65% organic matter. Forests formed on these peat soils are called peat swamp forests. In their natural state, most tropical lowland peatlands are covered with peat swamp forest. They possess unique vegetation assemblages adapted to a high degree of waterlogging, low pH and low nutrient conditions. Peatlands cover approximately 30million ha in SE Asia with the majority in Indonesia, Malaysia, Brunei Darussalam, Thailand and Viet Nam, and smaller areas in Myanmar, Lao PDR and the Philippines. In Indonesia, Malaysia and Brunei Darussalam they form more than 10% of the land area of the country.

1.1.1 Peatlands and Peat Swamp Forests - Values and Importance

Direct Uses of Peatlands

Local communities living within or around peatland areas often derive considerable benefit from the goods and services that peatlands provide. Non-timber forest resources are extremely important and form an important livelihood for these local communities. Fishing in blackwater rivers running through and draining peat swamps is a very important activity for many communities - the fish caught are the main source of protein for the local people. Blackwater fisheries are particularly important for communities in Sumatra, and for the indigenous people living at Tasek Bera and the Southeast Pahang peat swamp forest in Malaysia. The sago palm (*Metroxylon sagu*) is cultivated in some areas such as in Sarawak and in southern Thailand. Many communities in different countries derive benefit from the harvesting and weaving of peatland plants – again, an important livelihood for indigenous communities at Tasek Bera and South East Pahang in Malaysia involves weaving rattan and other plants harvested from the peat swamp forest. The harvesting of the sedge *Lepironia articulata* in the peatlands of southern Thailand is the basis for an important livelihood of mat and basket weaving for local communities, whilst Tikog (*Fimbristylus* sp.) is used by local communities in the Leyte Sab-a Basin for the same purpose. Other non-timber forest products from peatlands include honey, ornamental plants and rattan. In addition, the fuel and construction needs of local communities can often be met from peat swamp forests with little adverse impact on the forest ecosystem.

Peat swamp forests have a high economic value due to their timber resources - they are a main source of high quality timber, especially from countries such as Indonesia and Malaysia. For example, the annual yield of the endangered and commercially valuable tree Ramin (*Gonystylus bancanus*), which is confined to peat swamp forests, is 16,250m³ from sustainable forest management in Indonesia, whilst the annual revenue from logging in peat swamp forests in Malaysia amounts to c. USD1.5million. Unfortunately, there are currently very few examples of sustainable logging in the region. One of the few examples is the no-logging policy implemented in Thailand in the 1980s which has contributed to the preservation of the remaining peat swamp forests in that country.

Other valuable timber species found in the peat swamp forests in the region are Kempas (*Kompassia malaccensis*), Meranti (*Shorea spp.*), Kapur Paya (*Dryobalanops rappa*) and Jongkong (*Dactylocladus stenostachys*). The canopy trees of the peat swamp forests of the west coast of Sabah, Malaysia (such as at the Klias Forest Reserve) are made up of about 70% commercial species, making them a very valuable resource for sustainable forestry that can provide sustained and important revenue to the country. Jelutong (*Dyera polyphylla*), which is also confined to peat swamp forests, has been utilised for centuries for its latex.

All countries in SE Asia have, to some extent, benefited from and exploited their peatland resources through conversion for agriculture, infrastructure development (roads, housing areas, airport), and reclamation. Many peatlands are considered marginal for agriculture due to their high water level, low bulk density, high acidity and low nutrient levels. The potential for agriculture on peatlands is limited and initial agriculture activities on peatlands are usually abandoned after a few years due to low yields. Among the few successful agricultural ventures on peatlands are pineapple and *Aloe vera* growing, and sago planting in Malaysia, Indonesia and Thailand. There is currently an increasing trend of converting large areas of peatlands to oil palm plantations and forest plantations for pulp and paper in Indonesia and Malaysia.

Biodiversity

Peat swamp forests in SE Asia have a relatively high diversity of tree species, many of which are restricted to this type of habitat. According to Whitmore (1984), peat swamp forests in the region have been recognised as an important reservoir of plant diversity. For instance, there has been a record of more than 300 tree species in peat swamp forests in Sumatra, Indonesia, some of which are becoming increasingly rare. In addition, 160 tree species were recorded in Berbak National Park, Jambi province, Sumatra (Giesen, 1991). In Peninsular Malaysia, 132 tree species were recorded in a 5ha plot in Pekan Forest Reserve, Pahang (Ibrahim, 1995) and 107 tree species have been recorded in North Selangor Peat Swamp Forest (Appanah *et al.*, 1999). In Sarawak on the island of Borneo, where there are more pristine peat swamp forests, a higher number of tree species have been recorded. According to Anderson (1963), 242 tree species were recorded in the state of Sarawak. In Narathiwat Peat Swamp Forest in Thailand, 470 plant species have been recorded (Urapeepatanapong, 1996). Ibrahim (1995) stated that many of these species are confined to this unique habitat – for example 75% of the tree species found in peat swamp forests in Peninsular Malaysia are not found in other habitat types and many species have a relatively restricted geographical distribution.

Concerning the fauna, peat swamp forests are inhabited by rare and endangered mammals such as Tiger (*Panthera tigris sumatranus*), Sun Bear (*Helarctos malayanus*), Asian Elephant (*Elephas maximus*), Proboscis Monkey (*Nasalis larvatus*), Hair-nosed Otter (*Lutra sumatrana*) and Orang Utan (*Pongo pygmaeus*). Studies in Kalimantan, Indonesia, have indicated that the peat swamp forest is one of the last strongholds for the Orang Utan (Meijaard 1995). Many areas of peat swamp forest also support diverse bird communities. Prentice and Aikanathan (1989) recorded 173 species of bird in North Selangor Peat Swamp Forest of which 145 were breeding residents. A total of 310 species have been recorded from Danau Sentaram in Central Kalimantan., Indonesia. Endangered species of birds recorded from peat swamp forests include Short-toed Coucal (*Centropus rectunguis*), Storm's Stork (*Ciconia stormi*) and Lesser Adjutant (*Leptoptilos javanicus*).

Peatland rivers, also known as 'blackwater rivers', are important aquatic habitats for fish. These rivers often have a higher degree of localised endemism for fish species compared to other rivers, and they are also an important source of aquarium fishes, including the endangered Arowana (*Scleropagus formosus*). Ng *et al* (1992) have recorded more than 100 fish species in the North Selangor Peat Swamp Forest in Malaysia, about 50% of these are restricted to blackwater habitats. In Danau Sentarum in West Kalimantan, more than 250 species have been recorded in the past 10 years in its blackwaters.

Ecosystem diversity is often overlooked when considering biodiversity values, with most emphasis being on species richness and diversity. Some peat swamp communities are unique and globally significant in their own right, even though the species found in the community may be seen in other ecosystems. One such example is the plant community on deep peat in the centre of the peat dome in northern Borneo that has developed a unique stunted vegetation community not found elsewhere.

Due to the unique features and biodiversity of peat swamp forests, ecotourism activities have been developed within and adjacent to them, such as at the Princess Sirindhorn Peat Swamp Forest Research and Study Centre in Narathiwat, Southern Thailand.

Functions / Services

Peatlands are very important for reducing flood peaks and for maintaining base flows in rivers during dry periods. The peat, acting as a sponge, absorbs water during wet periods and releases it slowly during dry periods. Thus, intact peatlands have a very great potential to prevent loss of life and damage to infrastructure by reducing flooding downstream. The maintenance of minimum flows in rivers in the dry season can maintain irrigation works downstream and prevent saline water intrusion up rivers.

Peatlands are also vitally important for their capacity for storing large amounts of carbon. In global terms, peatlands cover only 3% of the land surface but store 20-35% of the carbon. Tropical peatlands store 2-6000 t C/ha compared to the 270 t C/ha on average in forest ecosystems in the world. Peatlands in the ASEAN region are estimated to store up to 5% of all carbon present on the world's land surface. Moreover, a healthy intact peatland actively accumulates carbon, offsetting to

some extent carbon emissions from fossil fuels. Peatlands are one of the very few mature ecosystems that can actively accumulate carbon.

Besides having a high conservation value for flora and fauna, peat swamp forests also play a critical role in the economy and ecology of the region by providing timber and non-timber forest products, by serving as a source for water, by acting to control flooding and for many other benefits. They also play a globally significant role in storing an estimated 120 billion tonnes of carbon or approximately 5% of all global terrestrial carbon and for acting as repositories for unique and important biodiversity.

Table 1: Benefits that Peatlands Provide

Types of Peatland Values	Examples
Direct Uses (Goods)	• Source of food (eg. fish) • Source of medicinal plants • Source of ornamental plants • Source of aquarium fish • Source of timber, rattan and other forest products for construction purposes, fuel and handicrafts • Source of water
Indirect Uses (Services)	• Storage and sequestration of carbon • Reduction of downstream flood peaks by absorbing floodwaters • Maintenance of base (minimum) flows in rivers by releasing water slowly during dry periods • Prevention of saline water intrusion by maintaining base flows and water table levels
Attributes	• Spiritual, historical and cultural values • Recreation and aesthetic values • Biodiversity attributes (eg. species richness and endemism) • Education and Research

1.1.2 Threats to Peatlands and Root Causes of Peatland Degradation

The main threat to peatlands in this region is the activity of uncontrolled drainage and its subsequent negative impacts, leading to the occurrence of peatland fires, regional haze pollution, loss of forests and biodiversity. Over the past 30 years, peat swamp forests have been increasingly cleared, drained and degraded as a result of unsustainable forestry and agricultural practices. An estimated 13 million ha have been impacted by both legal and illegal logging activities which often involves drainage of the peat during the extraction process and over-exploitation of forest resources. Although most peatland soil (especially those deeper than 2m) is marginal to poor for agriculture, 5-7 million ha have been cleared and drained in the region for agriculture and plantation projects - mainly oil palm, pulpwood, rice and various small-scale crops. Many of these agricultural ventures on peat have ended in failure. The most notable example is the Mega-Rice Project in Kalimantan, Indonesia where 1 million ha was cleared and drained for rice cultivation although less than 5% of the land was suitable for this purpose. This scheme, like many others, was abandoned before the plan was completed. From the analysis of five countries regarding threats and root causes of peatland degradation, the main threats are fire from land clearing, inappropriate or over-drainage followed by land clearance or conversion.

Threats

- **Fire from land clearing**

Fire remains the biggest threat to the remaining peatlands in SE Asia. Almost annually, incidences of peat fire can be observed in countries such as Indonesia, Malaysia, Thailand, Brunei and Vietnam. Degraded peatlands become more vulnerable to fire, especially during the dry seasons in February-April and July-September. In most cases, there are recurrent fires in peatland areas that have previously burnt and the fire-affected areas keep expanding. Most fires

start from innocent small-scale land clearing activities that, when they become uncontrolled, leads to larger peatland fires.

- **Drainage of peatlands**

Drainage of peatlands is one of the major causes of peatland degradation in the region. Almost all kinds of development on peatland involve drainage of the peatland itself and/ or its surrounding area, subsequently altering the hydrodynamic equilibrium of the peatlands. Drainage and excessive drying lead to irreversible damage and negative impacts on the natural communities in peatlands. Excessive drying will also increase the frequency of peatland fires. There is frequently a lack of understanding of the complex hydrology of the peatland ecosystem, which leads to the drainage of peatlands.

Table 2: Analysis of Threats and Root Causes Identified for the Five Countries Involved in the Project

	Threats, Impacts and Root Causes	Relative * Importance {Scale 1-5: 5= Very important and 1= low importance}				
		IND	MAL	PHI	THA	VIE
	Threats					
1.	Inappropriate or Over-drainage	5	5	2		5
2.	Fire (land clearing)	2	5	5	5	5
3.	Land clearance	3	5	4		5
4.	Conversion to agricultural land	1	4	2	4	4
5.	Over-exploitation of timber and non-timber forest products	4	4	1		4
6.	Peat extraction/mining	3				2
7.	Development infrastructure - road and railway networks, transmission lines, oil and water supply lines	5	4	5		
8.	Destructive fishing techniques - small mesh nets, poisoning	3	4			
9.	Illegal poaching	4				4
10.	Pond aquaculture - involves abstraction of groundwater	3	3			
11.	Water pollution from industries	5	3	3		
12.	Spread of alien invasive species	3	3	3		
	Root Causes					
1.	Lack of institutional capacity	4	3	5	2	2
2.	Lack of knowledge and understanding on peatlands	4	3	5	3	3
3.	Unclear/ weak policies and regulations	4	2	4	1	1
4.	Weak law enforcement	4	2	3	4	4
5.	Unsustainable practices	3	3	4	3	3
6.	Issues of definition		2	2	5	5
7.	Lack of inter-agency cooperation	2	3	4	3	3
8.	Difficulty of access to information related to peatlands	1	2	4	4	4
9.	Lack of awareness of peatland values	3	2	5	3	3
10.	Conflicts of interest in the utilization of peatlands	3	2	4	5	5
11.	Inappropriate development strategies	2	4	3	3	3
12.	Lack on information on extent, status and suitability of peatlands for different purposes	1	4	4	2	2
13.	Social poverty and dependency of peatland community	3		3	4	4

- **Land clearance or conversion to agriculture land**

Another main threat to peatlands in SE Asia is the activity of land clearance or conversion, either for development or large scale agriculture activities. For example, large areas of pristine peat swamp forest in Indonesia have been demarcated for conversion to forest plantations to produce pulp and paper. In Malaysia, large areas of peat swamp forest were converted to oil palm plantations developed for infrastructure. Even in the Philippines, there is a threat to convert the remaining peatlands for agriculture purposes in the Leyte Sab-a basin.

