

CONVENTION ON WETLANDS (Ramsar, Iran, 1971)

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Nagao Wetland Fund (NWF)

Section B
“Request for Funding” Form

Note. Please complete and enclose both Section B.1 “Project Summary and Endorsement Form” and Section B.2 “Detailed Project Proposal”, following the section structure and guidance provided below on what to include in each section of the proposal. Thank you.

Section B.1
Project Summary and Endorsement Form

Please fill in sections a, b, c, f, g, h and i, and either section d or section e.

- a. Country requesting support: **Malaysia**
- b. Title of project proposal:
Conserving peat swamp forest in Setiu Wetlands, Terengganu: Ecological assessment for establishing knowledge and management recommendations
- c. Category of assistance requested (please consult the Operational Guidelines and indicate one option only):

Contracting Parties:

- ☒ Implementation of the Ramsar Strategic Plan 2016-2024. Please indicate relevant Goals and Targets (s):

Goal 1: Addressing the drivers of wetland loss and degradation

Target 3: The public and private sectors have increased their efforts to apply guidelines and good practices for the wise use of water and wetlands.

Goal 3: Wisely using all wetlands.

Target 9: The wise use of wetlands is strengthened through integrated resource management at the appropriate scale, inter alia, within a river basin or along a coastal zone.

Please fill in **either** section **d** or section **e** below:

- d. If the financial support sought from the NWF is requested to carry out part of a larger project, please indicate:

- Title of the main project: **Sustainable Management of the Setiu Wetlands, Terengganu**
 - Duration of the main project: **July 2018 – June 2020**
 - Total cost of the main project: **RM500,000**
 - Amount requested from the NWF: **USD17,979.27**
 - Have the main project and the other funds been approved: ☒ Yes (**partial for one year**) ☐ No
 - If yes, please indicate the sources of these funds, showing whether the source is in-country or external: **In-country, WWF-Malaysia Funds**
- e. If the proposed project is a stand-alone activity, please indicate:
- Duration of the activities to be covered by NWF grant:
 - Amount requested from the Ramsar NWF:
 - Other financial contributions (including in-kind) – indicate whether these are from in-country or external sources:
- f. Name, address (including phone/ fax numbers and e-mail address) and website of the recipient agency, i.e. the institution responsible for the project, specifying the name and contact details of the person responsible for preparing and executing the project.

Organization: WWF-Malaysia (Peninsular Malaysia Terrestrial Conservation Programme)

Address: 1, Jalan PJS 5/28A, Petaling Jaya Commercial Centre (PJCC)
Petaling Jaya 46150
Selangor, Malaysia

Tel: **+603-7450 3773**

Fax: **+603 7450 3777**

Website: wwf.org.my

Contact person & person responsible for project:

(1) Ms Chik Maslinda Omar Manager (Setiu Wetlands) comar@wwf.org.my	(2) Ms Daria Mathew Senior Manager (Freshwater) dmathew@wwf.org.my
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- g. Summary (maximum 500 words)
Describe background, justification, objectives and intended follow-up. Indicate if the project will be carried out in a Ramsar site(s) or how it otherwise contributes to the implementation of the Ramsar Strategic Plan 2016-2024 and the fulfillment of its objectives:

Project site: Setiu Wetlands river basin, Terengganu (not a Ramsar site)

