

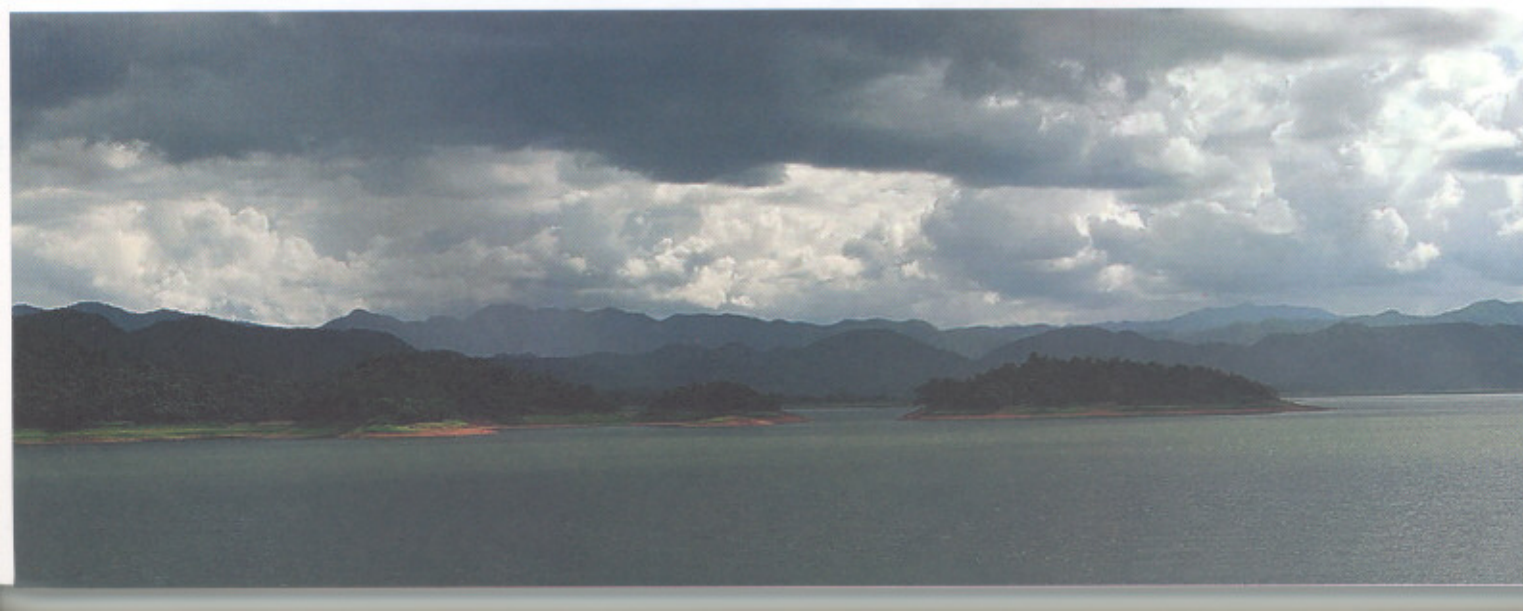
National Report on the Implementation of Convention on Wetlands *Thailand*



Office of Natural Resources and Environmental Policy and Planning
Ministry of Natural Resources and Environment

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Foreword

Thailand started serious and concerted efforts to implement its commitments under the Ramsar Convention since about 1993 based on an awareness and consideration of the importance of collaboration with the global community, and in order to stop the degradation of globally valuable wetland ecosystems.

Thailand became a Contracting Party to the Ramsar Convention in 1998 and this year many varied activities were arranged to celebrate this 10 year anniversary. In January 2008 the wetlands of Khao Sam Roi Yot National Park were registered as Thailand's 11th wetland of international importance or Ramsar Site number 1734 in the world.

This is the third annual report on National Implementation of commitments under the Ramsar Convention and is focused on presenting activities aimed at mainstreaming wetlands issues in Thailand, including mainstreaming to education, mainstreaming to communities and mainstreaming to private organizations. Thailand has supported the conservation and restoration wetlands at both the local and national levels as well as encouraging private sector implementation that leads to successful wetlands management and collaboration of all sectors of society

The Office of Natural Resources and Environmental Policy and Planning would like to extend its sincere gratitude to relevant public and private organizations, local administrators, NGOs, and the entire Thai citizenry for contributions to wetland conservation in Thailand. We would also like to thank WWF Thailand for their assistance in translating this report.