Root Causes

- **Lack of knowledge and understanding on peatlands**

One of the constraints to effective land use planning and management is a lack of information on the extent, status and suitability of peatlands for different uses. Apart from a few examples, most peatland components and functions are still poorly understood and/ or poorly quantified compared to other ecosystems. Available information is sometimes inadequate to assess the ecological consequence of developing a particular area without further feasibility studies. Knowledge and understanding on peatlands is not only limited to the peatland managers and policy makers, but also there is lack of understanding at the grassroots level, those stakeholders that are directly involved in the utilisation and management of peatlands. The lack of knowledge and understanding with regard to the water management of peatlands leads to the construction of drains and lowering of water table without proper controlling measures, hence, leading to the fires. This is not only carried out by local communities with their small scale plantation and land clearing activities, but also by the bigger players such as the oil palm planters and also the pulp and paper companies.

- **Lack of institutional capacity**

One principal constraint in peatland management in the region is weak institutional arrangements and capacity for peatland management. Often the responsibility for management of one peatland area is divided among a broad range of sectoral agencies (forestry, agriculture, environment) as well as between the central and local government, and the community. This is particularly true for Indonesia, Malaysia, Thailand and Vietnam. Lack of holistic planning leads to overlaps, duplication and omissions. There is frequently a lack of understanding of the ecological complexity of peatlands and a general failure to comprehend the importance of their natural functions.

- **Unclear or weak policy regulations**

In most countries there is no harmonised policy related to the management of peatlands. Peatland use is often governed by separate policies related to forest management, agriculture development, environmental protection and nature conservation. There are frequently gaps or conflicts between such policy frameworks. For example in several countries in the region, incentives are still provided to drain peatlands for forestry or agricultural purposes – even when such peatlands are of marginal agricultural value or provide more valuable ecological services in their natural state.

1.1.3 Regional Policy Context

1.1.3.1 Regional Policy Framework

The 1997/1998 forest and land fires in Indonesia that triggered adverse knock-on effects, such as transboundary haze pollution, emphasised the need for a more coordinated effort at the regional level to prevent and control such negative impacts. Despite increased efforts since then, it was only in June 2002 at the 9th ASEAN Ministerial Meeting on Haze (AMMH) that serious note was made of fire prevention and control measures in peatlands. The Meeting requested the ASEAN Senior Officials of the Environment Haze Technical Task Force (ASOEN HTTF) to initiate a collaborative effort to develop and provide a framework for regional cooperation on fire, haze and peatland management.

The ASEAN Peatland Management Initiative (APMI) was adopted during the 20th HTTF meeting in Manila after rounds of extensive consultations and reviews. The APMI is seen as a long term initiative working through the ASEAN structure, to be coordinated by the ASEAN Secretariat and the HTTF. The APMI was then translated into action in the form of the ASEAN Peatland Management Strategy (APMS) in November 2005. The APMS provides guidance to ASEAN Member countries and other implementing bodies on measures to promote sustainable peatland management. The Strategy is the most relevant regional framework in ASEAN for promoting sustainable peatland management

through collective action and enhanced cooperation to support and sustain local livelihoods, reduce the risks of fire and its associated haze, and contribute to global environmental management.

i. ASEAN Regional Haze Action Plan (RHAP)

The Regional Haze Action Plan was endorsed by the ASEAN Environment Ministers in December 1997 during a period of intense fire and transboundary haze pollution. Under its overall framework, strategic measures and activities have been targeted to strengthen the region's capacity and capability to address transboundary haze pollution. The RHAP has three primary objectives, namely (i) to prevent land and forest fires through better management policies and enforcement; (ii) to establish operational mechanisms to monitor land and forest fires; and (iii) to strengthen regional land and forest fire-fighting capability with other mitigation measures.

The RHAP has three major components: prevention, mitigation and monitoring. Malaysia takes the lead in prevention, Indonesia in mitigation, and Singapore in monitoring of fires and haze. ASEAN Member Countries (AMCs) also undertake national-level actions that relate to the three RHAP components. Implementation of the RHAP at the sub-regional and regional level should complement measures taken at the national level.

ii. ASEAN Agreement on Transboundary Haze Pollution

The Landmark ASEAN Agreement on Transboundary Haze Pollution was signed by the ten AMCs on 10 June 2002 in Kuala Lumpur, Malaysia and was enforced on 25 November 2003. It contains provisions on monitoring, assessment and prevention, technical cooperation and scientific research, mechanisms for coordination, lines of communication, and simplified customs and immigration procedures for disaster relief. The Agreement also provides for the establishment of an ASEAN Coordinating Centre for Transboundary Haze Pollution Control. To date, Brunei Darussalam, Lao PDR, Malaysia, Myanmar, Singapore, Thailand and Viet Nam have ratified the Agreement and deposited their instrument of ratification/ approval with the ASEAN Secretariat.

iii. ASEAN Peatland Management Initiative (APMI)

The concept for this initiative was developed through discussion with a broad range of agencies in 1999-2001. Information on peatland fires and the need for cooperation was discussed at the 13th ASOEN-HTTF Meeting and the 7th ASEAN Ministerial Meeting on Haze (AMMH) in July 1999. The 19th ASOEN-HTTF Meeting and the 9th AMMH on 10-11 June 2002 discussed the issue of fire prevention and control in peatlands. The 9th AMMH also discussed the need for proper development and utilisation of peatlands in the region, and requested the HTTF and its working groups to explore development of this initiative. The APMI was discussed and developed further through consultations, questionnaires and regional meetings, and was adopted in February 2003 at the 20th ASOEN-HTTF Meeting in Manila, Philippines, together with a work plan for 2003-2005. The APMI was highlighted at the 10th AMMH in March 2003 in Siem Reap, Cambodia.

iv. ASEAN Peatland Management Strategy (APMS)

As a main output of the APMI, this regional Strategy was developed to provide a common framework for peatland management in the region in the period 2006–2020. There are four main objectives to the proposed strategy, namely:

- To enhance understanding and build capacity on peatland management issues in the region
- To reduce the incidence of peatland fires and associated haze
- To support national and local level implementation activities on peatland management and fire prevention
- To develop a regional strategy and cooperation mechanisms to promote sustainable peatland management

This strategy includes 25 operational objectives in 13 focal areas namely inventory and assessment; research, awareness and capacity building information sharing, policy and legislation, fire prevention, control and monitoring, conservation of peatland biodiversity and integrated management of peatlands, promotion of demonstration sites for peat, restoration and rehabilitation, peatland and climate change, regional cooperation and financing of the implementation strategy. The strategy was endorsed by the HTTF in November 2005 and will be presented to the AMMH. ASEAN Member Countries with significant peatlands are currently developing complementary National Action Plans (NAPs) on Peatlands. The NAPs

will provide the respective countries with their national focus, and identify agencies involved, funds and requirements for implementing activities towards the sustainable management of peatlands.

1.1.3.2 Regional Institutional Framework

The main regional institutional framework related to peatland management and degradation lies within the ASEAN mechanisms on transboundary haze pollution as described below.

i. ASEAN Ministerial Meeting on Haze (AMMH)

The AMMH provides policy guidance and direction to the ASOEN HTTF for the implementation of the RHAP.

ii. ASOEN Haze Technical Task Force (ASOEN-HTTF)

The ASOEN-HTTF is a subsidiary of the ASEAN Senior Officials on the Environment (ASOEN) established in 1995. Presently, the ASOEN-HTTF is chaired by Indonesia and consists of senior officials from the 10 AMCs. It has met a total of 22 times and has been guiding the work related to the implementation of the RHAP.

iii. Sub-regional Fire fighting Arrangements for Sumatra and Borneo (SRFA)

Realising the need to focus on fire management efforts in specific areas, the ASOEN-HTTF established two working groups in April 1998 for the sub-regions of Sumatra and Borneo, namely the Working Group on Sub-regional Fire-fighting Arrangement for Sumatra (SRFA-Sumatra) and the Working Group on Sub-regional Fire-fighting Arrangement for Borneo (SRFA-Borneo). Subsequently, the ASOEN-HTTF established two additional working groups focusing on legal matters and law enforcement (the SRFA Legal Group on Law and Enforcement), and climate and meteorological conditions (the Sub Regional Climate Review Meeting). An *ad hoc* group, namely the Simulation Organising Committee (SOC) for SRFA Fire and Haze Disaster Simulation Exercise was established in August 2002 to develop standard operating procedures for the SRFA and prepare details for SRFA simulation exercises.

iv. ASEAN Secretariat

The Environment and Disaster Management Unit of the Bureau for Resources and Development of the ASEAN Secretariat provides coordination and secretarial support to the above ASEAN bodies. The secretariat also serves as a resource for the development of regional policy frameworks and coordinates the implementation of regional projects and activities. The ASEAN Secretariat currently serves as the interim ASEAN coordinating centre for Transboundary Haze Pollution Control, together with the ASMC.

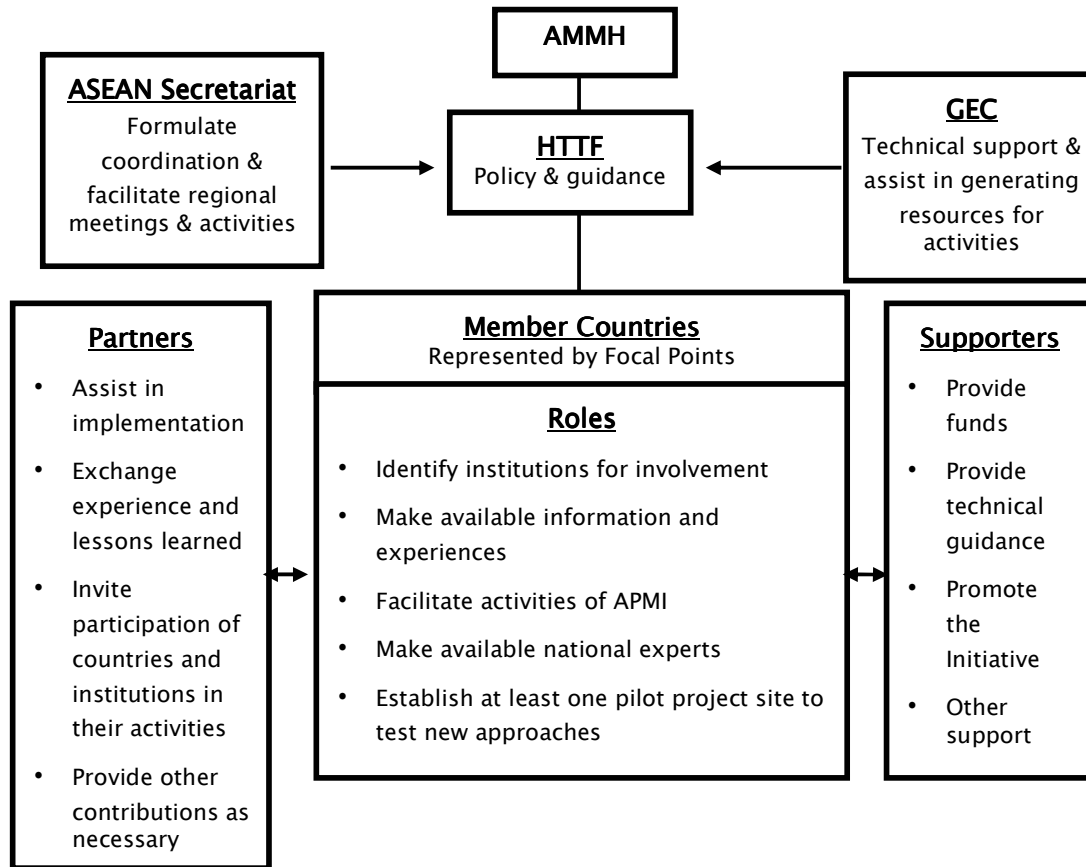


Figure 1: Existing Regional Institutional Framework

1.2 Baseline Scenario

It is envisaged that without the proposed intervention through the current project, there will be a range of problems which will continue in the future.

i. Peatland fires and associated smoke haze will remain constant or increase

In the past 10 years, 2.5million ha of peatlands were burnt releasing 2-3billion tonnes of carbon dioxide and causing an estimated USD10billion damage in the region. Without the prevention of further degradation of peatlands, it is anticipated that the extent and intensity of fires will remain the same or increase in the future. Peatlands that have been burnt have sufficient fuel for at least 50-100 more years to produce fires of similar intensity as the previous ones. Unless changes are made to peatland management, fires in the region will continue to have a negative impact on health, tourism, transport and other economic sectors in the region.

ii. Further degradation of already damaged peatland areas

Peatlands that have been degraded in the past are likely to be further degraded without specific interventions. The 2.5million ha of peatlands already burnt in the past 10 years are predicted to burn again in future El Niño events. After repeated burning, these forests will be degraded into unproductive open grassy swamps. A significant proportion of the 10million ha of peatland forests which have been opened up by legal and illegal logging and drainage in the past 10 years are expected to be affected by fires related to land clearing or future El Niño events. Without specific support or guidance, there will be limited effort to rehabilitate peat swamp forests. Degraded peat

swamp forest sites without rehabilitation measures will either be degraded further or be converted into other land uses, hence leading to a total loss of peatland ecosystems.

iii. Loss of globally important peat swamp biodiversity

The large scale clearance and over-exploitation of peat swamp forests have severely impacted the biodiversity of peatlands in the region. More than 30% of the total habitat has been destroyed and a further 40% degraded. In some parts of the region there are almost no intact peat swamp forests remaining. Without intervention, this trend is likely to continue and more habitats and species of global and regional importance will be lost.

