Implementing the Strategic Action Programme for the South China Sea and Gulf of Thailand (SCS SAP Project)

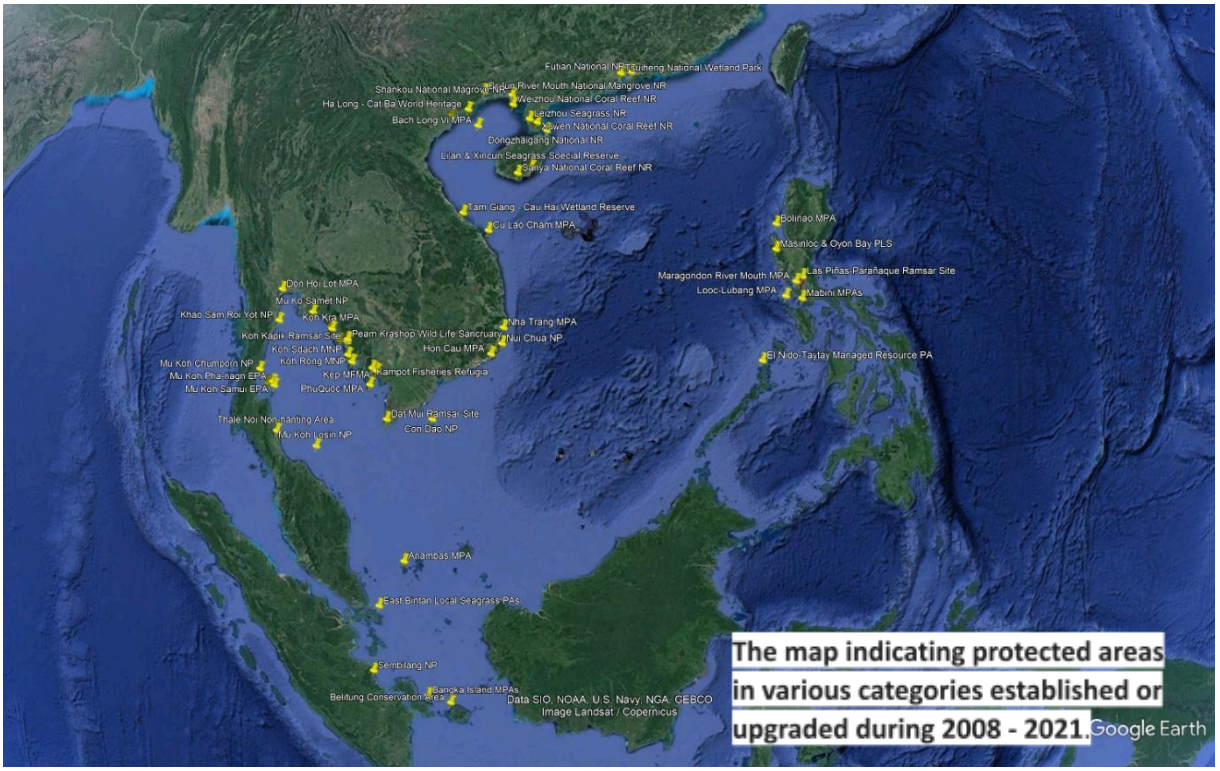
Third Meeting of the SCS SAP Steering Committee

7-8 May 2025, Manila, Philippines

REPORT ON HABITATS AND LAND-BASED POLLUTION ACHIVEMENTS IN IMPLEMENTING THE SAP AT NATIONAL LEVEL DURING 2008-2021

UNEP/GEF Implementing the Strategic Action Programme for the South China Sea and Gulf of Thailand (SCS SAP Project)

Summary of Achievements in Implementing the Strategic Action Programme for the South China Sea and Gulf of Thailand on Habitat Management During 2008-2021



INTRODUCTION

Recognizing 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) in preparing 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). The up-dated Strategic Action Programme was one of the anticipated outputs from the UNEP/GEF Project entitled "*Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand*" (SCS Project), and the document contains the final text as approved by all countries during the 8th meeting of the Project Steering Committee in Hanoi, Viet Nam, August 2008. It was anticipated that the countries would commence implementation of the envisaged actions in 2008/2009 in parallel with the process in seeking further support from GEF for the SAP implementation.

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 implement the SAP at the regional level, on November 03, 2016, the GEF adopted the project entitled "*Implementing the Strategic Action Programme for the South China Sea and Gulf of Thailand (SCS SAP Project)*". It was noted that regional actions would contribute to achieving the target through: capacity building for activities at the national and local levels; provision of opportunities in exchange of experiences and good practices among countries in the region; common guidelines and other tools used by countries in management planning and practices; standardisation in regional synthesis and comparison; provision of sound scientific information for management; and encouraging governments at all levels to develop policy related to environment management. It was also emphasised that actions at the national and local levels are critical for success of the SAP targets. National Action Plans (NAPs) were developed in all participating countries and had been, or would be adopted by, governments to meet national priorities and to contribute to regional targets incorporated in the SAP.

During the course of the SCS Project, all participating countries developed the NAPs for habitat and land-based pollution management and have conducted a series of activities in implementing the SAP and NAPs since 2008. This summary provides evidence on proactive contribution of countries in implementing the SAP and NAPs on mangroves, coral reefs, seagrass and coastal wetlands and land-based pollution management during the last decade. The reviews of past activities and outputs would be helpful for seeking the gaps which shall be addressed in implementing the SCS-SAP project in in remaining time of the project, 2023-2026.

SUMMARY ACHIEVEMENTS ON HABITAT MANAGEMENT

For mangrove focal area

Cambodia established Butom Sakor National Park (BSNP) and Peam Krasop Wildlife Sanctuary (PKWS) in 1993 but no specific zoning system was designated until 2009, when IUCN assisted MoE in the development of a zoning scheme for PKWS (15,500ha). The Butom Sakor National Park (9,127ha) was directly managed by the Ministry of Environment under the law of protected areas. Prey Nob (9,351ha) was declared as a protected area but did not have a management plan that is specific for the purpose of sustainable management of mangroves.