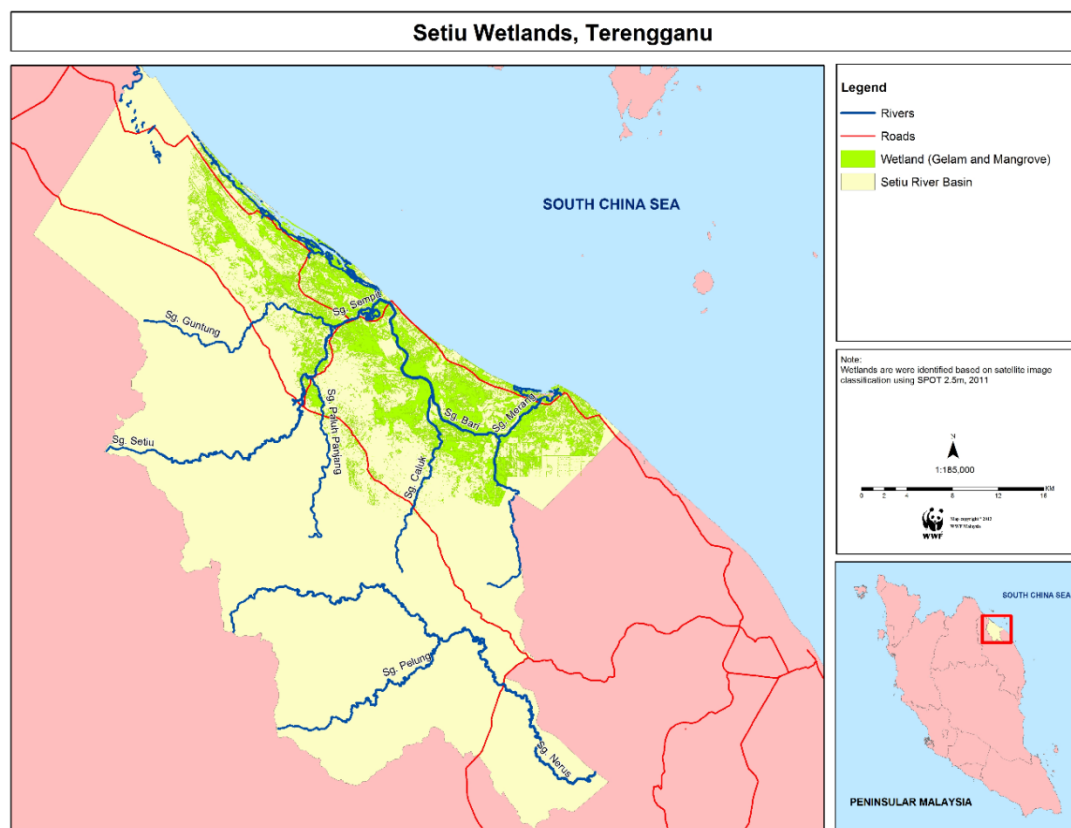


Figure 1: The Setiu Wetlands and its surrounding watershed

Background:

The Setiu Wetlands is located in the state of Terengganu on the east coast of Peninsular Malaysia. Drained by the Setiu-Caluk-Merang-Bari riverine complex, the wetlands comprise a diverse array of inter-connected freshwater, brackish and coastal ecosystem types.

Setiu Wetlands provides ecosystem functions and services essential in fulfilling human needs and protecting human safety, contributing natural resources for local community livelihood, providing economic returns besides safeguarding biodiversity and vital ecological processes. Recognised as one of Malaysia's outstanding natural treasures, the Setiu Wetlands is classified as nationally important, and is listed in the Malaysian Wetland Directory (1987).

Sadly, over the years, the wetlands have experienced progressive conversion to other land uses. To prevent its further degradation, Setiu Wetlands, particularly its high conservation value (HCV) areas require improved protection and holistic management. In pursuing this, ecosystem assessments are crucial to establish knowledge and understanding of the changes and impacts for formulating relevant management recommendations. A HCV Assessment for Setiu Wetlands undertaken in 2016 by WWF-Malaysia with assessors from Daemeter, a consulting firm identified HCVs that includes two key sites of peat swamp forest (PSF): (1) Mat Jintan PSF upstream of the Bari and Caluk rivers (Figure 2) and (2) Tasik Berombak PSF which was also recorded during the Malaysia Tropical Forest Conservation Project in 2006 by the Department of Wildlife and National Park (DWNP) and Coral Cay Conservation. Comparatively, the Mat Jintan PSF appears to be relatively intact and pristine whereas, the Tasik Berombak PSF has largely been severely drained for conversion to oil palm plantations with further impending degradation expected from a railway

track construction project that started recently. Nevertheless, the HCV study highlighted remnant PSF in north east of Tasik Berombak that merits conservation attention. These PSF represent a neglected yet extremely valuable component of the wetlands hence minimizing their loss and conserving them is crucial. There are opportunities to facilitate sound management of the PSF in Setiu Wetlands but this require more detailed assessments to address the knowledge gap of this grossly under studied ecosystem.

