

# Concept Note

## Engagement Facility



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**Project Title:** Sustainable Mangrove Management and Coastal Ecosystem Development in Phetchaburi Province

**Project ID Number:** 00123061

**Implementing Agency:** UNDP Thailand Country Office

**Government Counterpart:** Department of Marine and Coastal Resources (DMCR)

**Donor:** Blue Carbon Society Association (BCS)

**Start Date:** November 2019 **End Date:** November 2022

### Brief Description

This project aims to support the capacity of the Department of Marine and Coastal Resources (DMCR) in developing a Sustainable Mangrove Management and Coastal Ecosystem Master Plan. The Master Plan will sustain socio economic and bio-diverse ecosystems in Phetchaburi Province. *A key activity includes:* 1) develop the ‘Master Plan for Sustainable Mangrove Management and Coastal Ecosystem Development in Phetchaburi Province’; 2) develop an ‘Urban Mangrove Forest Showcase’ that demonstrates the benefits of mangroves for improving livelihoods of local communities; 3) develop a finance plan to support the Master Plan’s implementation according to Biodiversity Finance Initiative (BIOFIN) Catalogue; 4) stimulate a better understanding of long term environmental, social and economic returns from mangrove conservation investments through the use of the Social Return on Investment (SROI) framework. Overall, the Master Plan will showcase support for the conservation of biodiversity rich mangrove ecosystems, as well as being inclusive and equitable to social and economic development for the surrounding dependent communities in Phetchaburi province, and the finance mechanism will be used to support the project implementation. The indicators used in this project are including number of communities’ interests, participation, finance plan and solutions, quantity of wastes in coastal areas, and numbers of well-known endangered species which can be found in Thailand, for example, Spoon-billed sandpipers, Bryde’s whales, and Irrawaddy dolphins.

Project Period: 2019 – 2022

Atlas Award/Project ID: 00123061

Start Date: 1 November 2019

End Date: 1 November 2022

<b>Total resources allocated:</b>	<b>DTGO &amp; RISC</b>	\$ 200,000
	<b>Donor</b>	\$ 150,000
	<b>UNDP TRAC</b>	\$ 22,000
	<b>Government</b>	In-kind DMCR

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## **Acronyms and Abbreviations**

BCS	Blue Carbon Society
BEDO	Biodiversity-based Economy Development Office
BHI	Biodiversity Health Index
BIOFIN	Biodiversity Finance Initiative
BMA	Bangkok Metropolitan Administration
CBD	Convention on Biological Diversity
DLA	Department of Local Administration
DMCR	Department of Marine and Coastal Resources
IUCN	International Union for Conservation of Nature
MoNRE	Ministry of Natural Resources and Environment
NIDA	National Institute of Development Administration
ONEP	Office of Natural Resources and Environmental Policy and Planning
PAO	Provincial Administration Office
PCD	Pollution Control Department
RISC	Research and Innovation for Sustainability Center
SAO	Sub-district Administration Organisation
SET	Stock Exchange of Thailand
SROI	Social Return on Investment
UNDP	United Nations Development Programme
WEFCOM	Western Forest Complex
WWF	World Wildlife Fund

## **PART I: SITUATION ANALYSIS**

### **Context and Global Significance**

1. Mangroves are among the most important ecosystems on the planet. They provide homes and feeding grounds for a wide variety of marine and land-based species, sustain livelihoods of coastal populations, and protection from ocean swell and extreme weather events from climate change.
2. Beyond their direct benefits, mangroves also play an important role in global climate regulation. On average, they store around 1,000 tons of carbon per hectare in their biomass and underlying soil, making them some of the most carbon-rich ecosystems on the planet.
3. In Thailand, mangrove forests currently cover approximately 1,900 km<sup>2</sup> along the coastline of the country and are an important contributor to the country's biodiversity.
4. Thailand's biodiversity has high global significance and is one of the most biodiverse countries in the world with nine percent of all species known to science found in the country. Thailand has approximately 15,000 species of plants and 4,722 species of vertebrates classified into 336 species of mammals, 1,010 species of birds, 394 species of reptiles, 157 species of amphibians and 2,825 species of fish.
5. Globally, mangrove forests remain among the most threatened ecosystems, with 1-2% of mangrove forests lost per year globally. Scientists estimate that over 35% of the world's mangrove forests have disappeared over the last five decades. Thailand has lost 84% of its mangroves, the highest rate of mangrove loss of any nation. Mangrove degradation has many impacts on species, including the loss of quality habitats, and the reduction of functioning bio-diverse ecosystems.
6. The continued pressure on the country's biodiverse resources through an expanding population, economic development, and the increasing land use demand has put pressure on many of these species. The recent update on the vertebrates of Thailand (Thailand Red Data) by the Office of Natural Resources and Environmental Policy and Planning (ONEP) reveals that many of these species are threatened with over 555 species of vertebrates listed as endangered domestically and 231 classified as endangered by the International Union for Conservation of Nature (IUCN). Thailand's flora has at least 1,424 species identified as threatened and endangered of which 757 are endemic species.
7. In Thailand, mangrove forests are distributed along the coastline of 23 provinces in the southern, south eastern, and upper regions of the Gulf of Thailand. The upper region of the Gulf of Thailand contains large areas of degraded mangrove forest due to rapid economic development including for tourism development, shrimp aquaculture and salt farms.

8. Thailand has drafted policies and set goals to restore and rehabilitate mangrove forests across the country. These stemmed from the ratification of international environmental conventions and increased awareness of how mangrove deforestation can reduce ecosystem services, biodiversity, and impede the livelihoods and wellbeing of coastal communities. Mangrove restoration activities increased further following the 2004 tsunami, based on the rationale that mangroves help protect coastlines. Due to these measures, between 2000–2012, average annual mangrove loss in Thailand was only 0.11%, which is among the lowest rates in Southeast Asia.
9. Strategies and targets for mangrove restoration have been stipulated in Thailand’s National Economic and Social Development Plans (NESDPs), which aim to direct and coordinate public expenditures towards development programs. The 12th NESDP (2017–2021) featured the following goal, “The mangrove forest area is enlarged from 1.53 to 1.58 million rai”. These mangrove targets stem from a national goal to increase the national forest area to 40% of total land area, with the current area around 33%. These measures have been incorporated into the more recent National Reform Plan on Land Resources aligned to the 20-Year National Strategy (2017-2037).

#### The Project Site: Phetchaburi Province

10. This project focuses on the mangrove ecosystems in Phetchaburi which is a coastal province situated along the upper gulf of Thailand. The province has 85,944.86 rai area with 17.27% being covered with mangrove forest (14,839.24 rai) that contains large areas of degraded mangroves.
11. The province of Phetchaburi is well known as the single biggest producer of lime, sea salt, and is famous for its ark shell. The province is administratively divided into 8 districts, 93 sub-districts, and 698 villages. The province is positioned in the strategic upper southern provincial cluster plan as having a strong potential in ecotourism, agriculture, and coastal fisheries development. The vision for Phetchaburi development is to be a model self-sufficiency city, a liveable city with good food and recognized for local and international tourism.
12. Phetchaburi’s shore is a combination of mangrove forests, mudflats, and sandy beaches. Its seabed is relatively shallow depth (45 meters on average) receiving a high influx of nutrients and freshwater from Phetchaburi river and canals. Phetchaburi is one of the most biologically diverse marine environments globally with a biodiversity rich ecosystem.
13. Phetchaburi mangrove forest are the habitat for the majority of bio-diverse flora and fauna proliferating in the rich ecosystems of the upper Gulf of Thailand. They provide habitats for as much as 42% species, 38% genus, 32% family and 29% orders found in the upper Gulf of Thailand. The flora and fauna found in Phetchaburi are significantly diverse, comprising:
  - 3 families and 5 species of plants
  - 9 orders, 23 families, 49 genus and 74 species of birds
  - 7 orders, 44 families, 59 species of benthic animals
  - 13 families, 13 species of marine animals mostly fish, prawn and crabs

14. Most importantly, there are 2 terrestrial endangered species of a native reptile (*isopachys anguinoides* จิ้งเหลนตัวง) and a migratory bird (*calidris pygmaea* or *eurynorhynchus pygmeus* or Spoon-billed sandpiper นกชายเลนปากช้อน) found in this province. The visit of the critically endangered Spoon-billed sandpiper (IUCN red list) is due to the favouring of physical man-made shallow plots of agricultural land by salt farmers and traditional aquaculturers. These shallow ponds provide the grounds for their gathering after the return from their feeding.

15. The seasonally found migratory bird (Spoonbill sandpiper) and the abundant shorebirds have been providing attraction to the Bird Watcher groups and Mangrove Ecosystem Tourists. Among the 74 species of shorebirds in Phetchaburi, the prevailing shorebirds are:

- *Calidris tenuirostris* (นกน้อตใหญ่)
- *Childonias hybrid* (นกนางนวลแกลบเคราขาว)
- *Larus brunnicephalus* (นกนางนวลธรรมดา)
- *Gelochelidon nilotica* (นกนางนวลแกลบปากหนา)
- *Arenaria interpres* (นกพลิกหิน)
- *Vanellus indicus* (นกกระแตแต้แว๊ด)

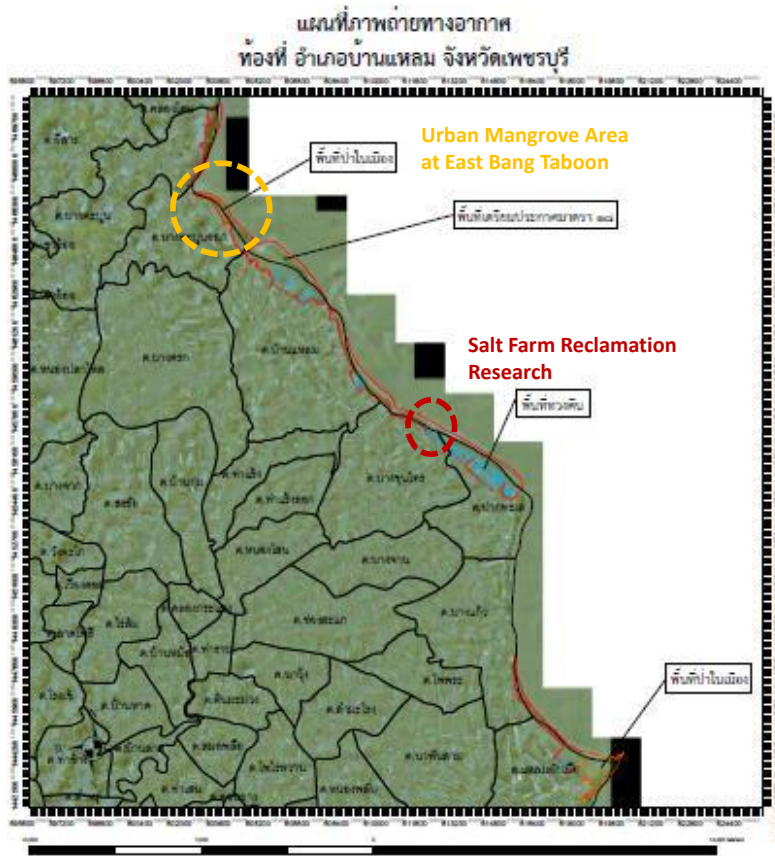
**Table 1:** Number of species, genus, family and order of Shore birds found in the Upper Gulf of Thailand

Province	species	genus	family	order
Phetchaburi	74	49	23	9
Samut Songkram	27	20	13	8
Samut Sakhon	25	21	15	5
Samut Prakarn	16	15	8	4
Chachoengsao	34	23	14	5
<b>Total</b>	<b>176</b>	<b>128</b>	<b>73</b>	<b>31</b>

16. The mangrove forests are distributed in the 20 sub-districts of the 5 districts to the east of Phetchaburi. The majority of mangrove land are degraded, leaving only 17% undisturbed. Most mangrove areas are concentrated in Ban Laem District with nearly 92% remaining in its pristine condition (See Table 2).

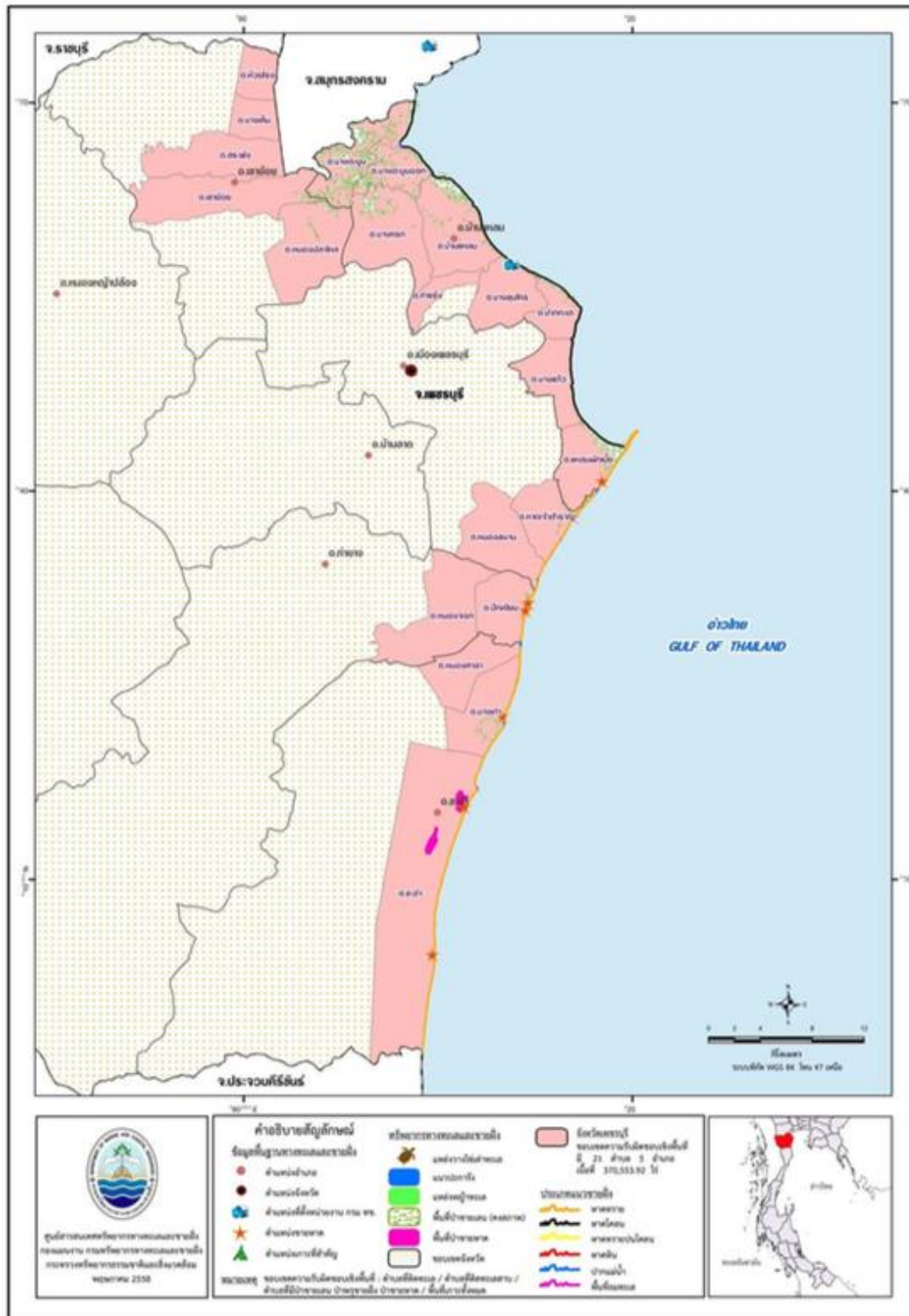
**Table 2:** Distribution of Mangrove Forest in Phetchaburi