Five mangrove target sites of China with 5,431ha in total were declared as National or Provincial Nature Reserves in the decade of 1980-1990. Among them some were listed in the Ramsar Convention on Wetlands as internationally important wetlands (Shankou -2002, Dongzhaigang –

1992, Fangchengang - 2008). No mangrove areas of five target sites of SAP in China were declared newly as NPs, while the ecological red line areas for mangroves protection were declared during 2008-2021. Reform of laws and regulations were conducted for the sustainable use in these sites. Various projects replanted 1,960 ha mangroves in coastal areas bordering the South China Sea, including 680ha at five sites of SAP in China during 2008-2021. Biodiversity was increased via enrichment planting in more than 3,900ha.

In the case of Indonesia, 5 mangroves sites totaling 132,203ha were targeted in the SAP (2008). Strengthening the status of mangroves in Indonesia, including these 5 target sites was carried out through the determination of forest areas by the Ministry of Environment and Forestry as well as in the determination of protected and cultivation areas in the Regency and Province Regional Spatial Planning (RTRW). The determination times of RTRW were 2014 for Belitung, 2012 for Angke Kapuk, 2016 for Batu Ampar, 2013 for Ngurah Rai and 2018 for Bengkalis. management plans for sustainable use of mangroves were developed for in Batu Ampar, Kubu Raya Regency with an area of 32,000 ha and in Benkalis Regency around 42,459 ha. From 2008 to 2015, the rehabilitation programs were carried out by various related parties but the area planted were not well recorded. In 2021, efforts to accelerate mangrove rehabilitation were carried out in 32 Provinces by involving the UPT of the Ministry of Environment and Forestry with total area of the entire country estimated as 34,911 hectares. In Batu Ampar, restoration was carried out by parties related to the use of production forests after the logging program with a estimated area where species enrichment carried out around + 5,000 ha during 2008 to 2021.

6,059 hectares of mangroves contributed to the SAP targets for the Philippines. These five sites are within the municipalities of Busuanga (755 has); Coron (2,244 has); San Vicente (907.7 has); Ulugan (789 has); and Quezon (1,616 has). All these municipalities have been regulated by their respective Municipal ECAN Resource Management Plans 2017-2022 and Section 30 of PCSD Resolution No. 05- 250, which specifies the use of the “Ecological Zoning Plan” (EZP) as the municipality's general physical plan. In addition, 784ha of deforested mangrove land were replanted during 2008-2021.

The SAP (2008) identified five mangrove target sites in Thailand, totalling 36,027ha mangroves. Based on inadequate information, 4 sites were declared as National Park or Nature Reserve before 2008. Reform of laws and regulations for the sustainable use of all 5 sites was conducted during 2008-2021. Through great national efforts, 7,009ha of mangroves were replanted at the 5 sites for this period.

Three among 4 SAP target mangrove sites in Vietnam were managed as National Parks or Reserves before 2008 and no more sites declared as protection status during the last decade. Management planning for sustainable use was developed for 2 sites with a total of 8,900ha. In parallel with national laws and policies, some specific regulations for local protection and the sustainable use of mangrove forests have also been established and regulated at all 4 sites totaling 93,675ha. There were many efforts on replanting mangroves, as of 2016, Vietnam had planted newly 1,103 ha mangroves.

For coral reef focal area

It is assumed that 4 reef areas in Cambodia have been under sustainable management until 2021 with the total of 1,854ha, including: Koh Sadach (423ha), Koh Rong (426ha), Prek Ampil (953ha) and Koh Pouh (52ha), indicating some management tools developed and utilized. However,

capacity for management of the Prek Ampil site has been quite low to meet the requirement. In addition, management approaches such as community-based were improved at a number of sites.

Three coral reef sites in China have been managed as National Nature Reserves or National Parks with areas around 20,890ha in total with management capacity at medium or high levels. Some specific regulations were enacted for enhancement of management effectiveness, such as the Regulations on the Protection of Coral Reefs, the Regulations on the Protection of Coral Reefs and Tridacna or the Plan for the prevention and control of marine pollution.
Among 8 target coral reef sites in Indonesia, information on achievements was described for 2 sites. The coral reef ecosystem on Bangka Island (2,375ha) has been managed as Marine Protected Areas. The coral reefs management on Belitung Island (1,321ha) is a marine conservation area managed by the local government. Anambas (30,329ha) was reported as a MPA but no detailed description for confirmation.

In Indonesia, the total area of coral reefs across 7 SAP target sites under management until 2021 was 18,100 ha with medium or good capacity for management of 9,539ha. Amng them, Anambas with 1,263ha of coral reefs was reorganized as National MPA in 2014, Bangka (3,305ha) as Regional MPA in 2013, Belitung (2,470ha) as Regional MPA in 2011, Senayang Lingga as Regional MPA in 2014, Natuna (4,774ha) amended as Regional MPA in 2008. Implementing the Strategic Action Programme also considered the management effectiveness across all seven sites. Three coral reef sites, Bangka, Belitung, and Karimata, are Fisheries Refugia project sites

Available data on implementing the SAP for the Philippines at 4 sites (per 8 target sites) indicated that 4,821ha of coral reefs have been managed until 2021 with capacity at medium level. Establishments of small scale MPAs with leading role of local governments has been common tools for coral reef management at most these sites.

As preliminarily reported, 52,423ha at 11 coral reef sites in Thailand have been managed until 2021. Among them, management capacity at 4 sites (27,490ha) were at high level with establishments of key management tools such as licensing and entry permits, seasonal closures, zoning scheme, and conducting surveillances and law enforcement (Mu Koh Chumphon, Mu Koh Chang, Mu Koh Ang Thong, and Mu Koh Samet). Meanwhile, policies and legal reform were developed at 10 sites (52,008ha in total).

