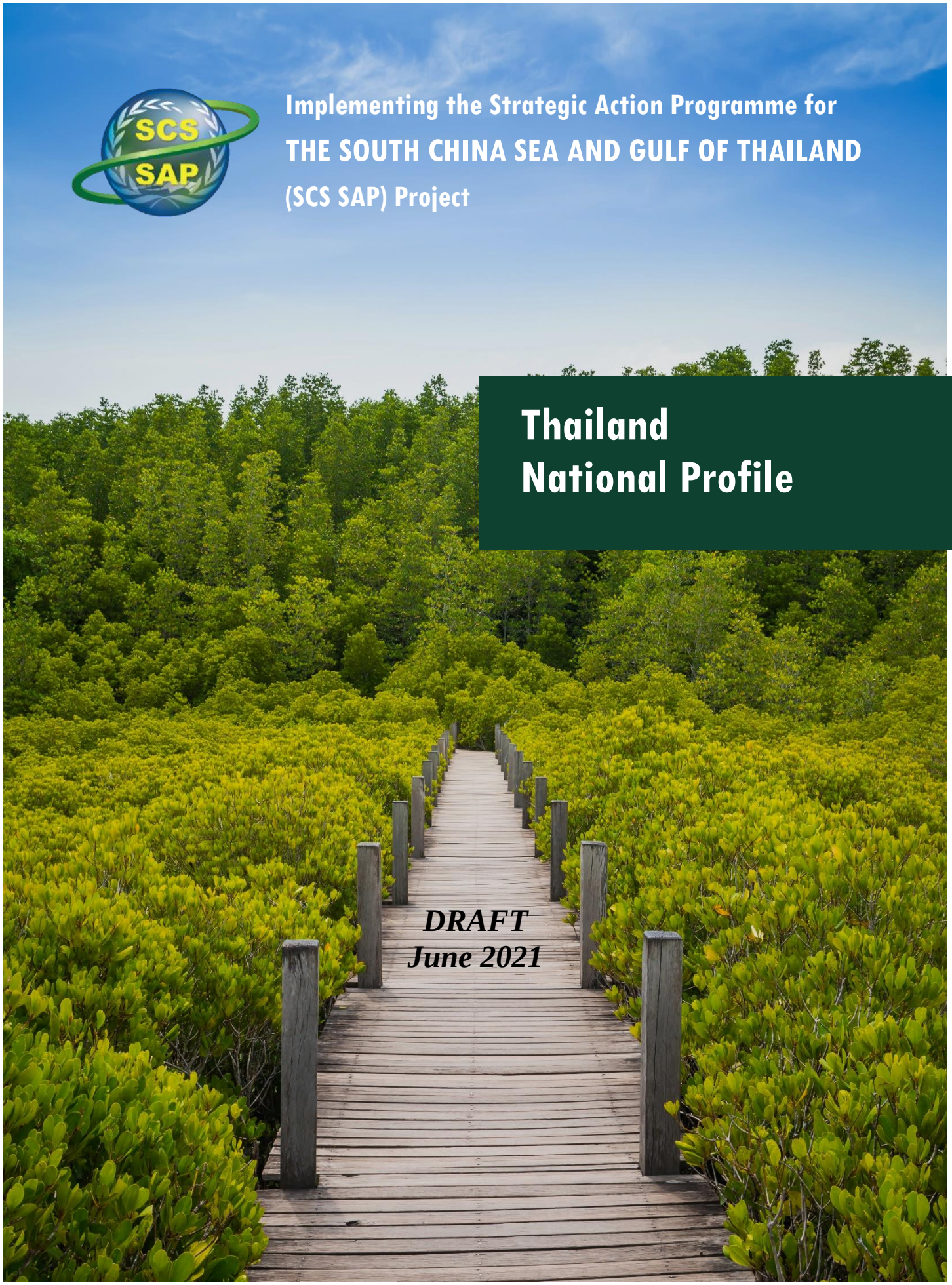
Implementing the Strategic Action Programme for
THE SOUTH CHINA SEA AND GULF OF THAILAND
(SCS SAP) Project

Thailand
National Profile



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1. INTRODUCTION

The South China Sea is a semi-enclosed sea, which supports a number of unique habitats and ecosystems that are amongst the most biologically diverse shallow water marine ecosystems globally. The richness and productivity of the South China Sea and associated environments are, however, seriously threatened by high population growth, pollution, overharvest and habitat modification, resulting in high rates of habitat loss and impairment of the regenerative capacities of living resources. The socio-economic impacts of environmental deterioration are significant for the economies of this region.

Recognising that actions were urgently needed to halt degradation of the environment of this marine basin, the countries of the region sought the assistance of UNEP and the Global Environment Facility (GEF) and the project "Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand" was implemented from 2003-2008. This included a Transboundary Diagnostic Analysis of the issues and problems and their societal root causes as the basis for development of a Strategic Action Programme (SAP) which was inter-governmentally adopted in 2008. The SAP established a series of objectives and priority costed actions for coastal habitats, land-based pollution management, and the over-exploitation of fish stocks in the South China Sea.

In order to support implementation of the SAP, the UNEP GEF "Implementing the Strategic Action Programme for the South China Sea and Gulf of Thailand" (SCS SAP) Project was submitted and endorsed by the GEF in 2016, and began implementation in 2019. The objective of the Strategic Action Programme for the South China Sea and Gulf of Thailand (SCS SAP Project) is:

"To assist countries in meeting the targets of the approved Strategic Action Programme (SAP) for the marine and coastal environment of the South China Sea (SCS) through implementation of the National Action Plans in support of the SAP, and strengthening regional co-ordination for SCS SAP implementation."

This will be achieved through the cooperation of participating countries, intergovernmental organizations, regional organizations, public-private sectors partnerships, civil society and non-governmental organizations (NGOs), leading scientists from the region. The project will also contribute to global targets such as the Sustainable Development Goals and Agenda 2030 and the Convention on Biological Diversity (CBD) Post 2020 Biodiversity Framework.

Participating Countries:	Cambodia, China, Indonesia, Philippines, Thailand and Vietnam
Implementation Agency:	United Nations Environment Programme (UNEP)
Executing Agencies:	United Nations Office for Project Services (UNOPS) and the Southeast Asian Fisheries Development Center (SEAFDEC)
GEF Funding:	15 million USD (with approximately 83 million USD in co-financing)
Timeline:	2018-2023
Web-links:	https://scssap.org

This current document is based on the national reports, TDA and SAP prepared between 2005-2008 and presents SAP targets adopted. Countries are in the process of further refining their national activities for implementation from 2021-2024.

2. STATUS AND TRENDS IN COASTAL HABITATS AND THEIR MANAGEMENT

2.1 Distribution and diversity of coastal habitats

Mangroves: Thailand contributes less significantly to the overall total of mangrove in the South China Sea (62,600 ha of the total 1.7 million ha as the data recorded in the National Report, 2004). In terms of species richness, Thailand is comparatively lower with 27 true mangroves of the total 45 observed in the South China Sea. Investigation of the latitudinal variation in the number of true mangrove species in Thailand indicates considerable variation in the eastern and western Gulf of Thailand, with species richness being lower in the eastern Gulf (18 species recorded) compared to Thai waters in the West where 27 species are observed. Mangrove areas become more extensive northward in the eastern Gulf of Thailand. In terms of areal extent, notable mangrove sites in Thailand is located in Trat and Chantaburi Provinces, with total areas of 9,500 ha and 12,500 ha respectively.

Coral Reefs: Among 14 targets sites in the Gulf of Thailand with the total of 89,593 ha, large reef sites include Muh Ko Chang (18,700 ha), Muh Ko Samui (39,000 ha) and Mu Koh Samei (4,200 ha). In terms of diversity at individual localities, no hotspots of coral species richness of more than 200 species occur in Thailand.