It is anticipated that without specific interventions, intact peat swamp forests will continue to be degraded through continual over-exploitation or illegal harvesting of natural resources such as timber. In addition, there will be continued development of agriculture and infrastructure projects in and adjacent to the forests, threatening the integrity of peat ecosystems and resulting in the loss of ecological support services (i.e. flood mitigation, saline water intrusion prevention, sediment and toxic removal, groundwater recharge, micro-climate regulation etc).

iv. 4. Increased carbon emissions and loss of carbon stores

Peatlands are considered to be a globally significant store of carbon containing 20-35% of the carbon on the terrestrial biosphere/ soils. While they only cover 3% of the land surface, they store up to 30% of the carbon. Tropical peatlands store 2-6,000 t C/ha compared to 270 t C/ha on average in forest ecosystems in the world. This storage function is now being reversed by human intervention. Activities related to land conversion and fire incidences release this stored carbon to the atmosphere, and if in significant amounts, it can have detrimental implications on climate change. Drainage releases 50-200 t C/ha annually and each fire may release 500-1,000 t C/ha. In 1997-98, it was estimated that peatlands in the region released between 1-2 billion tonnes of carbon as a result of El-Nino induced fires.

2. STRATEGY

2.1 Project Strategy

2.1.1 Rationale

The region of South East Asia faces common problems relating to peatlands, namely the drainage of peatlands, the occurrence of peatland fires and the over-exploitation of its resources. Peatland fires and their associated haze have had the most severe negative impact on the environment, socio-economic and health. It is said that the 1997-98 fire episodes have resulted in economic losses estimated at close to USD 9billion. The phenomena of annually recurring peatland fires have resulted in the depletion of peat swamp forests and increased degradation of these ecosystems are the result of other human activities.

Since the devastating fires of 1997-98, the region has made significant effort to address the issue of peatland fires, their associated transboundary haze and greenhouse gas emissions with guidance from the Association of Southeast Asian Nations (ASEAN) through its Secretariat, ASEAN member countries and the assistance of the international community. These efforts were represented by various stand-alone activities at the site level that focused on fire fighting measures and have not effectively addressed the root causes of the problem. Hence, annual peatland fires still persist especially in countries like Indonesia and Malaysia and these generate huge amounts of smoke. One such fire incident was felt by Malaysia on 12 August 2005 when a state of emergency was declared due poor air quality as a result of the transboundary haze caused by peatland fires in Sumatera, Indonesia and in the state of Selangor in Malaysia.

Recognising that peatland drainage and degradation are main root causes of regular land and forest fires and that the need to address these root causes of peatland degradation were urgent, a subsequent framework was developed to allow AMCs to address these issues through the wise use and sustainable management of their peatland resources.

The regional component of the Project aims to support the implementation of a Regional Action Plan of the ASEAN Peatland Management Strategy (RAP/ APMS) and the National Action Plans (NAPs) of the countries involved in the project. It will also synergise the various country component activities and provide a platform for the integration of project activities towards achieving the overall desired goal. Strategic intervention from a regional perspective could contribute to stimulating regional

approaches leading to on-the-ground activities that could be carried out in various pilot sites in the region. A coordination mechanism will be set up for compiling information and to disseminate or share amongst the countries within the project scope, including on issues such as the status of peatland carbon storage and climate vulnerability, best management practices and community livelihood participation options. This information is to be compiled, analysed and disseminated to provide guidance for specific peatland management policies to address their respective issues on peatland degradation, poverty alleviation and sustainable environmental management for the benefit of the ASEAN region.

Table 3: Prioritised Regional Action in Respective Focal Areas and Operational Objectives

Focal Areas	Operational Objectives	Prioritised Regional Tasks
1. Inventory and Assessment	1.3 Monitor and evaluate peatland status and management	1.3.1 Small group (experts of AMCs) to develop set of guidelines and methodology for monitoring and provide advice to AMCs
3. Awareness and Capacity Building	3.1 Enhance public awareness on importance of peatlands, its vulnerability to fire and the threat of haze through implementation of a comprehensive plan	3.1.1 Develop a communication strategy for peatland management including the compilation and sharing of materials, language adaptation, linkage with regional or international fora/ groups (i.e. ASEAN Center for Biodiversity, RAMSAR and NGO CEPA focal points, media, etc)
	3.2 Build institutional capacity for management of peatlands	3.2.2 Identify experts on specific aspects of peatlands
		3.2.3 Identify potential options for training, study tours, regional workshops and share opportunities for funding
4. Information Sharing	4.1 Enhance information management and promote sharing	4.1.1 Make use and strengthen existing CBD clearing house mechanisms, ASEAN Haze online, ASEAN Forest Clearing house mechanism, SEA Peat-portal
		4.1.2 Strengthen e-discussion groups and produce regular publications at regional level on overall implementation of the APMS
		4.1.3 Compile and make available guidelines and hand books on BMP
6. Fire Prevention, Control and Monitoring	6.1 Reduce and minimise occurrence of fires and associated haze	6.1.1 Collate information and disseminate to individual countries (eg. areas of high fire risk, location of hotspots)
		6.1.2 Collate information and translate where appropriate/ disseminate to individual countries
7. Conservation of Peatland Biodiversity	7.1 Promote the conservation of peatland biodiversity	7.1.3 Establish a regional network of protected areas
8. Integrated Management of Peatlands	8.2 Promote integrated water resources and peatland management using a basin-wide approach and avoid fragmentation	8.2.1 Develop guidelines for the sustainable utilisation of peatlands
	8.3 Promote integrated forest and peatland management	8.3.2 Develop standardised methodologies for documenting peatland and set up a database at regional level
	8.5 Promote integrated community livelihood and peatland management	8.5.1 Identify suitable mechanisms for enhancing market access to highlight sustainable livelihood, poverty elevation, gender equity etc.
9. Establishment and Promotion of Demonstration Sites for Peatland Management	9.1 Promote best management practices	9.1.1 Compile and promote regional demonstration sites
10. Restoration and Rehabilitation	10.1 Develop appropriate techniques for the restoration or rehabilitation of degraded peatlands	10.1.2 Source experts from the region and develop specific training modules Organise/ facilitate regional training programmes

	10.2 Rehabilitate burnt, drained and degraded peatlands	10.2.1 Define functional peatlands and develop a standardised definition of peatland degradation (peatland that no longer functions naturally)
11. Peatlands and Climate Change	11.2 Support peatland adaptation process to global climate change	11.2.4 Quantify the impact of carbon loss from peatlands and damage caused by climate change on peatlands; conduct studies to establish justification for support from adaptation funds
12. Regional Cooperation	12.1 Promote exchange of expertise in addressing peatland management issues	12.1.2 Strengthen the SEA Peat Network to include all experts on peatland in the ASEAN region
	12.2 Establishment of 'centres of excellence' in the region for peatland assessment and management	12.2.3 Enhance linkages and cooperation between centres through workshops, exchanges, attachments
	12.4 Enhance multi-stakeholder partnerships to support peatland management	12.4.1 Strengthen partnerships among stakeholders through the APMI and related activities through regional stakeholder meetings and workshops
13. Financing	13.1 Generate financial resources required for the programmes and activities to achieve target of the strategy	13.1.1 Develop a financing strategy for the implementation of the APMS including cost benefit analysis
		13.1.2 Undertake a feasibility study to explore the use of polluter-pay and user-pay schemes, tax incentives or other options to generate sustainable resources to support the implementation of the strategy

2.1.2 Justification

The proposed activities for this regional component have been designed to tackle the pressing issues commonly faced by the region, which are peatland fire and land clearing, inappropriate drainage of peatlands and conversion to agricultural land. The root causes leading to these common issues and problems were also identified and are summarised as: a lack of knowledge and understanding on peatlands and their management, unclear or weak policies and regulations, a lack of institutional capacity and unsustainable practices of peatland management.

Table 4: Project Outputs in Relation to Prioritised Tasks in RAP and GEF Focal Areas

MAIN PROBLEMS	ROOT CAUSES	PRIORITISED TASK IN RAP	GEF FOCAL AREAS	RELATED PROJECT OUTPUT/S
Fire from land clearing	<i>Lack of knowledge and understanding on peatlands</i>	4.1.1 Make use and strengthen existing CBD clearing house mechanisms, ASEAN Haze online, ASEAN Forest Clearing House Mechanism, SEA Peat-portal	SLM1	1.4
	<i>Unclear or weak policy regulations</i>	4.1.2 Strengthen e-discussion groups and produce regular publication at regional level on over all implementation of APMS	SLM1	1.4/ 1.1
		8.3.2 Develop standardised methodologies for documenting peatland and hold a database at regional level		2.5
		6.1.1 Collate information and disseminate to individual countries (eg. areas of high fire risk, location of hotspots)	SLM1	2.5/2.1
		6.1.2 Collate information and translate where appropriate/ disseminate to individual countries		2.1
		10.2.1 Define functional peatlands and develop a standardised definition of peatland degradation (peatland that no longer functions naturally)		
		11.2.4 Quantify the impact of carbon loss from peatlands and damage caused by climate change on peatlands; conduct	OP12	2.3

MAIN PROBLEMS	ROOT CAUSES	PRIORITISED TASK IN RAP	GEF FOCAL AREAS	RELATED PROJECT OUTPUT/S
		studies to establish justification for support from adaptation funds		
		12.1.2 Strengthen the SEA Peat Network to include all experts on peatland in the ASEAN region		1.4
Inappropriate drainage of peatlands	Lack of institutional capacity	3.2.2 Identify experts on specific aspects of peatlands	SLM1	
	Unclear or weak policy regulations	3.2.3 Identify potential options for training, study tours, regional workshops and share opportunities for funding	SLM1	1.2
	Lack of knowledge and understanding on peatlands	10.1.2 Source experts from the region and develop specific training modules		1.2
	Unsustainable practices	12.2.3 Enhance linkages and cooperation between centres through workshops, exchanges, attachments		1.4
		12.4.1 Strengthen partnerships among stakeholders through the APMI and related activities through regional stakeholder meetings and workshops	BD4	1.4
		7.1.3 Establish a regional network of protected areas	BD4	2.2
Land clearance or conversion to agriculture land	Lack of knowledge and understanding on peatlands	9.1.1 Compile and promote regional demonstration sites	SLM2	3.1
	Lack of institutional capacity	13.1.1 Develop a financing strategy for implementation of the APMS including cost benefit analysis		1.3
	Unclear or weak policy regulations	13.1.2 Undertake a feasibility study to explore the use of polluter-pay and user-pay schemes, tax incentives or other options to generate sustainable resources to support the implementation of the strategy	BD4	1.3
	Unsustainable practices	4.1.3 Compile and make available guidelines and hand books on Best Management Practices	BD4	2.4
		8.2.1 Develop guidelines for sustainable utilisation of peatlands	BD4	2.4
		8.5.1 Identify suitable mechanisms for enhancing market access to highlight sustainable livelihood, poverty elevation, gender equity, etc	SLM2	1.3

2.2 Overall Project Goal and Objectives

OVERALL PROJECT GOAL: To promote the sustainable management of peatlands in SE Asia to sustain local livelihoods to reduce poverty, reduce risk of fire and associated haze and contribute to global environmental management, particularly biodiversity conservation and climate change mitigation.