The Office of Natural Resources and Environmental Policy and Planning



Overview of Wetlands in Thailand

General Situation of Wetlands in Thailand

Wetlands in Thailand are mostly fresh water resources that are both still water and flowing water, they are, for example, canals, streams, rivers, waterfalls, swamps, reservoirs, dams, lakes, peat swamps in savanna forest, freshwater swamps in evergreen forest, lower wetland basins, floodplains in the agriculture area, and shoreline wetlands e.g. rivers, estuaries, beaches, mud flats, mangrove forests and coral reefs. Total surface area of wetlands in Thailand is approximately 36,616.16 sq.km or 7.5% of the total area of the country. Of this area 83% are natural wetlands e.g. canal, stream, and river, the remaining area is made up of rice fields covering 91,817 sq.km or 17.8% of the total.

Wetlands Biodiversity

The biodiversity wealth of wetlands in Thailand can be rated as very high. Both of freshwater and coastal marine wetlands protect a wide diversity of habitats that are home to a wealth of species, for example 755 bird species from 19 families are found in wetlands with 28 of these resident species on the IUCN endangered list. For example White-winged Duck: *Cairina scutulata*; Great Thick Knee: *Esacus recurvirostris*; Woolly-necked Stork: *Ciconia episcopus*, 51 species are vulnerable, including: Roseate Tern: *Sterna dougallii*, Purple Heron: *Ardea purpurea*. 824 species of 35 different fish families are found in the wetlands area with 18 species listed under the mostly critically endangered list. They are Dwarf Clawed Loach: *Yasuhikotakia sidthimunk*, Club-barbel Sheatfish: *Ceratoglanis pachynema* for instance. There are 72 types of endemic species for example *Himantura kittipongi*, *Boraras micros*. At least 836 plants of 56 families were found: Jaggery Palm: *Caryota bacsonensis* Magalon; Sago Palm: *Metroxylon sagu*, *Indigofera unieata*. 15 Marine mammals are found including; Bryde's Whale: *Balaenoptera edeni*, Sperm Whale, *Physeter macrocephalus*; False Killer Whale, *Pseudorca crassidens*. 17 Terrestrial mammals were found: Indian Smooth-coated Otter: *Lutrogale perspicillata*; Oriental Small-clawed Otter: *Amblomyx cinerea*; Fishing Cat: *Prionailurus viverrinus*; Long-tailed Macaque: *Macaca fascicularis*. 29 Reptiles are associated with wetlands in Thailand of which key species are; Hawksbill Sea Turtle: *Eretmochelys imbricat*; Green Sea Turtle: *Chelonia mydas*; Olive Ridley Sea Turtle: *Lepidochelys olivacea*; Orange-winged Flying Lizard: *Draco maculates* and the Mangrove Snake: *Boiga dendrophila melanota*.



Threats and Problems for Wetlands

The principle threat to wetlands in Thailand is from poor planning that fails to recognize the value and functions of the wetland. Developers are unaware of the wetland's importance and inherent value which is exacerbated by a lack of enforcement of land planning and construction regulations.

The key threats to the different types of wetlands are as follows;

Ponds and Lakes; Dredging, landfill and pond reclamation causes in disruptions in natural water flows, reduces the natural water level and creates barriers to aquatic animal movements, such as; the construction of perimeter roads around the water body, such as at Bung See Fai in Pichit Province and at Nong Han Koupwahbe in Udon Thani Province, resulted in the water bodies becoming shallow and the number and diversity of aquatic animals being reduced. The infill and compaction of land for the construction of education institutes and government offices is a similar problem at Bung Borapet and Bung Senart in Nakorn Sawan Province.

Rivers; Many rivers channelization and diversion schemes affect numerous rivers, encroachment of river banks, results in the water course becoming shallower such as in the Yom River in Sukhothai Province, and in the Loei River in Loei Province.

Swamps; Conversion of swamps to agricultural land by draining such as has occurred at Bar Joa swamp in Narathiwat Province, which was converted for palm oil plantations. The landfill and compaction of swamps for the construction of factories, for industry such as at Mae Ram Peung swamp in Prachuap Khirikhan Province is another major threat.

Beaches; Encroachment for tourism developments, for hotel, restaurants construction such as at Had Chao Mai National Park, in Trang Province, and for numerous restaurants constructed on beaches in Phuket Province.