Seagrass: Of the 78,300 ha of known seagrass sites in the South China Sea, around 2,553 ha is located in the coastal waters of Thailand. The significant seagrass areas include: Tungka Bay (1,080 ha), Krung Kabane Bay (700 ha) and Surat Thani (500 ha). Of the 18 species of seagrass found in the coastal waters of the South China Sea, 12 are present in waters of Thailand. Halophila is the most diverse and widespread genus in coastal waters throughout the region.

Coastal wetlands: Of the total wetland area of 4,201,145 ha identified in the South China Sea, around 279,857 ha is found in Thailand. Estuaries, peat and non-peat swamps, and inter-tidal flats are dominant features of the Thailand's coasts in the South China Sea. Significant estuarine areas include: Ban Don Bay 49,459 ha), Pak Phanang Bay (13,597 ha) and Welu River Estuary (10,400 ha). Significant peat swamps include: Thale Noi Wildlife (45,700 ha), Thale Sap Wildlife (36,467 ha) and Phru To Daeng Wildlife Santuary (20,120 ha) with Khao Sam Roi Yot National Park (9,808 ha) as significant non-peat swamps. Of the inter-tidal flats, Mu Koh Chang National Park (65,000 ha) and Mu Koh Ang Thong National Park (10,200 ha) are of national significance.

2.2 Threats to coastal habitats

***Threats to mangroves*:** The National Action Plan for Mangrove Management Five Year Plan (2009-2013) identified the causes of the reduction and degradation of mangrove areas, which are mainly due to human activities. The causes are:

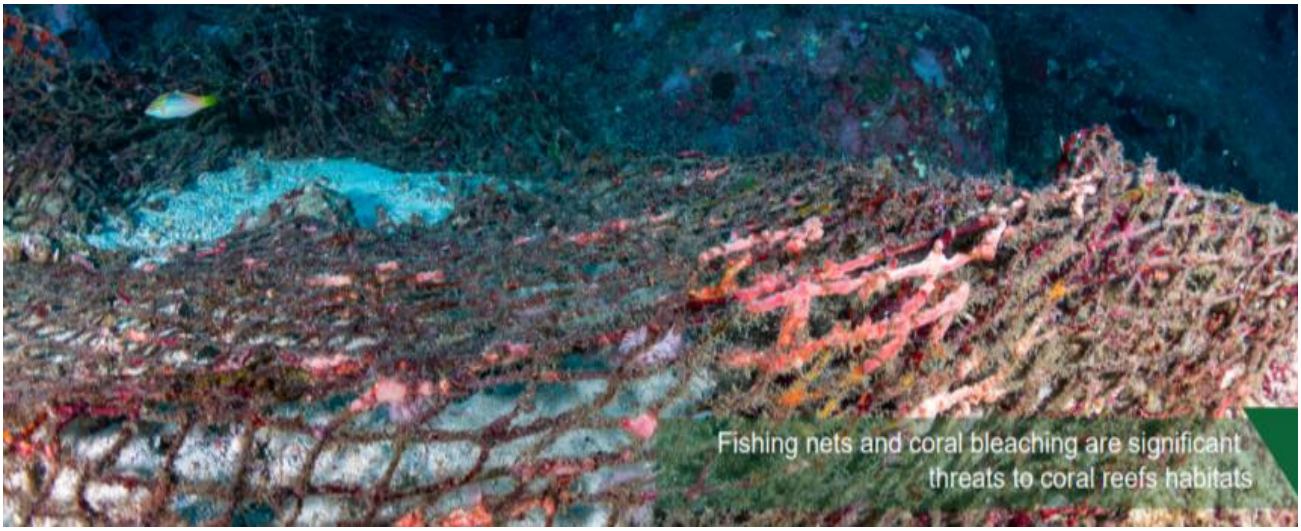
- Culture of marine animals particularly farming of black tiger shrimp. Approximately 30 % of the total mangrove area has been used for the culture of marine animals due to the very high income earned from shrimp farming. Encroachment into mangrove areas and conversion into shrimp farms has destroyed mangrove ecosystems, and resulted in loss of biodiversity.
- Increase in population and development has resulted in mangrove areas being converted into community bases, factories, ports and fishing harbours, and roads. Use of mangrove areas for community activities include construction of government offices, co-operatives, educational institutions, customs offices, and rubbish burial sites. This led to the disposal of untreated effluent causing damage to mangroves, and affecting marine animals.
- Agricultural production and salt pans. Mangrove areas have been used for agricultural purposes such as rice planting and coconut growing in many areas. Often such land uses are inappropriate and result in income lower than the initial investment, although salt pans appear to be profitable. An area totalling approximately 66,000 rai has been lost to such uses.
- Mining in mangrove areas, principally for tin mining, has resulted in the loss of mangrove areas. The impacts included sedimentation, which caused estuaries to become shallower and created problems in the use of boats as well as destroying habitat for marine animals.
- Tree felling exceeding mangrove productivity. The cutting of mangrove timber through concessions requires planting of replacement trees. Majority of concessionaires did not replace the trees felled, and cut timber beyond the natural productive ability of the forest to restore itself.

In general, conversion of mangroves to land for industrial purposes (including harbour construction) has grown over the last ten years but unimportant in Thailand. Degradation of mangrove habitats as a consequence of chronic pollution from shrimp farming operations is now more prevalent in recent years.

***Threats to coral reefs*:** Direct and indirect threats to coral reefs in Thailand are ranked in order of their significance in Table 1.

Table 1: Direct and indirect threats to coral reefs in Thailand (ranked order of significance)

DIRECT THREATS	INDIRECT THREATS
1. Coral bleaching	1. Unsustainable tourism
2. Sedimentation	2. Coastal development
3. Destructive fishing	3. Unsustainable fisheries and aquaculture
4. Pollution (eutrophication)	4. Deforestation of upland areas
5. Overfishing	



***Threats to seagrass*:** In Thailand, losses of seagrass beds amount to about 20-30 percent. The National Strategy and Action Plan for the Conservation of Seagrasses and Dugong in Thailand (2007) identified a number of factors that leads to the destruction and loss of seagrass beds and associated biota in the Gulf of Thailand, including: fluctuations in freshwater input, causing high salinity variation, due to irrigation and land clearing; high sediment load, through destruction of mangroves, which serve as sediment traps, and coastal developments including construction of tourist resorts, ports and roads, channel dredging, and land reclamation; wastewater discharged from shrimp farms and sewage from urban and industrial developments, with associated increase of nutrients, resulting in the accumulation of organic sediments and hypoxia; destructive fishing activities/gears; direct use on seagrasses (massive destruction of *E. acoroides* by strong water injection to uproot rhizome); and tourism activities including animal collection in seagrass beds, boat transportation and inappropriate areas for mooring. The key threats to seagrass in ranked order of their significance to basin level loss of this dominant coastal habitat include:

- Destructive fishing such as push nets and trawls
- Sedimentation from coastal development
- Nutrients (eutrophication)
- Coastal construction
- Over-fishing

***Threats to coastal wetlands*:** Major threats to the coastal wetlands of the Thailand can be grouped as follows: loss of wetland areas through conversion for agriculture, aquaculture, port and harbor development, human settlement, tourist development, urbanization, industrialization. Wetland ecosystems are also highly degraded as a result of over-exploitation of living resources, use of inappropriate fishing techniques and gear, pollution, deforestation in upland area, invasive species, global trends and natural episodic events such as sea-level rise, typhoons and tsunami.

2.3 Management of coastal habitats

Mangrove management

In Thailand, the total area of mangroves is 62,600 ha under various forms of management with different forms of land-use designation (Table 1).