<b>District</b>	<b>Sub-district</b>	<b>Mangrove area (Rai)</b>	<b>Pristine Mangrove</b>	<b>% Pristine Mangrove Coverage</b>
Kao Yoi	Khao Yoi	2000.26	260.24	4.65%
	Bang Khem	1351.43	23.04	
	Sarphung	1860.4	2.62	
	Nong Plalai	8382.13	402.6	
	Huay Rong	21.34	2.05	
Cha-am	Cha-am	431.25	0	2.64%
	Bang Kao	2270.93	391.41	
Thayang	Puk Tien	1682.02	66.39	0.45%
	Nong Jok	4.82	0	
Ban Laem	Tha Lang	22.77	0	91.62%
	Bang Kao	2670.86	189.16	
	Bang Khunsai	3436.09	477.08	
	Bang Krok	8053.06	1161.11	
	Bang Taboon	15089.99	4797.19	
	East Bangtaboon	8532.65	1661.22	
	Ban Laem	12891.96	2662.27	
	Pak Thalaе	4142.63	713.02	
Muang	Laem Phukbia	9147.48	1935.34	0.64%
	Nong Khanan	374.95	13.62	
	Haad Chao Samran	2805.32	81.1	
<b>Total (rais)</b>		<b>85,172.34</b>	<b>14,839.46</b>	



**Picture 1:** Arial map of project site





Picture 2: Mangrove forest in Phetchaburi

## The Long-Term Solution and Barriers to Achieving the Solution

17. Currently, the Ministry of Natural Resources and Environment is drafting new regulations to proclaim the pristine mangrove forests in Phetchaburi province as a “Protected Conservation Mangrove Forest Area”. This opens up the opportunity for public-private partnership to support the realization of this by providing a framework for the inclusion of biodiversity diversity rich mangrove ecosystems into the development planning and management of coastal land use for the pilot project in this province, as well as being inclusive and equitable to social and economic development for the surrounding dependent communities.
18. The long-term solution sought for conserving the mangrove forest in Phetchaburi is characterised by: (i) law and enforcement, (ii) benefit sharing of mangrove ecosystem, (iii) local stakeholder participation in development of the Master Plan for Sustainable Land Use and Mangrove Ecosystem Development for Phetchaburi Province, (iv) knowledge-based solutions for salt pan reclamation for mangrove forest restoration, (v) finance solutions for master plan implementation.
19. The main barriers to achieving the long -term solutions are outlined below.

Barrier 1: Lack of law enforcement in land use zoning and land invasion along the coastal area

Barrier 2: Absence of local communities and local government participation in developing a mangrove and coastal ecosystem protection plan and actions

Barrier 3: Lack of awareness among the local communities and local government in beneficial uses of mangrove and coastal ecosystem

Barrier 4: In-house capacity of DMCR is insufficient to carry out research in salt pan reclamation of the target area under the new regulations in Phetchaburi

### Government Response to Barriers

20. Up until 2015, there had been no direct responsible organizations in Thailand for managing mangrove forests. The Government of Thailand had to pass several cabinet resolutions on mangrove forests since B.E. 2530 (1987). In December 1987, a Cabinet resolution was issued to divide the mangrove forests into economic and conserved mangrove forest categories. Four years later, in B.E. 2534 (1991), another cabinet resolution was issued to stop any utilization activities in mangrove forests. Later in B.E. 2543 (2000) the third Cabinet resolution was announced to ban permits for utilization of private or public purposes. However, in the same year, people who had long been residing in the mangrove forest area were allowed to stay, but strictly prohibited from doing any economic activity. Three years later in 2003, utilization of mangrove forests was granted if done by the public sector and with a condition to reforest.
21. On 20 March B.E. 2558 (2015), the Marine and Coastal Resources Management Act was enacted to respond to the mangrove forest degradation issue. The Ministry of Natural Resources and Environment is charged with responsibility and control of this Act; including the implementation of policies and measures set by the National Committee on Marine and Coastal Resources Management Policy and Planning chaired by the Prime Minister or Assigned Deputy Prime Minister as

Chairperson. Then in November B.E. 2559 (2016), the Cabinet resolution on public utilization of mangrove forest was announced mandating any public utilization of mangrove forest land had to have the consent of the Ministry of Natural Resources and Environment.

22. As for the biodiversity concerned, Thailand has signed the Convention on Biological Diversity (CBD) in 1992 and ratified the instrument on 31 October 2003. It has since adopted and implemented corresponding policies, projects and activities in support of the Convention. The National Biodiversity Policy for protection and restoration of conservation areas was announced in B.E. 2552 (2009). Subsequently in B.E. 2553 (2010), the Thai Government passed an important Cabinet Resolution to ratify partnership for the Conservation of Migratory Wetland Birds and the Sustainable Use of Their Habitats in the East Asian Australian Flyway.
23. Conservation effort to safeguard the remaining pristine mangrove areas against the land use pressure are reflected in several projects implemented during the recent past four years. A strict legal action has been taken on the mangrove forest encroachers by confiscating damaged mangrove forest and taking legal action. The confiscated degraded mangrove lands are to have an on-going replantation with native mangrove trees. Parallel efforts are demonstrated in the drafting of Ministerial Regulation by the Ministry of Natural Resources and Environment Declaring Mangrove Forest Areas in Phetchaburi province among others, as Conserved Mangrove Forest Area B.E..... The draft Ministerial Regulation shall be in effect on the day following an official announcement in the National Gazette.
24. For the case of Phetchaburi province, upon official announcement, the 9,630.64 rai of mangrove forest in 8 sub-districts of Ban Laem district and Cha-am district shall be under the management responsibility of DMCR to engage communities, local governments and other groups in the conservation and sustainable utilization for social and economic development (Annex III).

## **Baseline Analysis**

25. Further Baseline Analysis will be carried out in the first three months of the Project where information, collaboration and inputs can be gained from the site and local stakeholders.
26. The Project will adopt the following three dimensions from the Biodiversity Health Index for the Baseline Analysis and indicators development:
  - Habitat
  - Globally/locally important species
  - Beneficial use of natural resources

## **Stakeholder Analysis**

27. Partnerships will be an important strategy through which the Project will aim to achieve its objectives. Table 3 below describes the major categories of stakeholders, their roles and responsibilities and their involvement in the Project.

**Table 3:** Stakeholder Analysis

Stakeholder	Roles & Responsibilities	Proposed involvement in the project
Ministry of Natural Resources and Environment (MoNRE)	The Ministry is responsible for environmental policy and planning	The Ministry will have overall oversight over the project
The Department for Marine and Coastal Resources (DMCR)	Responsibilities and tasks related to marine and coastal resources, especially those tasks concerned with coastal areas, mangroves, coral reef, seagrass beds and marine animals	DMCR will be responsible for facilitation of works at project sites, providing site information and assist in community participation and training activities for inclusion of biodiversity conservation measures in the framework for local government to plan, monitor, and adapt in their land management
Provincial Administrative Organizations (PAO)	Manages and provides public services within a province	The PAO will assist by facilitating and supporting the development of the Master Plan
Sub-district Administrative Organizations (SAO)	Manage and provide basic infrastructure for communities living in the project site	The SAOs will assist the project in the development of the Master Plan, community mangrove management and ecotourism development activities of urban mangrove area.
Conservation NGOs	<p>These organisations represent key stakeholders and are often a source of innovation, expertise, funding additional projects and education and awareness:</p> <ul style="list-style-type: none"> <li>• Blue Carbon Society Association (BCS). BCS acts as a community of</li> </ul>	BCS and its partner institutions (RISC & DTGO) will be the responsible party to lead the implementation of work on the development of Master Plan & Showcase on land use management for environmental conservation

	<p>“friends” who bring their common wish to protect, conserve, and nurture marine biodiversity and ecosystem to counter climate change. BCS mission includes promoting the capacity of marine and coastal ecosystems as a carbon storehouse and conserving the biological diversity of marine and coastal ecosystems. BCS’s partner institutions for this Project are:</p> <ul style="list-style-type: none"> <li>- Research and Innovation for Sustainability Centre (RISC)</li> <li>- DT Group of Companies (DTGO) Urban Action</li> </ul>	<p>and ecotourism of urban mangrove area.</p>
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## PART II: STRATEGY

**UNDP Strategic Plan:** Inclusive Growth and Sustainable Development

**Expected CP Outcome(s):** By 2022, systems and processes are more effective and equitable to progressively advance inclusive, sustainable and people-centred development for all people in Thailand

**Expected CP Output(s):**

**Output 1:** Solutions developed at national and sub-national levels for sustainable management of natural resources

**Output 2:** Innovations enabled for development solutions, partnerships and other collaborative arrangements.

### Project Rationale and Conformity

28. This project will provide a framework for integrating biodiversity safeguards and conservation into local social and economic development activities generated from the sustainable and eco-friendly utilization of mangrove forest resources. This will be achieved by applying a landscape approach to develop a Master Plan that addresses an inter-sector collaboration in coastal resources land use planning for the mutual benefits of people and planet; and by raising community awareness of threats to and benefits of biodiversity.

29. The Master Plan will be for the entire mangrove forest in Phetchaburi covering the conserved mangrove forest under the responsibility of the DMCR as well as their corridors.
30. In conjunction with the development of the Master Plan, the project will seek to present a successful *showcase* in sustainable mangrove management for improving the livelihoods of local communities in the proposed site in Phetchaburi. The timeline for the successful model should run parallel to the Master Plan to activate local enthusiasm in project participation.
31. The Master Plan will be adopted by DMCR Coastal and Mangrove Forest Reservation Unit to collaborate with Phetchaburi Administration and local authorities in preparing the provincial policy, plan, budget and measures for biodiversity conservation as well as inclusive and equitable social and economic development for the dependent communities.
32. The Master Plan for Sustainable land use management and ecosystem development in Phetchaburi province will be executed by DMCR in collaboration with local communities and local administration in Phetchaburi province.

#### DMCR-BCS-UNDP Partnership Rationale and Conformity

33. DMCR-BCS-UNDP agree to work together in sharing the resources and expertise to address the sustainable development of mangrove ecosystems for the benefits of local livelihoods. The partnership among BCS-UNDP Thailand was initiated in 2018. On January 24, 2019, UNDP Thailand and BCS team visited Phetchaburi province to investigate the site and explore the interest and need of DMCR. The visit was led by high level delegates from the three implementing organizations and joined by experts/participants.
34. To overcome the barriers, the project has and will undertake the following strategic activities in the development of the planning framework and building of local capacity to implement the master plan with local communities' participation.

i. Design project from challenges, capabilities and opportunities.

The project was prepared to match challenges and expertise that UNDP TH - BCS could bring to the opportunity that have opened up as a result of the upcoming Proclamation of the Ministerial Regulation and the interests of DMCR.

ii. Recommend pre-selected project sites for participatory selection at the provincial level.

The project has proposed the 14,839.53 rai of the entire remaining pristine mangrove forests in Phetchaburi Province which includes the 9,360.64 rai to be announced as Conserved Mangrove Forest areas. These areas in Ban Laem and Cha-am Sub-districts are the project sites for developing the Master Plan for sustainable land use management and ecosystem development.

iii. Recommend to select a potential site (50-100 rais) for showcase of a Land Use Management Plan for Environmental Conservation and Ecosystem of Urban Mangrove Area in the Bang Taboon Mangrove Forest.

The proposed site will showcase how a land use master plan contributes to maximize the conservation

and utilization benefits in a sustainable land use development project. The landscape approach will be applied in designing land use for maximum benefits in ecotourism development. The showcase proposed site is located in the East Bang Taboon sub-district of Ban Laem District to the north of Puk Tien Beach and just over the Phetchaburi River Bridge. The “to be conservation mangrove forest area” has potential spots for ecosystem/biodiversity tourism development. It is full of interesting wildlife living in the mangrove forest adjacent to the Thai Gulf at the mouth of the Phetchaburi River. There is a concrete walkway along the edge of the forest area and along the Thai Gulf to allow easy access to view the life in the mangrove forest. The ecological tourism activities can be developed from the existing Mangrove walking route to study nature for those who are interested in mangrove and seacoast ecology. There are information signs indicating the plant species. Along the trail, tourists will have a chance to experience the beauty of mangrove forests, various coastal plant species, and many animals such as birds, blenny fish, fiddler crabs, snapping shrimps and other seacoast animals. Mangrove reforestation is another activity for those who can stay overnight at the nearby Bang Khun Sai fishery community to observe the local fishermen lifestyle since Bang Khun Sai is well-known as the biggest natural ark shell habitat in Thailand.

iv. Design a flexible work plan which can be accepted at the project conception stage in the first three months when information, collaboration, inputs could be gained from the site and local stakeholders.

v. Consult key stakeholders in the preparation of a work program during the first three months. In addition to the key stakeholders represented in the steering committee and the working group, following local key stakeholders shall be consulted.