With the degree deivered by the Prime Ministre in 2010, the network of MPAs in Vietnam was establsihed. Most of them focussed on coral reef conservation. Eight target coral reef sites in Vietnam with a total area of 5,776ha have been managed until 2021 in the form of MPAs or National Parks. Five of them had management capacity at medium and high levels with total area of 2,937ha. Co- management was applied successfully at 2 sites.

For seagrass focal area
Three areas in Cambodia totaling 6,793ha were considered under sustainable management with supporting laws and regulations developed during 2008-2021. Two MPAs were newly established in this period with an area of 3,187ha in total.

Five sites in China with seagrass area of 1,893ha in total were under sustainable management with supporting laws and regulations. Among them, Hepu site totaling 540ha with 81.7ha seagrass bed (data in 2020) has been a National Dugong Reserve with medium management effectiveness since

2008. Management plans for 3 existing MPAs with significant seagrass areas were amended during 2008-2021.

Among 7 target seagrass sites in Indonesia, East Bintan has already been declared by District Decree no 267/vi/2010 as the seagrass conservation area. It resulted from the collaborative activity of Local Government, P2O LIPI, and UNEP GEF under the MSP project to assist the local government in improving the management of coastal ecosystems in a sustainable manner. This was the first Seagrass Management Plan in Indonesia that was formally declared by local government. Bintan Marine Protected Area, Riau Islands Province was designated by the Minister of Maritime Affairs and Fisheries in accordance with KEPMEN-KP-18 of 2022 to be managed as an Aquatic Tourism Park. In Mapur island, local fishermen were empowered with environmentally friendly fishing methods and tourist activities such as snorkeling and diving were monitored so as not to damage coral reefs and marine ecosystems

A total of 2,879.49 hectares contributed to implementing the SAP for seagrass in the Philippines (SAP target was 6,920ha at 3 sites). Bolinao seagrass reserve with 60ha was established by Municipal Ordinance No. 2007-02. Bolinao became a member LGU of BBBIDA MPA Network through Municipal Ordinance No. 2007-02. A MOA was signed among the network members on December 21, 2018, but no management plan was approved for their MPAs. Community-based/Joint Management has been an approach in site management in the municipalities of Looc and Lubang. Although the areal extent could not yet be ascertained at this time, the Looc Bay Managed Access Area + Sanctuary was declared by Municipal Ordinance No. 82 on March 09, 2020. The total hectarage of seagrass beds within this conservation area has not been determined.

No seagrass site in Thailand was targeted for management through SAP implementation. However, there existed many activities to implement the SAP and Seagrass NAP supported by central and local governments during the last decade. Three seagrass areas totaling 2,534ha have been under sustainable management with supporting laws and regulations. One MPA (1,337ha) was amended and 2 other MPAs (1,197ha in total) were newly established in 2018.

Around 9,196ha of seagrass beds in 3 among 4 target sites in Vietnam were considered under sustainable management during implementing the SAP since 2008. Management plans for 01 existing MPA with significant seagrass area (200ha) was amended and new MPAs were established at 2 sites (8,916ha in total).

For wetland focal area

Koh Kapik Ramsar Site (KKRS) in Cambodia has been declared since 1999 but specific zoning of KKRS was done in 2009 even after the established PKSW with the support of IUCN. There is no specific management plan of this estuary made available. However, a five-year Management Plan for Peam Krasop Wildlife Sanctuary (2018-2022) was developed and also applied for KKRS as 60% of its total area overlaps under PKWS.

Integrated management plans for six wetland SAP target sites in China with 20,276ha in total were developed and under implementation. During 2008-2021, 4 National Wetland Parks were established at different sites with a total wetland area of 1,355ha.

Regarding wetland management in Indonesia, Sembilang National Park Long-term Management Planning 2020 – 2029 was developed for integrated management of Sembiang estuary

(267,592ha) following designation of Berbak-Sembilang Biosphere Reserve in 2018 and Indonesia's Ramsar site (2011).

Management plans were developed for 3 wetland sites in the Philippines totalling 152,506ha, much more than 54,515ha as SAP target. Among them, 2 MPAs (41,167ha in total) were newly established during 2008-2021.

Integrated management plans were developed and under implementation for 5 wetland sites (161,682ha in total) in Thailand, including 2 SAP target sites. Two sites with a total area of 20,022ha were declared as Ramsar sites during 2008-2021.

The SAP targets Vietnam wetlands included 2 coastal lagoons, 3 estuaries and 1 tidal mudflat totaling 264,110ha. The conservation areas were established in 2 among these 6 sites. the Provincial People's Committee (PPC) of Thua Thien Hue has established the Tam Giang-Cau Hai Wetland Protected Area in 2020. the Thai Thuy Wetland Protected Area in Ba Lat estuary was established in 2019 by the Thai Binh PPC. The integrated management plans were developed and implemented for Dong Nai estuary and Ca Mau National Park where were recognized as Biosphere Reserves.

Regional comparative analysis

The comparison analysis below, based on updated country reports upon August, 2024, provides the figure on level of achievements in implementing the SAP toward the targets designed in 2008. More detailed data for tracking achievements by each regional output can be seen in Annex 1.

As reported, many mangrove areas were declared as National Parks or Protected Areas before 2008, but fewer during 2008-2021 with more than 15,400ha in total (26.8% compared with the target). Designation and plans for management achieved at high rate, nearly 65% but reforms of laws and regulation for sustainable use were conducted for limited mangrove area, achieving only nearly 29% of the targets. The figure on restoration looks good, around 75% for replanting and 36% for enrichment planting compared with the targets. Data on monitoring is quite poor and trends of changes have not described for many sites. Given the fact that mangroves are critical habitats in the coastal waters bordering the South China Sea, further inputs from countries are required to understand real improvements in mangrove management and to plan continuous actions in the region.

Until 2021, 32 per 46 prioritized coral reef sites have been managed at different management effectiveness, totalling 67,532ha or 61.1% in hectarage compared with the target. Diverse mmanagement tools such as seasonal closures, zoning, MPA development) were developed and utilized to address key threats at priority sites. Community-based management or involvement of private sector were applied widely at small scale within coral reef sites. Coral reef monitoring was conducted at 34 sites, including the sites not under management, considering participation of scientist organizations. There existed a concern that 14 prior coral reef sites have not been managed as expected.