Table 1: Estimated areas of mangrove under different forms of land-use designation and management in Thailand

Land-use designation and management	Area (ha)
Total area (ha)	62,600
Production forest	1,600
Conversion	0
Parks & Protected Areas (Conservation) non-extractive use	11,500
Non-use of mangrove but extractive resource use (fish, crabs etc.)	39,500
Private land, unregulated use	10,000
Area currently under management Regulated in laws/regulations	11,500
Areas estimated as currently under sustainable management[1]	11,500

It is noted that in Thailand, areas considered as currently being sustainably managed include all lands designated as production forest (1,600 ha) as it is a legal requirement that these be replanted, and that all mangrove lands contained within National Parks and Protected Areas (11,500 ha) may be considered to be sustainably managed. The extractive use of non-mangrove resources (e.g. fish and crabs) accounts for 39,500 ha (63 percent) while private land, unregulated use accounts for 10,000 ha of the total Thailand's mangroves of 62,600 ha. A total of 13,100 ha (21 percent) was deemed to be sustainably managed.

The National Action Plan for mangroves in Thailand enumerated the problems in mangrove management as follows: Authority and responsibility for mangrove management in the past rested with the government, which does not have the resources to protect and rehabilitate mangrove areas, including enforcement of laws; Limited public and local participation in mangrove management; Lack of laws supporting enforcement action has contributed to encroachment into mangrove areas and led to inappropriate land uses; Limited cooperation and coordination between agencies in mangrove management agencies; Lack of systematic and coordinated monitoring of mangrove related projects and information; and Dissemination of information and publicity material is limited and does not reach its target especially the public which lack knowledge and understanding in conservation and restoration of mangrove resources and sustainable resources.

As to the status of the NAP implementation, many of the actions have been combined with the National Biodiversity Strategy and Action Plan approved by Cabinet. The Marine and Coastal Management Promotion Act (2015) is the most recent law developed related to mangrove management. The Act, which was enacted and authorized by DMCR since June 2015, will guide the way to manage more effectively the coastal and marine resources of Thailand. It bonds and strengthens public participation with ecosystem-based management as well as enhances the establishment of MPA which is a tool to conserve the ecosystem and decrease the conflicts among multiple users. In terms of the progress in achieving the SAP targets at the national level, the status are as follows:

- Designation and planning for the management of mangrove as non-conversion sustainable use areas: Preparation ongoing to designate the MPAs at Nakorn Srithammarat Province
- Reform of laws and regulations for sustainable use of mangrove forest: Enactment of the Marine and Coastal Management Promotion Act (2015)

[1] Areas considered as currently being sustainably managed include all lands designated as production forest; and all mangrove lands contained within National Parks and Protected Areas.

- Replanting of deforested mangrove land: Replanting ongoing in many provinces – Nakorn Srithammarat, Chantaburi, Rayong, Samut Prakarn, Samut Songkram, etc

During the year 2000-2014, the area of mangrove forest has been increased which resulted from the strong cooperation among government, private and local communities in continuing conserve and restore the mangrove forest (Department of Marine and Coastal Resources, 2017). Management of marine and coastal resources in recent years included (1) reclamation of approximately 14.1 square kilometers of mangroves forests (total nationwide coverage of 4,480 square kilometers, (2) rehabilitation and afforestation of roughly 8.6656 square kilometers of mangrove forests, (3) allocation of 3.1552 square kilometers of coastal area for local settlements, (4) declaration of conservation mangrove forests in accordance to Article 18 with protection measures stipulated by Article 23 through formulation of a ministerial regulation to declare 6 mangrove forests as conservation areas, (5) implementation of the "Civil Forest Parks" project with establishment of 18 of 20 forest parts in 16 coastal provinces and (6) planning for establishment of 10 marine and coastal protected areas in Trang, Rayong, Trat, Phan-nga and Phuket provinces

Coral reef management

Of the total coral reef area at the 14 target sites of 89,530 ha, it is estimated that 60 percent (54,000 ha) is under some form of management. While management information is available for all 14 sites, only nine sites are being managed, with the effectiveness of that management being rated as medium to low (Table 2).

Table 2: Management status of priority coral reef sites in Thailand

Site name	Area (ha)	Live coral cover (%)	Management legal status	Area under management (ha)	Management effectiveness[2]
Thailand	**89,530**			**54,000**	
Mu Koh Chumporn	7,790	55	National Park	7,360	Medium
Mu Koh Chang	18,670	40	Marine National Park	11,780	Medium
Mu Koh Ang Thong	5,110	55	Marine National Park	5,110	Medium
Mu Koh Samui	38,990	40	Marine National Park	22,770	Low
Mu Koh Samet	4,200	35	Marine National Park	3,240	Medium
Sichang Group	760	20	None	0	
Sattaheep Group	1,670	33	Navy Control Area	1,320	Low
Lan and Phai Group	3,910	18	Navy Control Area	1,200	Low
Chao Lao	860	30	None	0	
Prachuab	2,450	40	Marine National Park	270	Low
Koh Tao Group	2,300	45	None	0	
Song Khla	1,200	20	None	0	
Koh Kra	670	40	None	0	
Losin	950	40	Navy Control Area	950	Low

Thailand's National Coral Reef Management and Action Plan identified the problems of coral reef management as: lack of effective control and punishment measures according to existing laws and regulation; gaps in laws and organizations for coral reef conservation; lack of mechanisms to encourage local relevant organizations and coral reef users actively participating for management; tourism development without any concerns about coral reef carrying capacity; delay and obstacles of management system for marine protected areas; and impacts of waste water from coastal development activities.

Realizing these problems, the National Coral Reef Management and Action Plan was prepared and approved in 1992, and later revised due to changes of coral reef status and uses. The National Coral Reef Strategy: Policies and Action Plan in Thailand (2005) was formulated based on the following principles: Maintain a balance in the intensity and variety of coral reef uses; Consider both national economic priorities and local needs; Rely on both regulatory measures and non-regulatory measures to achieve management objectives; Create incentives for coral reef management; Aim for cooperative management approach; and Make management decision based on the best available data on reef condition, uses and carrying capacity.

As to the status of the NAP implementation, many of the actions have been combined with the National Biodiversity Strategy and Action Plan approved by Cabinet. The Marine and Coastal Management Promotion Act (2015) covers also coral reef management. The status of the progress at the national level are as follows:

- Management capacity built for priority coral reef sites: Coral taxonomy training/coral reef monitoring training/ coral reef resilient assessment workshop
- Rehabilitation for Coral Reefs Ecosystem Areas at 85 national coastal and marine priority areas: Coral reef rehabilitation projects such as: Transplantation; Installation of hard substrata for coral natural

[2] Categories of Management Effectiveness: Low: Area declared or proposed to be declared for management; Management Plan developed and approved. Medium: Existing Management Framework is implemented with inadequacy of manpower, finance and/or equipment: High: Existing Management Framework is implemented with enough trained manpower, equipment, facilities and sustainable finance.

settlement; Installation of artificial reefs to protect against trawling near coral reefs; Installation of non-used ships as new diving sites to decrease using natural reefs

- Development of improved management approaches at priority coral reef sites: Establishment of regulation for diving tourism; Using Green Fins Approach/Reef Guardian to decrease the impact of diving tourism; Installation of mooring buoys
- Development and utilization of management tools to address threats to priority sites: seasonal closure of most national parks (during monsoon season); Temporary closure of diving sites impacted by bleaching (under bleaching response/management plan)
- Development of ecological and socio-economic indicators for the monitoring of coral reef management effectiveness: Management effectiveness was made in some marine national parks

Seagrass management

In Thailand, 1,780 ha had been considered as under some form of management, 70 percent of the total 2,553 ha of four known seagrass sites. The areas and status of management at four sites (Tungka Bay, Kung Krabane Bay, Sarat Thani and Pattani Bay) were summarized in Table 3.