Islands; Encroachment for tourism developments that are beyond the carrying capacity of the locality, this creates numerous problems with a major one being pollution from effluent outflow.

Mangroves; Conversion for shrimp farm construction, removal to construct piers, boat jetties and connecting roads as has happened in the mangrove forests in Nakorn Si Thammarat Province and at the Welu River Estuary in Rayong Province.

Seagrass and Coral Reefs; Suffer widespread degradation from a variety of causes from the coastal land such as agricultural chemicals and sediment load, from irresponsible tourism, such as tourist boats anchoring in sensitive areas, tourists standing on corals and in seagrass beds, and from illegal fishery including illegal trawl and destructive push nets such as at Si Boya Island in Krabi Province.



Eleven Key Ramsar Sites

Presently, Thailand has 11 Ramsar sites, with another 4 sites that are actively being developed for designation as additional Ramsar sites.

1

Peat Swamp Kuan Khi Sian, Thale Noi Wildlife Non-hunting Area, Phattalung Province

Peat Swamp Kuan Khi Sian was the first Ramsar site in Thailand. It is the wildlife non-hunting area at Thale Noi, Phattalung Province, that coverage by Cajuput tree, *Lepironia articalata*, and Slender Rush subject to whole year flooding. In this area, 72 bird species are found, 2 breeds are endangered species; Purple Heron: *Ardea purpurea* and Black Kite: *Milvus migrans*. It is home to 34 fish, 29 reptiles and 8 mammals species. Problem issue is the degradation of water quality due to the increase in sediment and inflow of agriculture chemicals and eutrophication.



Wetlands of Bung Khong Long Wildlife Non-hunting Area, Nong Khai Province

Bung Khong Long is the huge fresh water lake located in Sega district, and Khong Long district, of Nong Khai Province. Traditionally the surrounded area was covered in dry forest where the local people could earn their living by collecting wild products e.g. mushroom, herbs and vegetables. These people fishing in the wetland especially small cage fish farming. 44 resident bird species are found in this area, at least 37 migratory bird species including; *Ardea cinerea*, *Ardea purpurea*, which are listed as endangered species and also *Motacilla alba*. Fish species total over 61 species mostly of the *Cyprinidae* family, about 21 species, 3 are the vulnerable species: *Claria batrachus*, *Claria macrocephalus* and *Indostomus spinosus*. 6 amphibian species, 10 reptile species and 2 mammal species. Water plants that grow in the wetland are of 3 main types: 1) Shallow water communities 2) Open water communities and 3) Overlaying dense and floating communities.

Presently, the surrounded agricultural area is being converted to rubber plantations, tobacco cash cropping and tourism developments which has increased the chemical runoff into the lake affecting the natural water chemistry.



Don Hoi Lot Wetlands, Samut Songkram Province

Don Hoi Lot is a huge mud flat, which is a major coastal marine fisheries particularly for different kinds of mollusk e.g. Razor Clam, Horse Mussel, Green Mussel. Endangered species that live here include the Brahminy Kite: *Haliastur indus*, Little Tern: *Sterna albifrons*. Commercially important species include the Edible-nest Swiftlet and the Razor Clam which is the most important commercial mollusk of the wetland. Currently, it is threatened by over fishing and terrestrial activities from the surrounding area.

During the last 5 years, the land use of the wetland in Don Hoi Lot has been transformed by the fishing industry, aquaculture and community expansion. These factors affect the wetland area especially from poor waste water management and disposal into the wetland.



Wetlands of Krabi River Estuary, Krabi Province

Coastal wetlands where the estuary system enters the sea; with the sea water meeting high-level flood tide from river creating; sub-canals, mud flat, mangrove, seagrass beds, sandy beaches, peat swamp, limestone mountains, and a 45 year-shell fossil pile. Krabi estuary is habitat to 25 mangrove plant species, e.g. *Rhizophoraceal*, *Xylocarpus*, *Avicennia alba*, Eye-blinding Tree, Sea Holly, etc.

84 types of beach forest species, 9 types of seagrass are found e.g. *Halophila oveais*. 111 bird species have been recorded including resident and migratory birds, most common include; Mongolian Plover, Terek Sandpiper, Greater Sand Plover, Lesser-crested Tern. Krabi Provincial Administration has appointed a wetlands committee to manage the area, to establish a wetland management plan.