IMMEDIATE OBJECTIVE: To demonstrate, implement and upscale integrated management of peatlands in SE Asia through mainstreaming and improved governance, strengthened capacity and awareness, enhanced multi-stakeholder partnerships, and innovative approaches to maintain and rehabilitate identified critical peatland sites.

Component Sub-Objective: To demonstrate, implement and upscale sustainable management and rehabilitation of peatlands in the South East Asian region through a regional framework for partnership, information sharing and capacity building; and providing guidelines for best management practices.

OUTCOME 1: CAPACITY BUILDING AND INSTITUTIONAL FRAMEWORK FOR SUSTAINABLE PEATLAND MANAGEMENT IN SOUTH EAST ASIA STRENGTHENED

COMPONENT SUB-OUTCOME 1: Capacity for implementation of APMS enhanced through the development of National Action Plans (NAPs) for Peatlands

OUTCOME 2: REDUCED RATE OF DEGRADATION OF PEATLANDS IN SOUTH EAST ASIA

COMPONENT SUB-OUTCOME 2: Protection and sustainable management of peatland enhanced

OUTCOME 3: INTEGRATED MANAGEMENT AND REHABILITATION OF PEATLANDS DEMONSTRATED AND IMPLEMENTED AT TARGETED PEATLANDS

COMPONENT SUB-OUTCOME 3: Best management practices from demonstration sites compiled and disseminated to upscale learnings

OUTCOME 4: LOCAL COMMUNITIES AND THE PRIVATE SECTOR ACTIVELY CONTRIBUTING TO SUSTAINABLE PEATLAND MANAGEMENT

COMPONENT SUB-OUTCOME 4: Plantation sector actively contributing to peatland management

2.3 Component Outputs & Activities

Output 1.1: Coordinated Implementation of the APMS and NAPs supported

It is envisaged that this project would support activities related to the promotion of both the APMI and APMS towards the formal adoption of the APMS by AMCs, as well as support the development and implementation of the NAPs and the implementation of RAP. To ensure that the whole project fits within the broader framework of the APMI/ APMS, regular monitoring of the progress with APMS and NAPs is needed. Assistance would also be provided to countries which have yet to develop a NAP such as Cambodia, Lao PDR and Myanmar to initiate the development of a NAP.

ACTIVITIES

- 1.1.1 Promote the implementation of the APMS and share experience among ASEAN members (including annual meeting)
- 1.1.2 Provide technical support and capacity building to ASEAN members to assess peatlands and finalise NAPs

Partners: ASEAN Secretariat, AMCs, APMI focal points, GEC, existing APMI partners and supporters

Output 1.2: Regional programme for capacity building and raising awareness implemented

Peatland degradation is a common issue faced by countries in the region. Regional training and study tours will help to expose peatland managers and experts to the problems commonly faced in peatland management and to the best management practices at project sites. This activity will build on activities in the country components and provide a regional coordinating mechanism to facilitate these activities. A training software will also be designed and develop -either on CD or internet-based training - for use in the region with various chapters on basic training in peatland management. One particular group that would be targeted will be the media to generate more attention on the threats of haze pollution and of the importance of peatland management in reducing haze from peat fires.

ACTIVITIES

- 1.2.1 Facilitate and support TOT training and exchange programmes for the region including study tours and regional workshops.
- 1.2.2 Develop outreach activities and awareness materials as well as information sharing mechanisms to build capacity for peatland management.
- 1.2.3 Develop and implement a communication strategy on raising awareness of peatland management including linkage with appropriate regional and international media and communication groups.

Partners: ASEAN Secretariat, NGOs, regional training centres

Output 1.3: Sustainable resource mobilisation mechanisms for peatland management in the region established *This output relates to the study on developing and designing some innovative resource mobilising mechanism to sustain peatland management efforts in the region. An example would be involving the private sector and other parties related to peatland management to participate in a common fund for the sustainable management of peatlands, such as the multi-donor trust fund. This also involves developing an economic evaluation methodology as a tool for measuring the real value of peatlands, in the effort to attract stakeholder contribution.*

ACTIVITY

- 1.3.1 Explore multi-donor trust funds, 'polluter-pay and user-pay' schemes, tax incentives, PES and other options to help generate sustainable resources to support the implementation of APMS activities.

Partners: AMCs, the private sector, supporters and funders of APMI

Output 1.4 Regional technical support and country guidance provided

The regional peatland partnership aims to enhance information sharing among stakeholders involved in the sustainable use of peatlands. This is to be done by involving the stakeholders in promoting the importance of peatlands through raising their awareness in support of the APMI and APMS. Special activities will be organised for members within this partnership such as an awards programme for best managed peatland sites, best peatland eco-tourism site, etc.

ACTIVITIES

- 1.4.1 Technical coordination and management to country and regional components.
- 1.4.2 Technical expert input.
- 1.4.3 Monitoring and evaluation of country components and overall project.

Partners: All stakeholders and interested party on peatland management (government agencies, research institutions, private sector, media groups, NGOs, etc)

Output 2.1: Mechanisms for effective regional prediction and monitoring of peat fires strengthened

The existing regional monitoring and prediction mechanism has focused generally on forest and wild land fires. With the compilation of all peatland related information, coupled with advanced technology on hotspots monitoring and weather prediction, a more effective synthesis of this information can be developed. Information generated will be channelled to relevant parties to provide the basis for peatland fire warning.

ACTIVITIES

- 2.1.1 Collate and refine documentation on peatlands in the region with high risk for fire and integrate with hotspot monitoring and fire danger rating systems to develop a real-time warning system for peat fires.
- 2.1.2 Operation of regional peat fire warning and monitoring system and link to pilot site and country verification and implementation.

Partners: SRFAs members, NEA, on-going fire prevention and control project in the region (GTZ, EU, JICA funded projects in Indonesia)

Output 2.2: Regional priorities for peatland biodiversity conservation identified

Tropical peat swamp forest ecosystems are inhabited by some of the most unique plant and fauna species. The conservation of biodiversity in this ecosystem is an important aspect of the project. Hence, this output will specifically target to identify peatland areas in the region that are valuable for conservation, a network of these peatland areas will be formally established and promoted for conservation, protection and management.

ACTIVITIES

- 2.2.1 Compile, analyze and monitor data from each ASEAN country on extent, status, biodiversity values and changes in peatlands.
- 2.2.2 Promote the establishment of a network of protected peatlands through awareness and outreach to various stakeholders, including guidelines for biodiversity conservation.

Partners: ASEAN Secretariat, ASEAN Biodiversity Centre, CIFOR, AMCs, research institutions, AMCs, individual experts

Output 2.3 Regional collaboration on peatland carbon storage and climate vulnerability in the region stimulated

The activity on stimulating studies on carbon and GHGs in relation to peatlands will build on the existing partnership following the APN-funded workshop on Vulnerability of Tropical Carbon Pools in SEA, jointly organised by the Global Carbon Project, CIFOR and the Global Environment Centre. The main aim of this initiative is to promote peatlands as important carbon stores, and their role in impacting climate change.

ACTIVITIES

- 2.3.1 Assess the vulnerability of peatlands to climate change and develop guidance on adaptation options.
- 2.3.2 Assess the role of peatlands in carbon storage and sequestration and the impact of land use changes and management options to reduce emissions.
- 2.3.3 Develop guidance for funding for peatland management related to climate change funding mechanisms including Climate Adaptation Funds, REDD mechanisms and Voluntary Carbon Funds.

Partners: AMCs, research institutions, Global Carbon Project groups, individual experts

Output 2.4: Guidelines for integrated management of peatlands developed and promoted

The project aims to establish guidelines for integrated management of peatlands, in particular for use by local communities involved in agricultural practices. The guidelines would aim to provide optimal yield and to ensure that peatlands are not mis-managed or converted in an unsustainable manner to minimise environmental degradation, including the reduction in fire incidences and transboundary haze pollution.

ACTIVITIES

- 2.4.1 Collate develop and disseminate guidelines / best practice for integrated planning for sustainable peatland management including buffer zone and catchment protection – eg for planners, local government.
- 2.4.2 Develop general guidelines/ modules/ information materials for community livelihood and sustainable peatlands management for adaptation/ dissemination at country level.

Partners: AMCs, Private sector, local communities, NGOs

Output 3.1 A regional network of demonstration sites and sharing experience established

The focus is to link all successful demonstration site(s) established in the respective country components. These demonstration sites will serve as models to demonstrate best management practices (BMP) in the region and to be presented as examples for study tours and training programmes. These BMP sites will be compiled and promoted throughout the region.

ACTIVITIES

- 3.1.1 Establish and compile and disseminate information on regional network of demonstration sites.
- 3.1.2 Organise meetings/ exchanges and promote upscaling of demonstration site experience.

Partners: AMCs, Partners and Supporters

Output 4.1: Guidelines for responsible management of existing oil palm and forest plantation on peatland developed and tested

The project aims to initiate partnerships with the oil palm plantation industry through the Secretariat of the Roundtable of Sustainable Palm Oil (RSPO). In Malaysia and Indonesia particularly the current trend is to expand oil palm plantations in peatland areas. Efforts need to be made to ensure that peat swamp forests are not exploited for this purpose and peatlands converted are managed sustainably to provide optimal yield and minimal environmental degradation.

ACTIVITIES

- 4.1.1 Provide input to consultation with the plantation sector in partnership with RSPO, national plantation associations and other organizations and promote sound plantation management on peatlands.

- 4.1.2 Develop guidelines for responsible management of existing oil palm and forest plantation on peatlands to recognize examples of good practice.
- 4.1.3 Collaborate with selected plantation companies, RSPO, national associations to test, demonstrate and promote these guidelines.

Partners: AMCs, RSPO, NGOs, private sector

Output 5.1 Project governance, management and coordination mechanisms at country levels established

Output 5.2 Project governance mechanism overseen and guided and effectively coordinated, monitored and evaluated

2.4 Key Indicators, Risks and Assumptions

The key indicators for the regional component are:

- The adoption and implementation of the APMS and the further development and implementation of the country NAPs
- Active cooperation among countries in the region to share information related to peatlands
- Interest from all stakeholders including the media, NGOs, local communities and the private sector in participation of regional workshops, training and study tours

Some of the risks that would affect the project in achieving its outcome and delivering its outputs are:

- Political stability and security in the focal countries/ pilot areas
- A large El-Nino event
- Trained personnel who are transferred prematurely to other departments /agencies that are not related to peatlands

The project activities have been design based on the following assumptions:

- That the APMS is adopted and implemented by ASEAN countries
- That political support to address transboundary haze and peatland issues continues
- That co-funding from stakeholders will be provided
- That countries continue to support ASEAN mechanisms to address peatland and haze problems
- That adequate support from the international community and other stakeholders for funding mechanisms are garnered
- That stakeholders support the implementation of the guidelines developed

2.5 Regional Drivenness

With increasing recognition of the significance of peatland degradation in the ASEAN region, there have been a growing number of activities at regional level. At the regional level, the ASEAN countries have begun to establish a number of mechanisms to address forest and peatland fires and transboundary smoke haze. These include the ASEAN Regional Haze Action Plan and the ASEAN Agreement on Transboundary Haze Pollution. Addressing environmental degradation, especially transboundary haze pollution, has been highlighted in ASEAN Vision 2020 and is a key element in the proposed ASEAN Socio-Cultural Community. The focus on specific problems related to peatlands led to the adoption of the ASEAN Peatland Management Initiative in February 2003 and the initial development of the associated ASEAN Peatland Management Strategy for wise use and sustainable management of peatlands.

2.6 Sustainability

The sustainability of this regional component is assured by the strong commitment of all ASEAN Governments in tackling the issue of fires and transboundary haze in the region, through the committees established under the ASEAN Agreement on Transboundary Haze Pollution. The involvement of senior government officials will also ensure that policy and legislative framework will be strengthened, better institutions and incentives will be developed, and that local control over natural resources will continue after project completion to engender long-term positive impacts. Capacity building at all levels will also facilitate improved capacity to respond to changing circumstances such as potential climate change effects.

The institutional sustainability will be ensured by the direct involvement of stakeholders (national, state, local, private, NGOs, etc) in all stages of the project and empowering them through the capacity building activities. Experience elsewhere has shown that empowering the local community, coupled with maintaining economic benefits, are the best assurances for long-term sustainability of a project. The ASEC will also collaborate with countries to pursue issues related to the sustainable management of peatlands and peatland fires beyond the duration of the project as it is an area of crucial importance in the region.

With regard to financial sustainability, it is envisaged that the project will explore a number of regional funding mechanisms to support the sustainable management of peatlands in the regions. The regional network of demonstration sites will provide models to show the feasibility, techniques and economic viability of restoring peatland areas and this should lead to the allocation of financial and other resources by the respective governments and other agencies.