Table 3: Status of known seagrass sites in Thailand coastal waters

Name	Area (ha)	Legal Status	Area under Management	Management Effectiveness
Thailand	**2,553**		**1,780**	
Kung Krabane Bay	700	None (under King of Thailand project)	700	High
Tungka Bay	1,080	National Park	1,080	Low
Sarat Thani	500	None	No	N/A
Pattani Bay	273	None	No	N/A

Many of the actions identified in the NAP for implementation have been combined with the National Biodiversity Strategy and Action Plan approved by Cabinet. Like mangrove and coral reef management, the Marine and Coastal Management Promotion Act (2015) covers also coral reef management. As to the progress at the national level, the status are as follows:

- Rehabilitation for Seagrass Ecosystem Areas at 85 national coastal and marine priority areas: Planting of seagrass seedlings with local community participation
- Development of laws and regulations for sustainable management of seagrass areas: Enactment of the Marine and Coastal Management Promotion Act (2015)
- Designation of MPAs at priority seagrass sites: two sites are under preparation to designate as MPAs to protect seagrass and dugongs

Coastal wetland management

In Thailand, the total area of wetlands is 279,857 ha with four specific types of wetlands as follows: estuaries (84,809 ha), peat swamps (102,427 ha), non-peat swamps (9,808 ha) and inter-tidal flats (82,813 ha). Table 4 presents the areas and management status of wetlands types in Thailand.

Table 4. Legal and management status of known inter-tidal mudflats, estuaries, coastal lagoons and coastal peat swamps in Thailand.

Name of site	Area (ha)	Legal and Management Status		
		Protected – Non-use (Subsistence/commercial)	Sustainable use	Non-sustainable use
Estuaries				
Pattani Bay	6,149	N.A.	N.A.	√
Ban Don Bay	49,459	N.A.	N.A.	√
Welu River Estuary	10,400	N.A.	N.A.	√
Thung Kha Bay-Savi Bay	5,204	National Park	N.A.	N.A.
Pak Phanang Bay	13,597	N.A.	√	N.A.
Peat Swamps				
Wetlands in Thale Noi Wildlife Non-hunting Area	45,700	Includes RAMSAR Site	N.A.	N.A.
Phru To Daeng Wildlife Sanctuary	20,120	Wildlife Sanctuary; RAMSAR site	N.A.	N.A.
Wetlands in Thale Sap Wildlife Non-hunting Area	36,467	Non-hunting Area		N.A.
Phru Kan Tulee	140	N.A.	√	N.A.
Non-peat Swamps				
Khao Sam Roi Yot National Park	9,808	National Park	N.A.	N.A.
Inter-tidal flats				
Don Hoi Lot	2,409	RAMSAR Site	N.A.	N.A.
Wetlands in Mu Koh Chang National Park	65,000	National Park	N.A.	N.A.
Wetlands in Mu Koh Ang Thong National Park	10,200	National Park and RAMSAR Site	N.A.	N.A.
Thung Kha Bay – Savi Bay	5,204	National Park	N.A.	N.A.

The National Action Plan on Wetland Management in the Gulf of Thailand (2006) identified the main causes for loss of wetlands in Thailand as follows:

1) Increase in number of population - Modern socio-economic development has significantly driven the exploitation of wetland resources and generated demand for conversion of the ecosystem for development activities;
2) Inefficient use of wetlands - Inappropriate use of wetlands, particularly conversion of natural wetlands for development activities such as cultivation, marine aquaculture, urban expansion for housing, commercial development like tourism, and infrastructure and industrial development, particularly those concerning road and dam construction, have all adversely affected hydrological systems of wetlands, by disrupting water flow in and out of the ecosystem, making them more accessible for development activities and encroachment by land-less locals;
3) Lack of adequate knowledge for wetland management - Despite many values and benefits derived from wetlands, the general public including private organizations in both urban and rural areas, remains without adequate and accurate knowledge and understanding of wetland ecosystems. This result in the lack of due appreciation and recognition of true functions, value and benefits of wetlands and eventually, inappropriately use the ecosystem. With ever increasing demand for exploitation of wetland resources by local communities, utilization of the resources without due regards to biodiversity value and the need for conservation and sustainable use, frequently resulted in conflicts between users; and
4) Lack of coordination and resources with ineffective laws - Coordination between public agencies in managing wetlands is often inadequate, while relevant laws and regulations are usually ineffective in enforcement and, in many cases, do not facilitate sustainable management of wetlands. There is lack in

human resources and competent authorities to ensure more efficient and productive administration of wetland management.

As to the status of the NAP implementation, many of the actions have been combined with the National Biodiversity Strategy and Action Plan approved by Cabinet. The Marine and Coastal Management Promotion Act (2015) is the most recent law developed that covers the management of coastal wetlands. In terms of the progress at the national level, the status are as follows:

- Declaration of protection status for priority wetland areas: New RAMSAR sites including Koh Ra-Prathong and Koh Kra
- Development of ecological and socio-economic indicators for the monitoring of wetland management effectiveness: Management effectiveness was made in some marine national parks

3. SAP TARGETS AND PLANNED ACTIONS

3.1 Mangroves

The Strategic Action Programme targets for mangroves in Thailand focus on: improving the management of mangrove areas utilized for the sustainable use of mangrove resources. This will be achieved via the development and implementation of sustainable use management plans for 10,000 ha of mangroves, as well as the reform of laws and regulations for the sustainable use of mangrove areas in Thailand. This aims to increase the total area of mangrove being managed effectively on a sustainable use basis from 13,100 ha to 23,100 ha. The Strategic Action Programme targets also focus on increasing the area of mangrove designated as a National Park or assigned Protected Area status from 11,500 to 12,900 ha including the designation and plans for the management of 1,600 ha of mangrove as non-conversion, sustainable use areas. It will also result in the replanting of 8,000 ha of deforested mangrove land and the enrichment planting of a further 3,200 ha of mangrove to increase biodiversity. Priority areas for management in Thailand include Pak Phanang Bay, Trad Province, Welu River Estuary and Thung Kha Bay – Savi Bay. Table 5 details the specific Strategic Action Programme targets for mangrove in Thailand.

Table 5. Strategic Action Programme targets for future mangrove management in Thailand

Strategic Action Programme Target	Area (ha)
Area to be transferred to National Parks and Protected Area status	1,400
Non-conversion of mangrove but sustainable use	1,600
Improved management relating to sustainable use	10,000
Replanting of deforested mangrove land	8,000
Enrichment planting to increase mangrove biodiversity	3,200

The National Action Plan was prepared to serve as a framework to preserve mangrove productivity and support integrated economic, social, and ecological mangrove use. It outlined the objective of the action plan which is to "Manage Thailand's mangrove resources in the Gulf of Thailand area through multi-sector participation to provide a stable, balanced ecosystem which can support Thai society, the economy, and the environment and provide a good quality of life for the public." The targets are: Increase the area of mangroves; Increase the overall pristine-ness of mangrove areas; Establish mangrove boundaries and buffer zones; Support local communities in conservation, restoration, and use of mangroves; Undertake research to improve local database information; Establish nature study centres for mangrove ecosystems; and develop and train mangrove resource people.

In order to achieve the objective and targets, five strategies will be used. These are: Conservation and restoration and increase in mangrove areas; Promote the sustainable use of mangrove resources; Support coordinated participation in the development of the mangrove resources of the Gulf of Thailand; Develop databases and undertake research to conserve, restore, and use mangrove resources sustainably; and Evaluation and monitoring of the results of mangrove management and specification of performance indicators.

3.2 Coral Reefs

In Thailand, the Strategic Action Programme identified 14 coral reef sites with a total area of 89,530 ha. Significant coral reef sites are located in Mu Koh Samui and Mu Koh Chang. Table 6 presents the SAP outcomes and targets at the 14 coral reef sites in implementing the Strategic Action Programme in Thailand. The targeted coral reef area to be added for management through SAP implementation is 18,000 ha, bringing the total area across the nine sites under management to 72,000 ha. The implementation of the Strategic Action Programme also aims to increase the management effectiveness across all 14 sites from low and/or medium to high.