Wetlands of Nong Bong Kai Wildlife Non-hunting Area, Chiang Rai Province

It is a vast freshwater swamp, covering an area of 4.34 sq.km, is habitat to 225 bird species, 79 species are migratory e.g. *Anas querquedula*; 100 resident bird species e.g. *Farancolinus pintadeanus*, and 23 species are partial migrants with both resident and migratory populations including e.g. *Fallinula chloropus*. The swamp is habitat to 19 species of endangered birds; 5 species critical endangered e.g. *Aythya nyroca*, *Aythya baeri*, *Vanellus cinereus*, *Ixobrychus eurhythmus* and *Mycteria leucocephala*. In 2008, a new report was published indicating several new species including: Sarus Crane, Knob-billed Duck and the endangered birds found e.g. Baer's pochard, Black Kite, Great Cormorant, Jerdon's bushchat, and the extinct species e.g. *Clarias batrachus* and *Clarias macrocephalus*.

Wetlands of Princess Sirindhorn Wildlife Sanctuary (Phru To Daeng Peat Swamp Forest), Narathiwat Province

Is one of the last vast peat swamps of Thailand, habitat to 29 species of birds recorded on international lists e.g. *Heliopais personata*, *Treron capelli*. In addition there are 60 species of birds found in the evergreen lowland forest, particularly insectivorous species e.g. *Cyornis turcosus*. The peat swamp locally called "Phru To Deang" is the only "bird spawning area" of Thailand. The major impact to the wetlands result from water utilization by the agricultural sector especially over extraction for irrigation that exhausts the level of water in the swamp resulting in drying out and increased risk of forest fire in the swamp.



Wetlands of Had Chao Mai National Park – Libong Islands Wildlife Non-hunting Area – Trang River Estuary, Trang Province

The area is a mixture of different wetland types. There are mangroves, mud flats, sandy beaches, coral reefs and seagrass beds. It is also a key habitat for conservation of globally endangered species including; *Egretta eulophotes*, also the *Heliopais personata*. Besides, two locally important resident species are: *Charadrius peronii* and *Halcyon amaurotera*. Important threatened plants species include: *Dipterocarpus grandiflorus* and *Dipterocarpus kerrii* (CR) and *Vatoca cinerea* (EN).

Current problem experienced in the wetlands is that land utilization by agriculture is expanding especially pressure from rubber tree and palm oil plantation. An additional threat is on infrastructure construction. As a consequence, these factors impact on the wetlands as more of swamp area is intruded as well as more sedimentation enters the wetlands from outside.

Wetlands of Laem Son National Park – Kapoe Estuary – Kra Buri River Estuary, Ranong Province

This is a mixture of different wetlands types in a vast area, there are mangroves, mud flats, sandy beaches, coral reefs and seagrass beds. This area is considered as a key ecosystem for the dependent communities living along the coast. It is the habitat, food area and the breeding area, which influences directly and indirectly, the socio-economic development of the coastal area.

Certain plants living in the wetlands include *Rhizophora mucronata*, Poir: *Rhizophora apiculata*, Blume: *Avicennia alba*, *Avicennia officinalis*, *Xylocarpus granatum*, Blinding tree, Portia tree, Poturb Jute. Animals living in this area include seasonal migratory birds e.g. Greater-sand Plover, Lesser-sand Plover, *Charadrius peroni*. Vulnerable birds species include *Heliopais personata*, breeding species include the Brown-winged Kingfisher, Mangrove Pitta and breeding birds include the; Cotton Pygmy-Goose, White Billied Sea-eagle, and Oriental Hobby. Aquatic species are Clownfish, Angle Fish, Sea Urchin, Bristle Star, Most common coral species are different types e.g. *Acropora clathrata*.



Wetlands of Ang Thong Islands National Park, Surat Thani Province

Most of the land area is dry evergreen forest, beach forest, limestone forest, and mangrove forest. At Ang Thong Islands, are home to 161 species of fish, 43 types of seaweed: blue-green algae, green algae, brown algae, red algae. 2 seagrass species found are *Halophila minor* and *Enhalus acoroides*. The island are habitat to numerous crab species with 46 species, including *Portunidae* and *Xanthidae*. Rare crabs including the first records in Thailand are; *Euxanthus*, *Xenocarcinus tuberculatus* and *Porcellanella*. Approximately 192 types of mollusk are found: 79 types are single-shell, and 113 types of bivalves.

20 mammal species are found, they are listed as critical vulnerable in the IUCN Red List 2004. One of them is *Macaca fascicularis* and the possibly extinct species: *Prionailurus viverrina*. Including a recently discovered new mammal species: *Emballonura monticola*.