- Bang Taboon Coastal Community
- Thai Sea Salt Cooperative of Phetchaburi
- Ban Laem Sea Salt Farmer Cooperative Limited formed by Hin Gong Herbal Sea Salt Producer group
- Land utilizers in the core zone and the buffer Zone of the East Asian-Australian Flyway Network Site, area code EEAF 121 B.E. 2557 ratified by the Cabinet on 20 July 2553. The area is important to the 245 species of birds are found where 143 species are migratory birds in which 16 species are in the global endangered list.

**Core zone** for protection of Spoon billed Sandpiper is in Ban Laem district which covers the area of 5,297 rais of mudflat and mangrove forest in Moo 2 of Pak Thalae Nok Village (mainly salt farm area) in Pak Talae sub-district; the Laem Phukbia Environmental Research and Development Center, and villages in Laem Phukbia sub-district.

**Buffer zone** for protection of approximately 20,000 species of migratory birds and endemic birds covering 37,391 rais along the coastline in 3 sub-districts of Pak Thalae, Bang Kaew and Laem Pukbia.

The project would provide a framework for policy and measures to support and harmonize planning of interrelated activities in tourism, fisheries, and awareness building on environmental and climate change issues. DMCR will have a comprehensive local stakeholders’ participation process in the development of policy, measures and planning for implementation following an upcoming official announcement of the Ministerial Regulation for conservation and utilization of the conserved forest areas. A well designed coastal resources plan that applies the landscape approach and takes into

account the maximum carrying capacity of the mangrove land is thus believed to be the ideal direction for the project.

## **Project Objective, Outcomes and Outputs/Activities**

35. The project **objective** is to *support the capacity of DMCR in developing a Mangrove Forest Land Use Master Plan to sustain socio economic and bio diverse ecosystems in Phetchaburi Province.*

36. The objective indicators are the following:

- i. Coastal land use plan developed through participation of local communities and local government organizations
- ii. Sustainable tourism measures endorsed by the Governor
- iii. Soil condition and ecosystem of the 5 rai of salt pan improved
- iv. Mangrove forest learning area upgraded
- v. Stakeholder participation know-how within DMCR developed
- vi. Number of communities interested in the mangrove ecotourism program
- vii. Number of sub-district administration organizations (SAO) with important mangrove ecosystem areas within Phetchaburi province where the Biodiversity Health Index (BHI)/Biodiversity Benefit Index (BBI) is used as an annual performance measure.
- viii. Numbers of populations of the following species at target sites;
  - *Calidris tenuirostris* (นกนํ้าตํ้าใหญ่)
  - *Chironias hybrida* (นกนางนวลกลบเคราขาว)
  - *Larus brunicephalus* (นกนางนวลธรรมดา)
  - *Gelochelidon nilotica* (นกนางนวลกลบปากหนา)
  - *Arenaria interpres* (นกพลิกหิน)
  - *Vanellus indicus* (นกกระทดัดแต้แว้ด)
  - Spoon-billed sandpiper *Eurynorhynchus pygmeus* (นกชายเลนปากช้อน)
  - *Isopachys anguinoides* (จิ้งเหลนตั้วง)





Picture 3: Map displays activities of BCS (including this project) in the upper Gulf of Thailand.

**Outcome:** Enabling framework for DMCR and local government to plan, monitor and adapt land management for Phetchaburi mangrove ecosystem

## Outputs

37. In order to achieve the project objectives, indicators, and address the barriers, the project's outcomes/outputs are the following:

Output 1: Master Plan for Sustainable Land Use and Mangrove Ecosystem Development for Phetchaburi (including Research on Salt Farm reclamation and restoration, 5 rai)<sup>1</sup>

Output 2: Urban Mangrove Forest Showcase development, including social enterprise set-up and build capacity in develop a market in tourism sector

Output 3: Finance Plan development, including implementation/piloting of selected finance solutions (e.g., impact investment, ecotourism etc.

Output 4: Impact Assessment (e.g., SROI framework, etc.)

## Activities

38. The specific activities to be implemented in support of the **Master Plan Development** include the following: (a) Stakeholder mapping and participation, (b) Project Steering Committee Setting, (c) R&D on Salt Pan Reclamation (5 Rai soil testing and 100 Rai reforestation), (d) Community Mangrove Forest Design and Landscape.

39. The specific activities to be implemented in support of the **Urban Mangrove Forest Showcase**<sup>2</sup> include the following: (a) Social enterprise set-up for tourism, (b) Improve infrastructure (trail, bird watching, etc.).

40. The specific activities to be implemented in support of the **Finance Plan** to implement the master plan and to replicate the Phetchaburi approach in other provinces include the following: (a) Feasibility Studies on PPP for finance solutions based on BIOFIN methodology, (b) Stakeholder consultation for selection options, (c) Piloting the selected option, d) Business case/documentation in conjunction with **SROI framework**

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<sup>1</sup> Research on Salt Farm Reclamation will be carried out in consultation with DMCR. The R&D Methodology and findings will be included into the Master Plan.

<sup>2</sup> This project will also deliver a tangible output/showcase of the Land Use Management Plan for Environmental Conservation & Socio-Economic Development. This showcase will also be contributing to DMCR and the local government in action planning of urban mangrove area development to up lift the quality of life of the dependent grass roots people and organizations who voluntarily safeguard the mangrove forest and its ecosystem through their eco-friendly utilization.

## Key Indicators, Risks and Assumptions

41. The Project Indicators, Risks and Assumptions are detailed in the Strategic Results Framework (Page 27).

## Incremental Reasoning and Expected Global, National and Local Benefits

42. The long term solution for supporting the capacity of DMCR in developing a Mangrove Forest Land Use Master Plan to sustain socio economic and bio diverse ecosystems in Phetchaburi Province is one where: i) laws and regulations – specifically the conservation and enforcement tools under the “Protected Conservation Mangrove Forest Area” – are truly implemented for the benefit of coastal communities and ecosystems (ii) the importance and values of mangroves to people are recognised, (iii) local stakeholders meaningfully participate in the development of the Master Plan for Sustainable Land Use and Mangrove Ecosystem Development for Phetchaburi Province, (iv) knowledge-based solutions are generated for salt pan reclamation for mangrove forest restoration that provides the local community with a real evidence base to inform community strategies, (v) finance solutions are identified for Master Plan implementation which include a range of financing sources for mangrove conservation and enable the sustainable financing of actions.

43. The Project will support DMCR in achieving the following plans and National Strategy:

- National Strategic Plan issue no. 4: Development Growth based on quality of life and environmentally friendly, specifically item 4.1.4 Sustainable Economic and Green Growth. DMCR will contribute to the increasing forest mangrove area.
- National Reform Plan item no. 1: Land Resources. DMCR will contribute to the target to protect, conserve, restore natural resources by increasing the national forest area to 40 % (25% conservation forest, 15% economic forest) of which to increase a specific target on mangrove area from 1.53 million rai to 1.58 million rai nationwide. Measures are to reclaim a land invasion and to improve biodiversity of forest area.

44. The Project strives for the inclusion of local communities in planning and implementing mangrove conservation activities both as the gatekeepers and as agents that can adapt national policy to local contexts. Work under the project will enable communities in Phetchaburi to receive training, be part of mangrove conservation committees, and work with NGOs to effectively manage and receive the benefits from mangroves. The Project will seek to achieve these linkages by promoting incentives (including technical support and grant funding for showcasing sustainable livelihood initiatives and ecotourism/social enterprise development) for community-based sustainable mangrove management, nature-based tourism and education and improved mangrove rehabilitation.

## Cost Effectiveness

45. The project will contribute the following expertise:

i. UNDP CO TH. UNDP Thailand office has accumulated long standing experience on biodiversity conservation and currently working on the finance plan for biodiversity Thailand (see Annex I). Recent

projects of particular relevance to Phetchaburi and its biodiversity was conducted in 2015. It provides suggestion on how to remove the threats to biodiversity loss in the conservation of Habitats for Globally Significant Flora and Fauna by land use planning. In February 2019, another study shares important findings on how to apply land use planning framework in the protection of fertile habitat ecosystem of endangered species in four study areas (including Phetchaburi). Both of these studies help to narrow down the remaining challenges and have the project focused on the opportunity to work on the pristine provincial wide mangrove forest soon to be under direct responsibility of DMCR.

ii. Blue Carbon Society (BCS). Blue Carbon Society (BCS) is a non-profit organisation founded by philanthropist couple - Dr. Jwanwat and Mrs. Thippaporn Ahriyavraromp. BCS acts as a community of “friends” who bring their common wish to protect, conserve, and nurture marine biodiversity and ecosystem to counter climate change. BCS mission includes promoting the capacity of marine and coastal ecosystems as a carbon storehouse and conserving the biological diversity of marine and coastal ecosystems,” through activities to

- Enhance the capacity of marine and coastal ecosystems to absorb carbon
- Protect and conserve the biodiversity of marine and coastal ecosystems
- Develop activities that help human communities and natural ecosystems to co-exist in a balanced way
- Become a knowledge hub for conserving marine and coastal ecosystems
- Create and sustain a network of alliances for blue carbon activities
- Develop human capital for sustaining marine and coastal biodiversity and ecosystems

Since its establishment in 2018, BCS has worked with government agencies, private sectors, academic institutions and local communities to address marine debris through research and development of improved waste management, and the up-cycling of materials.

## **Sustainability and Replicability**

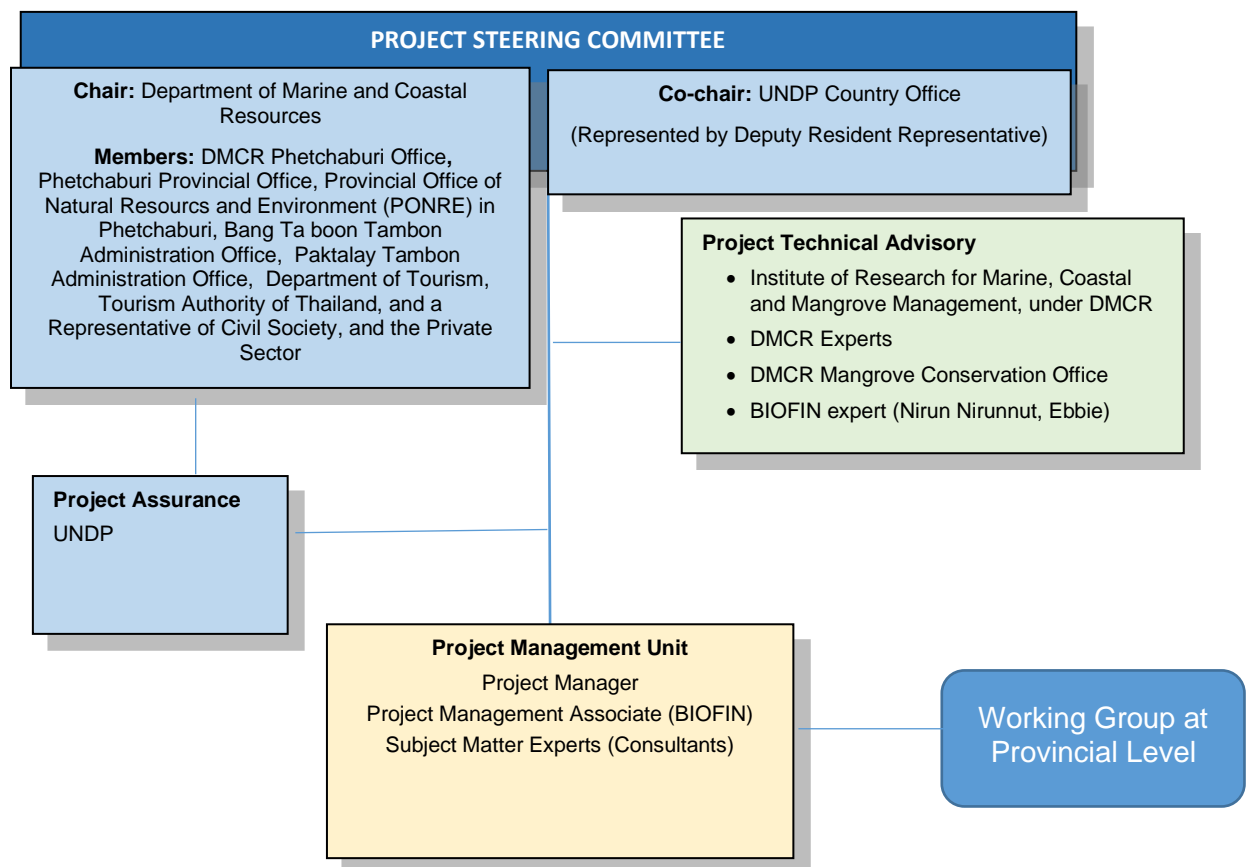
46. Project sustainability will depend ultimately on ownership of the project by DMCR and the local communities and their commitment to the implementation of the Master Plan for Sustainable Land Use Management and Ecosystem Development in Phetchaburi Province’. DMCR has shown significant commitment to mangrove conservation in Phetchaburi, as evidenced by the regulation on ‘Protected Conservation Mangrove Forest Area’. The Project will allow the Government of Thailand to apply a landscape approach that addresses a cross-sector collaboration in coastal resources land use planning for the mutual benefits of people and planet, while raising community awareness of threats to and benefits of biodiversity. As such, a sustainable conservation outcome will be achieved through effective land use planning, including in terms of improving community livelihoods.
47. Beyond project completion, sustainability of project interventions is being ensured on several levels. At the national level, mainstreaming of the project is enhanced through establishment of a Project Steering Committee (PSC) where knowledge and experience are exchanged. The PSC will be embedded in existing institutions with an emphasis on mainstreaming practices and standards during implementation. Policy development that enables participatory management will further add to sustainability of the co-management approach.
48. Integrating local communities in mangrove conservation and marine ecosystem land-use planning through Working Groups and regular meetings, as well as providing benefits through livelihood

development activities and ecotourism, will leverage support for, and engagement in, sustainability of the mangrove forests.