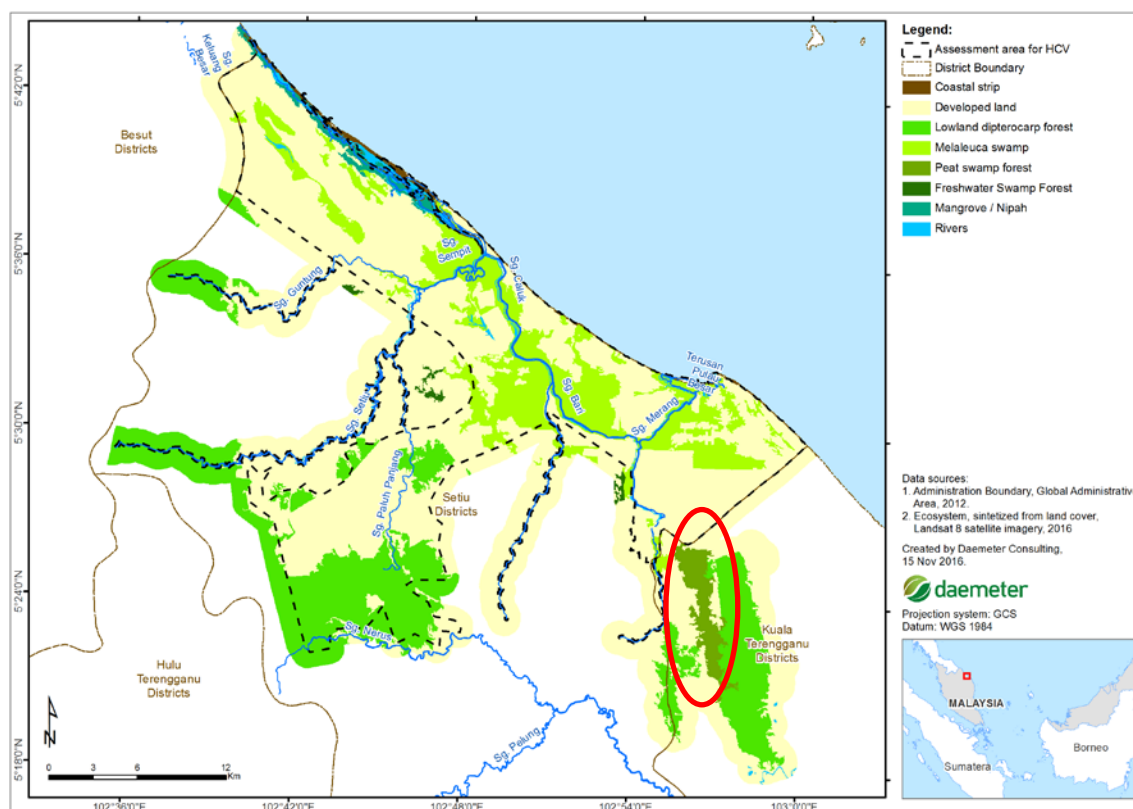


Figure 2: Land cover in Setiu, showing the Mat Jintan PSF as identified based on the HCV assessment.

Objective:

To conduct ecological assessment of the PSF in Setiu Wetlands for generating vital information to address knowledge gaps and guide the conservation and management of the PSF as part of the broader sustainable management of the Setiu Wetlands.

Intended follow – up:

The results will be advocated as credible inputs that are expected to be translated into recommendations for conservation and management of the PSF in relevant planning and management documents such as the Setiu Wetlands Special Area Plan and Setiu State Park Management Plan.

Contribution to the Ramsar Strategies Plan 2016 – 2024:

The project site is a wetlands of national importance, thus safeguarding it from degradation is crucial. This project will seek collaboration with researchers, experts, community and corporates in its implementation to capitalize on complementary skills among the partners. The findings is expected to contribute to the integrated planning and management of the Setiu Wetlands with

conservation consideration at the river basin scale that will lead to wise use of the wetlands resources and fragile ecosystems by the various stakeholders.

This project will contribute to Goal 1 Target 3, and Goal 3 Target 9 of the Ramsar Strategic Plan 2016-2024.

- h. Endorsement of this project application by the Ramsar Administrative Authority:**
Please confirm the importance of this proposed project in relation to your national Ramsar Convention implementation priorities. **Please tick (✓) only one of the following statements:**

1. The project's outcomes will deliver significantly increased implementation capacity for a high national priority. OR	<input type="checkbox"/>
2. The project's outcomes will deliver increased implementation capacity for a lower national priority. OR	<input type="checkbox"/>
3. The project's outcomes will not directly lead to increased implementation capacity.	<input type="checkbox"/>

Institution/Agency:

INTAN NURUL AZLINA AHMAD KAMIL
Principal Assistant Secretary
Biodiversity and Forestry Management Division
Ministry Of Natural Resources And Environment