2.7 Replicability

The coordinated regional mechanism designed and applied in this project can be replicated with adaptation for other regions, such as in Southern America and North East Asia. China, Russia, Mongolia and Japan face common problems with high altitude peatland degradation due to overgrazing and water resource mismanagement. Lessons learned from this regional cooperation can be shared other regions. Replication at the global level will be assisted through linkage to the Global Peatland Initiative and ongoing activities in the framework of the UNFCCC, CBD, UNCCD and Ramsar Convention. The mechanism for project implementation can also be replicated for other common issues in the ASEAN region such as for forest or coastal degradation, where a similar approach can be taken to develop an initiative, following the development of a regional strategy and followed by action plans at national level for implementation.

2.8 Stakeholder Involvement Plan

The project aims for full stakeholder participation to fulfil its goal and objectives. The proposed project has involved all country representatives and built on the foundation of the APMI structure since its development. It has received the strong support of governments, international funding agencies, environmental NGOs, and the local community throughout its preparation period.

Table 5: Main Project Partners

Name of Agency	Responsibility/ Role in Project
1. ASEAN Member Countries	AMCs will contribute to this regional activities through their participation in regional workshops, hosting study tours and workshops, providing data that could be synergised from a regional perspective, participate where possible in the establishment of a network of peatland protected areas and demonstration sites for best management practices.
2. Global Carbon Project Groups	The team led by the Global Carbon Project secretariat, GEC and CIFOR established a network of climate scientist, researchers and peat experts to study the vulnerability of carbon pools in tropical peatlands. Their role would be to conduct a study on peatlands and climate change and provide a synthesised report on the current situation and possible scenarios of climate vulnerability in relation to peatlands for the region of Southeast Asia.
3. Roundtable on Sustainable Palm Oil (RSPO) & Palm Oil Boards (in Malaysia and Indonesia)	The Secretariat for RSPO which is based in Malaysia coordinates all members of the RSPO comprising mainly of palm oil producers, traders, users, environmental NGOs and investors. It would be an opportunity for the project to link with on-going efforts of the RSPO to produce sustainable palm oil. Since large areas of peat swamp forests are being converted yearly for oil palm plantations, a smart partnership with the planters could result in minimising the degradation of peatlands, possibly through the development and adoption of best management practices guidelines for oil palm on peatlands.
4. NGOs	Environmental and social NGOs in the region will be involved as partners, with possible linkages to their on-going programmes in the region.
5. ASEAN Biodiversity Centre	The ASEAN Biodiversity Centre could play an important role in sourcing peatland biodiversity experts, networking with research institutions for

	compiling information relating to peatlands bio-diversity. The Centre will also host regional biodiversity workshops and training programmes for AMCs members.
6. Research institutions & universities	Selected research institutions and universities with a good track record of peatland management (environment, biological resources, sociology) would play a role in information dissemination and exchange. The aim of the project would be to make available existing information (publications, resources, research findings) to the scientific community, researchers and the general public.
7. National Environment Agency Singapore (NEA)	NEA provides on-going monitoring of hotspots to members of the SRFA. Singapore has been badly affected by the annual peat fires and haze from Kalimantan and Riau. Its role in this project then would be specifically to provide guidance (meteorological data), monitoring and technical expertise in the development of a real-time hotspots and fire danger rating system that could be used by peatland managers to prevent and control fire. This would build on the existing Fire Danger Rating Systems that has already been implemented in Indonesia and Malaysia.
8. Peat related projects	▪ EU-funded Forest Fire Prevention and Control Project in South Sumatra (FFPCP) ▪ EU-funded South Sumatra Forest Fire Management Project (SSFFMP) ▪ JICA-funded Forest Fire Prevention Management Project ▪ SEA Fire Danger Rating System hosted in Meteorological Service Malaysia ▪ UNDP-GEF-funded project on Conservation and Sustainable Use of Peat Swamp Forests and Associated Wetlands Ecosystems ▪ UNEP-GEF-funded project on Integrated Management of Peatlands for Biodiversity and Climate Change ▪ EU-Darwin-funded RESTROPEAT project ▪ CIDA-funded Climate Change, Forest and Peatlands in Indonesia Project (CCFPI) ▪ Central Kalimantan Peatland Project (CKPP)

3. PROJECT MANAGEMENT ARRANGEMENTS

3.1 Project Management and Implementation

The project will be managed and implemented using the existing ASEAN arrangements (as for implementation of the APMI/ APMS) as well as National Institutional mechanisms to minimize project management and overhead costs. In November 2006, the AMCs have endorsed a structure to implement the ASEAN Peatland Management Strategy based on the structure of the ASEAN Peatland Management Initiative established in February 2003 (see Figure 1).

The governance of the Project will include several bodies, namely the ASEAN Committee under COP to ASEAN Agreement on Transboundary Haze Pollution (AATHP), the Project Steering Committee (PSC), and the National Project Implementation Committee (NPIC). The project implementation and executing arrangements are to be handled by ASEAN Secretariat, the appointed National Coordinators, Regional Project Executing Agency and other executing agencies appointed at the country and local levels. The organisational structure for the Project is illustrated in Figure 2. Table 2 lists the Proposed Lead Agencies at the National and Local Levels for the respective Country Components.

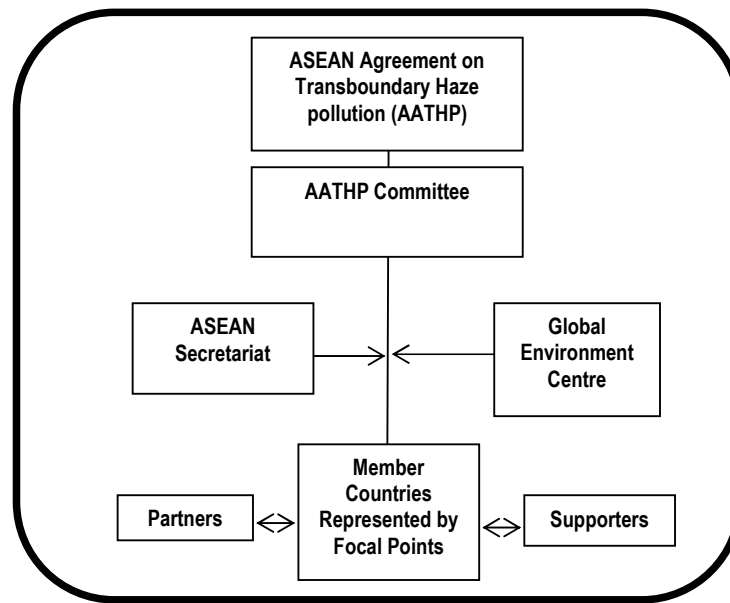


Figure 1: Structure for the Implementation of the APMI/ APMS endorsed by ASEAN Member States

Regional Project Executing Agency (RPEA)

Role and Responsibilities:

- Support the ASEAN Secretariat in the overall coordination and implementation of the Project
- Manage and implement the regional component
- Technical support and guidance to respective country components
- Review progress of activities and outputs of participating countries' components and regional component
- Prepare technical progress report/financial report for regional component
- Compile progress reports/financial reports from country components and draft overall progress reports.
- Organize regular monitoring missions to member countries
- Manage and administer funds for the regional component
- Provide logistic and secretariat support for regional meetings, workshops etc
- Support overall project fund administration and accounting
- Identifying and assisting in securing additional financial resources for project implementation
- Provide necessary technical and other support to ASEAN Member Countries/ASEAN Secretariat to assist with the implementation of the project.
- Facilitate linkages with International Partners and Supporters

4. PROJECT COSTS AND BUDGET

Revised Activities	Revised GEF	Revised Co-funding	Revised Total Cost
Output 1.1: Coordinated Implementation of the APMS and NAPs supported	\$155,000	\$90,000	\$245,000
Output 1.2: Regional programme for capacity building and raising awareness implemented	\$317,000	\$210,000	\$527,000
Output 1.3: Sustainable resource mobilisation mechanisms for peatland management in the region established	\$75,000	\$50,000	\$125,000
Output 1.4: Regional technical support and country guidance provided	\$378,000	\$70,500	\$448,500
Total Sub-Outcome 1	\$925,000	\$420,500	\$1,345,500
Output 2.1: Mechanisms for effective regional prediction and monitoring of peat fires strengthened	\$90,000	\$2,190,000	\$2,280,000
Output 2.2: Regional priorities for peatland biodiversity conservation identified	\$90,000	\$210,000	\$300,000
Output 2.3: Regional collaboration on peatland carbon storage and climate vulnerability in the region stimulated	\$100,000	\$135,000	\$235,000
Output 2.4: Guidelines for integrated management of peatlands developed and promoted	\$45,000	\$30,000	\$75,000
Total Sub-Outcome 2	\$325,000	\$2,565,000	\$2,890,000
Output 3.1: A regional network of demonstration sites and sharing experience established	\$55,000	\$70,000	\$125,000
Total Sub-Outcome 3	\$55,000	\$70,000	\$125,000
Output 4.1: Guidelines for responsible management of existing oil palm and forest plantations on peatlands developed and tested	\$76,514	\$230,000	\$306,514
Total Sub-Outcome 4	\$76,514	\$230,000	\$306,514
Output 5.2 Project governance mechanism overseen and guided and effectively coordinated, monitored and evaluated	\$345,650	\$919,650	\$1,265,300
Total Sub-Outcome 5	\$345,650	\$919,650	\$1,265,300
	\$1,727,164	\$4,205,150	\$5,932,314

5. MONITORING AND EVALUATION

5.1 Monitoring

Monitoring activities carried out by the RPEA will be based on the project's Logical Framework Matrix, both at the overall project level and at the regional and country levels. The overall Monitoring and Evaluation process for the project will be elaborated at the Inception Workshop. Appropriate participatory mechanisms and methodology for performance monitoring and evaluation will be established at the very outset of the project.

The RPEA and the ASEAN Secretariat will be responsible for day to day monitoring of implementation performance based on the project's Annual Workplan. The project's Annual Workplan will contain specific *performance or progress indicators* and *means of verification* that will enable project staff to assess whether implementation is proceeding at the intended pace and in the right direction. Field visits by the RPEA to the countries will be organized based on an agreed upon schedule. The RPEA will be responsible for preparing reports on mission findings and identify any support requirements.

5.2 REPORTING

The RPEA will support the ASEAN Secretariat to coordinate the preparation and submission of the following reports:

Report	Reporting Period	Due Date
1. Inception Report	Project period before Inception Meeting	2 months after Inception Workshop
2. Progress Report	1 st Jan- 31 Dec (annually)	No later than 3 months after reporting period (i.e. 31 st March every year)
3. Project Implementation Report	1 st July – 30 th June (annually)	30 th September (annually)
4 Audit Report plus audited financial statements	Previous Calendar year 1 st Jan – 31 Dec (Annually submit to RPEA 4 months after end of financial year)	30 June
5. Mid-Term Review	First 24 months of project	Two months after MTR
6. Project Completion Report	Entire project period	No later than 6 months after project completion

Inception Workshop (IW) and Inception Report (IR): The Regional Inception Workshop (IW) will be conducted prior to the commencement of project implementation. A fundamental objective of the IW will be to assist the Project Management Team in the preparation of the project's annual workplan on the basis of the project's logframe. The Project Inception Report will be prepared no later than two months after the Inception Workshop.

Progress Reports: The RPEA, in conjunction with NCs, will also be responsible to coordinate the preparation and submission of overall progress reports to cover both the financial and physical progress. The country teams will be responsible for the preparation and submission of the country reports covering both the physical and financial progress, which will be reviewed by the ASEAN Secretariat, with support from the RPEA. The RPEA will prepare the Progress Report for the Regional Component, and will assist the ASEAN Secretariat in compiling the Progress Report for the entire Project.

Project Implementation Report (PIR): This is a major tool for monitoring the GEF portfolio and extracting lessons and is an annual monitoring process mandated by the GEF. PIR reports will be compiled/ prepared by the RPEA and countries, under the coordination of the ASEAN Secretariat and IFAD..

Audit Report (plus audited financial statements): The project audit report should be submitted to IFAD within 6 months of the end of each financial year. The audited annual financial statements of each Component should be sent to the RPEA within four months of the end of the financial year. In addition, the auditors should be asked to provide a separate opinion on: The certified Statement of Expenditure (SOE) and the operation of the project bank account; and deliver a management letter addressing the adequacy of the accounting procedures and systems and internal controls. The RPEA will compile the annual audited financial statement along with the management letter for each component including the regional component implemented by the RPEA.

Mid –Term Review: An independent Mid-Term Review will be undertaken at the mid point of implementation and will highlight issues requiring decisions and actions with regards project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term. The MTR team of experts

will be selected by IFAD and the RPEA will assist with facilitating the organization, terms of reference and timing of the mid-term evaluation, in coordination with IFAD and the ASEAN Secretariat.