49. To address potential funding risks after the completion of the Master Plan, the project will pursue the following: (i) development of a *finance plan* based on the BIOFIN methodology (UNDP, 2018) to support the implementation of the Master Plan, ii) identification of the most suitable finance solutions as well as providing guidance on how to implement the solutions for maximum impact, iii) maintain a dialogue with concerned government agencies on recommendations for budget allocations/budget reform within government agencies; (iv) enabling future partnerships between DMCR, the implementing partners, NGOs and investors; (v) ensuring that project supported activities are community-based to ensure local ownership, (vi) exploring potential alternative and parallel financing sources from the private sector for social enterprise and nature-based tourism; and (vii) promote a return on investment (ROI) using tools such as Social Return on Investment (SROI) framework.
50. Replication will be achieved through the direct replication of selected project elements and practices and methods, as well as the scaling up of experiences. The project will specifically use the lessons learnt from the experience and outcome of the ‘Urban Mangrove Forest Showcase’ in the roll-out of financing solutions across other mangrove rehabilitation projects across the country.
51. Each project output will include the documentation of lessons learnt from implementation of activities under the output, and a collation of the tools and templates (and any other materials) developed during implementation. The Project Manager will ensure the collation of all the project experiences and information. This knowledge database will then be made accessible to different stakeholder groups in order to support better future coastal ecosystem land use planning and sustainable mangrove management.

## Project Implementation Arrangement

52. The project will be implemented over a period of three years.
53. The UNDP Country Office (CO) will monitor the implementation of the project, review progress in the realisation of the project outputs, and ensure the proper use of BCS and BIOFIN/UNDP funds. Working close cooperation with DMCR, BCS’s partner institutions (RISC, DTGO), the UNDP Country Office (CO) will provide support services to the project-including procurement, human resources management and financial services, contracting of service providers – in accordance with the relevant UNDP Rules and Procedures and Results-Based Management (RBM) guidelines.
54. The project will be directly implemented (DIM) by the UNDP Country Office in line with the UNDP Country Programme Document (2018-2022) and the Royal Thai Government – United Nations Partnerships Framework (UNPAF, 2018-2022). UNDP will provide some of the support services to facilitate the implementation through a Financial Agreement between BCS and UNDP and endorsed by Department of Marine and Coastal Resources (DMCR), under the Ministry of Natural Resources and Environment (MoNRE).



55. The project is one of the finance solutions in the Finance Plan for Biodiversity in Thailand (BIOFIN) under the Impact Investment / domestic resource mobilization for national/local Thai government organizations. The project will follow the BIOFIN methodology to “develop a finance plan for sustainable mangrove management in Phetchaburi Province, Thailand”. The plan will mobilize resources (in-kind and in-cash) to support DMCR and local communities to implement the master plan for mangrove restoration in Phetchaburi.
56. BCS and UNDP will sign a Financial Agreement in implementing the project “Sustainable land use management and ecosystem development in Phetchaburi province” in support the DMCR’s tasked by the following plans and national strategy:
- National Strategic Plan issue no. 4: Development Growth based on quality of life and environmentally friendly, specifically item 4.1.4 Sustainable Economic and Green Growth. DMCR will contribute to the increasing forest mangrove area.
  - National Reform Plan item no. 1: Land Resources. DMCR will contribute to the target to protect, conserve, restore natural resources by increasing the national forest area to 40 % (25% conservation forest, 15% economic forest) of which to increase a specific target on mangrove area from 1.53 million rai to 1.58 million rai nationwide. Measures are to reclaim a land invasion and to improve biodiversity of forest area.
57. DMCR will designate a senior staff member as a Chair of Project Steering Committee (PSC). The PSC will provide the strategic oversight and guidance to project implementation as well as will serve as the executive decision-making body for the project. While the final composition of the PSC will be determined by the Director General of DMCR. The PSC may constitute a member from DMCR Phetchaburi Office, Phetchaburi Provincial Office, Provincial Office of Natural Resources and Environment (PONRE) in Phetchaburi, Bang Ta boon Sub-district Administration Office, Pak Talay Sub-district Administration Office, Department of Tourism, Tourism Authority of Thailand, and a Representative of Civil Society, and the Private Sector. The PSC will meet at least four times per year (more often if required).
58. Project Technical Advisory will be set-up by DMCR Chair of PSC. The project technical advisory may constitute an Institute of Research for Marine, Coastal and Mangrove Management, under DMCR, DMCR Experts, DMCR Mangrove Conservation Office, BIOFIN expert.
59. The day-to-day administration of project will be carried out by a national project manager based in Phetchaburi), with the support of the BIOFIN project management associate. The Project Manager will also be technically supported by BIOFIN experts, UNDP CO national officers, consultants, and Project Technical Advisory. DMCR will delegate technical implementation of the R&D for salt pan reclamation to the Institute of Research for Marine, Coastal and Mangrove Management.
60. The project shall be executed under two separate and inter-related work plans managed autonomously by BCS and UNDP and in collaboration with and supported by DMCR.

61. BCS will be the responsible party to lead the implementation of work on the development of Master plan for sustainable land use management and ecotourism development in Phetchaburi province, and the showcase on Land Use Management Plan for Environmental Conservation and Ecotourism of Urban Mangrove Area. The budget for consultants, travel, contractual services professional services, equipment, meals and incidentals, and miscellaneous expense related to the implementation of the work under BCS responsibility shall be drawn from the USD 200,000 allocation reserved.
62. UNDP TH will be responsible for executing capability building component, Community and Stakeholders participation program and an overall project management. There shall be a project coordinator assigned by UNDP TH to do the day-to-day coordination, monitoring and reporting of project progress as well as preparation of the work program and the monitoring and evaluation plan. A budget of USD 150,000 shall be transferred from BCS to UNDP for providing support services for project implementation, hiring of the project coordinator, consultants, and associated costs for implementing Community and Stakeholders participation activities and miscellaneous expenses.
63. DMCR will be responsible for facilitation of works at project sites, providing site information and assist in community participation and training activities for inclusion of biodiversity conservation measures in the framework for local government to plan, monitor, and adapt in their land management. The cost for DMCR inputs shall be covered by DMCR.
64. The project will be coordinated through the working group meetings.

- The working group at provincial level:

The final adjustment of the Master plan Site Boundary and the proposed pilot site for showcase shall be done with consultation and agreed upon by the Working Group within the first three months of project commencement.

- The working group shall have the following structure:

Head: DMCR Zone no.4 (Phetchaburi)

**Members**

1. Project Manager
2. Ban Laem District Officer
3. Cha-am District Officer
4. Bird Watchers Association
5. Mangrove Community (Laem Phukbia, Bang Taboon and Bang Khunsai)
6. Local business group



7. Academic Institution with relevant activities on ground
8. Chief Executive of the SAOs:
  - Cha-am SAO
  - Bang Kaew SAO
  - Bang Khunsai SAO
  - Bangtaboon SAO
  - East Bangtaboon SAO
  - Ban Laem SAO
  - Pak Thalaе SAO
  - Laem Phukbia SAO

## **Financial and other procedures**

65. The project will cover the period of three years with total budget of USD 450,000 contributed by BCS and UNDP through BIOFIN in Thailand under the administration responsibility of UNDP Thailand Country Office. BCS Team will lead the work on Master Plan Development and the Showcase and Salt Farm Reclamation Research while UNDP Team will lead the feasibility study on finance solutions based on BIOFIN methodologies, capacity building, community and stakeholder's participation process towards a master plan endorsed by DMCR. The selected finance solution aims to support fund mobilization the master plan implementation and scaling up the project approach that to be managed further by DMCR in other coastal provinces.
66. A series of activities to build knowledge about biodiversity and local awareness of the importance and value of biodiversity; foster community participation in the planning, management and conservation of biodiversity will be organized for local stakeholders, communities and local governments. Training sessions and technical visits will also be organized to increase biodiversity consideration in the local social and economic development planning. At the project conclusion, comments from public hearing will be accommodated in the master plan and handed over to concerned local authorities and communities for their implementation.

## Work plan (2019-2022)

67. The proposed site will showcase how a land use master plan contributes to maximize the conservation and utilization benefits in a sustainable land use development project. The landscape approach will be applied in designing land use for maximum benefits in ecotourism development. The showcase proposed site is located in the East Bang Taboon sub-district of Ban Laem District to the north of Puk Tien Beach and just over the Phetchaburi River Bridge. The “to be conservation mangrove forest area” has potential spots for ecosystem/biodiversity tourism development. It is full of interesting wildlife living in the mangrove forest adjacent to the Thai Gulf at the mouth of the Phetchaburi River. There is a concrete walkway along the edge of the forest area and along the Thai Gulf to allow easy access to view the life in the mangrove forest. The ecological tourism activities can be developed from the existing Mangrove walking route to study nature for those who are interested in mangrove and seacoast ecology. There are information signs indicating the plant species. Along the trail, tourists will have a chance to experience the beauty of mangrove forests, various coastal plant species, and many animals such as birds, blenny fish, fiddler crabs, snapping shrimps and other seacoast animals. Mangrove reforestation is another activity for those who can stay overnight at the nearby Bang Khun Sai fishery community to observe the local fishermen lifestyle since Bang Khun Sai is well-known as the biggest natural ark shell habitat in Thailand.
68. BIOFIN will focus on the development of a *finance plan* to support the Master Plan’s implementation. As inputs to the preparation of the finance plan, preliminary studies will ascertain current funding levels as well as funding needs to fully implement all actions specified in the plan, thus helping to ensure the project’s long term sustainability and ensure the Plan’s implementation. These studies shall utilize the BIOFIN methodology as a systematic approach for identifying the most suitable finance solutions as well as providing guidance on how to implement these solutions to achieve national strategies and biodiversity targets.
69. The project management unit will run three process with the following activities:
1. Master Plan Development and Implementation (1,4849.24 rai in Phetchaburi)
    - 1.1) Stakeholder mapping, analysis and engagement
    - 1.2) Set-up a Project Steering Committee and a Working Group at Provincial Level
    - 1.3) R&D on Salt Pan Reclamation in Pak Takay Sub-district (5 rai soil reclamation experiment and 100 rai reforestation)
    - 1.4) Development Plan for Community Mangrove Forest Design and Landscape (Benefit sharing principal with landscape design drawing)
    - 1.5) Master Plan Implementation (Community Mangrove Forest)
  2. Urban Mangrove Forest Show Case in East Bang Taboon Sub-district (246 rai)
    - 2.1) Community dialogue on participatory design
    - 2.2) Social enterprise set-up and build capacity in develop a market in tourism sector

2.3) Improve infrastructure for learning center with recreation area (e.g. Wetland, Bird Watching, Nursery Grounds)

3. Development of the finance mechanism for DMCR on mangrove restoration (National)
  - 3.1) Feasibility Study on PPP for finance solution based on BIOFIN Catalogue
  - 3.2) Stakeholder consultation for selection options
  - 3.3) Piloting the selected option
  - 3.4) Documentation
  
4. Social Return on Investment (to be done by DTGO in collaboration with UNDP)
  - 4.1) Use SROI Methodology to study the project case
  - 4.2) Disseminate the case study

## MULTI-YEAR WORK PLAN <sup>34</sup>

**Project Title: Sustainable Mangrove Management and Coastal Ecosystem Development in Phetchaburi Province**

**UNDP Strategic Plan:** Inclusive Growth and Sustainable Development

**Expected CP Outcome(s):** By 2022, systems and processes are more effective and equitable to progressively advance inclusive, sustainable and people-centred development for all people in Thailand

**Expected CP Output(s):**

**Output 1:** Solutions developed at national and sub-national levels for sustainable management of natural resources

**Output 2:** Innovations enabled for development solutions, partnerships and other collaborative arrangements.

**Donor:** Blue Carbon Society Association (BCS)

**SDGs:** SDG 13 (Climate Action), SDG 14 (Life below water), SDG 15 (Life on land), SDG 17 (Partnerships for the Goals)

EXPECTED OUTPUTS	PLANNED ACTIVITIES	Planned Budget by Year				Responsible Party	PLANNED BUDGET		
		2019	2020	2021	2022		Funding Source	Budget Description	Amount (USD)
Output 1: Master Plan for Sustainable Land Use and Mangrove Ecosystem Development.  <i>Gender marker: 1</i>	1.1 Stakeholder mapping, analysis and engagement and baseline data on environment and socio-economic situation	X	X	complete	complete		BCS	BCS will mobilize a human resource from USA (David Fisk, Urban Study Lab) and Thai experts from the Arsomsin Institute.  40,000	

<sup>3</sup> Cost definitions and classifications for programme and development effectiveness costs to be charged to the project are defined in the Executive Board decision DP/2010/32

<sup>4</sup> Changes to a project budget affecting the scope (outputs), completion date, or total estimated project costs require a formal budget revision that must be signed by the project board. In other cases, the UNDP programme manager alone may sign the revision provided the other signatories have no objection. This procedure may be applied for example when the purpose of the revision is only to re-phase activities among years.