Table 1. Outcome 1.2 outputs, sites and targets for the management of coral reefs in Thailand

Outputs	Thailand
1.2.1 Management capacity built for 46 coral reef sites	Mu Koh Chumporn Mu Koh Chang Mu Koh Ang Thong Mu Koh Samui Mu Koh Samet Sichang Group Sattaheep Group Lan and Phai Group Chao Lao Prachuab Koh Tao Group Song Khla Koh Kra Losin
1.2.2 Management approaches and policy, legal & institutional reforms (integrated, community-based, multiple use) improved at 46 coral reef sites	
1.2.3 Management tools (licensing and permit systems, seasonal closures, zoning) developed and utilized to address key threats at priority sites	
1.2.4 Established mechanism for the monitoring of management, ecological and socio-economic indicators at 82 sites	
Total coral reef area in the Gulf of Thailand (ha)	90,000

Outputs	Thailand
Total coral reef area of the 14 target sites in Thailand	89,530
Coral reef area to be supported in SCS SAP project	72,000

At the site and national levels, activities will include: supporting building management capacity (number/levels human resources, facilities and equipment, and sustainable financing mechanisms) for the 14 coral reef sites; improving management approaches (integrated, community-based, multiple use) at 14 coral reef sites; developing management tools (licensing and permit systems, seasonal closures, zoning) in support of legal and regulatory reforms to address key threats at the 14 priority sites; and establishing mechanisms for monitoring management, ecological and socio-economic indicators at the 14 coral reef sites. These are all aimed at increasing management effectiveness and assisting in achieving the coral reef related target of the Strategic Action Programme which is aimed at reducing the decadal loss of live coral cover in the South China Sea from 16 to 5 percent.

The Vision of the National Strategy and Action Plan is "Thailand's coral reefs are pressured, developed, restored and created for sustainable uses according to balance of ecosystem and socio-economics by integrated management of good governance organizations with emphasis on community participation." Its Missions are to: Determine coral reef zoning and criteria for coral reef uses according to ecological and economic values; Reduce coral reef degradation by using appropriate technology and effectiveness of law enforcement with emphasis on preventive of coastal development and fisheries impacts; Build mechanisms of public participation to protect coral reef s by raising awareness on resources values, promoting volunteer groups and curriculum development in academic institution; Revised laws, regulation organizations and processes of effective integrated management of coral reefs and marine protected areas; Long-term monitor coral reefs with clear appropriate plans; and Study basic and applied reef science and promote human resources development for coral reef management.

The objectives of the National Strategy and Action Plan are:

- To use coral reefs for various activities according coral reef management in a balance of ecological and economic values
- To reduce coral reef degradation in order to support human benefits
- To protect those coral reefs that are outstanding value to the national heritage
- To increase effectiveness of coordination between government organizations, local administrative offices and private agencies with clear determination of their roles
- To encourage raising awareness of officials and private employees concerning their responsibility to follow action plans of the National coral reef strategy
- To develop researches and techniques for coral reef restoration and creation

To achieve these objectives, national policies and measures were identified. The policies include: Manage coral reefs according to different ecological and economic values to maintain a balance of uses; Reduce reef degradation by increasing the effectiveness of existing laws management plan and application of appropriate technology; Build and maintain strong and broad public support; Revise royal Thai government legal, regulatory, and institutional Framework; Monitor and evaluate progress; and Support management through scientific research and innovation. The measures are: Improve coral reef classification; Determine criteria and measure for each management category; Apply success methods to prevent coral reef degradation from the pilot study sites to other areas; Prevent impacts from new coastal developments; Reef "code of conduct"; Expand local extension programs in fisheries habitat conservation; Enforce more effectively existing laws against illegal activities; Strengthen the capacity of local government in site planning and management; Launch national and local public information campaigns; Encourage volunteer groups, user and public participation in reef management; Coral reef curriculum in schools and colleges; Amend law and regulation concerning coral reef management; Improve coral reef management processes; Provide interagency leadership and coordination; Develop marine national park system plan; National monitoring program; Basic coral reef research program;

Applied coral reef research program; and Promote and develop researchers in the fields of reef and marine ecology.

3.3. Seagrass

No seagrass site was identified for SAP implementation in Thailand. The National Strategy and Action Plan outlined its Vision, Mission and Goals for improving the management and sustainable use of seagrasses and dugong in Thailand. Its Vision "Thailand's seagrass ecosystem and dugong are protected and rehabilitated to maintain ecological abundance alongside traditional utilization and sustainable development", is supported by three main Missions:

- create necessary knowledge for the management of seagrasses and dugong
- establish the processes for management of seagrass ecosystem based on stakeholder participation
- solve problems related to the degradation of the seagrass ecosystem

The goal is to have Thailand's seagrass areas and dugong systematically managed by all related stakeholders. To achieve such goal, both the government and public sectors will systematically manage major seagrass areas. The objectives are to:

- Conduct scientific researches in order to support systematic management of the seagrass ecosystem.
- Establish a widely accepted and efficient system for the protection and management of seagrass beds.
- Improve existing law enforcement procedures and establish new regulations in order to successfully protect and manage Thailand's seagrass ecosystem.
- Provide accurate knowledge and proper understanding regarding the seagrass ecosystem to the general public though effective media to increase/build public awareness.
- Rehabilitate degraded seagrass beds and adjacent ecosystems.
- Promote alternate fishing methods and occupations in order to reduce the impact of fishery activities on seagrass beds.

To achieve the determined objectives, the necessary management interventions are: Integrated research and monitoring for seagrass ecosystem and dugong; Promote local assembly and increase stakeholders' efficiency in managing the seagrass ecosystem; Develop process and increase efficiency for the conservation of seagrass beds and the environmental qualities; Provide knowledge and promote public awareness for the conservation of seagrasses; Conservation and rehabilitate seagrass ecosystem and associated fauna in the seagrass areas; Promote alternate occupations. These interventions are regrouped into five main actions as follows: Research and Monitoring; Capacity building and sustainability; National policy, legal and institutional arrangement and coordination; Public awareness, communication and education; Resource and habitat management.

3.4. Coastal wetlands

In the Thailand, Strategic Action Programme implementation will result in the adoption and implementation of management plan for: 1 peat swamp at Thale Noi Wildlife Non-Hunting Area (45,700 ha); and 1 non-peat swamp at Khao Sam Roi Yot National Park (9,808 ha). This includes the declaration of wetland areas with protection status and needed management reforms, and adoption of a regional estuary monitoring scheme for national implementation Table 7.

Table 7. Outcome 1.4 outputs, sites and targets for the management of wetlands in Thailand

Outputs	Thailand
1.4.1 Integrated management plans developed and under implementation for at least 3 lagoons (26,818 ha), 9 estuaries (614,680 ha), 5 tidal flats (96,903 ha), 1 peat swamp (45,700 ha) and 1 non-peat swamp (9,808 ha)	Thale Noi Wildlife Non-hunting Area Khao Sam Roi Yot National Park
1.4.2 Declaration of at least 7 wetland areas with protection status (i.e. non-hunting area, nature reserves, protected areas, Ramsar Sites).	
1.4.3 Adoption of a regional estuary monitoring scheme and its national implementation	
Total wetland area in the 2 target sites (ha)	**55,508**

The NAP's Vision is "Wetlands in the Gulf of Thailand were preserved, conserved and rehabilitated by integrated wetland management with participation of all stakeholders, in order to enable sustainable use of the ecosystem". The missions to achieve this Vision are: Preserving, conserving and rehabilitating natural resources and environments of wetlands in the Gulf of Thailand; Enabling sustainable utilization of natural resources of wetlands in the Gulf of Thailand in accordance to their carrying capacities; and promoting the responsible agencies in order to reduce conflicts derived from utilization of natural resources in wetlands among stakeholders. The strategic goals are: Formulation of a plan on integrated management of important wetlands with participatory processes; Establishment of responsible agencies and community networks for wetland conservation; and Study and Prioritization of wetlands in the Gulf of Thailand in accordance to their potential and conditions. The objectives are:

- To develop programs to strengthen knowledge and understanding of central and local administration as well as communities on conservation and wise use of wetlands.
- To promote public participation in planning for preservation, conservation and sustainable utilization of wetlands.
- To support establishment of responsible agencies and community networks for wetland conservation and utilization.
- To develop and promote establishment of wetland information center in pilot area to demonstrate, provide training on, and exchange knowledge on wetland management to relevant personnel for further adoption in the field.
- To revise, assess and re-prioritize different types of wetlands in the Gulf of Thailand, in order to obtain baseline information for administering wetland management.
- To develop systems for participatory monitoring and assessment of wetland management, with mechanisms for information dissemination.