117 plants recorded in the Ang Thong Islands are mostly growing in the dry evergreen forest, as Karst plant community on the cliffs, and in the mangroves. The most significant plants (in national, regional, and international significance) found is *Paphiopedilum niveum* that is a very rare and nearly extinct species, also the *Dialium cochinchinense* Pierre, *Leguminosae Caesalpinioideae* which is listed under the list of IUCN Red List 2004. 6 types of threaten plant family in Thailand Red List are *Cordia subcordata* Lam, Crown flower, Piss weed, *Trisepalum spesiosum*, numerous Figs and *Paphiopedilum niveum*.



Wetlands of Phang Nga Bay National Park, Phang Nga Province

The Phang Nga Bay National Park is managed under the authority of the National Park. It is treated as a protected area, the utilization of land is also for agriculture, for example rubber tree, palm-oil, fruits, shrimp farm and fisheries farm.

The National Park has an action plan for wetlands conservation, raising awareness of lesson-learned sharing the natural resources and the importance of the wetlands. There is a nature education center and nature trail in the protected area. Participatory conservation activities are arranged with the local community. This is also a good showcase of mangrove resources conservation and sustainable tourism development.

Plants found in the mangrove forest are *Rhizophoraceal mucronata* Poir, *Rhizophora apiculata* Blume, *Xylocarpus*, *Avicennia alba*, *Bruguiera cylindricall*, *Sonnertia ovata* *Intsia bijuga*, *Ceriops Decandra*. Terrestrial forest plants found are *Dipterocarpus alatus* Roxb., *Combretaceae* sp., *Hopea odorata* Roxb, Fishtail Palm, *Pandanus* sp. In limestone forest, plants found include *Microcos tomentosa* Smith, Cashew nut. 11 types of seagrass are found, 120 species of birds found particularly in the tropical rain forest e.g. Orange-bellied Flowerpecker, Oriental Pied Hornbill, Whiskered Tree Swift. Birds living along the beach e.g. *Charadrius peronii*, which is endangered resident species in Thailand, also the Little Egret, Pacific Reef-egret, Mongolian Plover. Bird found at the mangrove forest are Browned-wing Kingfisher, Common Kingfisher, Greater Coucal, it is also habitat to 26 reptiles and 4 species of amphibians. 400 species of fish have been recorded living in various habitats e.g. coral reef, mangrove forests, and landlocked sea, key species found include Red Snapper, Blue-spotted Stringray, Giant Sea Perch, Banner Fish, and Fusilier Fish etc.



Wetlands of Khao Sam Roi Yot National Park, Prachuab Khirikhan Province

Khao Sam Roi Yot Wetlands is located on the boundary between two districts in Prachuab Khirikhan Province: Pranburi district and Kuiburi district, with an approximately area of 68.92 sq.km. The two key ecosystems here are the natural fresh water swamp which full of fresh water all year round, and coastal wetland the neighboring area of Karst Tanaosri mountain that run north-south. The coastal ecosystem along the shoreline, and offshore is different. The island communities are mostly limestone area: Koram Island, Nomsao Island, Rawing Island, Rawang Island and Kinok Island.

In 2007, 110 species of birds have been recorded, 82 species of resident birds, 27 species of migratory birds, one of the migrated bird come for breeding, the remainder are temporary visitors. 6 endangered species of birds in the list of Thailand's Red Data 2005 found here are Malaysian Plover (EN), River Lapwing, Purple Heron (VU), White-bellied Sea-eagle, Little Tern, Baya Weaver (NT). Mammals include *Capricornis sumtraensis* (VU), *Macaca Leonia*, *Prionailurus viverrinus* (VU). Plants found *Azelia xylocarpa* (EN), *Wrightia lanceolata* and *Burretiodendron esquirolii* (VU).



Wetlands proposed as new Wetlands of International Importance (Ramsar sites)

Bung Borapet Wetlands, Nakorn Sawan Province

Bung Borapet is a gigantic wetland in the lower Northern part of Thailand, covering an approximately area of 196.8 sq.km of flat lowlands, located at the junction of several major rivers. This area became a vast swamp following the construction of a barrier and water gate in 1827. The area comprises 5 different types: swamp, islands, peat swamp, rice field and open water which are all living habitats. Plants found here include at least 80 aquatic plants: *Potederia cordata*, *Nelumbo nucifera*, *Nymphaea nouchali*. At least 238 species of resident and migratory birds: *Hydrophasianus chirurgus*, *Porphyrio porphyrio*, *Mycleria leucocephala* and 50 species of fishes are found e.g. *Oxyeleotris marmorata*, *Labeo chrysophekadia*.