Name/Title:

Date: 30 March 2018 Signature: 

Please return this form along with the Detailed Project Proposal to:
Nagao Wetland Fund (NWF), Ramsar Convention Secretariat,
28 Rue Mauverney, CH-1196 Gland, Switzerland. Fax: +41 22 999 0169, E-mail: asia.oceania@ramsar.org

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Section B.2

Structure and contents of Detailed Project Proposal

Notes:

- i) Please follow the section headings and sequence and the guidance for what to include in each section.
- ii) Please use a maximum of **five (5) pages** (A4 size paper) to provide detailed information on your proposal, following the headings and instructions given below. Please do not use margins of less than 1.5 cm, and do not use letters smaller than 10-point font size.

Details of proposal

A. Background and justification

Being the largest coastal wetlands on Peninsular Malaysia's north eastern region, the Setiu Wetlands in the state of Terengganu comprises a diverse array of freshwater, brackish and marine ecosystems (Figure 1). The key habitats found here include rivers, Melaleuca forest, riparian forest, peat swamp forest, mangrove forest, lagoon, seagrass beds, beach, coastal forest and sand islands. The Setiu Wetlands provides a great range of ecosystem services such as flood control, erosion mitigation, nursery ground for juvenile marine fishes and supply of natural resources for the local population's traditional livelihood. The wetlands also have great potential as an ecotourism destination that can generate economic returns to the local communities and to the State. Administratively, the Setiu Wetlands falls within the district of Setiu with a population of 63,500 people (UPEN Terengganu, 2015) who depend on or derive benefit from the wetlands directly and indirectly.

Biodiversity records indicate that the Setiu Wetlands harbours 29 species of mammals, 176 species of birds, 36 species of reptiles and amphibians, 56 species of butterflies and 217 species of plants. The Painted and River terrapins, both critically endangered freshwater turtle species occurs in the Setiu Wetlands. Remarkably, the Setiu Wetlands is among the very few places in Malaysia known to have the presence of viable populations of Painted terrapin. Of significance is the fact that Setiu Wetlands forms part of Terengganu's identified secondary ecological linkage under the Central Forest Spine (CFS) Master Plan developed by the Federal Government of Malaysia to help protect the country's biodiversity and ecosystem services.