The above goals and objectives are to be realized with the following strategies: Preservation, Conservation and Rehabilitation of Wetland Ecosystem; Building Awareness on Importance and Values of Wetlands; Strengthening capacity of institutions on conservation and sustainable use of wetlands; Building databases for wetland management with research and studies; and promoting international cooperation on conservation and sustainable use of wetlands. Based on these strategies, the measures are: Formulation of management plans for wetlands of different significance; Promoting traditional management, conservation, rehabilitation and sustainable use of freshwater wetland ecosystems of local communities; Participatory monitoring and inspection of wetland utilization; Awareness campaign of value and importance of wetlands and necessity of their sustainable use; Establishing natural study centres and providing non-formal education at importance wetlands; Promoting creation of networks for exchanging knowledge, news and information; Organizing training courses, meetings and seminars on wetland conservation and regulations; Develop curricula on wetland management; Promoting and supporting surveys, studies and research on status and utilization of wetlands; Gathering ecological and natural resources information of important wetlands; Conducting feasibility studies on revision of existing laws and regulations related to wetland management plans; Supporting economic valuation of

wetlands; Promoting establishment of networks among wetland researchers; Promoting cooperation with international organizations; and Promoting national profile on wetland conservation in global forums.

3.5 Land-based pollution management

The over-arching goal of the land-based pollution component of the SAP was agreed as follows: *"To foster regional co-operation in the identification of sensitive ecosystems, land-based contamination problems, evaluation of their significance and development of standards for national level adoption within a regional context in order to develop an appropriate precautionary approach to discharges to the South China Sea marine basin".*

National level activities will support the: reviews of legislative and institutional frameworks for land-based pollution management in participating countries; harmonization of national Standard Operating Procedures for land-based pollution control and management, including agreed sediment, biota, and water quality criteria; revision of national/provincial policies; development, enactment and implementation of supporting regulations for land-based pollution; and the updating and adoption of National Action Plans, including instutional reform and sustainable financing strategies, for land-based pollution management in the SCS.

The Management Framework to Protect Marine Environment from Land-Based Pollution (2005) identified economic expansion, increasing population, aquacultural and agricultural activities conducted with improper pollution management as factors that accelerated the deterioration of the environment in coastal areas of the Gulf of Thailand. The increase of anthropogenic activities due to economic expansions has generated large amounts of wastes such as wastewater, solid wastes, organic matters, among other, which affect the marine environment, water quality, sediment, and marine organisms. Although the government agencies responsible for environmental management have established a number of control measures including effluent standards for several types of pollution sources of origins, including coastal seawater quality standards, the marine environmental monitoring data results have indicated that the environmental qualities have worsen.

To solve these problems, the Royal Thai government has developed the Management Framework to Protect Marine Environments from Land Based Pollution, consisting of several measures to address problems in different areas. The framework's Vision is "To control, prevent, and mitigate the impacts and restore damages from land-based pollution for the purpose of marine environment and resource conservation, by focusing on active strategies that integrate several management techniques involving all members of the society to maintain the sustainable uses of coastal zones and seas." Its goals are: to reduce pollution from all sources of origins in order to maintain marine environmental quality within standards; and to make all the related institutions and people aware of and participate in resource management and marine environmental management. These will be

achieved through the following objectives: to accelerate the marine environmental problem-solving processes, especially those due to land-based pollution, by focusing on critical areas; and to restore and conserve coastal and marine resources and to keep the marine ecosystem in balance. The strategy is to make the management plans for the protection of marine environments from land-based pollution as national and regional priority, and carry out the management plans in an active and integrated approach with the involvement of all sectors.

Specifically, the framework identified five strategies: Effective water pollution management strategy; Increase efficiency of law enforcement in association with water pollution management; Restore water quality in critical areas; Public relations and encourage the involvement from every sector; and systematically study, research and develop instruments for water pollution management. Based on these strategies, several measures were also identified and outlined in the framework.

4. NATIONAL BASELINE INFORMATION AND DATA

4.1 National reports

Detailed national reports on the status and trends in mangrove, coral reef, seagrass, wetland and land-based pollution management in Thailand were prepared as a baseline information. A series of National Actions Plans were also developed toward contribution to implementing the Strategic Action Programme (Table 8). Thailand had achieved some good practices at the site level on mangrove and coral reef management which were published as the lessons learnt[3].

Table 8. List of national documents and contacting focal points in Thailand

Component	Title	Date	Focal Point/Institution
Mangroves	Mangrove Strategic Action Plan in the Gulf of Thailand		Sonjai Havanond Department of Marine and Coastal Resources
	Mangroves GIS Database (Doc 3-2/6)		
	Mangrove and Coastal Resources Management Plan, Six Sub-Districts, Trat Province		
	The National Action Plan (NAP) for Mangrove Management, Five Year Plan 2009-2013		
	Mangroves National Report (Doc 3-1/6)		
	Mangrove Component Final Report	2004	
	Community Involvement, Public Awareness and Education for Mangrove Conservation and Restoration in Trat Province, Thailand	2008	
Coral Reefs	Coral Reefs GIS Database (Doc 2-2/6)		Thamasak Yeemin Ramkhamhaeng University
	Coral Reefs Management and National Action Plan (Doc 4-2/7)		
	Sustainable Tourism Based on Coral Reefs at Mu Koh Chang Island	2008	
Seagrass	Seagrass GIS Database (Doc 2-3/6)		Suvaluck Satumanatpan Mahidol University
	National Report on Seagrass Thailand	2004	
	Seagrass National Report (Doc 3-1/6)		
	Seagrass National Report (Doc 4-3/7)		
	Seagrass Policy and Legislation (Doc 3-2/6)		
Wetlands	Coastal Wetlands GIS Database (Doc 2-4/6)		Narong Veeravaitaya Kasetsart University
	Coastal Wetlands National Report (Doc 3-4/6)		
	Land-Based Pollution GIS Database (Doc 2-5/6)		

[3] Available at http://www.unepscs.org/South_China_Sea_Knowledge/Lessons_Learned/SCS_Lessons_Learned.html

Component	Title	Date	Focal Point/Institution
Land-Based Pollution	Management Framework to Protect Marine Environment from Land-based Pollution (Revised Edition)		Saravuth Rattanachongkiat / Pornsook Chongprasith Pollution Control Department
	Land-Based Pollution National Report (Doc 4-5/7)		
	Land-Based Pollution National Report (Doc 3-5/6)		
	Land-Based Pollution National Report		
	Final Report Proposed Marine and Coastal Sediment Quality Guidelines		
	Final Report Proposed Marine and Coastal Sediment Quality Guidelines		
	Land-Based Pollution National Report (Doc 4-5/7)		
Fisheries	Fisheries National Report (Doc 3-6/6)		Pirochana Saiklang Department of Fisheries
Others	Inter-Ministry Committee Report		Sirikul Bungapong Office of Natural Resources and Environmental Policy and Planning

4.2 Site characterizations

The SAP identified 21 priority sites for implementing in Thailand, including 5 sites for mangroves, 14 sites for coral reefs and 2 sites for coastal wetlands. Two other sites were proposed as Fisheries Refugia but no site prioritized for seagrass (Table 9). The National Implementation Report (NIR) under development is in the process of evaluating original sites, in terms of progress in attaining SAP targets and possible amendments.