EXPECTED OUTPUTS	PLANNED ACTIVITIES	Planned Budget by Year				Responsible Party	PLANNED BUDGET		
		2019	2020	2021	2022		Funding Source	Budget Description	Amount (USD)
BCS	1.2 R&D on Salt Pan Reclamation in Park Takay Sub-district (5 rai soil reclamation experiment and 100 rai reforestation)	X	X	complete	complete	BCS	BCS will mobilize the expert from China to work with Thai R&D team and DMCR research centre. 20,000		
	1.3 Dialogue on Community Mangrove Forest Design and Landscape (Benefit sharing principle with landscape design drawing)	X	X	X	X	BCS	The Urban Action team of BCS will carry out this activity. The conceptual master plan and diagram will be delivered. Travel, accommodation, per diem, meal to be allocated to this activity. 10,000		
	1.4 Master Plan Implementation (Community Mangrove Forest)			X	X	BCS	Master Plan for Execution and leverage for other sources of finance	Leveraging fund	
	<b>Sub-total for Output 1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>			<b>0</b>	
Output 2: Urban Mangrove Forest Showcase in East Bang Taboon Sub-district (246 rai)	2.1 Community and local authority engagement on participatory design (BCS)	X	X	X	X	BCS	BCS will bring the Arsomsin Institute to carry out this activity. Travel, accommodation, per diem, meal to be allocated to this activity. 30,000		

EXPECTED OUTPUTS	PLANNED ACTIVITIES	Planned Budget by Year				Responsible Party	PLANNED BUDGET		
		2019	2020	2021	2022		Funding Source	Budget Description	Amount (USD)
<i>Gender marker: 1</i>	2.2 Social enterprise set-up and build capacity in develop a market in tourism sector	5,000	2,000			UNDP	TRAC 19/20	Contractual Service-IC	7,000
			7,000			UNDP	BCS	Contractual Service-IC	7,000
		2,000				UNDP	TRAC 2019	Workshop, Learning Event	2,000
	2.3 Improve infrastructure for learning centre with recreation area (e.g. Wetland, Bird Watching, Nursery Grounds)				X		BCS	BCS will cover the investment cost. Showcase (Seed money 100,000) _ fund leverage for investment	
	<b>Sub-total for Output 2</b>	<b>7,000</b>	<b>9,000</b>						<b>16,000</b>
Output 3: Development of the finance mechanism for DMCR on mangrove restoration (National)	3.1 Feasibility Study on PPP for finance solution based on BIOFIN Catalogue			X	X		UNDP/ BIOFIN		
	3.2 Stakeholder consultation for selection options			X	X				
	3.3 Piloting the selected option			X	X				
	3.4 Documentation			X	X				
	<b>Sub-total for Output 3: Un-programme fund</b>							<b>0</b>	
Output 4: Social Return on Investment (SROI) in	4.1 Methodology review and selection	X					BIOFIN	BIOFIN has in-house expert to do this activity.	In-kind contribution

EXPECTED OUTPUTS	PLANNED ACTIVITIES	Planned Budget by Year				Responsible Party	PLANNED BUDGET			
		2019	2020	2021	2022		Funding Source	Budget Description	Amount (USD)	
mangrove management and coastal ecosystem development in Phetchaburi	4.2 Study the Social Return on Investment (SROI) in mangrove management and coastal ecosystem development in Phetchaburi			X	X		BIOFIN	BIOFIN has in-house expert to do this activity.	In-kind contribution	
<b>Sub-total for Output 4: In-kind contribution</b>									<b>0</b>	
Management Support for Project Implementation  Project Management Unit (PMU)	Government Affairs, Advocacy and Communication		12,295	12,295	12,296	UNDP	BCS	Direct Project Cost for Personnel Costs: Programme Analyst (NoB), 1 day/month Programme Associate (GS6), 1 day/month	36,886	
	Establishment of Project Management Unit  Project Coordinator (SC)		21,000	21,000	21,000	UNDP	BCS	Contractual services- Individual, Full time staff (see ToR)	63,000	
			3,400			UNDP	TRAC' 19	Need to request for approval on TRAC' 19	3,400	
	Day- to day running of the PMS - Set-up and support a Project Steering Committee (National) - Set up and support a Working Group (Provincial)		3,600				UNDP	TRAC 2019	Workshop, meeting	3,600
				3,000	3,000	3,000	UNDP	BCS	Workshop, meeting	9,000
			2,500				UNDP	TRAC 2019	Information Technology Equipment	2,500
				1,840	1,500	1,500	UNDP	BCS	Equipment, Stationary	4,840

EXPECTED OUTPUTS	PLANNED ACTIVITIES	Planned Budget by Year				Responsible Party	PLANNED BUDGET		
		2019	2020	2021	2022		Funding Source	Budget Description	Amount (USD)
		1,500				UNDP	TRAC 2019	Travel costs (Steering committee-DMCR)	1,500
			1,000	1,000	1,000	UNDP	BCS	Travel costs (Steering committee-DMCR)	3,000
	General Operating Expenses (GOE)	1,000				UNDP	TRAC 2019	GOE	1,000
			2,596	4,096	4,096	UNDP	BCS	GOE (Bank transaction, HR recruitment and IC procurement service, vendor payment service)	10,788
	Monitoring and Evaluation by in-house UNDP staff	1,000				UNDP	TRAC 2019	Meeting, Travel (UNDP staff)	1,000
			1,000	1,000	1,000	UNDP	BCS	Meeting, Travel	3,000
General Management Support (GMS) 8% of a total grant (\$11,001)		660.06	4,950.45	4,950.45	440.04	UNDP	BCS	GMS	11,001
The 1% coordination levy of the total grant (\$1,485)		89.10	504.90	445.50	445.50	RCO	BCS	1% coordination levy	1,485
	<b>Sub-total for PMU</b>								<b>156,000</b>
<b>TOTAL TRAC (USD)</b>	<b>22,000</b>								
<b>Total BCS fund to UNDP (USD)</b>	<b>150,000</b>								



EXPECTED OUTPUTS	PLANNED ACTIVITIES	Planned Budget by Year				Responsible Party	PLANNED BUDGET		
		2019	2020	2021	2022		Funding Source	Budget Description	Amount (USD)
<b>TOTAL in ATLAS (USD)</b>	<b>172,000</b>								

*Note:*

1/ Indicative budget for phase II can be committed by BCS based on its fund mobilization from its member companies.

2/ Programme Analyst (NoB), 1 day/month, Programme Associate (GS6), 1 days/month

3/ Costs that are in addition to direct project costs, representing the costs to the organization that are not directly attributable to specific projects or services, but are necessary to fund the corporate structures, management and oversight costs of the organization. These costs are recovered by charging a cost recovery rate, known as General Management Support (GMS) fee.

The GMS fee encompasses costs incurred in providing general management and oversight functions of the organization as a whole. These costs are incurred in support of its activities, projects and programmes, and services provided, that cannot be traced unequivocally to specific activities, project or programmes. Furthermore, these costs are incurred throughout and at all levels of the organization.

## ANNUAL WORK PLAN

Year: 2019 (Nov -Dec)

EXPECTED OUTPUTS <i>And baseline, associated indicators and annual targets</i>	PLANNED ACTIVITIES <i>List activity results and associated actions</i>	TIMEFRAME				RESPONSIBLE PARTY	PLANNED BUDGET		
		Q1	Q2	Q3	Q4		Funding Source	Budget Description	Amount (USD)
Output 1: Master Plan for Sustainable Land Use and Mangrove Ecosystem Development.  <i>Baseline: To be set in Q4</i> <i>Indicators: To be set in Q4</i> <i>Targets: To be set in Q4</i> <i>Related CP outcome:</i>	1.1 Stakeholder mapping, analysis and engagement and baseline data on environment and socio-economic situation  <i>(Implemented by BCS)</i>			X	X	BCS	BCS will mobilize a human resource from USA (David Fisk, Urban Study Lab) and Thai experts from the Arsomsin Institute. (\$20,000)		
	1.2 R&D on Salt Pan Reclamation in Park Takay Sub-district (5 rai soil reclamation experiment and 100 rai reforestation)  <i>(Implemented by BCS)</i>			X	X	BCS	BCS will mobilize the expert from China to work with Thai R&D team and DMCR research centre. (\$10,000)		
	1.3 Dialogue on Community Mangrove Forest Design and Landscape (Benefit sharing principle with landscape design drawing)  <i>(Implemented by BCS)</i>			X	X	BCS	The Urban Action team of BCS will carry out this activity. The conceptual master plan and diagram will be delivered.  Travel, accommodation, per diem, meal to be allocated to this activity. (\$1,000)		

EXPECTED OUTPUTS <i>And baseline, associated indicators and annual targets</i>	PLANNED ACTIVITIES <i>List activity results and associated actions</i>	TIMEFRAME				RESPONSIBLE PARTY	PLANNED BUDGET		
		Q1	Q2	Q3	Q4		Funding Source	Budget Description	Amount (USD)
	1.4 Master Plan Implementation (Community Mangrove Forest) <i>(Implemented by BCS)</i>							Master Plan for Execution and leverage for other sources of finance	Leveraging fund for year 3
	<b>Sub-total for Output 1</b>								<b>0</b>
Output 2: Urban Mangrove Forest Showcase in East Bang Taboon Sub-district (246 rai)  <i>Baseline:</i> <i>Indicators:</i> <i>Targets:</i> <i>Related CP outcome:</i>	2.1 Community and local authority engagement on participatory design <i>(Implemented by BCS)</i>				X		BCS	BCS will bring the Arsomsin Institute to carry out this activity. Travel, accommodation, per diem, meal to be allocated to this activity. (\$5,000)	
	2.2 Social enterprise set-up and build capacity in develop a market in tourism sector				X	UNDP	TRAC 2019	Contractual Service-IC	5,000
					X	UNDP	TRAC 2019	Consultation meetings	2,000
	2.3 Improve infrastructure for learning centre with recreation area (e.g. Wetland, Bird Watching, Nursery Grounds) <i>(Implemented by BCS)</i>						BCS	BCS will cover the investment cost. Showcase (Seed money 100,000) _ fund leverage for investment	Start in year 3
	<b>Sub-total for Output 2</b>								<b>7,000</b>
Output 3: Development of the finance mechanism for DMCR on mangrove restoration (National)  <i>Baseline:</i> <i>Indicators:</i> <i>Targets:</i> <i>Related CP outcome:</i>	3.1 Feasibility Study on PPP for finance solution based on BIOFIN Catalogue						Parallel funding by UNDP/BIOFIN		Start in year 2
	3.2 Stakeholder consultation for selection options								
	3.3 Piloting the selected option								
	3.4 Documentation								

EXPECTED OUTPUTS <i>And baseline, associated indicators and annual targets</i>	PLANNED ACTIVITIES <i>List activity results and associated actions</i>	TIMEFRAME				RESPONSIBLE PARTY	PLANNED BUDGET		
		Q1	Q2	Q3	Q4		Funding Source	Budget Description	Amount (USD)
	<b>Sub-total for Output 3</b>								0
Output 4: Social Return on Investment (SROI) in mangrove management and coastal ecosystem development in Phetchaburi <i>Baseline:</i> <i>Indicators:</i> <i>Targets:</i>	4.1 Methodology review and selection (Implemented by BCS)			X			BCS	BCS has in-house expert to do this activity.	In-kind contribution
	4.2 Study the Social Return on Investment (SROI) in mangrove management and coastal ecosystem development in Phetchaburi (Implemented by BCS)				X		BCS	BCS has in-house expert to do this activity.	In-kind contribution
	<b>Sub-total for Output 4</b>								0
<b>Management Support for Project Implementation</b> Project Management Unit (PMU)	Government Affairs, Advocacy and Communication					UNDP	BCS	DPC for UNDP staff (to charge \$12,295 in AWP 2020)	
	Establishment of the Project Management Unit				X	UNDP	TRAC 2019	Salary (\$ 1,700 for Nov-Dec)	3,400
	Project Coordinator (SC4)	Day- to day running of the PMS			X	UNDP	TRAC 2019	Workshop, meeting	3,600
					X	UNDP	TRAC 2019	IT Equipment	2,500
<ul style="list-style-type: none"> <li>- Set-up and support a Project Steering Committee (National)</li> <li>- Set up and support a Working Group (Provincial)</li> </ul>					X	UNDP	TRAC 2019	Travel cost for PSC members	1,500

EXPECTED OUTPUTS <i>And baseline, associated indicators and annual targets</i>	PLANNED ACTIVITIES <i>List activity results and associated actions</i>	TIMEFRAME				RESPONSIBLE PARTY	PLANNED BUDGET		
		Q1	Q2	Q3	Q4		Funding Source	Budget Description	Amount (USD)
	Monitoring and Evaluation by in-house UNDP Staff				X	UNDP	TRAC 2019	Travel cost for UNDP staff	1,000
	General Operating Expenses (GOE)				X	UNDP	TRAC 2019	Bank transaction, HR recruitment and IC procurement service, vendor payment service	1,000
General Management Support (GMS) 8% of a total grant (\$11,001)					X	UNDP	BCS	Transaction and administrative cost	660.06
The 1% coordination levy of the total grant (\$1,485)					X	RCO	BCS	UN Policy	89.10
	<b>Sub-total for PMU</b>								<b>13,749</b>
Total budget (TRAC)	<b>20,000</b>								
Total budget (BCS)	<b>749.16</b>								
<b>TOTAL (USD)</b>	<b>20,749.16</b>								

## **Monitoring and Evaluation**

70. The monitoring and evaluation shall be done according to the work program to be developed in the first three month of the project inception period.

## ANNEXES

### Annex I: The Finance Plan for Biodiversity in Thailand

#### Putting the Plan into practice

The Plan looks forward to delivering a prioritised set of ‘finance solutions’ – seizing this opportunity as the Royal Government of Thailand embarks on its 20-year National Strategy to explore a wide range of financing options, including the introduction of innovative market-based mechanisms for resource mobilization.

In the following examples we set out a number of innovative finance solutions that capture and monetise more of the benefits from biodiversity in order to generate revenue streams or cost savings.