Seagrass management has been improved clearly during implementing the SAP adopted in 2008 when seagrass beds had considered less than coral reefs and mangroves in a number of countries bordering the SCS. Until 2021, 14 seagrass sites were considered as under sustainable management with supporting laws and regulation, their total area is about 25,070ha, 96.3% compared with the SAP targets. Eight MPAs were newly established focusing on seagrass habitats

and management plans of 5 existing MPAs were amended to increase seagrass management. Generally, the targets on seagrass related MPAs were achieved.

Integrated management plans for wetland management were developed during 2008-2019 at 19 targeted and non-target sites, totaling 564,012ha equivalent 66.9% of the target in hectare. Number of wetland areas declared with protection status looks good, 1.6 times more than the target (11/7 areas), considering that some small protected areas were established in large wetlands. Monitoring of wetland status and description of trends of changes would be considered as weakness of wetland management in most countries.

Annex 1. Summary and comparative analysis of achievements in implementing the SAP on habitat management

Table 1. Mangrove SAP targets and summarized achievements (ha) in implementing the SAP during 2008-2021

Regional targets (SAP, 2008)	Cambodia	China	Indonesia	Philippines	Thailand	Viet Nam	Total & % compared the target
Output 1.1.1 Declaration of 57,400 ha of mangrove as National Parks and Protected Areas	9,351	0	N/A	6,059	0	0	**15,410ha** **26.8%**
1.1.2 Designation and plans for the management of 166,600 ha of mangrove as non-conversion, sustainable use areas	24,627	N/A	74,459	N/A	N/A	8,900	**107,986ha** **64.8%**
1.1.3 Reform of laws and regulations for the sustainable use of 602,800 ha of mangrove forest	N/A	5,431	32,328	6,059	36,027	93,675	**173,520ha** **28.8%**
1.1.4 Replanting of 21,000 ha of deforested mangrove land	104	680.8	5,000	784	7,000	1,103	**15,672ha** **74.6%**
1.1.5 Biodiversity increased for 11,200 ha of mangrove forest via enrichment planting	N/A	3,907	N/A	N/A	N/A	N/A	**3,907ha** **34.9%**
1.1.6 Established mechanism for monitoring management, ecological and socio-economic indicators at 26 sites [based on SAP results framework]	N/A	5	5	4	N/A	N/A	**14 sites** **53.8%**

Table 2. Coral reef SAP targets and summarized achievements in implementing the SAP until 2021

Regional targets (SAP, 2008)	Cambodia	China	Indonesia	Philippines	Thailand	Viet Nam	Total & % compared with the targets
1.2. 110,430 ha of coral reef at 46 priority sites managed sustainably (ha)	1,854	20,891	9,539	4,821	27,490	2,937	**67,532ha** **61.1%**
1.2.1 Management capacity (number/levels human resources, facilities and equipment, and sustainable financing mechanisms) built for 46 coral reef sites	6	3	6	4	4	8	**27 sites** **58.7%**
1.2.2 Management approaches (integrated, community-based, multiple use) improved at 46 coral reef sites	7	3	6	4	10	2	**32 sites** **69.6%**
1.2.3 Management tools (licensing and permit systems, seasonal closures, zoning) developed and utilized to address key threats at priority sites	4	3	6	4	4	8	**29 sites** **63%**
1.2.4 Established mechanism for monitoring management, ecological and socio-economic indicators at 46 sites [based on SAP results framework]	4	3	6	4	12	8	**34** **73.9%**
Targets (ha and sites) for management of SAP (2008)	2,260 (7)	0	18,091 (7)	12,500 (9)	72,000 (14)	5,570 (9)	**46 sites**

Table 3. **Seagrass SAP targets and summarized achievements in implementing the SAP during 2008-2021**

Regional targets (SAP, 2008)	**Cambodia**	**China**	**Indonesia**	**Philippines**	**Thailand**	**Viet Nam**	**Total & % compared with the targets**
1.3.1 Twenty seagrass areas totaling 26,036 ha under sustainable management with supporting laws and regulations	6,793	1,893	1,775	2,879	2,534	9,196	**25,070ha** **96.3%**
1.3.2 Amended management plans for 7 existing MPAs with significant seagrass areas, to include specific seagrass-related management actions and policy, legal and institutional reforms	0	3	0	0	1	1	**5** **71.4%**
1.3.3 Designation of 7 new Marine Protected Areas focusing on seagrass areas identified in the prioritized listings of the SCS Project	2	0	1	1	2	2	**8** **114.3%**
1.3.4 Established mechanism for monitoring seagrass habitat management for 20 sites	2	3	1	2	3	2	**14** **70%**
Targets (ha & site) of the SAP adopted in 2008	11,446 (2)	1,960 (4)	2,420 (7)	6,920 (3)	0	5,050 (4)	**20 sites**

Table 4. Wetland SAP targets and summarized achievements in implementing the SAP during 2008-2021

Regional targets (SAP, 2008)	**Cambodia**	**China**	**Indonesia**	**Philippines**	**Thailand**	**Viet Nam**	**Total & % compared with the targets**
1.4.1 Integrated management plans developed and under implementation for at least 2 lagoons (21,818 ha), 10 estuaries (639,418 ha), 5 tidal flats (96,903 ha), 1 peat swamp (45,700 ha) and 1 non-peat swamp (9,808 ha) (*813.647ha in total*)	12,000	20,276	267, 592	152,506	161,682	93,645	**564,012ha** **66.9%**
1.4.2 Declaration of 7 wetland areas with protection status (i.e. non-hunting area, nature reserves, protected areas, Ramsar Sites)	0	4	1	2	2	2	**11** **157.1%**
1.4.3 Adoption of a regional monitoring scheme and its national implementation (19 sites)	1	2	1	3	N/A	N/A	**7** **36.8%**
Targets (ha & site) of the SAP adopted in 2008	12,000 (1)	20,276 (6)	267, 592 (1)	54,515 (3)	55,508 (2)	264,110 (6)	**19 sites**