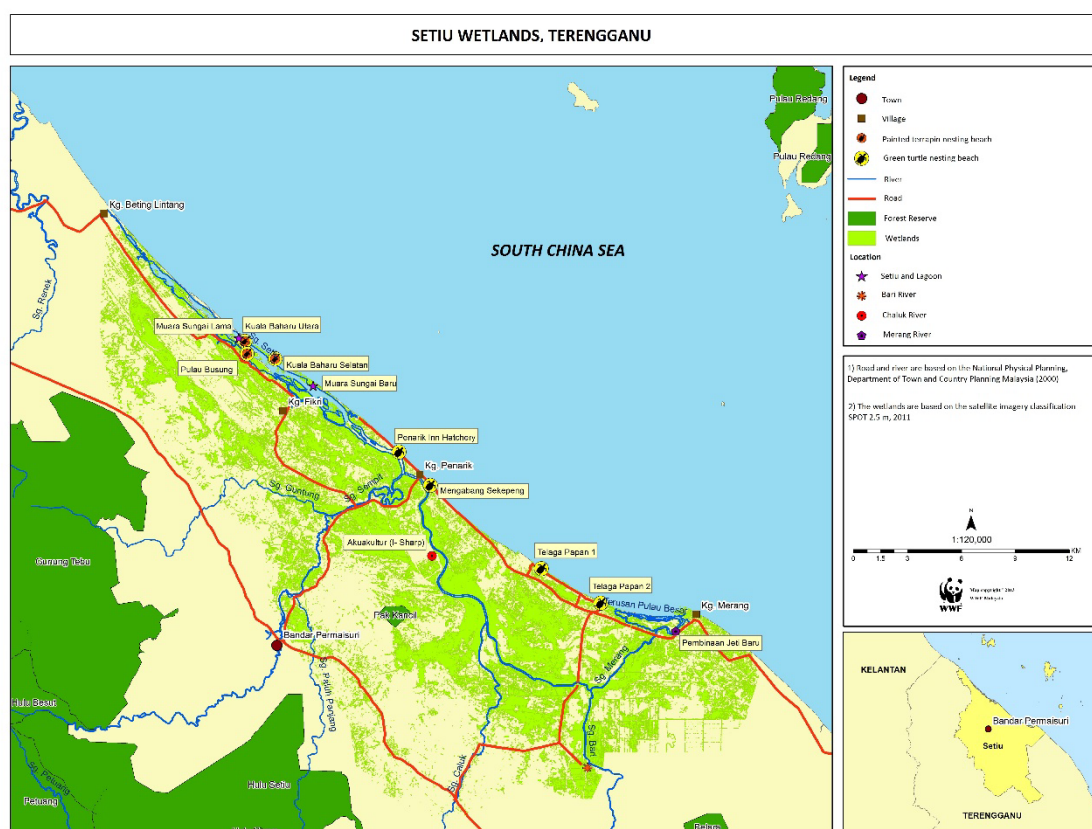


Figure 2: Setiu Wetlands in Terengganu

There is occurrence of a range of habitats as characterised by the vegetation types which includes mangroves, freshwater swamp, Melaleuca or *gelam* forest, peat swamp forest, lowland dipterocarp forests and riparian and coastal beach vegetation. The peat swamp forest (PSF) of Setiu Wetlands in particular is not well studied, thus there is much that is unknown about the PSF here. Findings from a High Conservation Value (HCV) assessment conducted in Setiu Wetlands in 2016 by WWF-Malaysia and Daemeter, a consulting firm had highlighted the Mat Jintan PSF located upstream of the Caluk-Bari-Merang rivers that is still relatively pristine and intact with no evidence of drainage. Subsequent fieldwork by researchers from Monash University Malaysia provided an estimation of close to 10m of peat depth at the Mat Jintan PSF indicating this PSF as highly significant for carbon sequestration (Yule, 2017). According to UNDP (2006), a 10 m deep forest could possibly hold almost 300 – 500 tonnes of carbon per ha in tropical forest. Thus, the occurrence of this PSF in Setiu Wetlands provides strong justification on the importance of conserving the wetlands ecosystem.

Previously in 2006, another site containing PSF in Setiu Wetlands located near Tasik Berombak was reported from the Malaysia Tropical Forest Conservation Project by the Department of Wildlife and National Parks (DWNP) and Coral Cay Conservation. The Tasik Berombak PSF was described as being water logged with spongy layer of dead vegetation accumulated up to 20m thick and dominant tree species of commercial value included the *Dipterocarp* sp., *Gonystylus* sp., *Durio* sp., and *Shorea* sp. A recce by the Monash University Malaysia research team in 2017 revealed that the Tasik Berombak PSF are now severely degraded after being subjected to logging and draining for conversion to oil palm plantations. Further degradation of the PSF in Tasik Berombak is expected due to its proximity to the project site of the East Coast Rail Link (ECRL) that started

recently, involving railway track construction. Nevertheless, the HCV assessment highlighted the presence of remnant PSF in north east of Tasik Berombak that merits conservation attention.

These PSF represent a neglected yet extremely valuable component of the Setiu Wetlands hence conservation measures and actions to minimize their loss are crucial. There are opportunities to facilitate sound management of the PSF in Setiu Wetlands but would require more detailed assessments to address the knowledge gap of this grossly under studied ecosystem.

It should also be noted that the Terengganu state government is currently pursuing its commitment to establish a state park in Setiu Wetlands. The Terengganu State Park Enactment has been passed recently in December 2017 and several committees have been activated to oversee the planning towards the state park gazettement. Considering PSF is under-represented in the protected area system of Peninsular Malaysia and PSF of high conservation value are present in Setiu Wetlands, there are strong prospects for advocating the inclusion of PSF into the Setiu state park.

B. The problem(s) to be addressed

Although the PSF have been identified as HCV areas, they are not well studied and there is insufficient information to form strong justification for their protection and to guide their sustainable management. Establishing critical baseline data of the PSF in Setiu Wetlands can be attained via the planned ecological assessment to address knowledge gaps and guide the conservation and management of the PSF as part of the broader sustainable management of the Setiu Wetlands. Additionally, there is still generally a lack of awareness and understanding of the importance of PSF and the impacts of poor PSF management (e.g. peat fire and haze causing health risks). To tackle this would require stakeholders' engagement and outreach jointly with effective communication and information dissemination. The PSF are valuable ecosystems and yet fragile, and in the long run, progressive conversion and disturbances if not addressed will result in the degradation of not just the PSF itself but also the Setiu Wetlands as a whole along with its ecosystem functions and services.