- **User charges** are a simple way to secure revenues from users of biodiversity and ecosystem services. Nature-based tourism sites such as the island of Koh Tao offer huge potential for revenue generation (approximately THB 50 million per year) from imposing charges amidst the environmental challenges which need to be addressed urgently. The ability to earmark revenues from charges for specific conservation activities should serve to provide the necessary groundwork for increasing both the current level and coverage of charges across Marine National Parks (MNPs), potentially generating an extra THB 140 million per year. This solution is in line with the DNP’s aim to have national parks across the country generate more revenue from tourism in the face of insufficient government budget.
- **Environmental trust funds** provide a mechanism for administering funding which allows for increased transparency, accountability and participation. Ample evidence suggests that if people are to be persuaded to participate in new charge schemes – such as that being proposed for Koh Tao– they must be assured that the money they give will be directly re-invested in on-the-ground conservation activities. In the long term, the trust fund model can effectively bring together various donors and streams of funding in line with conservation needs and priorities. Lessons learned will be shared with other island tourism destinations in Thailand - both marine protected areas and non-protected areas- who will benefit from the experience of delivering better conservation through improved effectiveness, efficiency and synergies.
- **Conservation license plates** are special license plates that are sold at a higher price to car owners. The extra income is channelled to wildlife conservation. This is an implementable finance solution by the Thai Government given that the Department of Land Transport has experience in the administration of special license plates as well as the collection of fees, notably around the sales of ‘lucky number’ license plates in Thailand. The outcome of this finance solution is to give products which are already sold, and which generate public revenues a tiger “brand”, and to earmark a portion of the revenues for tiger conservation in the Western Forest Complex (WEFCOM). BIOFIN has conducted a market survey on willingness to pay for the conservation license plate and has obtained positive results through a NIDA poll with over 40% of respondents willing to pay to obtain a conservation license plate. Based on the poll, the potential revenue from the sale of wildlife conservation license plates in Thailand is THB 350,000,000 (USD 11 million) per year. This represents the most conservative estimate, i.e., 10% of vehicle owners agree to pay at THB 100.

- **Impact investors** in Thailand work closely with the Stock Exchange of Thailand's (SET) social impact investment platform which connects companies, investors and social enterprises. Currently, there are 62 listed companies taking part in the platform. In the two years since the platform's inception, these companies have invested THB 64 million into social enterprises in Thailand with over 90 deals being made. However, the platform does not yet explicitly target investments for financially viable biodiversity projects. To attract financing for biodiversity impact, this finance solution will seek to extend the social impact platform to include SDG/biodiversity impact. This will include linking investors with biodiversity enterprises through activities such as a 'hackathon' to identify biodiversity investment opportunities.
- **'The Lion's Share'** is a global UNDP initiative which asks advertisers to contribute a percentage of their media spend to fund wildlife conservation each time they feature an animal in their advert. The objective of this finance solution is to bring on board companies in Thailand to join The Lion's Share. In Thailand, many major companies feature images of animals for their brands and logos, from companies in the food and beverage sector to airlines and many more. Based on estimates that Thailand spends as much as \$700 million annually on TV advertising featuring animals, the finance solution could potentially generate \$3.5 million per year for wildlife conservation.
- **Promoting investment in green infrastructure** including urban green space means that the multifaceted benefits to society, the environment and biodiversity are realised. Specifically, this finance solution aims to earmark a percentage of the revenue from the upcoming Land and Building Tax (2019) for funding urban green spaces in Bangkok. The result of this finance solution is to improve the financing status at the district level, supporting the implementation under Bangkok Green Area of the Master Plan of the Bangkok Metropolitan Administration (BMA).
- **Biodiversity offsets** can potentially create economic incentives for compliance to Command-and-Control measures by providing options for investors to comply and link the demand for conservation (biodiversity offsets) with the supply of conservation services in specific ecological hotspots through intermediaries such as Mitigation banks and Biobanks. Without these three complementary mechanisms, any negative external impacts on natural resources base, ecosystems and habitats are borne by the public sector. Introducing these mechanisms could potentially reduce public expenditures to address these externalities and at the same time create demand for investments in protection and restoration of ecological hotspots.
- **Nutrient trading** refers to an arrangement which rewards improved wastewater treatment, benefitting the life and health of biodiversity which is contingent upon the improvement of the quality of Thailand's rivers. The key player alongside Local Government at the national and local level is the Pollution Control Department (PCD). Under its 20 Year Strategic Plan, the PCD is trying to revitalize the principle of on-site treatments, collection of wastewater fees and the use of economic instruments.
- **Ecosystem service bonds** are linked to self-sustained cash-flow generating initiatives from ecosystem related services. The ecosystem services bond will be issued by the Government of Thailand with an innovative scheme that offers repayment to ecosystem services providers under the sustainable family forests initiative.



## **Annex II: Draft Ministerial Regulation**

### **Draft Ministerial Regulation of Natural Resources and Environment**

#### **Declaring Mangrove Forest Area in Phetchaburi province as Conserved Mangrove Forest Area B.E. .... (A.D. ....)**

By virtue of Section 4, Section 18 and Section 23 of the Enhancement and Conservation of the Marine and Coastal Resources Management Promotion Act B.E. 2558 (A.D. 2015), the Minister of the Ministry of Natural Resources and Environment with consent of the National Committee on Marine and Coastal Resources Management Policy and Planning, hereby prescribes the following Ministerial Regulation.

**Section 1.** This Ministerial Regulation shall be named “Proclamation of Mangrove Forest Area in Phetchaburi province as Conserved Mangrove Forest Area B.E. .... ..”

**Section 2.** The Ministerial Regulation shall come into force as from the day following the date of its publication in the National Gazette.

**Section 3.** In this Ministerial Regulation

“Conserved Mangrove Forest” means the mangrove forest prescribed as Conserved Mangrove Forest Areas under this Ministerial Regulation;

“Timber” means all kinds of plants being tree, shrub, bush, wood, creeper, trunk, bush either standing or falling and including root, burl, shoot, branch, bud, rhizome, or any parts being cut, stabbed, trimmed, sawed, spitted, trimmed, chopped, pulled, dug or done in any manner what so ever;

“wildlife” means all animals born and live in the mangrove forest including their eggs;

“hunt” means trap, catch, gun, kill or injure by any mean on conserved forest wildlife or protected wildlife according to the Law on conservation and protection of wildlife in the mangrove forest area including chase, trap, bet for hunting

“Director General” means the Director General of the Department of Marine and Coastal Resources

**Section 4.** The following Mangrove Forests within the boundary of Map 1 in the annex of this Ministerial Regulation shall be the Conserved Mangrove Areas

- (1) Mangrove Areas in the Cha-am sub-district, Cha-am district, Phetchaburi Province within the boundary depicted in the Map 2 of the attachment of this Ministerial Regulation
- (2) Mangrove Areas in the Bang Kaew sub-district, Ban Laem district, Phetchaburi Province within the boundary depicted in the Map 3 of the attachment of this Ministerial Regulation
- (3) Mangrove Areas in the Bang Khunsai sub-district, Ban Laem district, Phetchaburi Province within the boundary depicted in the Map 4 of the attachment of this Ministerial Regulation

- (4) Mangrove Areas in the Bang Taboon sub-district, Ban Laem district, Phetchaburi Province within the boundary depicted in the Map 5 of the attachment of this Ministerial Regulation
- (5) Mangrove Areas in the East Bang Taboon sub-district, Ban Laem district, Phetchaburi Province within the boundary depicted in the Map 5 of the attachment of this Ministerial Regulation
- (6) Mangrove Areas in the Ban Laem sub-district, Ban Laem district, Phetchaburi Province within the boundary depicted in the Map 6 of the attachment of this Ministerial Regulation
- (7) Mangrove Areas in the Pak Thalee sub-district, Ban Laem district, Phetchaburi Province within the boundary depicted in the Map 7 of the attachment of this Ministerial Regulation
- (8) Mangrove Areas in the Laem Phukbia sub-district, Ban Laem district, Phetchaburi Province within the boundary depicted in the Map 8 of the attachment of this Ministerial Regulation

**Section 5.** The Conserved Mangrove Forest Areas in this Ministerial Regulation contains the following policy and measures for benefits in preservation, conservation and restoration of mangrove forest to retain their natural conditions and attain their healthy environment and ecosystem.

- (1) to preserve, conserve, protect, maintain and keep Mangrove forest resources and wildlife in their healthy and natural balanced condition by allowing sustainable utilization of mangrove forest resources for maximum social and economic benefits
- (2) to rehabilitate and restore natural resources and mangrove forest ecosystem
- (3) to control, prevent and subjugate destruction of mangrove forest
- (4) to issue measures for preservation, conservation, rehabilitation and utilization of mangrove forest resources

**Section 6.** The following activities which may harm or impact the mangrove forest resources shall be prohibited within the boundary of conserved mangrove forest areas as prescribed in section 4

- (1) Encroachment, holding or possession of property in the conserved mangrove forest
- (2) Construction, Clearing or burning mangrove forest or any action destroying mangrove forest
- (3) Cutting, logging, sawing, clearing, trimming, uprooting or any removing activities of the wood unless for sustain living according to local way of life according to the criteria and condition set forth by the Director General as deem appropriate to the local condition
- (4) Bring in any kind of explosive, gun, weapon, Crossbow, fish shock device, poison to the conserve mangrove forest area
- (5) Hunting of protected forest wildlife or conserved forest wildlife prescribed under the Law on conservation and protection on wildlife in the conserved forest area
- (6) Filling, installing, placing or building dam, spillway, merging waterway or any other means in the conserved mangrove forest except implemented under section 7 (12)
- (7) Discharging, or dumping any harmful matters or harmful impacts to the to the mangrove forest ecosystem
- (8) Any action causing or may cause any harm or deteriorate mangrove forest condition

**Section 7.** in managing mangrove forest resources in the conserved forest area as prescribed under section (4) considerations shall be made on the way of life of the people, community, locality and appropriate to the area condition and shall prescribe measures to reserve, conserve, rehabilitate and utilize the following mangrove forest;

- (1) Prepare a conserved mangrove forest resources management plan for sustainable development of a balanced environment, economic and social dimensions
- (2) Designate appropriate mangrove forest resources utilization in accordance with area condition
- (3) Take an accelerated action in bringing the violators for legal punishment and ensure strict and strong legal action against the violators
- (4) Strictly and forcefully penalize officers supporting violators
- (5) Create and build public awareness to make people care for and protect mangrove forest resources by providing knowledge and consciousness on benefits of mangrove forest resources and the resulting damage from the destruction of mangrove forest
- (6) Engage local participation in preservation, conservation, prevention and suppression and rehabilitation of mangrove forest resources condition to restore and sustain their healthy natural condition and ecosystem
- (7) Develop and create working cooperation among public private people community and local government for sharing responsibility in management and integrated development of mangrove forest resources
- (8) Promote and build participatory process for people and various organizations to resolve local conflicts in a peaceful manner as well as give direction in protection conservation rehabilitation and utilization of mangrove forest resources together
- (9) Promote the setting up of volunteer groups for mangrove forest protection in the village and sub district particular among areas neighbouring the mangrove forest
- (10) Promote and assign incentive measures for public private people community and local government to rehabilitate and plant the mangrove trees
- (11) Promote and develop mangrove forest for ecotourism that cause no harmful impacts or deteriorate mangrove forest
- (12) Promote the way of life of people, community and locality in living in harmony and sustainably with mangrove forest

Implementation of the above clause shall be as prescribed in the criteria and methodology issued by the director general.

Date of Issue ..... B.E. ....

Minister of the Ministry of Natural Resources and Environment

Annex 1. Boundary Map of Mangrove Forest in Phetchaburi Province

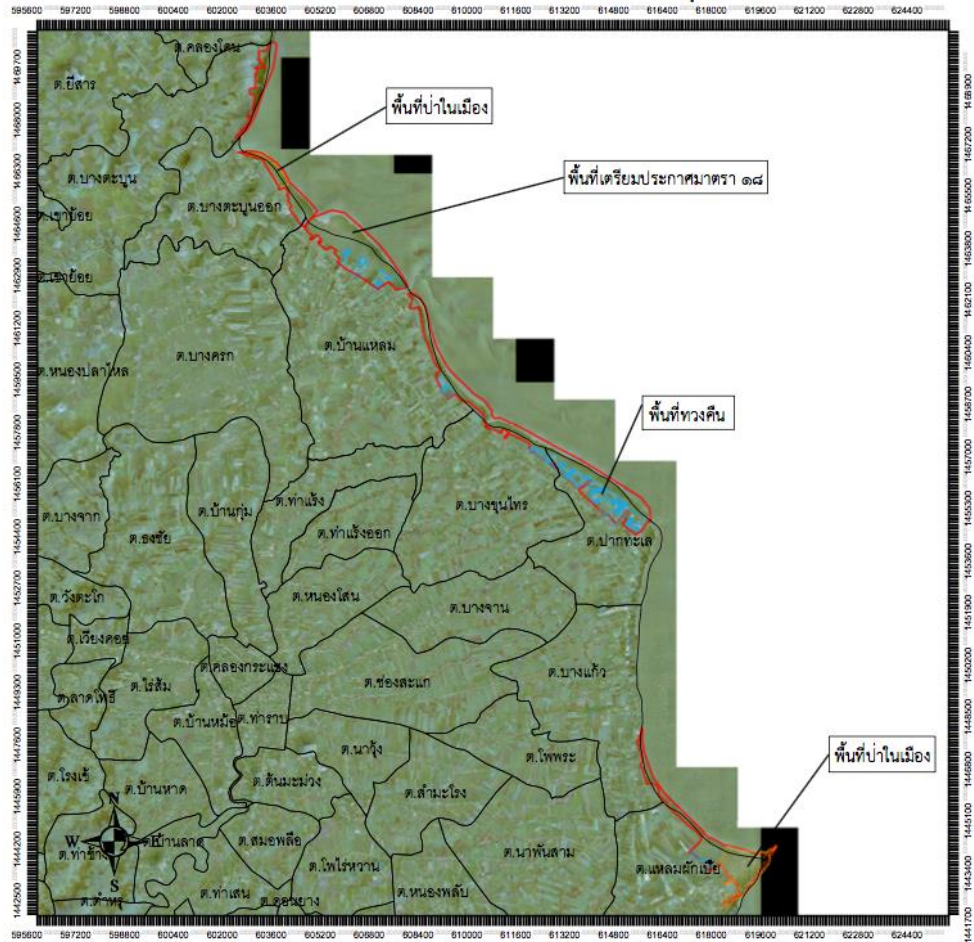
Annex 2. Boundary Map of Mangrove Forest in Cha-am sub-district