UNEP/GEF Implementing the Strategic Action Programme for the South China Sea and Gulf of Thailand (SCS SAP Project)

Achievements in implementing the SAP on Land-based Pollution, 2008-2021

1/ National policies and laws, and financial mechanism for the management of land-based sources of pollution

1. 1. Update of legislative and institutional frameworks for land-based pollution management in participating countries (using multi-sectoral approaches)

Baseline in 2008: Effectiveness of existing legal and institutional frameworks limited by predominantly single sector approaches

Legislative and institutional frameworks	**Time**	**Remark**
Cambodia		
Sub-degree on Management of Garbage and Solid Waste of Downtowns	2015	No. 113
Sub-degree on Electronic Waste	2015	
Sub-decree on wastewater management and treatment system	2017	
Sub-decree on the Management of Plastic Bags	2017	No. 168
Sub-decree on product and plastic waste management		On-going
China		
Environmental Protection Law	2014	Revised
Marine Environmental Protection Law	2017	Amended
Solid Waste Pollution Prevention and Control Law	2020	Amended
Environmental Impact Assessment Law	2018	Amended
Wetland Protection Law	2021	
Indonesia		
Solid Waste Management Act	2008	No. 18/2008
Environmental Management Act.	2009	No. 32/2009
Philippines		
Three (3) Major Laws of the Philippines That Concern on the Management of Land-based Pollution: ● Clean Water Act (CWA) (Republic Act [RA] 9275; 2004); ● Ecological Solid Waste Management Act (ESWMA) (RA 9003; 2001); ● Toxic Substances and Hazardous and Nuclear Waste Management Act (TSHNWMA) (RA 6969; 1990)	<2008	
Thailand		
Marine and Coastal Resources Management Promotion Act, B.E.2558	2015	
The Water Resource Act, B.E. 2561	2018	
Vietnam		

Strategy for sustainable development of Vietnam's marine economy by 2030, vision to 2045	2018	Resolution No.36/NQ-TW
Law on Natural Resources and Environment of Sea and Islands	2015	
Law on Environmental Protection	2020	Updated from 2014 one

1.2. Revision/development and enactment of national/provincial policies and supporting regulations for land-based pollution management

Baseline in 2008: Absence of clear and effective policies, laws, and regulations relating to control of land-based pollution

National/provincial policies and supporting regulations	Time	Remarks
Cambodia		
The Royal Government introduced a levy on plastic bags	2018	Applied at supermarkets and shopping centers
National Policy on urban solid waste management 2020-2030	2020	
Sub-decree on establishment of urban waste management	2021	
National Circular Economy Strategy and Action Plan 2021-2030	2021	
Plastic action plan and roadmap for Cambodia		On-going
China		
The Implementation Plan for Controlling Pollutant Emission Permit System	2016	
The Action Plan for Water Pollution Prevention and Control	2015	
The 13th Five-Year Plan for Wastewater Treatment Systems and Recycled Water Re-use Facilities Construction in Urban and Rural Cities	2016	
Three-Year Action Plan for Improving Efficiency of Urban Sewage Treatment (2019-2021)	2019	
National Programme for the Prevention and Control of Pollution in coastal sea area	2017	
Implementation plan of agricultural diffuse pollution prevention and control	2015	
Action plan for agricultural and rural pollution treatment and control	2018	
The Key Points of Aquaculture and Rural Green Development in 2019	2019	
Implementation Plan of Water Pollution Prevention and Control in Guangdong Province	2015	
Implementation Plan for coastal water pollution Prevention and Control in Guangdong Province	2018	
Three-Year Action Plan for Improving Efficiency of Urban Sewage Treatment in Guangdong Province (2019-2021)	2019	

Implementation Plan of Water Pollution Prevention and Control in Guangxi Zhuang Autonomous Region	2015	
Three-Year Action Plan for Improving Efficiency of Urban Sewage Treatment in Guangxi Zhuang Autonomous Region, (2019-2021)	2019	
Implementation Plan of Water Pollution Prevention and Control in Hainan Province	2015	
Three-Year Action Plan for Improving Efficiency of Urban Sewage Treatment in Hainan Province (2019-2021)	2019	
Regulations on the Prevention and Control of Water Pollution in Guangdong Province	2021	Amended
Regulations on the Prevention and Control of Water Pollution in Guangxi Zhuang Autonomous Region	2020	
Regulations on the Prevention and Control of Water Pollution in Hainan Province	2017	
Indonesia		
Government regulation on environmental maritime protection, focusing on seaport facilities	2010	No. 21/10
Ministerial Decree on Water pollution control procedures	2010	No. 01/2010
Government regulation on domestic waste management and waste categories as domestic waste	2012	No. 81/2012
Ministerial Decree concerning procedures for implementing reduction, reuse and recycling through waste banks.	2012	PermenLH no. 13/2012
Ministerial Decree on Wastewater quality standards	2014	No. 5/2014
National Action Plan for Maritime Policy 2016-2019	2016	
Presidential decree on Indonesia maritime policy	2017	No. 16/2017
National policies and strategies for domestic waste and waste similar to domestic waste	2017	No. 97/2017
Presidential Regulation on marine litter handling, followed by National Action Plan for handling marine litter in 2018 – 2025	2018	No. 83 / 2018
Ministerial Decree on solid waste reduction roadmap by producers	2019	Permen LHK no. 75/2019
Government Regulation on Specific Waste Management	2020	PP 27/2020
Decree of MOEF on requirement and mechanism for dumping of waste to the sea	2021	No. P.12/MENLHK/ SETJEN/ KUM.1/4/2018
Government Regulation which explicitly mentioned the Protection Ocean Health and Management (preventing marine litter, coastal degradation, and also including sea water quality standards)	2021	No. 22 of 2021