C. Objective(s)

General Objective:

The general objective is to contribute credible information to guide the conservation and management of the PSF within the broader context of sustainable management of the Setiu Wetlands. This project will seek collaboration with researchers, experts, community and corporates in its implementation to capitalize on complementary skills among the partners. The information will be generated from the planned ecological assessment of the PSF in Setiu Wetlands that will then be advocated as reference and basis for formulating conservation and management recommendations of the PSF in relevant planning and management tools such as the Setiu Wetlands Special Area Plan and Setiu State Park Management Plan. Integration of scientifically based and robust information pertaining to PSF into the development planning and management of the Setiu Wetlands hopefully will lead to improved habitat health, wise use of natural resources and greater protection of fragile ecosystems by the various stakeholders, eventually providing a chance for the Setiu Wetlands and its associated biodiversity to continue to thrive. This project will contribute to Goal 1 Target 3, and Goal 3 Target 9 of the Ramsar Strategic Plan 2016-2024.

Specific Objectives:

Objective 1: To establish a collaborative platform among key stakeholders for consultation and information exchange leading to better understanding and support for sustainable management and improved protection of the PSF in Setiu Wetlands.

Objective 2: To assess the PSF condition, extent, biodiversity / ecological and socio-economic aspects, and gather credible information to guide the conservation and management of the PSF in Setiu Wetlands.

Objective 3: To establish baseline information for initiating a database and framework for long term monitoring of the PSF in Setiu Wetlands.

Objective 4: To understand the community-PSF relationship in terms of socio-economics importance and livelihood.

D. Outputs

At the end of this funded project period, the outputs from the activities that are funded are as follows:

- a) A working group focused on the peat swamp forest is established involving key agencies and stakeholders such as the Terengganu State Economic Planning Unit, Terengganu Tourism Department – State Parks Division, Terengganu State Forestry Department, Forest Research Institute Malaysia (FRIM), Universities (i.e. Universiti Malaysia Terengganu, Monash University Malaysia, National University of Singapore) and WWF-Malaysia for collaboration in the project planning and implementation, and formulation of recommendations for the protection and management of high conservation value PSF areas in Setiu Wetlands.
- b) A report with baseline information and maps showing the status, distribution and biodiversity aspects of the PSF for improved protection and management that will be presented to the relevant stakeholders.
- c) Enhanced capacity of WWF-Malaysia staff and personnel from partner organisations in conducting biodiversity / ecological assessment of PSF to sustain long term monitoring efforts of PSF in Setiu Wetlands.
- d) Perception of the local communities is obtained and analysed pertaining to their dependency on the resources from PSF and awareness on the importance and need for the sustainable management of PSF in Setiu Wetlands.

E. Activities

The following are the 3 main activities to be funded and undertaken by this project:

a) Formation of a collaborative platform with key agencies and stakeholders

In order to execute monitoring and management of PSF, consultations with related agencies and stakeholders are crucial to form and coordinate a focus group for project

implementation, brains-storming on the management plan, assisting in community engagement and encouraging continuous commitments from all agencies related to ensuring their participation in conserving the PSF in Setiu beyond the completion of the assessment.

b) Comprehensive PSF research

Through a partnership approach in the research planning and implementation with relevant stakeholders especially experts from local and international universities and research organisations, the targeted studies will encompass site survey, site mapping, and inventories of biodiversity in PSF. Additionally, the research is also aimed to identify the importance of resources derived by communities from the PSF as well as identifying the threats to the PSF. For the site surveys and fieldwork, the methodology that will be employed include the following:

- Ground thruthing to verify the extent and boundary of the PSF complemented by analysis of relevant satellite images and google maps to derive the land cover and land use types;
- Plant inventory involving sampling via line transect and species identification;
- Camera trap to be deployed at strategic locations to gather data on presence of small and large mammals while bird survey will be done using direct observations and bird-call recordings and bird-call identification;
- Fish survey to be conducted using dip and small lift nets, the captured fish will be identified and release but where necessary, some reference specimens will be retained for identification verification in the lab;
- For abiotic component – temperature, conductivity, pH and dissolved oxygen levels of the aquatic environment will be measured (these water quality parameters will provide supporting data for the fish survey);
- Carbon stock assessment - peat cores will be collected at several points to determine peat depth and carbon stock in the soils; water tables depth will be measured to be used as proxy for soil carbon losses from peatlands;
- Threat identification / investigation – by collecting information on the nature and extent of natural resource extraction and use by local communities in surrounding villages (to be done in parallel with activity c)); locating and mapping signs and extent of disturbances due to logging / clearing, drainage and burning within the PSF