Project Completion Report: During the last three months of the project the Project Management Team will prepare the Project Completion Report. This comprehensive report will summarize all activities, achievements and outputs of the Project, lessons learnt, objectives met, or not achieved, structures and systems implemented, etc.

APPENDICES

Appendix A: Logical Framework Analysis

Project Title: Rehabilitation and Sustainable Use of Peatland Forests in South-East Asia

Summary
OVERALL PROJECT GOAL: To promote the sustainable management of peatlands in SE Asia to sustain local livelihoods to reduce poverty, reduce risk of fire and associated haze and contribute to global environmental management, particularly biodiversity conservation and climate change mitigation.
IMMEDIATE OBJECTIVE: To demonstrate, implement and upscale integrated management of peatlands in SE Asia through mainstreaming and improved governance, strengthened capacity and awareness, enhanced multi-stakeholder partnerships, and innovative approaches to maintain and rehabilitate identified critical peatland sites.
Component Sub-Objective: To demonstrate, implement and upscale sustainable management and rehabilitation of peatlands in the SE Asian region through a regional framework for partnership, information sharing and capacity building; and providing guidelines for best management practices.

Outcomes and Outputs	Objectively Verifiable Indicators			Means of Verification	Critical Assumptions
	Indicators	Baseline	Target		
COMPONENT SUB-OUTCOME 1: Capacity for implementation of APMS enhanced through the development of National Action Plans (NAPs) for Peatlands					
Output 1.1: Coordinated implementation of the APMS and NAPs supported					
1.1.1 Promote the implementation of the APMS and share experience among ASEAN members (including annual meeting)	NAPs for participating countries	4 participating countries have produced draft NAPs	NAPs for 4 participating countries finalised and being implemented by Y4 Annual meetings to review implementation of NAPs	Report to AATHP on APMS progress	ASEAN Secretariat and governments of member countries continue to support APMS and willing to continue to participate in project objectives
	APMS review	APMS endorsed in 2006	APMS reviewed and implementation priorities identified in Y4	Report to AATHP on APMS progress	
1.1.2 Provide technical support and capacity building to ASEAN members to assess peatlands and finalise NAPs	Rapid assessments and consultation meetings	Limited	1 each in CMLT countries	Project progress reports	
	NAPs for Brunei, Cambodia, Lao PDR, Myanmar & Thailand	Draft priority actions for peatlands in Brunei Draft NAP for Thailand CML - none	CMLT countries to prepare draft NAP by Y4 Final draft NAP for Brunei	Project progress reports	

Output 1.2: Regional programme for capacity building and raising awareness implemented					
1.2.1 Facilitate and support TOT training and exchange programmes for the region including study tours and regional workshops	No. of govt agencies with trained personnel as expert on integrated peatland management	Limited	At least 3 agencies per participating countries will have at least 2 staff trained on integrated peatland management by Y4	Training Needs Analysis Report/ Project progress reports	Trained personnel remain in the region/ country to assist in achieving targets
	No. of govt agencies staff with increased awareness of integrated peatland management	Limited	At least 15 government agencies staff per pilot site with increased awareness by Y4	Training Needs Analysis Report/ Country component progress reports	
1.2.2 Develop outreach activities and awareness materials as well as information sharing mechanisms to build capacity for peatland management.	Peat-portal	Limited activity	More information on SE Asian peatlands made available More active participation from the region by Y2	Project progress reports	All countries have the same needs for awareness materials
	Awareness materials on tropical peatlands	Various awareness materials available in selected languages	10 templates made available in local languages by Y4	Project progress reports	
1.2.3 Develop and implement a communication strategy on raising awareness of peatland management including linkage with appropriate regional and international media and communication groups.	Communication strategy	None	Strategy developed, adopted and being implemented by end of Y1, details to be decided at project start-up	Project progress reports Awareness material and news articles in file	Countries willing to support communication strategy
Output 1.3: Sustaining resource mobilisation mechanisms for peatland management and rehabilitation in the region established					
1.3.1 Explore multi-donor trust funds, 'polluter-pay and user-pay' schemes, tax incentives, PES and other options to help generate sustainable resources to support the implementation APMS activities.	Concept paper on options for sustainable resource mobilisation	Not existing	Concept paper on options for sustainable resource mobilisation completed by Y2 and presented at ASEAN level meeting	Project progress reports	
	Innovative finance mechanisms for peatland management	Limited information	At least 1 innovative finance mechanisms pilot tested in Philippines and Viet Nam by Y2 and in Indonesia and Malaysia by Y4	Project progress reports	Governments are willing to introduce innovative mechanisms
Output 1.4: Technical support and guidance to countries					

1.4.1 Technical coordination and management to country and regional components.	Project Progress Reports	None	Timely production of project progress report	AATHP meetings minutes	
1.4.2 Technical expert input.	Project Progress Reports	None	Timely production of project progress report	AATHP meetings minutes	
1.4.3 Monitoring and evaluation of country components and overall project.	Monitoring and evaluation mission reports	None	Timely production of M & E reports	Project Progress Reports	
COMPONENT SUB-OUTCOME 2: Protection and sustainable management of peatland enhanced					
Output 2.1: Mechanisms for effective regional prediction and monitoring of peat fires strengthened					
2.1.1 Collate and refine documentation on peatlands in the region with high risk for fire and integrate with hotspot monitoring and fire danger rating systems to develop a real-time warning system for peat fires.	Regional map of fire prone peatlands	Maps of hotspots available Maps of peatlands in the region available (limited)	Integrate hotspots maps and peatland maps to develop a regional map of peatlands with high fire risk	Project progress reports / workshop report on fire prediction and monitoring	Information on peatland areas in usable format made available by countries
	Peatland fire prediction and warning system	Initial steps to develop system taken in 2008	System established by Y2 and operating in 2 countries by Y4	Project progress reports / workshop report on fire prediction and monitoring	
2.1.2 Operation of regional peat fire warning and monitoring system and link to pilot site and country verification and implementation.	Average no. of fires in the 2 fire prediction and monitoring system verification sites	To be determined at project start-up	To be determined at project start-up	Integrated peatland fire hotspot maps / Project progress reports	Trained personnel are not transferred prematurely
	Ground-truthing of information collected from hotspot maps	No ground-truthing being conducted	Ground-truthing of information from hotspot maps at 2 pilot sites undertaken between site level agency and community group	Project progress reports	
Output 2.2: Regional priorities for peatland biodiversity conservation identified					
2.2.1 Compile, analyse and monitor data from each ASEAN country on extent, status and changes in peatlands.	Status and trends of peatlands in the SEA region	Limited information available	Status and trends of peatlands in the region documented by Y2 and updated by Y4	Technical reports/ directory of SEA peatlands of importance	Access to data on peat areas, status and trends made available by cooperating agencies
	Maps and satellite images of peatland areas	Limited	Maps and satellite images available from 4 participating countries	Technical reports/ directory of SEA peatlands of importance	Countries willing to share GIS data for mapping

2.2.2 Promote the establishment of a network of protected peatlands through awareness and outreach to various stakeholders, including guidelines for biodiversity conservation.	No. of peatland areas identified regionally for conservation	Limited information of priority peatlands for conservation	List of peatlands important for biodiversity compiled in 4 participating countries by year 3	Technical reports/ directory of SEA peatlands of importance	Government willing to designate identified peatlands as protected area
	Regional expert working group meeting	None	Permanent ASEAN level working group formed	Project progress reports	
Output 2.3: Regional collaboration on peatland carbon storage and climate vulnerability in the region stimulated					
2.3.1 Assess the vulnerability of peatlands to climate change and develop guidance on adaptation options.	Studies on carbon storage in peatland	Limited	Report on peatland vulnerability and adaptation options by Y3	Project progress reports	
2.3.2 Assess the role of peatlands in carbon storage and sequestration and the impact of land use changes and management options to reduce emissions.	Studies on impact of climate change on peatlands and adaptation options	Limited	Report on impact of climate change on peatlands completed by Y3	Project progress reports	
2.3.3 Develop guidance for funding for peatland management related to climate change funding mechanisms including Climate Adaptation Funds, REDD mechanisms and Voluntary Carbon Funds.	Proposals for funding for peatland management	Limited	Proposals for funding for peatland management related to climate change developed in 2 countries in SEA	Project progress reports	
	Guidance note for funding for peatland management	Limited	Guidance note for funding for peatland management related to climate change for 3 more countries in SEA	Project progress reports	
Output 2.4: Guidelines for integrated management of peatlands developed and promoted					
2.4.1 Collate develop and disseminate guidelines/ best practice for integrated planning for sustainable peatland management including buffer zone and catchment protection – eg for planners, local government.	Guidelines for integrated management of peatlands for local government and planners	Limited availability	Guidelines developed, promoted and being applied by at least 4 countries by Y4	Project progress reports	Willingness of stakeholders to accept guidelines and use them
2.4.2 Develop general guidelines/ modules/ information materials for community livelihood and sustainable peatlands management for adaptation/ dissemination at country level.	Guidelines for integrated management of peatlands for enhancing community livelihood for poverty	Limited availability	Guidelines developed, translated and disseminated for use at country level by Y4	Project progress reports	Ideas proposed are workable on the ground

	alleviation				
COMPONENT SUB-OUTCOME 3: Best management practices from demonstration sites compiled and disseminated to upscale learnings					
Output 3.1: A regional network of demonstration sites and sharing experience					
3.1.1 Establish and compile and disseminate information on regional network of demonstration sites.	Regional network of pilot and demonstration sites	None	Regional network established by Y2 and promoted in the region for study tour	Project progress reports	
3.1.2 Organise meetings/ exchanges and promote upscaling of demonstration site experience.	No. of sites designated as demonstration sites for BMP	Limited demo sites for peatland management	At least 10 sites in 3 countries designated by Y4	Project progress reports	Access to pilot and demo sites are not limited
COMPONENT SUB-OUTCOME 4: Plantation sector actively contributing to peatland management					
Output 4.1: Guidelines for responsible management of existing oil palm and forest plantation on peatland developed and tested					
4.1.1 Provide input to consultation with the plantation sector in partnership with RSPO, national plantation associations and other organizations and promote sound plantation management on peatlands.	Consultation meetings with plantation sector through RSPO	Limited involvement in plantation sector	Active participation at RSPO consultation meetings esp. on sound plantation management on peatlands through the PLWG	Project progress reports RSPO report/ PLWG meeting reports	Private sector has commitment to follow guidelines
	Awareness materials	Limited	Awareness materials on sound plantation management on peatlands developed and distributed	Project progress reports RSPO report/ PLWG meeting reports	
4.1.2 Develop guidelines for responsible management of existing oil palm and forest plantation on peatlands to recognise examples of good practice.	Regional guidelines for peatland plantation practices	RSPO PLWG working on guidelines for integrated management of oil palm plantations on peatlands	Guidelines developed by Y2	Project progress reports	
4.1.3 Collaborate with selected plantation companies, RSPO, national associations to test, demonstrate and promote these guidelines.	Involvement of private sector in using the guidelines	Initial discussions underway with private sector on development of guidelines	Guidelines pilot tested by at least 2 private sector by Y4	Project progress reports	

Outcome 5 Project effectively managed and technically guided
OUTPUT 5.1: Project governance, management and coordination mechanisms at country levels established
OUTPUT 5.2: Project governance mechanism overseen and guided and effectively coordinated, monitored and evaluated

OUTPUTS SUMMARY
OUTPUTS
Output 1.1: Coordinated Implementation of the APMS and NAPs supported <u>ACTIVITIES</u> 1.1.1 Promote the implementation of the APMS and share experience among ASEAN members (including annual meeting). 1.1.2 Provide technical support and capacity building to ASEAN members to assess peatlands and finalise NAPs.
Output 1.2: Regional programme for capacity building and raising awareness implemented <u>ACTIVITIES</u> 1.2.1 Facilitate and support TOT training and exchange programmes for the region including study tours and regional workshops. 1.2.2 Develop outreach activities and awareness materials as well as information sharing mechanisms to build capacity for peatland management. 1.2.3 Develop and implement a communication strategy on raising awareness of peatland management including linkage with appropriate regional and international media and communication groups.
Output 1.3: Sustaining resource mobilisation mechanisms for peatland management and rehabilitation in the region established <u>ACTIVITIES</u> 1.3.1 Explore multi-donor trust funds, 'polluter-pay and user-pay' schemes, tax incentives, PES and other options to help generate sustainable resources to support the implementation of APMS activities.
Output 1.4 Technical support and guidance to countries <u>ACTIVITIES</u> 1.4.1 Technical coordination and management to country and regional components. 1.4.2 Technical expert input. 1.4.3 Monitoring and evaluation of country components and overall project.
Output 2.1: Mechanisms for effective regional prediction and monitoring of peat fires strengthened <u>ACTIVITIES</u> 2.1.1 Collate and refine documentation on peatlands in the region with high risk for fire and integrate with hotspot monitoring and fire danger rating systems to develop a real-time warning system for peat fires. 2.1.2 Operation of regional peat fire warning and monitoring system and link to pilot site and country verification and implementation.
Output 2.2: Status and trends of peatlands compiled and synthesised and multi-country priorities for peatland biodiversity conservation identified at critical sites <u>ACTIVITIES</u> 2.2.1 Compile, analyse and monitor data from each ASEAN country on extent, status and changes in peatlands.