Annex 3. Boundary Map of Mangrove Forest in Bang Kaew sub-district

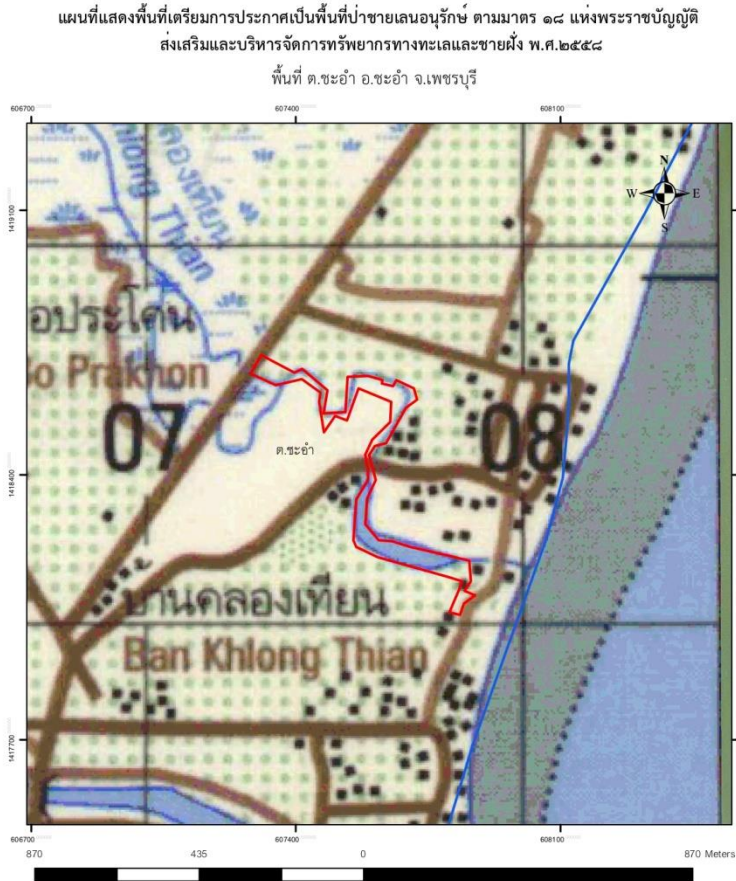
- Annex 4. Boundary Map of Mangrove Forest in Bang Khunsai sub-district
- Annex 5. Boundary Map of Mangrove Forest in Bang Taboon sub-district
- Annex 6. Boundary Map of Mangrove Forest in East Band Taboon sub-district
- Annex 7. Boundary Map of Mangrove Forest in Ban Laem sub-district
- Annex 8. Boundary Map of Mangrove Forest in Pak Thalaе sub-district
- Annex 9. Boundary Map of Mangrove Forest in Laem Phukbia sub-district

# Annex III: Mangrove Forest Map to be declared as the conserved mangrove forest in Phetchaburi

## Map 1: Boundary of Conserved Mangrove Forest in Phetchaburi



**Map 2: Boundary of Conserved Mangrove Forest in Cha-Am Sub-district, Cha-am District, Phetchaburi Province**



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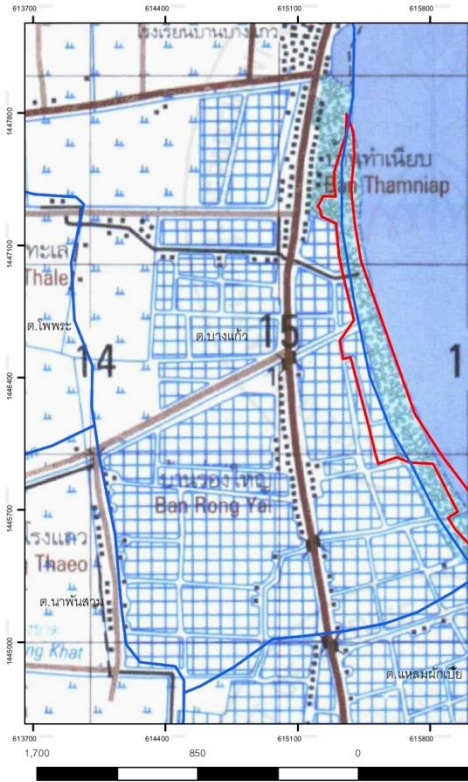
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**Map 3: Boundary of Conserved Mangrove Forest Bang Kaew Sub-district, Ban Laem District, Phetchaburi Province**

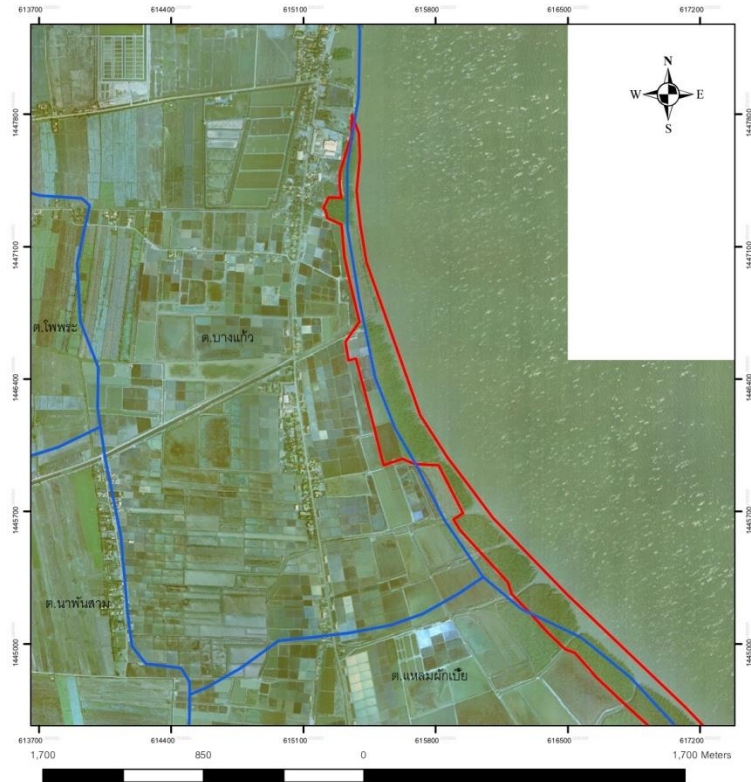
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พื้นที่ ต.บางแก้ว อ.บ้านแหลม จ.เพชรบุรี



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- พื้นที่เตรียมประกาศ
- เส้นแนวเขตตำบล

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พื้นที่ ต.บางแก้ว อ.บ้านแหลม จ.เพชรบุรี



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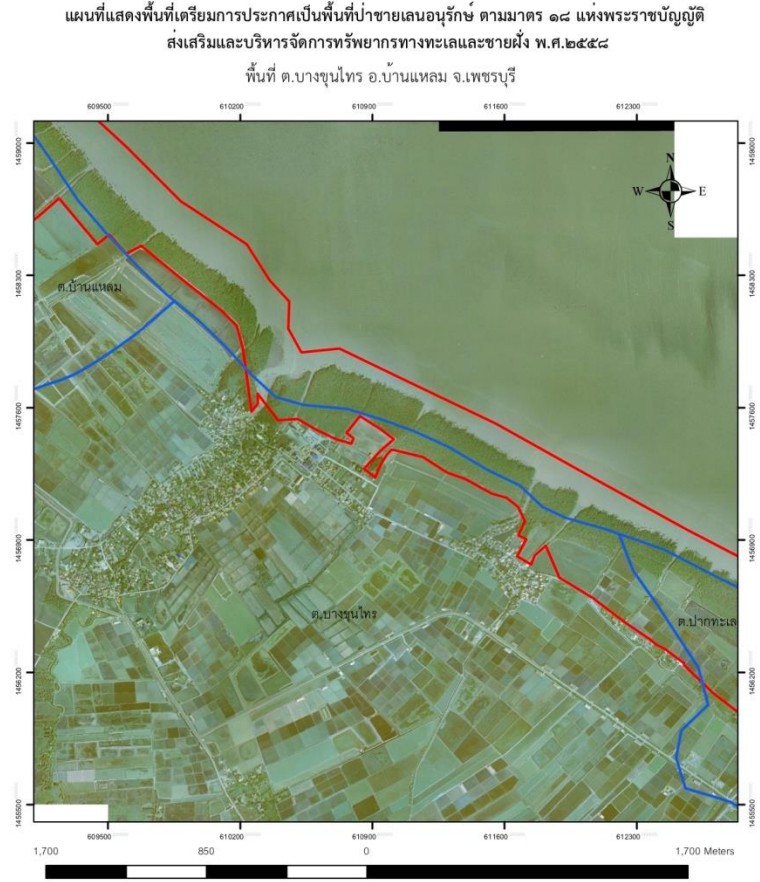
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**Map 4:** Boundary of Conserved Mangrove Forest in Bang Khunsai Sub-district, Ban Laem District, Phetchaburi Province



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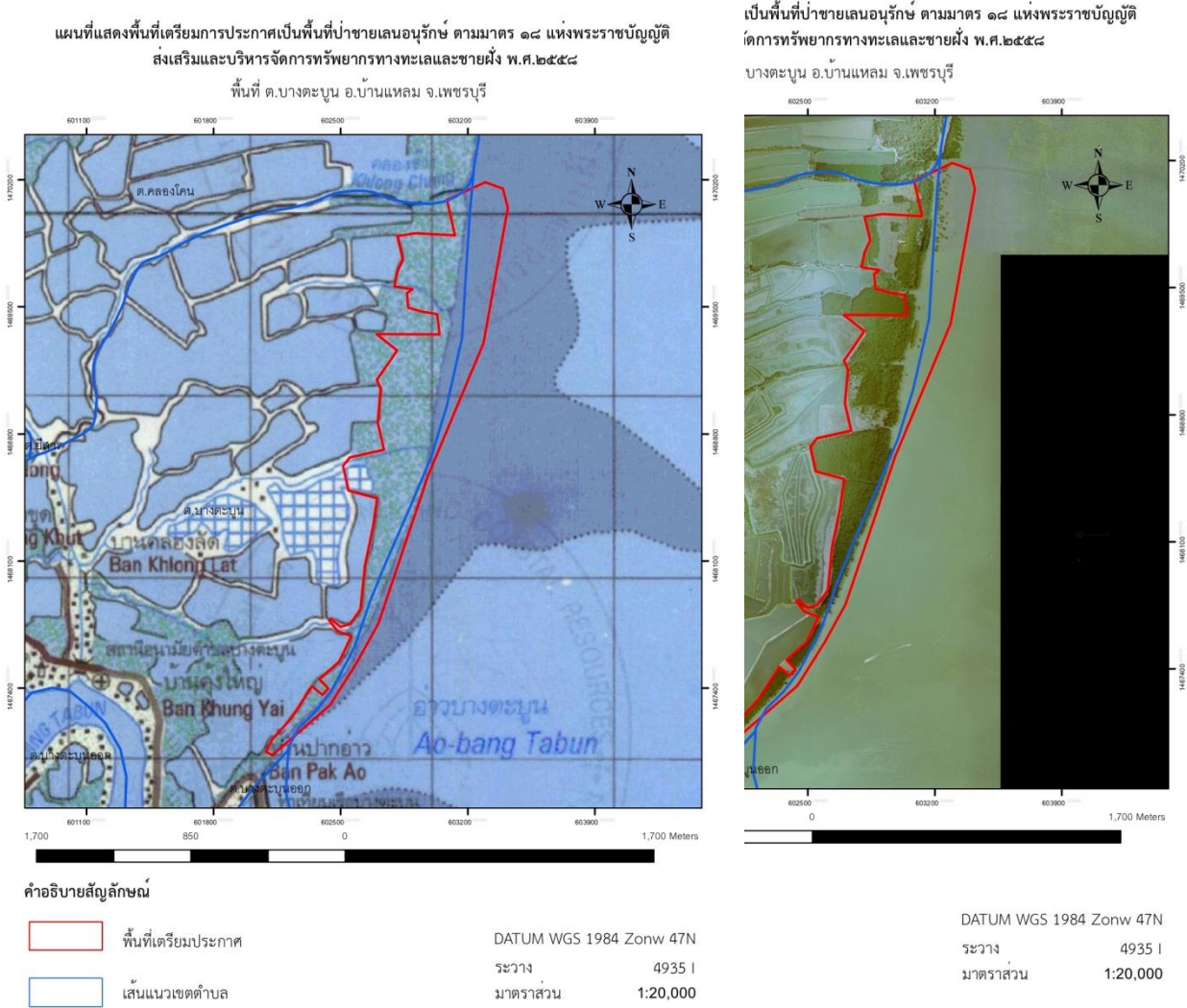
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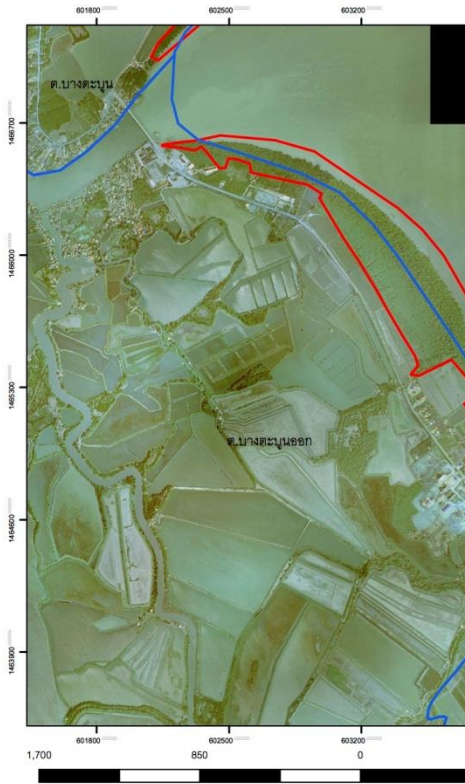


**Map 5: Boundary of Conserved Mangrove Forest in Bang Taboon Sub-district, Ban Laem District, Phetchaburi Province**



**Map 6: Boundary of Conserved Mangrove Forest in East Bang Taboon Sub-district, Ban Laem District, Phetchaburi Province**