c) Community perception survey

Participation of local communities residing nearby to the PSF are key towards achieving the conservation of PSF Setiu Wetlands. A survey to gauge communities' perspectives about their dependency of the PSF resources and the value of the resources to their livelihood, and their support towards conservation of PSF is needed. This is important to understand the community's position regarding the conservation of the PSF and Setiu Wetlands besides enabling development of awareness package that is tailored to effectively educate and increase communities' awareness on the importance of PSF.

F. Logical frame of the project

Problems	Objectives	Outputs	Activities
Lack of information on the PSF resulting in lack of understanding about integrated planning and management with conservation consideration of the PSF within the Setiu Wetlands landscape	Objective 1: To establish a collaborative platform among key stakeholders for consultation and information exchange leading to better understanding and support for sustainable management and improved protection of the PSF in Setiu Wetlands	A PSF working group is established involving key agencies and stakeholders	Activity 1: Formation of working committee partners and active consultation with stakeholders Activity 2: Formalization of collaboration with respective agencies/universities
	Objective 2: To assess the PSF condition, extent, biodiversity / ecological and socio-economic aspects, and gather credible information to guide the conservation and management of the PSF in Setiu Wetlands. Objective 3: To establish baseline information for initiating a database and framework for long term monitoring of the PSF in Setiu Wetlands.	A report with map, baseline data on inventories and other ecological information related to the PSF. Enhanced capacity of WWF-Malaysia staff and personnel from partner organisations in biodiversity / ecological assessment to sustain long term monitoring efforts of PSF in Setiu Wetlands.	Activity 3: Conduct site mapping for the key PSF areas (Mat Jintan PSF and Tasik Berombak) Activity 4: Execute detailed studies on PSF including extent and distribution, biodiversity inventories, carbon methane emissions and water table level. Activity 5: Undertake analysis of field data Activity 6: Preparation of report jointly with partners. Activity 7: Draw up database framework for long term monitoring
	Objective 4: To understand the community-PSF relationship in terms of socio-economics importance and livelihood.	Local community's perception established and their involvement in PSF conservation efforts PSF identified	Activity 8: Conduct survey to gauge community's perspectives on the PSF and its resources Activity 9: Conduct awareness building on importance of PSF and sustainable livelihood

G. Project management arrangements and stakeholders

No.	Agency	Functions	Expected commitments
1	Terengganu State Economic Planning Unit	Main authority in the planning for state development and management within state.	Provide endorsement and support to conduct the PSF project in Setiu Wetlands Participate and provide inputs to the development of the management plan for PSF.
2	Terengganu Tourism Department – State Parks Division	Main player to promote and develop tourism sector in Terengganu and appointed focal agency to oversee / coordinate the management matters pertaining to the proposed state park in Setiu Wetlands.	Provide endorsement and support to the PSF project Assist in local community and other stakeholders' engagement and outreach to create awareness on the importance of PSF and reasons to protect it.
3	Terengganu Forestry Department	Authority responsible for forest management and production	Lead in the working group and play major role in planning, consultation, implementation the project.
4	WWF-Malaysia	Initiate ecosystem assessment and threat survey on peatland in Setiu. Assist in coordinating with researchers / experts on the ecological studies of PSF in Mat Jintan and impact of oil palm cultivation on water quantity in Tasik Berombak.	Support stakeholders coordination, guide in the integration of conservation considerations and supplement funding related to project management and research work Provide biodiversity and ecological information collected from the PSF assessment and relevant information from other studies Provide inputs on spatial planning aspects for the integrated management plan
5	Forest Research Institute Malaysia (FRIM)	Assist in PSF biodiversity and ecological studies.	Provide technical support and expertise in data gathering and analysis, report preparation and formulation of recommendations.