Minister of Env. and Forestry decree concerning waste, on the waste bank	2021	No. 14/2021
Establishment of the RC3S office (Clean Sea Regional Capacity Center) which aims to increase capacity at the regional level in preventing marine pollution from land-based sources	2018	
Philippines		
Guidelines for Water Quality Management Area Action Planning and LGU's Compliance Scheme	2013	EMB MC 2013-06
Adoption of Integrated Water Quality Management Framework	2013	DAO 2013-08
Institutionalizing the Manila Bay Environmental Management Project within the DENR through the Implementation of the Operational Plan for the Manila Bay Coastal Strategy (OPMBCS)	2007	DAO 2007-28
Adoption of the National Plan of Action for the Prevention, Reduction and Management of Marine Litter (NPOA-ML)	2021	DMC 2021-10:
Procedural Manual for the Designation of Water Quality Management Areas (WQMA)	2009	DENR MC 2009-15
Thailand		
Master Plan on Water Resource Management (2018-2037)	2018	
Thailand's Roadmap on Plastic Waste Management 2018 -2030 and Action Plans on Plastic Waste Management Phase 1 (2020-2022) & Phase 2 (2023-2027)	2018	
Action Plan on Enhancing Water Quality in Songkla Lake River Basin 2021-2027	2021	
Environmental Quality Management Plan 2017-2021	2017	
The second national environmental health strategic plan 2012-2016	2012	
Vietnam		
National action plan on ocean plastic waste management to 2030	2019	Decision No. 1746/QD-TTg
The national strategy on integrated solid waste management up to 2025 with a vision to 2050	2018	Decision No. 491/QD-TTg

1.3. Harmonized national Standard Operating Procedures for land-based pollution control and management [including agreed sediment, biota, & water quality criteria]

Baseline in 2008: Lack of Standard Operating Procedures for land-based pollution management

SOPs or Guidelines	Year	Remark
Cambodia		
Prakas on water quality indicators	2021	
Prakas on persistent organic pollutants promulgation from outbreak	2020	

Prakas on technical guideline on equipment installation and waste water treatment process	2022	
China		
Technical specification for offshore environmental monitoring including seawater quality, sediment, biological quality monitoring and monitoring for pollution sources directly discharged into sea and its impact on offshore water environment	2020	HJ442-2020
Technical guideline for the development of water pollutant discharge standards in watersheds	2020	HJ945.3-2020
Manual for produced pollutant and discharged pollutant coefficient of National Survey of Pollution sources of China	2020	
The 26 Industrial Discharge standards of water pollutant such as electronic industry,	2008-2021	
Technical guideline for three-level inspection of sewage outfalls into environmental water bodies	2021	HJ1232-2021
Standard for conservation effectiveness assessment of ecology and environment in nature reserve (on trial)	2021	HJ1203-2021
Guide Rule of Rural domestic sewage treatment	2018	GB/T 37071-2018
Technical Guidance for ecological restoration of river and lake buffer zone	2021	
Indonesia		
Minister of Health decree concerning community-based wastewater management system procedures		No. 852/Menkes/ SK/IX/2012
Minister of Public Work and Housing concerning Procedure for waste water management system		No. 04/PRT/M/2017
Minister of Env. and Forestry decree concerning procedures for waste water discharge permit		No. P.102/MENLHK/ SETJEN/KUM.1/11/2018
Minister of Env. and Forestry decree concerning PROPER, company performance rating in environmental management,	2021	No. 03/2014 as revised to no.1.2021
Philippines		
EMB Approved Methods of Analysis for Water and Wastewater		EMB MC 2016-012
Water Quality Monitoring Manual, Volume I – Ambient Water Quality Monitoring Manual; Volume 2 – Effluent Quality Monitoring Manual		EMB MC 2008-008
Adopting the Guidelines on the Waste Analysis and Characterization Study and its Related Manual		NSWMC Resolution No. 1380 Series of 2020
Thailand		
Surface water quality standards	?	
Seawater quality standards	?	
Guideline on Coastal Sediment Quality Standards	?	
SOP on Water Sampling from pollution generated sources	2010	
SOP on Seawater Quality Monitoring	2009	
SOP on Standard Designation and Review on controlling discharge from sources	2019	
Vietnam		

National technical regulations on seawater quality	2015	QCVN 10-MT:2015/BTNMT

1.4. Updated and adopted National Investment Plans for land-based pollution management in the SCS

Baseline in 2008: Guidelines for assessing the economic impacts of land-based pollution developed but not yet applied as part of benefit-cost analysis of pollution management in the SCS

China: According to incomplete statistics, the central government invested a total of about 5.5 billion yuan (RMB) in the past five years in Guangdong, Guangxi and Hainan by the means of the special fund for water pollution prevention and control, and fund for marine ecological protection and restoration, and fund for urban sewage and garbage treatment facilities and sewage network projects

In the long run, national public finance sector transfers together with market -based instruments are the only sustainable source of financing for the environment protection.
The central government established special funding mechanisms to support the marine ecological protection, such as the Fund for Water Pollution Prevention and Control, Fund for Key Ecological Protection and Restoration, Funds for Marine Ecological Protection and Restoration and Fund for Rural Environmental Improvement, and formulated the regulations for these special funds successively. In addition to public specific funds, market-based instrument mechanisms were set up. For instance, China Public Private Partnerships Center (CPPPC) was established.

Indonesia: National investments for different activities, including:

- Development of communal domestic waste treatment facilities in densely populated areas
- Developing wastewater treatment plants in several urban areas.
- Construction and revitalisation Final Disposal Facilities.
- Construction of flats or new settlement to move residents who originally lived in slum areas
- Assistance to local governments in term of facility such as garbage collector motor, truck etc.

Private sector has been also engaged through Community Social Responsibility (CSR)

Thailand: Budget allocation for each fiscal year for water quality and wastewater management, environment management, waste management and air-quality management. For example, 1,139 millions baht equivalent to 55% of the total for water quality and wastewater management in 2021.