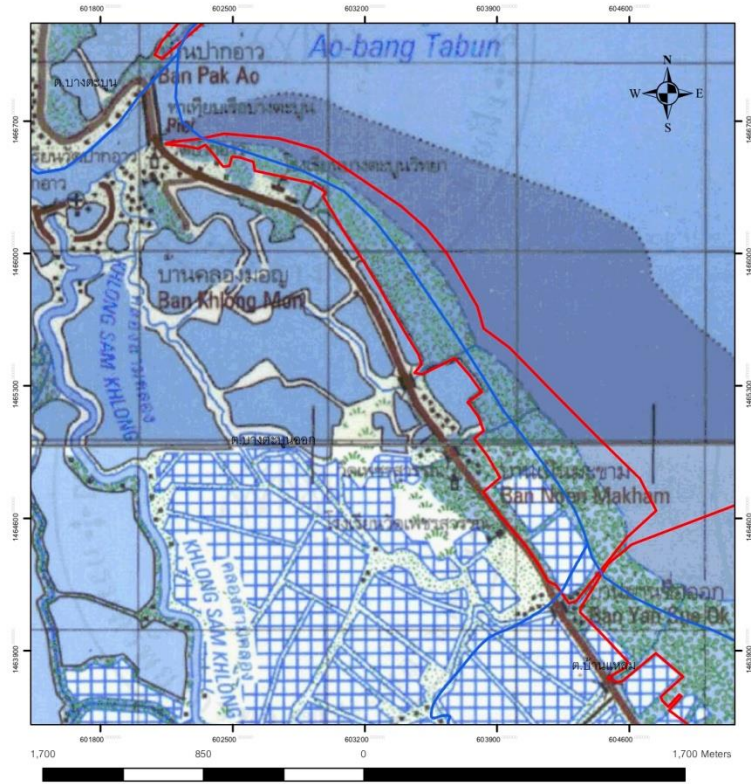
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พื้นที่ ต.บางตะบูนออก อ.บ้านแหลม จ.เพชรบุรี

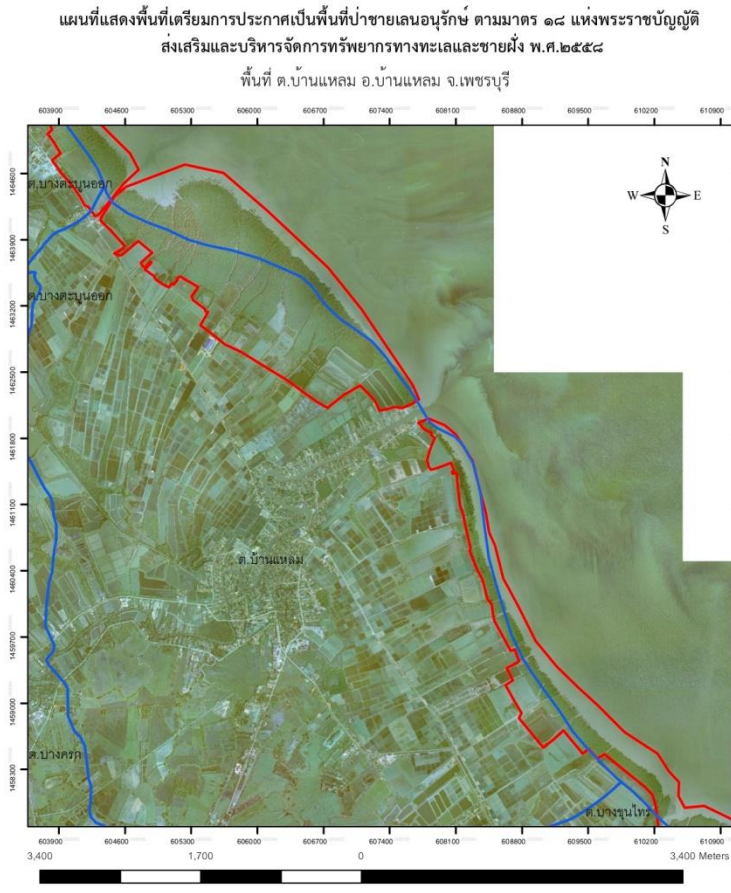


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- เส้นแนวเขตตำบล

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**Map 7: Boundary of Conserved Mangrove Forest in Ban Laem Sub-district, Ban Laem District, Phetchaburi Province**

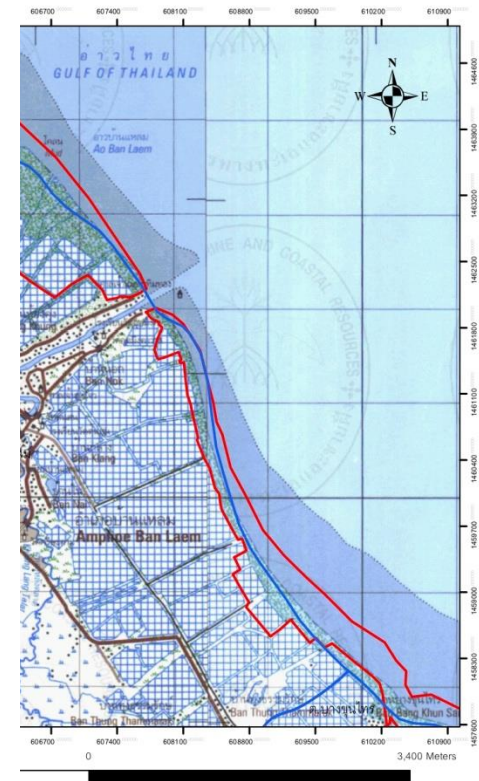


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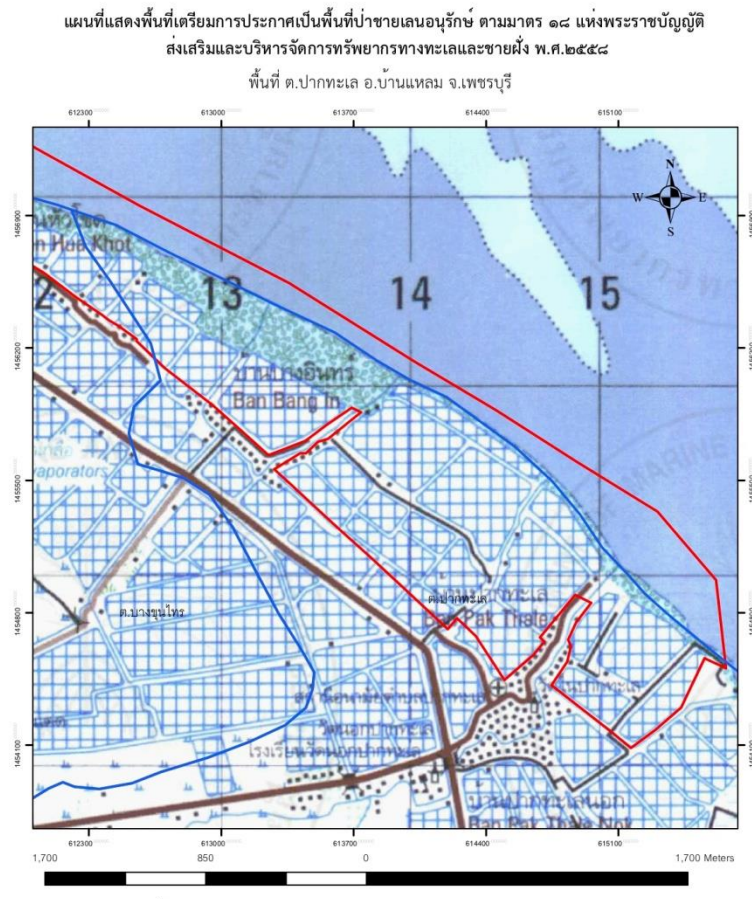
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บ้านแหลม อ.บ้านแหลม จ.เพชรบุรี



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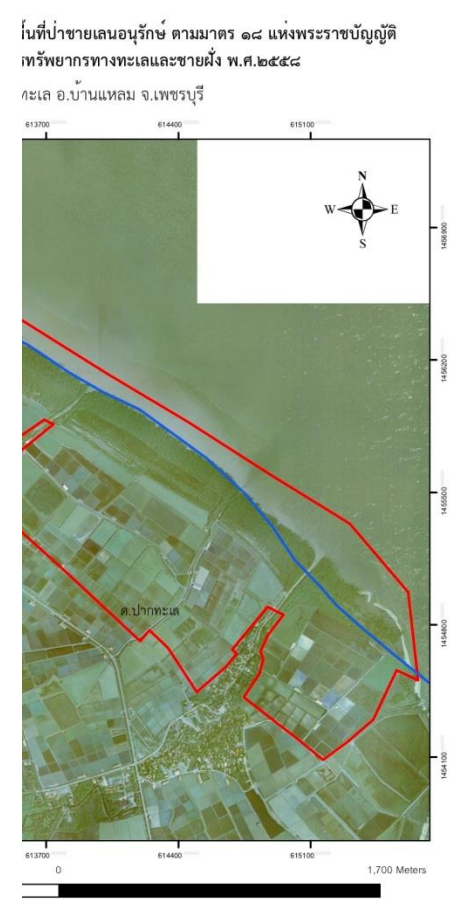
**Map 8:** Boundary of Conserved Mangrove Forest in Pak Thalee Sub-district, Ban Laem District, Phetchaburi Province



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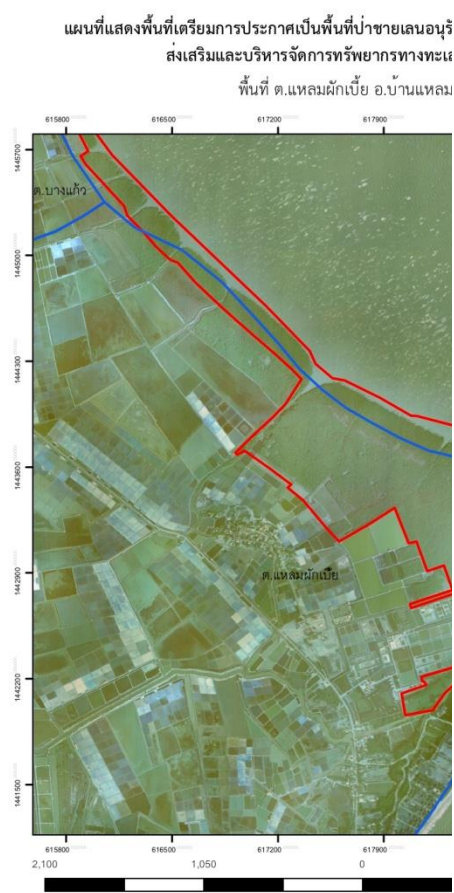
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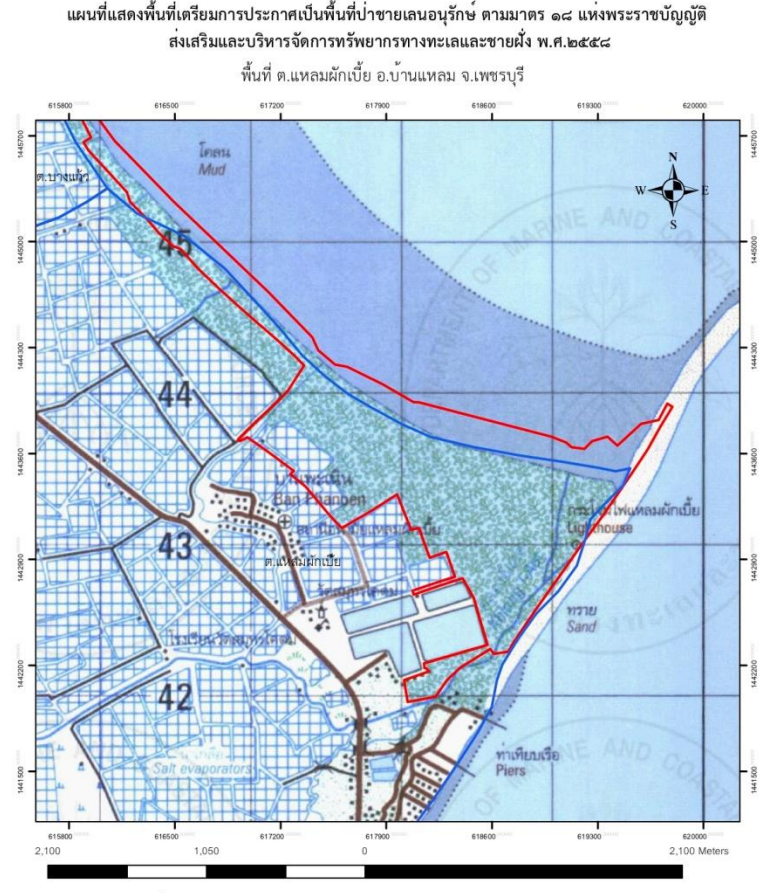
**Map 9: Boundary of Conserved Mangrove Forest in Laem Phakbia Sub-district, Ban Laem District, Phetchaburi Province**



คำอธิบายสัญลักษณ์

พื้นที่เตรียมประกาศ

เส้นแนวเขตตำบล



คำอธิบายสัญลักษณ์

พื้นที่เตรียมประกาศ

เส้นแนวเขตตำบล

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#### **Annex IV: Endangered benthic reptile in Phetchaburi**

- *Isopachys anguinoides* (จิ้งเหลนด้วง)

Previous genus in this subfamily - *Eutropis*

Current selection: *Lacertilia*, family *Scincidae*,

subfamily *Scincinae*, genus *Isopachys*

Next genus in this subfamily - *Jarujinia*

#### **Annex V: Endangered Migratory Bird in Phetchaburi**

- *Eurynorhynchus pygmeus* or Spoon-billed sandpiper (นกชายเลนปากช้อน)

#### **Annex VI: The Marine and Coastal Resources Provincial Committee**

Chairman: Phetchaburi Governor

Members

1. Director of Regional Harbour Office Phetchaburi Branch
2. Forestry Department Representative
3. Department National Park Wildlife and Plant Conservation Representative
4. Director of National Resources and Environment Phetchaburi Provincial Office
5. Phetchaburi Fisheries Provincial Officer
6. Phetchaburi Public Works and Town Planning Provincial Officer
7. Royal Thai Navy Representative
8. Phetchaburi Provincial Police Commissioner
9. Phetchaburi Chief Executive of the SAO
10. Experts appointed by the Governor

With recognized knowledge and expertise on Marine and Coastal resources Management in Marine and Coastal resources ecosystem, environment tourism fisheries (8 persons maximum)