Table 9. The priority sites of Thailand selected in the SAP as well as the Fisheries Refugia sites

Mangroves	Coral Reefs	Wetlands	Fisheries Refugia
5 sites	**14 sites**	**2 sites**	**2 sites**
24,200 ha	**72,000 ha**	**55,508 ha**	
Trad Province (Mu Koh Chang) Thung Kha Bay - Savi Bay Pak Phanang Bay Kung Kraben Bay Welu River Estuary	Mu Koh Chumporn Mu Koh Chang Mu Koh Ang Thong Mu Koh Samui Mu Koh Samet Sichang Group Sattaheep Group Lan and Phai Group Chao Lao Prachuab Koh Tao Group Song Khla Koh Kra Losin	Thale Noi Wildlife Non-hunting Area Khao Sam Roi Yot National Park	Trad – Short mackerel Surat Thani – Blue swimming crab

Regarding the sites selected in the SAP, specific site-level information and data compiled in each site characterization include details of: the geographical locations and boundaries of the sites (including coordinate); the site's physical environment; environmental state; socio-economic and resource use information; biological data; and information on the status of existing management. These baseline assessments of the sites have been

made accessible online at http://gis.unepscs.org. The tables 10, 11, 12, 13, 14 below provide data of main features which were used for prioritization and selection of the target sites in Thailand as indicated in the document *"Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand".* South China Sea Knowledge Document No. 2. UNEP/GEF/SCS/Inf.2

Table 10. Selected physical and biological properties and variables for mangrove potential demonstration sites in Thailand (M = data unavailable)

Site	Trad Province	Thung Kha Bay - Savi Bay	Pak Phanang Bay	Kung Kraben Bay	Welu River Estuary
Present Area	7,031	3,543	8,832	640	5,478
Zones spp. assoc	5	4	3	2	3
% change in area	2	34	2	0	31
True mangrove spp.	33	23	25	27	33
Density >1.5m high /Ha	1,100	1,628	1,282	6,100	1,400
% cover	90	90	56	80	60
No. Crustacean. spp.	32	58	36	19	25
No Bivalve	M	M	M	M	M
No. Gastropod spp.	M	M	M	M	M
No Fish spp.	55	36	85	35	52
No Bird spp.	98	13	72	75	69
No migratory bird spp.	24	8	45	16	15

Table 11. Biodiversity and other environmental properties and variables for selected seagrass sites in Thailand (M = data unavailable)

Site Name	Area (ha)	% cover	Depth range	Seagrass spp.	Penaeid spp.	Gastropod spp.	Siganid spp.	Urchin spp	Threatened spp.	Associated ecosystems	Migratory species
Kung Krabane Bay	700	80	4	5	4	5	2	**M**	2	1	1
Surat Thani	500	65	3	6	2	73	3	1	2	1	2
Pattani Bay	273	80	3	4	8	35	5	**M**	2	1	2

Table 2. Properties and variables for potential coral reef demonstration sites in Thailand used in determining similarities and differences among sites (M = data unavailable)

Site Name	Hard coral species	live coral cover (%)	No. of algae spp.	No. of crustacean species	No. of echinoderm species	No. of coral reef fish species	Other ecosystem	No. of endangered and threatened species
Mu Koh Chumporn	120	55	M	304	21	106	4	5
Mu Koh Chang	130	40	43	250	20	113	4	6
Mu Koh Ang Thong	110	55	7	136	21	106	4	1
Mu Koh Samui	140	40	7	136	21	106	4	5
Mu Koh Samet	41	35	38	134	11	74	4	5
Sichang Group	90	20	40	304	11	86	4	2
Sattaheep Group	90	33	40	304	15	75	4	2
Lan and Phai Group	72	18	40	304	15	75	2	2
Chao Lao	80	30	33	123	12	105	2	3

Site Name	Hard coral species	live coral cover (%)	No. of algae spp.	No. of crustacean species	No. of echinoderm species	No. of coral reef fish species	Other ecosystem	No. of endangered and threatened species
Prachuab	74	40	18	106	16	162	2	4
Koh Tao Group	79	45	7	136	21	106	2	4
Song Khla	12	20	2	M	M	30	2	2
Koh Kra	80	40	M	M	M	80	1	2
Losin	90	40	M	M	M	90	1	2

Table 13. Properties and variables used for the cluster analysis of wetland potential demonstration sites in Thailand (M = data unavailable)

Site	Area (ha)	Total no. fish spp.	Total no. birds spp.	No. wetland types	No. migratory spp.	Site specific endemic spp.
Welu River Estuary	10,400	52	74	2	21	M
Ban Don Bay Estuary	49,459	35	46	2	12	M
Thung Kha Bay-Savi Bay Estuary	5,204	86	115	2	33	M
Pattani Bay Estuary	6,149	215	93	2	43	M
Pak Phanang Bay Estuary	13,597	140	226	2	84	M
Mu Koh Chang National Park Tidal Flat	65,000	11	72	1	16	M
Don Hoi Lord Tidal Flat	2,490	3	18	2	12	M
Mu Koh Ang Thong Marine National Park Tidal Flat	10,200	75	53	1	13	M

Table 14. Final agreed data set used for the cluster analysis of peat and non-peat swamp wetlands potential demonstration sites in Thailand (M = data unavailable)

Site	Area (ha)	Total no. fish	Total no. birds	No. vascular plant spp.	No. resident mammal spp.	No. wetland types	No. migratory spp.
Non-peat swamp							
Khao Sam Roi Yot National Park freshwater marsh	9,808	34	150	M	14	3	M
Peat swamp							
Thale Noi Wildlife Non-hunting Area Peat swamp	45,700	30	202	260	7	2	60
Thale Sap Song Khla Non-hunting Area Peat swamp	36,467	106	143	25	M	2	63

5. NATIONAL COORDINATION ARRANGEMENTS

5.1 National inter-ministry committee

The National Inter-Ministry Committee (IMC) for Thailand will be revitalized and assume overall coordination and oversight of SAP implementation at national level. The IMC will review and approve reports from the National Technical Working Group and the Specialized Executing Agencies for mangroves, coral reefs, seagrass, wetlands, land-based pollution, and economic valuation regarding the outputs and outcomes of efforts to achieve SAP targets. Thailand's IMC will meet on a biannual basis during the operational phase of SAP implementation to guide the timely execution of national-level activities. The IMC will be chaired by the lead national agency and will have members from all other relevant agencies and ministries.

The membership of Thailand's National Inter-Ministry Committee is currently under finalization with proposed members to include:

- Department of Marine and Coastal Resources (DMCR), as Chair
- Marine Resources Conservation, DMCR
- Office of Permanent Secretary, Ministry of Natural Resources and Environment (MoNRE) – Division of Foreign Affairs
- Office of Permanent Secretary, Ministry of Agriculture and Cooperatives (MoAC)
- Marine Resources Management, DMCR
- Office of Natural Resources and Environmental Policy and Planning (ONEP)
- Department of National Parks, Wildlife and Plants Conservation (DNP)
- Department of Fisheries
- Marine Department
- Pollution Control Department (PCD)
- Geo-informatics and Space Technology Development Agency (GISDA)
- Royal Thai Navy
- Southeast Asian Fisheries Development Center (SEAFDEC)
- Marine and Coastal Resources Research and Development Institute, DMCR
- Mangroves Conservation Division, DMCR
- Marine and Coastal Protected Areas Management Sub-division, DMCR
- Marine Resources Conservation and Management Measure Sub-division
- International Cooperation Sub-division

5.2 National technical working group

The National Technical Working Group (NTWG) is responsible for the overall national-level coordination and oversight of scientific and technical matters in relation to SAP implementation, as well as supporting regional scientific and technical bodies. The NTWG will review and co-ordinate national scientific and technical activities of SAP implementation. The NTWG will review and evaluate, from a scientific and technical perspective, progress in the achievement of SAP targets, and provide guidance for improvement when necessary. The NTWG will provide the IMC with recommendations on proposed national and site-based activities, work plans, and budgets, technical guidance and suggestions to improve SAP activities where necessary, including the reform of policy, legislation and institutional arrangements. The NTWG will facilitate co-operation with relevant national and provincial organizations and projects to enhance the information and science base for use in achieving SAP targets and in preparing updated National Action Plans and a revised Strategic Action Program in Thailand. The NTWG will be chaired by the lead national agency and will have as members the National Focal Points or Chairpersons of the Specialized Executing Agencies (SEAs) and all other relevant ministries and agencies deemed necessary. The membership of Thailand's National Technical Working Group is currently under finalization.