2.2.2 Promote the establishment of a network of protected peatlands through awareness and outreach to various stakeholders, including guidelines for biodiversity conservation.
Output 2.3 Multi-country collaboration on peatland carbon storage and climate vulnerability in the region stimulated
<u>ACTIVITIES</u>
2.3.1 Assess the vulnerability of peatlands to climate change and develop guidance on adaptation options.
2.3.2 Assess the role of peatlands in carbon storage and sequestration and the impact of land use changes and management options to reduce emissions.
2.3.3 Develop guidance for funding for peatland management related to climate change funding mechanisms including Climate Adaptation Funds, REDD mechanisms and Voluntary Carbon Funds.
Output 2.4: Guidelines for integrated management of peatlands developed and promoted for peatland areas in the region
<u>ACTIVITIES</u>
2.4.1 Collate, develop and disseminate guidelines / best practice for integrated planning for sustainable peatland management including buffer zone and catchment protection – eg for planners, local government.
2.4.2 Develop general guidelines/ modules/ information materials for community livelihood and sustainable peatlands management for adaptation/ dissemination at country level.
Output 3.1 A multi-country network of demonstration sites and sharing experience
<u>ACTIVITIES</u>
3.1.1 Establish and compile and disseminate information on regional network of demonstration sites.
3.1.2 Organise meetings/ exchanges and promote upscaling of demonstration site experience.
Output 4.1: Guidelines for responsible management of existing oil palm and forest plantation on peatland developed and tested
<u>ACTIVITIES</u>
4.1.1 Provide input to consultation with the plantation sector in partnership with RSPO, national plantation associations and other organisations and promote sound plantation management on peatlands.
4.1.2 Develop guidelines for responsible management of existing oil palm and forest plantation on peatlands to recognise examples of good practice.
4.1.3 Collaborate with selected plantation companies, RSPO, national associations to test, demonstrate and promote these guidelines.
Output 5.1 Project governance, management and coordination mechanisms at country levels established.
Output 5.2 Project governance mechanism overseen and guided and effectively coordinated, monitored and evaluated.

Appendix B: Revised Detailed Regional Component Budget and Costs

Revised Activities	Revised GEF	Revised Co-funding	Revised Total Cost	Revised GEC	Revised ASEC	Revised Reg Govt	Revised Other S'holders	Co-funding (USD)
Output 1.1: Coordinated implementation of the APMS and NAPs supported	\$155,000	\$90,000	\$245,000	\$20,000	\$5,000	\$65,000		\$90,000
1.1.1 Promote the implementation of the APMS and share experience among ASEAN members (including annual meeting)	\$115,000	\$65,000	\$180,000	\$10,000	\$5,000	\$50,000		\$65,000
1.1.2 Provide technical support and capacity building to ASEAN members to assess peatlands and finalise NAPs	\$40,000	\$25,000	\$65,000	\$10,000		\$15,000		\$25,000

Revised Activities	Revised GEF	Revised Co-funding	Revised Total Cost	Revised GEC	Revised ASEC	Revised Reg Govt	Revised Other S'holders	Co-funding (USD)
Output 1.2: Regional programme for capacity building and raising awareness implemented	\$317,000	\$210,000	\$527,000	\$50,000	\$10,000	\$80,000	\$70,000	\$210,000
1.2.1 Facilitate and support TOT training and exchange programmes for the region including study tours and regional workshops	\$160,000	\$60,000	\$220,000	\$10,000		\$50,000		\$60,000
1.2.2 Develop outreach activities and awareness materials as well as information sharing mechanisms to build capacity for peatland management	\$107,000	\$130,000	\$237,000	\$40,000	\$10,000	\$30,000	\$50,000	\$130,000
1.2.3 Develop and implement a communication strategy on raising awareness of peatland management including linkage with appropriate regional and international media and communication groups.	\$50,000	\$20,000	\$70,000				\$20,000	\$20,000
Output 1.3: Sustainable resource mobilisation mechanisms for peatland management in the region established	\$75,000	\$50,000	\$125,000	\$5,000	\$5,000	\$20,000	\$20,000	\$50,000
1.3.1 Explore multi-donor trust funds, 'polluter-pay and user-pay' schemes, tax incentives, PES and other options to help generate sustainable resources to support the implementation of APMS activities.	\$75,000	\$50,000	\$125,000	\$5,000	\$5,000	\$20,000	\$20,000	\$50,000
Output 1.4: Regional technical support and country guidance provided	\$378,000	\$70,500	\$448,500	\$50,500		\$10,000	\$10,000	\$70,500
1.4.1 Technical coordination and management to country and regional components	\$182,000	\$40,500	\$222,500	\$40,500				\$40,500
1.4.2 Technical expert input	\$112,000	\$20,000	\$132,000	\$10,000			\$10,000	\$20,000
1.4.3 Monitoring and evaluation of country components and overall project	\$84,000	\$10,000	\$94,000			\$10,000		\$10,000
Total Sub-Outcome 1	\$925,000	\$420,500	\$1,345,500	\$125,500	\$20,000	\$175,000	\$100,000	\$420,500
Output 2.1: Mechanisms for effective regional prediction and monitoring of peat fires strengthened	\$90,000	\$2,190,000	\$2,280,000	\$40,000		\$2,100,000	\$50,000	\$2,190,000
2.1.1 Collate and refine documentation on peatlands in the region with high risk for fire and integrate with hotspot monitoring and fire danger rating systems to develop a real-time warning system for peat fires.	\$30,000	\$120,000	\$150,000	\$20,000		\$100,000		\$120,000

Revised Activities	Revised GEF	Revised Co-funding	Revised Total Cost	Revised GEC	Revised ASEC	Revised Reg Govt	Revised Other S'holders	Co-funding (USD)
2.1.3 Operation of regional peat fire warning and monitoring system and link to pilot site and country verification and implementation.	\$60,000	\$2,070,000	\$2,130,000	\$20,000		\$2,000,000	\$50,000	\$2,070,000
Output 2.2: Regional priorities for peatland biodiversity conservation identified	\$90,000	\$210,000	\$300,000	\$70,000		\$90,000	\$50,000	\$210,000
2.2.1 Compile, analyse and monitor data from each ASEAN country on extent, status, biodiversity values and changes in peatlands.	\$40,000	\$90,000	\$130,000	\$40,000		\$40,000	\$10,000	\$90,000
2.2.2 Promote the establishment of a network of protected peatlands through awareness and outreach to various stakeholders, including guidelines for biodiversity conservation.	\$50,000	\$120,000	\$170,000	\$30,000		\$50,000	\$40,000	\$120,000
Output 2.3: Regional collaboration on peatland carbon storage and climate vulnerability in the region stimulated	\$100,000	\$135,000	\$235,000	\$35,000		\$35,000	\$65,000	\$135,000
2.3.1 Assess the vulnerability of peatlands to climate change and develop guidance on adaptation options.	\$30,000	\$35,000	\$65,000	\$15,000		\$15,000	\$5,000	\$35,000
2.3.2 Assess the role of peatlands in carbon storage and sequestration and the impact of land use changes and management options to reduce emissions.	\$40,000	\$20,000	\$60,000	\$10,000			\$10,000	\$20,000
2.3.3 Develop guidance for funding for peatland management related to climate change funding mechanisms including Climate Adaptation Funds, REDD mechanisms and Voluntary Carbon Funds.	\$30,000	\$80,000	\$110,000	\$10,000		\$20,000	\$50,000	\$80,000
Output 2.4: Guidelines for integrated management of peatlands developed and promoted	\$45,000	\$30,000	\$75,000	\$10,000		\$10,000	\$10,000	\$30,000
2.4.1 Collate develop and disseminate guidelines / best practice for integrated planning for sustainable peatland management including buffer zone and catchment protection. – eg for planners, local government	\$25,000	\$15,000	\$40,000	\$5,000		\$5,000	\$5,000	\$15,000
2.4.2 Develop general guidelines/ modules/ information materials for community livelihood and sustainable peatlands management for adaptation/ dissemination at country level.	\$20,000	\$15,000	\$35,000	\$5,000		\$5,000	\$5,000	\$15,000
Total Sub-Outcome 2	\$325,000	\$2,565,000	\$2,890,000	\$155,000		\$2,235,000	\$175,000	\$2,565,000
Output 3.1: A regional network of demonstration sites and sharing experience established	\$55,000	\$70,000	\$125,000	\$10,000		\$30,000	\$30,000	\$70,000

Revised Activities	Revised GEF	Revised Co-funding	Revised Total Cost	Revised GEC	Revised ASEC	Revised Reg Govt	Revised Other S'holders	Co-funding (USD)
3.1.1 Establish and compile and disseminate information on regional network of demonstration sites.	\$30,000	\$50,000	\$80,000	\$10,000		\$20,000	\$20,000	\$50,000
3.1.2 Organise meetings/ exchanges and promote up-scaling of demonstration site experience	\$25,000	\$20,000	\$45,000			\$10,000	\$10,000	\$20,000
Total Sub-Outcome 3	\$55,000	\$70,000	\$125,000	\$10,000		\$30,000	\$30,000	\$70,000
Output 4.1: Guidelines for responsible management of existing oil palm and forest plantations on peatlands developed and tested	\$76,514	\$230,000	\$306,514	\$50,000			\$180,000	\$230,000
4.1.1 Provide input to consultation with the plantation sector in partnership with RSPO, national plantation associations and other organizations and promote sound plantation management on peatlands	\$18,514	\$50,000	\$68,514	\$20,000			\$30,000	\$50,000
4.1.2 Develop guidelines for responsible management of existing oil palm and forest plantation on peatlands to recognize examples of good practice	\$30,000	\$40,000	\$70,000	\$10,000			\$30,000	\$40,000
4.1.3 Collaborate with selected plantation companies, RSPO, national associations to test, demonstrate and promote these guidelines.	\$28,000	\$140,000	\$168,000	\$20,000			\$120,000	\$140,000
Total Sub-Outcome 4	\$76,514	\$230,000	\$306,514	\$50,000			\$180,000	\$230,000
Output 5.1 Project governance, management and coordination mechanisms at country levels established								
Output 5.2 Project governance mechanism overseen and guided and effectively coordinated, monitored and evaluated	\$345,650	\$919,650	\$1,265,300	\$119,100	\$208,800		\$591,750	\$919,650
ASEAN Secretariat administration and support	\$88,500	\$800,550	\$889,050		\$208,800		\$591,750	\$800,550
Regional component administration and support	\$257,150	\$119,100	\$376,250	\$119,100				\$119,100
Total Sub-Outcome 5	\$345,650	\$919,650	\$1,265,300	\$119,100	\$208,800		\$591,750	\$919,650
	\$1,727,164	\$4,205,150	\$5,932,314	\$459,600	\$228,800	\$2,440,000	\$1,076,750	\$4,205,150

Appendix C: Budget for the Overall Management Costs

	OVERALL/REGIONAL MANAGEMENT	GEF to ASEC	GEF to RPEA	Co-funding ASEC	Co-funding IFAD	Co-funding GEC	Total co funding	Total
Output 5.2a	Project governance mechanism overseeing and guiding project							
	Inception meeting	15,000		3,000			3,000	18,000
	Reporting/review at AATHP meetings	5,000		25,000			25,000	30,000
	Project steering committee (back to back with other meetings) 2500 x 4 meetings	10,000		6,000			6,000	16,000
	Project management Group 2000 x 2 meetings x 4 years	16,000		2,000		2,000	4,000	20,000
	SUB TOTAL	46,000		36,000		2,000	38,000	84,000
Output 5.2b	Project coordination and management (RPEA/ASEC)						0	
	Project guidance and management by ASEAN secretariat staff 20,000/yr x 4 years			80,000			80,000	80,000
	Project Guidance and management by GEC staff/board 5,000/yr x 4 years					20,000	20,000	20,000
	Part time project manager 300/day x 30 days/year x 4 yrs		26,000			10,000	10,000	36,000
	Project coordinator (50% mgt 50% tech support) 220/day 100d/year x 4 yrs		78,000			10,000	10,000	88,000
	Project officer ASEC -12,000/yr x 4 years 50% mgt, 50% tech support	24,000					0	24,000
	Reporting costs		5,550	4,000		4,000	8,000	13,550
	Travel and subsistence 8500/yr x 4 years	5,000	19,000	7,000		6,000	13,000	37,000
	IFAD-Mgt				300,000		300,000	300,000
	SUB TOTAL	29,000	128,550	91,000	300,000	50,000	441,000	598,550
Output 5.2c	Project Administration (RPEA)							
	Admin Support 1000x48 mths		34,000			14,000	14,000	48,000
	Accounting services 700/m x48m		33,100			5,300	5,300	38,400
	External Audit 3000/yr x 4	6,000	6,000				0	12,000
	Regular visits for admin/audit/monitoring	5000	11,000	1,000		1,000	2,000	18,000
	Communication and Running costs RPEA 800/month x 48		28,000			10,400	10,400	38,400
	Communications and Running costs ASEC 800/m			38,400			38,400	38,400
	Purchase of office equipment	2,500	500	4,000		4,000	8,000	11,000
	Office facilities ASEAN Secretariat 800/month			38,400			38,400	38,400