Kudting Wetlands, Nong Khai Province

Kudting is a big wetlands site in Northeastern of Thailand, located a few kilometers from the Mekong River and connected by a small river that connects the wetland with the Mekong and flows and counter flows depending upon the water levels in the two water bodies. The swamp covers an approximately area of 26.4 sq.km. The biodiversity at this site is extremely high. There are 59 types of aquatic plants with new records e.g. *Coldesia* and Bladder Wort. Numerous freshwater fish species are found including *Voraras micros*, which is the smallest vertebrate animal in Thailand. Kudting is also the key habitat of endemic and migratory bird species.

The Community Management of Wetlands in Thailand and the Mekong River Basin is a project implemented by WWF Greater Mekong, Thailand Programme. The project objective is to address and establish a common understanding for communities living around the wetland. In addition the project aims to raise the recognition of the national and international importance of the wetlands and have this recognized by registration of Kudting as a Ramsar site. The project with local and national partners has assessed the positive and negative aspects of being an international wetlands site, this was done at two public hearings organized at Bung Kan district (30 November, and 4 December 2006), attended by wetlands related agencies e.g. government offices, sub-district leaders, representatives from the sub-district administration organizations, volunteers and community representatives. These meetings discussed numerous issues of local and national concern and following questions and answers it was agreed to submit a proposal for Kudting to be a new Ramsar site.





Wetlands of Ra Island and Prathong Island, Phang Nga Province

Prathong Island covers an approximate area of 102 sq.km, physically this is a sand bar area, comprised of mangrove forests, beach forests, peat swamps and canals that flow across the island. Ra Island covers about 19.5 sq.km, and has a large central Limestone Mountain with a height of 235 meters with tropical rain forest and peat swamp forest. The seas surrounding this area is covered by seagrass, creating a good nursery environment and shelter along the western shoreline during the monsoon season for numerous species. Species found include; *Dugong dugon*, *Lepidochelys olivacea*, *Demochelys coriacea*, *Leptoptilos javanicus*; 11 terrestrial animals found include; *Cervus unicolor*, *Manis javanicus*. 45 Reptiles include *Boiga dendrophila*, *Cerberus rynchops*. 137 species of bird include: *Milvus migrans*, *Haliastur Indus*, *Elanus caeruleus*. 7 Amphibians are found e.g. *Fejervarya cancrivora*, *Rana erythraea* and 224 plants particularly from the orchid family (at least 79 types).



Wetlands of Kra Island, Nakorn Si Thammarat Province

Kra Island locate 52 km offshore from Pak Panang district, Nakorn Si Thammarat Province, covers and approximately area of 0.39 sq.km, and is home to the most diverse coral reef in the Gulf of Thailand. The island is an important spawning and breeding area of Green Turtle, and at least 16 species of birds and 132 types of plants are known to live on this island.

Kwan Phayao Wetlands, Phayao Province

Kwan Phayao is a large fresh water lake in the upper North of Thailand covers an approximate area of 20.53 sq.km. At least 14 species of birds and 47 species of fishes are found such as Little Grebe: *Tachybaptus ruficollis*; White-breasted Waterhen; *Amaurornis phoenicurus*. 1 endangered species of Thailand is also found, *Clarias batrachus*. Kwan Phayao is a major water resource for Phayao people.



Wetlands Management in Thailand

On 1 July 1993, the National Environment Board appointed the National wetlands management committee to be the working body responsible for national strategic plan and policy aimed to protect wetlands sites and to monitor and evaluate the wetlands management in response to the agreements in the wetlands convention. As well as the awareness raising, study and research through collaboration with related freshwater bodies in national and international organizations.

Technical working group on wetlands is a body of technical advisory comprised of representatives from different government agencies, private organizations, and educational institutes. The working group provides technical advice to the committee, advising the National Wetland Management Committee on technical management and best action plan for wetlands management, provision of review, comments and suggestions on scientific and technical matters, as well as to the convention assembly on wetlands.