6	Local and International Universities (Universiti Malaysia Terengganu, Monash University Malaysia and National University of Singapore)	Assist in ecological study and socio-economic survey of PSF	Conduct research activities / studies and joint monitoring to gather data with WWF-Malaysia. Provide technical support and expertise in data gathering and analysis, report preparation and formulation of recommendations.
7	Ministry of Natural Resources and Environment Malaysia	Administrative Authority for Ramsar Convention, Malaysia Ministry in charge of environmental conservation in Malaysia	Provide institutional support and guidance for the implementation of the project Support the monitoring of this project implementation for the NWF reporting

WWF-Malaysia (Freshwater Conservation, Peninsular Malaysia Terrestrial Programme (PMTTC)) will be the implementing agency for this Project. The Project will be conducted through a collaborative approach with the stakeholders mentioned in the above table. WWF-Malaysia will coordinate all activities with the partners to deliver the outputs identified. Monitoring and evaluation of the progress, outputs and extent to which objectives are met will be done through the working committee that will be set up for this collaboration. WWF-Malaysia applies the partnership approach in recognition of the importance of stakeholders' engagement and working together, which enable more to be achieved jointly than working alone.

WWF-Malaysia is a scientific based environmental NGO, with currently seven key conservation programmes being implemented nationwide which includes the PMTC Programme. WWF-Malaysia actively undertakes wetlands conservation in Malaysia and the Freshwater team under the PMTC Programme is directly involved in undertaking conservation efforts in the Setiu Wetlands in the state of Terengganu. WWF-Malaysia's involvement in Setiu Wetlands dates back to more than two decades ago and hence, WWF-Malaysia is a recognised conservation partner by the state government. Advocacy for protection of HCV and environmentally sensitive areas and threat minimization from incompatible development activities are among the main focus of WWF-Malaysia's work in Setiu Wetlands towards safeguarding the wetlands' ecological integrity.

H. Work Plan

Outputs and Key Activities	Month											
	1	2	3	4	5	6	7	8	9	10	11	12
A PSF working group is established involving key agencies and stakeholders												
Activity 1: Formation of working committee partners and active consultation with stakeholders												
Activity 2: Formalization of collaboration with respective agencies/universities												
A report with map, baseline data on inventories and other ecological information related to the PSF Enhanced capacity of WWF-Malaysia staff and personnel from partner organisations in biodiversity / ecological assessment to sustain long term monitoring efforts of PSF in Setiu Wetlands												
Activity 3: Conduct site mapping for the key PSF areas (Mat Jintan PSF and Tasik Berombak)												
Activity 4: Execute detailed studies on PSF including extent and distribution, biodiversity inventories, carbon methane emissions and water table level.												
Activity 5: Undertake analysis of field data												
Activity 6: Preparation of report jointly with partners.												
Activity 7: Draw up database framework for long term monitoring												
Local community's perception established and their involvement in PSF conservation efforts PSF identified												
Activity 8: Conduct survey to gauge community's perspectives on the PSF and its resources												
Activity 9: Conduct awareness building on importance of peatland and sustainable livelihood												

I. Budget

i) *Budget summary*

This proposal is a sample for your reference and budget information has been removed from this version of the proposal.

ii) *Overall itemized budget*

J. Follow Up

- a) The findings of the assessment will be translated into advocacy documents and used as credible inputs into relevant planning and management documents related for the conservation of the Setiu Wetlands such as the Setiu Wetlands Special Area Plan and Setiu State Park Management Plan. As WWF-Malaysia is a member in the technical committees formed by the government agencies that oversee the formulation of the respective plans, we will leverage on these committees as platforms to advocate for the inclusion of the study findings and recommendations.
- b) Knowledge derived from the PSF assessment will be shared with local community via dissemination of written information (such as pamphlets), tailored on-site training programme and knowledge-sharing events as a way to strengthen community capacity and involvement in PSF conservation efforts in Setiu Wetlands.
- c) Information gathered from the PSF assessment will be systematically organised in a database and a framework developed for sustaining long term monitoring of the PSF in Setiu Wetlands beyond the period of this funded project in order to build on the database. This could potentially be implemented collaboratively by NGOs such as WWF-Malaysia with researchers and experts from local and international universities, and related government agencies.

K. Bibliography

Malaysia Wetland Directory. (1987). Malaysia Wetland Working Group, Department of Wildlife and National Parks, Peninsular Malaysia.

UPEN Terengganu. (2015). *Data Asas Negeri Terengganu 2015*. Unit Perancang Ekonomi Negeri Terengganu.

UNDP (2006). United Nation Development Program: Human Development Report. New York. USA

Yule, C. M. (2017). Loss of biodiversity and ecosystem functioning in Indo-Malayan peat swamp forests. *Biodiversity and Conservation*. Volume 19 (2), pp.393 – 409.