	Office facilities and maintenance RPEA 800/month		16,000			32,400	32,400	48,400
	IFAD-Mgt				291,750		291,750	291,750
	SUB TOTAL	13,500	128,600	81,800	291,750	67,100	440,650	582,750
	GRAND TOTAL - MANAGEMENT	88,500	257,150	208,800	591,750	119,100	919,650	1,265,300

Appendix D: Regional Component Budget for Year 1 (2010)

	Details	Rehab	E'ment	TA/ Stud	W'shops	Salaries	Off Costs	Travel	TOTAL
COMPONENT SUB-OUTCOME 1: Capacity for implementation of APMS enhanced									
Output 1.1: Coordinated Implementation of the APMS and NAPs supported				5,000	30,500	6,000	1,250	1,500	44,250
1.1.1 Promote the implementation of the APMS and share experience among ASEAN members (including annual meeting)	ASEC officer 6 months at 1000/m 6,000 travel 1,500 misc 1,250; info on NAPs/APMS 5000, annual meeting on NAPS 15,000				20,000	6,000	1,250	1,500	28,750
1.1.2 Provide technical support and capacity building to ASEAN members to assess peatlands and finalise NAPs	Regional expert 10D@350 travel 1,500 + training workshop			5,000	10,500				15,500
Output 1.2: Regional programme for capacity building and raising awareness implemented				24,500	76,000				100,500
1.2.1 Facilitate and support TOT training and exchange programmes for the region including study tours and regional workshops.	study visit/workshop Thailand 20000; workshop carbon storage Indonesia 20000; training/info officer (10000)			10,000	40,000				50,000
1.2.2 Develop outreach activities and awareness materials as well as information sharing mechanisms to build capacity for peatland management	officer 200 x 10D, 150 x 10 D, maintenance of peat portal /input to ASEAN portal, e-newsletter etc 8,000/year + development of outreach materials and activities (video, leaflet, newsletter, etc) 12,000			2,500	18,000				20,500
1.2.3 Develop and implement a communication strategy on raising awareness of peatland management including linkage with appropriate regional and international media and communication groups.	7K communication strategy + Travel 5k + meeting to discuss strategy/media communication events/activities			12,000	18,000				30,000
Output 1.3: Sustainable resource mobilisation mechanisms for peatland management in the region established									
1.3.1 Explore multi-donor trust funds, 'polluter-pay and user-pay' schemes, tax incentives, PES and other options to help generate sustainable resources to support the implementation APMS activities.									
Output 1.4: Regional Technical support and country guidance provided				83,000	4,000		10,000		97,000

	Details	Rehab	E'ment	TA/ Stud	W'shops	Salaries	Off Costs	Travel	TOTAL
1.41 Technical coordination and management to country and regional components	Project technical manager (Regional) 45D/year @300 = 13,500; , technical coordinator 100 d @220 = 22,000 travel 5,000 communication and running cost @ 5,000			40,500			5,000		45,500
1.4.2 Technical expert input	Snr technical advisor 35D @500 = 17,500; Other regional experts 40D @250/day = 10,000 travel 3,000			30,500					30,500
1.4.3 Monitoring and evaluation of country components and overall project	4 monitoring and evaluation missions 3,000 (12,000); Reporting 4,000; communication and running costs 5,000			12,000	4,000		5,000		21,000
Total Sub-Outcome 1				112,500	110,500	6,000	11,250	1,500	241,750
COMPONENT SUB-OUTCOME 2: Protection and sustainable management of peatlands enhanced									
Output 2.1: Mechanisms for effective regional prediction and monitoring of peat fires strengthened				10,000	20,000				30,000
2.1.1 Collate and refine documentation on peatlands in the region with high risk for fire and integrate with hotspot monitoring and fire danger rating systems to develop a real-time warning system for peat fires.	Consultant for system development 10,000, meeting to review system 20,000			10,000	20,000				30,000
2.1.2 Operation of regional peat fire warning and monitoring system and link to pilot site and country verification and implementation.									
Output 2.2: Regional priorities for peatland biodiversity conservation identified				15,000	22,000				37,000
2.2.1 Compile, analyse and monitor data from each ASEAN country on extent, status, biodiversity values and changes in peatlands.	officer to compile information 10,000, meeting 15,000; material purchase 5,000 (reports/ maps/ satellite images/ directory)			10,000	20,000				30,000
2.2.2 Promote the establishment of a network of protected peatlands through awareness and outreach to various stakeholders, including toolkit for biodiversity conservation.	expert for dev of toolkit 20 d @250 materials production 2,000			5,000	2,000				7,000
Output 2.3: Regional collaboration on peatland carbon storage and climate vulnerability in the region stimulated				8,000	15,000				23,000

	Details	Rehab	E'ment	TA/ Stud	W'shops	Salaries	Off Costs	Travel	TOTAL
2.3.1 Assess the vulnerability of peatlands to climate change and develop guidance on adaptation options.									
2.3.2 Assess the role of peatlands in carbon storage and sequestration and the impact of land use changes and management options to reduce emissions.	regional expert to prepare materials/ 20D @ 250 (5,000); Officer 20D@ 150 =3,000; meeting 10,000			8,000	10,000				18,000
2.3.3 Develop guidance for funding for peatland management related to climate change funding mechanisms including Climate Adaptation Funds, REDD mechanisms and Voluntary Carbon Funds.					5,000				5,000
Output 2.4: Guidelines for integrated management of peatlands developed and promoted									
2.4.1 Collate develop and disseminate guidelines / best practice for integrated planning for sustainable peatland management including buffer zone and catchment protection. – eg for planners, local government									
2.4.2 Develop general guidelines/ modules/ information materials for community livelihood and sustainable peatlands management for adaptation/ dissemination at country level.									
Total Sub-Outcome 2				33,000	57,000				90,000
COMPONENT SUB-OUTCOME 3: Best management practices from demonstration sites disseminated									
Output 3.1: A regional network of demonstration sites and sharing experience established				2,250	4,500				6,750
3.1.1 Establish and compile and disseminate information on regional network of demonstration sites.				2,250	4,500				6,750
3.1.2 Organise meetings/ exchanges and promote upscaling of demonstration site experience									
Total Sub-Outcome 3				2,250	4,500				6,750
COMPONENT SUB-OUTCOME 4: Plantation sector actively contributing to peatland management									
Output 4.1: Guidelines for responsible management of existing oil palm and forest plantations on peatlands developed and tested				3,900	6,000				9,900

	Details	Rehab	E'ment	TA/ Stud	W'shops	Salaries	Off Costs	Travel	TOTAL
4.1.1 Provide input to consultation with the plantation sector in partnership with RSPO, national plantation associations and other organisations to promote sound plantation management on peatlands	senior officer 12D@ 200, expert 10D @400; travel 1,500 meeting; misc 6,000			3,900	6,000				9,900
4.1.2 Develop guidelines for responsible management of existing oil palm and forest plantation on peatlands to recognise examples of good practice									
4.1.3 Collaborate with selected plantation companies, RSPO, national associations to test, demonstrate and promote these guidelines.									
Total Sub-Outcome 4				3,900	6,000				9,900
TOTAL (Sub-Outcomes 1-4)				151,650	178,000	6,000	11,250	1,500	348,400
Outcome 5.2: Project governance mechanism overseen and guided and effectively coordinated, monitored and evaluated			2,500	45,500	6,500	6,000	39,600	5,250	105,350
OVERALL TOTAL			2,500	197,150	184,500	12,000	50,850	6,750	453,750

Appendix E: Project Timeline

Activities	Y1				Y2				Y3				Y4			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
OUTCOME 1: CAPACITY FOR SUSTAINABLE PEATLAND MANAGEMENT IN SOUTH EAST ASIA STRENGTHENED																
COMPONENT SUB-OUTCOME 1: Capacity for implementation of APMS enhanced																
Output 1.1: Coordinated Implementation of the APMS and NAPs supported																
1.1.1 Promote the implementation of the APMS and share experience among ASEAN members (including annual meeting)																
1.1.2 Provide technical support and capacity building to ASEAN members to assess peatlands and finalise NAPs																
Output 1.2: A regional programme for capacity building and raising awareness implemented																
1.2.1 Facilitate and support TOT training and exchange programmes for the region including study tours and regional workshops.																
1.2.2 Develop outreach activities and awareness materials as well as information sharing mechanisms to build capacity for peatland management																
1.2.3 Develop and implement a communication strategy on raising awareness of peatland management including linkage with appropriate regional and international media and communication groups.																
Output 1.3: Sustainable resource mobilisation mechanisms for peatland management in the region established																
1.3.1 Explore multi-donor trust funds, 'polluter-pay and user-pay' schemes, tax incentives, PES and other options to help generate sustainable resources to support the implementation of APMS activities.																
Output 1.4: Regional technical support and country guidance to provided																
1.4.1 Technical coordination and management to country and regional components																
1.4.2 Technical expert input																
1.4.3 Monitoring and evaluation of country components and overall project																
OUTCOME 2: REDUCED RATE OF DEGRADATION OF PEATLANDS IN SOUTH EAST ASIA																
COMPONENT SUB-OUTCOME 2: Protection and sustainable management of peatlands enhanced																
Output 2.1: Mechanisms for effective regional prediction and monitoring of peat fires strengthened																
2.1.1 Collate and refine documentation on peatlands in the region with high risk for fire and integrate with hotspot monitoring and fire danger rating systems to develop a real-time warning system for peat fires.																
2.1.2 Operation of regional peat fire warning and monitoring system and link to pilot site and country verification and implementation.																
Output 2.2: Regional priorities for peatland biodiversity conservation identified																

Activities	Y1				Y2				Y3				Y4			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
2.2.1 Compile, analyse and monitor data from each ASEAN country on extent, status and changes in peatlands.																
2.2.2 Promote the establishment of a network of protected peatlands through awareness and outreach to various stakeholders, including guidelines for biodiversity conservation.																
Output 2.3: Regional collaboration on peatland carbon storage and climate vulnerability in the region stimulated																
2.3.1 Assess the vulnerability of peatlands to climate change and develop guidance on adaptation options.																
2.3.2 Assess the role of peatlands in carbon storage and sequestration and the impact of land use changes and management options to reduce emissions.																
2.3.3 Develop guidance for funding for peatland management related to climate change funding mechanisms including Climate Adaptation Funds, REDD mechanisms and Voluntary Carbon Funds.																
Output 2.4: Guidelines for integrated management of peatlands developed and promoted																
2.4.1 Collate, develop and disseminate guidelines / best practice for integrated planning for sustainable peatland management including buffer zone and catchment protection – eg for planners, local government																
2.4.2 Develop general guidelines/ modules/ information materials for community livelihood and sustainable peatlands management for adaptation/ dissemination at country level.																
OUTCOME 3: OPTIONS FOR INTEGRATED MANAGEMENT AND REHABILITATION OF PEATLANDS TESTED																
COMPONENT SUB-OUTCOME 3: Best management practices from demonstration sites disseminated																
Output 3.1 A regional network of demonstration sites and sharing experience established																
3.1.1 Establish and compile and disseminate information on regional network of demonstration sites.																
3.1.2 Organise meetings/ exchanges and promote upscaling of demonstration site experience																
OUTCOME 4: LOCAL COMMUNITY AND PRIVATE SECTOR ACTIVELY CONTRIBUTING TO SUSTAINABLE PEATLAND MANAGEMENT																
COMPONENT SUB-OUTCOME 4: Plantation sector actively contributing to peatland management																
Output 4.1: Guidelines for responsible management of existing oil palm and forest plantations on peatland developed and tested																
4.1.1 Provide input to consultation with the plantation sector in partnership with RSPO, national plantation associations and other organizations and promote sound plantation management on peatlands																
4.1.2 Develop guidelines for responsible management of existing oil palm and forest																

	Y1				Y2				Y3				Y4			
Activities	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
plantation on peatlands to recognise examples of good practice																
4.1.3 Collaborate with selected plantation companies, RSPO, national associations to test, demonstrate and promote these guidelines.																