When the wetlands site is registered as a new Wetlands of International Importance (Ramsar site), the National committee agreed, on 10 January, 2002, to appoint a local wetlands management committee, especially a local Ramsar site. The Provincial Committee is chaired by the Provincial Governor or the Deputy Governor, comprised of representatives of other office of government in the province, including: Office of Provincial Fisheries, Office of Agriculture, Office of Land Administration and Sub-district Administration Organization, Academia, and Community representatives. The Provincial Environment Office is the secretariat to the committee. The Provincial Wetlands Management Committee is responsible for considering and drafting rules, regulations and enforcement of local wetlands utilization. Monitoring, coordinating the operation to meet the wetlands resources wise use and conservation action plan. Presently, 10 international Ramsar site are managed by the committee/provincial sub committee, and 1 site is still to establish a management committee.



National Committee on Wetlands Management

Deputy Permanent Secretary, Ministry of Natural Resources and Environment	Chairperson
Secretary General, Office of Natural Resources and Environmental Policy and Planning	Vice-Chairperson
Department of National Park, Wildlife and Plant Conservation representative	Member
Department of Marine and Coastal Resources representative	Member
Royal Forest Department representative	Member
Pollution Control Department representative	Member
Department of Environmental Quality Promotion representative	Member
Department of Water Resources representative	Member
Department of Fisheries representative	Member
Land Development Department representative	Member
Department of Local Administration representative	Member
Department of Public Works and Town & Country Planning representative	Member
Department of International Organizations representative	Member
Department of Provincial Administration representative	Member
Department of Public Relations representative	Member
Thailand International Development Cooperation Agency representative	Member
Chief of Staff Royal Navy	Member
Bird Conservation Society of Thailand representative	Member
Chairperson of Technical Working Group on Wetland	Member
Green World Foundation Secretary General	Member
Dr. Thongchai Phansawad	Member
Dr. Chareinsak Rojanaridpiched	Member
Dr. Maitree Duangsawasdi	Member
Dr. Sanit Aksornkoae	Member
Dr. Saran Petpiroon	Member
Mr. Asae Sayaka	Member
Office of Natural Resources and Environmental Policy and Planning official	Member and Secretary
Office of Natural Resources and Environmental Policy and Planning official	Member and Assisting Secretary

Technical Working Group on Wetlands

Mr. Wattana Leelapatra	Chairperson
Department of National Park, Wildlife and Plant Conservation representative	Member
Department of Marine and Coastal Resources representative	Member
Department of Water Resources representative representative	Member
Department of Fisheries representative	Member
Land Development Department representative	Member
Mr. Wanchai Chandrachai	Member
Dr. Sonjai Havanond	Member
Mr. Pipop Chantanavarangoon	Member
Dr. Sansanee Choowaew	Member
Mr. Praween Limpsaichol	Member
Ms. Sam-ang Homchuen	Member
Mr. Hannarong Yaowalers	Member
Mr. Asae Sayaka	Member
Dr. Chavalit Vidthayanon	Member
Director of Biodiversity Division	Member and Secretary
Biodiversity Division official	Member and Assisting Secretary
Biodiversity Division official	Member and Assisting Secretary

Implementation to Convention on Wetlands

Wetlands Policy, Measures and Action Plan



Thailand has established wetlands policy, measure and management plan for national level and Ramsar sites. This plan is considered as a common guideline to agencies concerned with wetland management, and enables conflict management, and ensures operation within the strategic plan.

National wetlands policy, measure and management plan

Thailand has passed 3 strategic plans, these are:

Wetlands policy, measure and action plan, 1997-2002; The plan combines 28 action plans from 14 line agencies, with a total budget of THB 472.5 million and was approved by the Cabinet of Ministers on 15 July 1997.

National Wetlands Management 2003-2007, involved all policy, measures and conservation plan, National Biodiversity Strategy and Action Plan (NBSAP). There are 4 sub-action plans, 168 projects from 41 related line agencies with a total budget of THB 2,600 million, and was approved by the Cabinet of Ministers on 11 June 2002.

The Office of Environmental Policy and Planning and related agencies and Non Government Organization (NGOs): the Department of Marine and Coastal Resources, Department of Fisheries, Ramkamhaeng University, Kasetsart University, Rajabhat Phuket University, Thailand Institute of Scientific and Technological Research, IUCN, WWF and Wildlife Fund Thailand, implemented wetlands management according to the action plan 2003-2007, and monitoring and evaluation following the goals has been conducted.