1.5. National best practices in waste water management, law enforcement, and community and industry participation in managing land-based sources of pollution documented and shared

Baseline in 2008: Lesson learned in community-based wastewater management in Batam, Indonesia documented and shared regionally although other examples from East Asian seas region largely focus on broad scale ICM planning

Cambodia:

- Setting up working group by MoE on water quality controlling and monitoring and then sent the group member to take water sample from the public water for detecting the pollution substances from urban areas. As result, the water quality is under standard.
- Installed and operated small treatment plant for wastewater in Preah Sihanouk Ville
- Conducted the research study to define the pollution factors surrounding Mekong River by cooperation among Ministry of Environment, WEPA, Royal University of Phnom Penh and Cambodia Technology Institute
- Development of the plastic management website (https://combattingmarineplastic.moe.gov.kh)
- Awareness raising on plastic pollutions through videos and educational and promotional materials
- Certification for environment best performers – to incentivize best practices for managing plastic waste

China: A number of integrated management practices on land-based pollution were developed, including:

- Maozhou River Watershed Management Practice in Shenzhen, Guangdong;
- Integrated water environment treatment of Lianjiang River in Guangdong;
- Integrated Qing'ao Bay watershed management practice, Shantou, Guangdong;
- Integrated watershed management practice in Qinjiang River, Guangxi;
- Wuyuan River Watershed management practice in Haikou, Hainan.
- The mariculture tail water treatment in high level ponds of Zhanjiang city, Guangdong.

Indonesia

- Developing activities such as Beach Clean Up, installing trash boom in the river before reaching the sea.
- Develop clean river program such as PROKASIH, Citarum Harum.
- Community participation in 3 R program, Trash Bank Program.
- Industry participation in PROPER Program.
- Participation of local government, shops, supermarkets, community., in reducing plastic waste by encouraging to reuse of environmentally friendly bags

Philippines

- Capacity Development on Improving Solid Waste Management through Advanced/Innovative Technologies
- Clean Water Program
- Philippine Minamata Initial Assessment
- Reducing Environmental and Health Risks to Vulnerable Communities from Lead Contamination from Lead Paint and Recycling of Used Lead Acid Batteries
- Strengthening of the National Research and Development Program for the Prevention and Control of Water Pollution

Thailand:

- Regulation on wastewater effluent standards
- Working groups on development of wastewater effluent standards
- Manual of Wastewater Management on small enterprises that produce certain types of goods or services

- Manual of Wastewater Management on pig farming business
- Manual of Wastewater Management on aquaculture and coastal aquaculture
- Manual of Wastewater Management on ranch
- Manual of Wastewater Management on municipality and household
- Modeling for estimation of pollution carrying capacity in four main rivers

Vietnam

- Project: Controlling marine environmental pollution due to socio-economic activities in the sea areas of Quang Ninh - Hai Phong, Da Nang - Quang Nam, and Ba Ria Vung Tau - Ho Chi Minh City, implemented by VASI in 2013
- Project "Reducing Ocean Plastic Waste in Vietnam" from 2020 to 2023
- The project "Strengthening propaganda on management, protection and sustainable development of Vietnam's seas and islands"

2/ Status in improving water quality in identified hot spots and monitoring stations

2.1. Targets in the SAP

The specific targets for improving water quality are to meet ASEAN seawater quality (14 parameters) criteria (except pollutants from scientifically identified natural sources, if any) for:

- 90% of monitoring stations in the 17 hot spots characterized by the RWG-LbP between 2002 – 2004;
- 80% of other monitoring stations (more than 400 at that time) in coastal waters of the South China Sea.

The concrete numbers of hot spots and monitoring stations as targeted for implementing the SAP in participating countries are presented in table 1.

Table 1. Targets for improvement of water quality in hot spots and monitoring stations of each country

Targets	Cam	China	Ind	Phi	Thai	Vie
90% of hot spots meet water quality criteria	3	3	3	3	2	3
80% of water monitoring stns meet water quality criteria	6	80	80	7	136	17

2.2. Status of water quality in recent years

The data and information below were based on initial country reports presented in the first RWG-LbP meeting in December 2022. The inputs from Cambodia, China and Thailand indicated status in meeting targets designed in the SAP (Table 1). Figure 1 also showed positive trends of water quality improvements in Thailand in recent years.

Table 2. Ratio (%) of monitoring stations where water quality meeting ASEAN seawater quality until 2021

Targets in the SAP	Cam	China	Ind	Phi	Thai	Vie
90% monitoring stations of hot spots meet water quality criteria	60-70	NA, 94 & 100 (China Seawater Quality)	NA	NA	75 & 100	NA
80% of nationwide water monitoring stations meet water quality criteria	80-90	80	NA	NA	84	NA