5.3 Specialized executing agencies

National Specialized Executing Agencies (SEAs) will be engaged and assume overall responsibility for the execution of the national-level activities in their respective areas of expertise for SAP implementation in accordance with the initiative's results framework. The SEAs will convene quarterly meetings of national committees for mangroves, coral reefs, seagrass, wetlands, land-based pollution, and economic valuation. The SEAs will nominate a National Focal Point to: (a) act as the main point of contact; (b) act as Chair of the his/her respective National Committee; (c) act as a member of NTWG; and (d) act as a member of the respective Regional Working Group or Task Force. The SEAs will also plan and implement activities aimed at achieving the national-level goals and targets of SAP. In doing so, the SEAs will engage with national networks to the fullest extent possible, and establish institutional linkages with provincial and local governments and communities. The National Committee will be a core group of this engagement, including representatives from organizations and experts which are related to each thematic area. The Specialized Executing Agencies and Focal Points in Thailand are under finanlization

5.4 Stakeholder participation

The Strategic Action Programme for the South China Sea emphasizes a high degree of provincial/local government and community participation in its implementation. This will involve, for example, community participation in the identification of Terms of Reference and membership for community-based management committees at the sites where management plans will be developed and implemented. Intensive consultation processes will also be undertaken to identify key threats at priority areas, agree upon management measures, and to facilitate high-levels of provincial/local government and community stakeholder ownership of management plan development and formal endorsement. In support of local implementation of the management plans, national committees and National Technical Working Groups will be engaged in supporting governments and communities in the design of awareness programmes, development of local networks of management practitioners, and capturing and sharing information about the results and best practices generated at these sites.

A range of other mechanisms to facilitate stakeholder input and participation are included in the programme of work for SAP implementation. These include: the operation of consultative processes in support of the updating and Ministerial adoption of a revised Transboundary Diagnostic Analysis and Strategic Action Programme for the SCS marine basin, including prioritization of national management actions to address climate variability and change; knowledge exchanges between government and the scientific community through biennial Regional Scientific Conferences; best practice exchanges between local government officials and coastal managers on science-based management via annual Mayor's Round-Table meetings; coordination with the UNEP/GEF fisheries refugia initiative and other GEF-financed initiatives operating in the East Asian Seas, including PEMSEA; and the operation of an award program on best practices in coastal habitat and land-based pollution management for communities, local governments and industry.

Mechanisms to further facilitate NGO, CSO, and CO participation in Strategic Action Programme implementation include: the revitalization of cooperative arrangements with GEF SGP in the commissioning and implementation of community-level initiatives in support of the achievement of SAP targets, including those relating to reforestation and enrichment planting at priority mangrove sites. Annual NGO forums will also be convened to elicit CSO and CO inputs to planning, and monitoring and evaluation, of the SCS-SGP partnership. Similar processes will be operated to engage the private sector in identify opportunities for private sector investment (e.g. oil and gas, fisheries, tourism) in implementation of an updated Strategic Action Programme. The planning of cooperation between governments and the private sector for the implementation of the updated Strategic Action Programme will be facilitated via the operation of partnership forums.

In Thailand, the Department of Marine and Coastal Resources (DMCR) of the Ministry of Natural Resources and Environment (MoNRE) will act as the lead agency and is a principal stakeholder. It will be supported in areas of coordination and governance by the Office of Marine and Coastal Resources Conservation. Its Mangrove Conservation Office, Legal Affairs Unit, Coastal Area Management Division, Planning Division,

Marine and Coastal Resources Management Promotion Division, and Marine and Coastal Resources Research and Development Institute will also be engaged and are key stakeholders. The Office of Natural Resources and Environmental Policy and Planning (ONEP) and the Office for International Cooperation under the Ministry of Natural Resources and Environment are the broader involved agencies.

Other Ministries to be engaged at the level of national coordination and governance include the Ministry of Agriculture and Cooperatives' Department of Fisheries, the Ministry of Transport's Marine Department, the Ministry of Finance, the Ministry of Foreign Affairs, the Ministry of Science and Technology, the Kingdom of Thailand's Geo-Informatics and Space Technology Development Agency, Maritime Enforcement Coordinating Center, and the office of Tourism Authority of Thailand.

The full range of technical expertise from National government will be harnessed and supported by Universities and other academic institutes. Academia plays a highly respected role in coastal and marine resource management in Thailand and key stakeholders in this area include the Marine Biodiversity Research Group of Ramkhamhaeng University, the Faculty of Environment and Resource Studies at Mahidol University, the Faculty of Fisheries of Kasetsart University, the Faculty of Economics of Kasetsart University, the Marine Science Department and Aquatic Resources Research Institute of Chulalongkorn University and the Faculty of Sciences at Prince of Songkla University.

The governments of Thailand's provinces of Narathiwat, Pattani, Songkhla, Nakhon Si Thammarat, Surat Thani, Chumphon, Prachuap Khiri Khan, Petchaburi, Samut Songkram, Samut Sakhon, Samut Prakan, Chonburi, Rayong, Chantaburi, and Trat are also key stakeholders from the perspective of operational management and on-the-ground implementation of SAP activities. Accordingly, the Governors offices of these provinces are pivotal from an implementation perspective, as they facilitate important 'community to cabinet' inter-linkages. It is important to note that Thailand's 15 provinces bordering the Gulf of Thailand are comprised of 194 district governments, 1,657 sub-districts with associated administrative units of governments, and 7,879 villages each with elected Chiefs and strong community-level management arrangements. Accordingly, the offices of the district and sub-district governments, and village Chiefs, are key stakeholders.

The administrations of several key institutions for the management of national significant wetlands such as the Mu Koh Chang National Park in Trat Province and the Thale Noi Hunting Non-Hunting Area Administration in Songkhla will be important stakeholders, particularly with regards to knowledge exchange activities. Additionally, a number of NGOs, CSOs and COs where identified as being of contemporary relevance to SAP implementation. These include: the Prednai Mangrove Development and Conservation Group; fisherfolk associations; the Six-Tambol (Sub-district) Network for Collective Coastal Management in Trat Province; the Thai Nature Study Centre; the Ao Baan Don Conservation Network; the Traditional Knowledge Protection Network; the Songkhla Community Natural Resources and Environment Protection Volunteer; the Wetland Conservation Group Baan Bangnokork; the Pattani Small-scale Fisher Network; the Phatthalung Provincial Environment Network; and the Community Natural Resources Development Institute.

6. NEXT STEPS

During 2020-2021 National Implementation Reports (NIR) will be developed to elaborate for each of the SCS SAP Outcomes and Outputs the activities to be executed in each site in order to achieve the SAP targets. This will include updated information and adjustments to address current status of SAP implementation since 2008 and revision of sites and planned activities if appropriate. The NIR will also include a detailed workplan and budget including partnerships and co-financing, to be adopted by the SCS SAP Project Steering Committee.