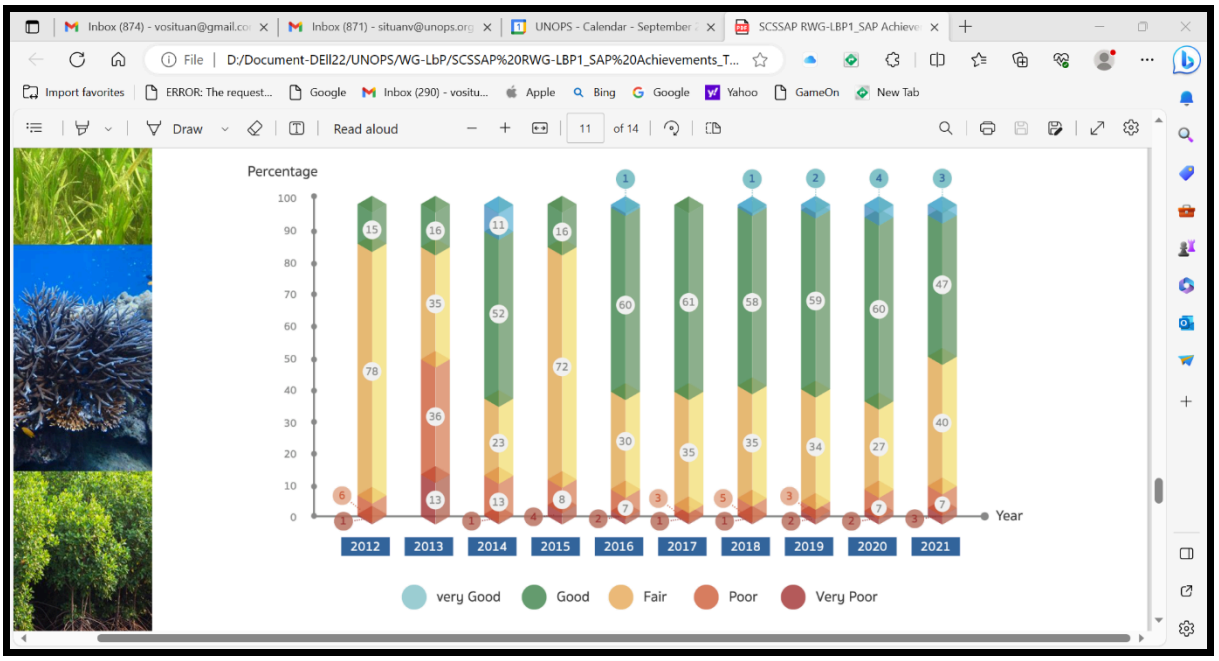


Figure 1. The diagram indicating improvement trend of water quality in Thailand during 2012-2021

3/ Challenges and lessons learnt in implementing the NAP during 2008-2021

3.1. Challenges

Cambodia

- Inadequate of financial source to support for NAP implementation, workshops, and other activities
- Capacity of officials is limited
- Inadequate infrastructure and equipment to deal with plastic waste
- Public awareness of people to participate in LBP management is limited

China

- China's coastal zone bordering the South China Sea has been developing rapidly.

- There are shortcomings in environmental infrastructure construction such as sewage network and waste treatment facilities in coastal towns and rural areas.
- There are a few of emerging problems and hot issues that the state concerns highly. These issues were not included in the activities of priority sites of the SAP.
- Capacity building needs to be further strengthened.
- Laws, regulations, policies, standards for Marine environmental governance need to be further improved, for example, in some places, Lack of local pollutant discharge standards in mariculture operations.

Indonesia

- Public awareness of certain groups still needs to be improved.
- There are still people in certain areas who have difficulty getting access to sanitation
- Government limitations in providing resources and financing.
- Systematic monitoring program for both sea water quality and marine litter (beach litter, floating litter, and benthic litter) and also riverine inputs since Indonesia has a large ocean area and thousands of watersheds.

Philippines

- The capacity of DENR-EMB to handle their responsibilities in the implementation of these various laws has been continuously upgraded. However, even with much effort, there are still gaps and necessities that are needed to be responded to.

Thailand:

- COVID-19 situation generated infectious wastes – masks, ATK, and plastic garbage from food delivery system -> leak to coastal areas
- Private and public involvement is very important for land-based pollution, not only the government sector.
- Raising awareness on entrepreneurs to reduce their wastewater is still needed.

Vietnam

- Although the rate of pollution, environmental degradation, natural resource and biodiversity loss has been controlled, it is still complicated, in some places and areas still at an alarming rate; especially emerging is pollution in some river basins, craft villages, air pollution in some big cities
- Infrastructure for environmental protection, although invested, is still lacking and weak, not meeting the requirements of reality.
- The volume of generated solid waste and hazardous waste is increasing, the composition structure is complicated, while the management capacity at local is still limited.

3.2. Lessons learnt

Cambodia

- Technical steps for developing NAP and implementation
- Report system by online
- Set up working group on water quality controlling and monitoring

China

- Completed governance reform of the organizational structure of ecological environment and natural resources:
- Improved law and regulation systems and formulated more than 20 pollutant discharge standards related to land-based pollution control and prevention:
- The goals and tasks of the SAP were integrated into national /local policy framework and action plans for land-based pollution control:
- Taking an ICARM (integrated coastal area and river basin management) approach, to implement comprehensive measures.
- Established the financing mechanisms to support water pollution control and prevention.

Indonesia

- Some programs that implemented by the government, such as PROPER, Waste/Trash Bank, PAMSIMAS, are quite effective ways to control pollution from land-based of sources.
- To control pollution from land-based sources requires a relatively large investment, the role of the central government is very important in assisting the lack of capacity of local government.
- To change people's behavior to care about the environment, it is necessary to ensure that their activities provide economic benefits.

Philippines

- Maximizing communication/networking with LGUs, the academe and other Government Agencies
- Importance of budget allocation
- Capacity-building of personnel thru online workshop/webinars
- Information dissemination to stakeholders e.g., NGAs, LGUs, NGOs, POs, and the Youth

Thailand

- Permit system for wastewater should be implemented in Thailand, in order to reduce amount of pollution into water
- Strong punishment should be applied
- Admire and reward for the good practice of manufacturers or communities are essential,
- Promote more on using less chemical on agriculture and aquaculture

Vietnam

- Economic development must be in harmony with nature, respect the laws of nature, do not trade the environment for economic growth.
- Environmental protection is the responsibility of the whole political system and the whole society, in which local authorities, businesses, communities and people play an important role.
- Land-based pollution control must be based on institutional quality improvement and effective and effective law enforcement
- Concentrating on environmental management of industrial parks, industrial clusters and craft villages; resolutely review the requirement to have a centralized wastewater treatment system, for large-scale waste dischargers, to install a system of equipment to control and monitor discharge activities; apply sanctions for establishments causing environmental pollution to comply with requirements on environmental protection to implement the technology conversion roadmap
- Increasing the mobilization of resources in the society in combination with increasing budget expenditure; effectively apply the principle that polluters must pay treatment costs and compensation, beneficiaries of environmental values must pay; continue to promote the participation of businesses, organizations, communities and people in environmental protection.