Goal 1: Surveying, study and research on management, biodiversity wealth and elucidation of the importance of the prioritized wetlands sites e.g. Ramsar sites, National and International Importance Wetlands sites, a total of 20 sites were evaluated.

The survey of the current status for management and biodiversity management was conducted in at least 14 sites, or 70% of total. The findings identified the following:

- ◆ 6 Ramsar sites: Krabi River Estuary, Krabi Province; Nong Bong Kai Wildlife Non-hunting Area, Chiang Rai Province; Laem Son National Park – Kapoe Estuary – Kra Buri River Estuary, Ranong Province; Khao Sam Roi Yot National Park, Prachuap Khirikhan Province; Bung Khong Long Wildlife Non-hunting Area, Nong Khai Province; and Ang Thong Islands National Park, Surat Thani Province.
- ◆ 3 International Importance Wetlands sites: Lower Wetlands of the Songkhram River, Sakon Nakorn and Nakorn Panom Provinces; Surin and Similan Islands National Parks, Phang Nga Province; and Ang Kaluang, in Doi Inthanon National Park, Chiang Mai Province.
- ◆ 1 National Importance Wetlands site: Ping River, Chiang Mai Province
- ◆ 4 Local Importance Wetlands sites to be upgraded to international wetlands sites: Kudting Wetland, Nong Khai Province; Bung Samnak Yai, Rayong Province; Ra Island and Prathong Island, Phang Nga Province; and Mae Rampueng Peat Swamp, Prachuab Khirikhan Province.

Goal 2: Preparation of a strategic plan for the conservation and sustainable utilization of each wetland i.e. Ramsar sites and International and National Importance Wetlands sites at least 20 sites within a 5 years period;

Ongoing preparation of strategic plan for the conservation and sustainable utilization of wetlands resources at the 7 highest important wetlands sites, or 14% of total has been completed, these are:

- ◆ 5 Ramsar sites: Krabi River Estuary, Krabi province; Nong Bong Kai Wildlife Non-hunting Area, Chiang Rai Province; Laem Son National Park – Kapoe Estuary – Kra Buri River Estuary, Ranong Province; Khao Sam Roi Yot National Park, Prachuap Khirikhan Province and Bung Khong Long Wildlife Non-hunting Area, Nong Khai Province
- ◆ 1 International Importance Wetlands site: Songkhram River Basin, Sakon Nakorn and Nakorn Panom Provinces.
- ◆ 1 Local Importance Wetlands site: Ra Island and Prathong Island, Phang Nga Province

Goal 3: Proposing of at least 20 new Ramsar sites within 5 years.

Khao Sam Roi Yot National Park has been registered as a new Ramsar site on 14 January 2008, or 5% completion of total.

Goal 4: Conserving and recovery at least 35% of the total area of the wetlands sites in Thailand (target 1,120 sq.km) within 5 years.

Current progress indicates biodiversity restoration of mangrove forest approximately 327.98 sq.km, 0.08 sq.km of coral reef, 48 sq.km of seagrass, 1,042 sq.km of fisheries resources in Songkhla Lake. Total wetlands rehabilitated are approximately 1,418.06 sq.km or 44.3% of total.

Goal 5: Strengthening community and local authorities in the conservation and wise use of the wetlands resources, for 50% of total community and local authorities within 5 years.

There are 11 sites of Ramsar sites, International and Local Importance Wetlands sites that implement activities on community strengthening, most efficient use of natural resources of wetlands, these are:

- ◆ 7 Ramsar sites: Krabi River Estuary, Krabi Province; Nong Bong Kai Wildlife Non-hunting Area, Chiang Rai Province; Laem Son National Park – Kapoe Estuary – Kra Buri River Estuary, Ranong Province; Don Hoi Lot, Samut Songkhram Province; Khao Sam Roi Yot National Park, Prachuab Khirikhan Province; Bung Khong Long Wildlife Non-hunting Area, Nong Khai Province; Phang Nga Bay National Park, Phang Nga Province.
- ◆ 1 International Importance Wetlands site: Lower Songkram River Basin, Sakon Nakorn and Nakorn Panom Provinces
- ◆ 4 Local Importance Wetlands sites: Kudting, Nong Khai Province; Bung Samnak Yai, Rayong Province; Ra Island and Pra Thong Island, Phang Nga Province; and Mae Rampueng Peat Swamp, Prachuab Khirikhan Province.

Goal 6: Networking for wetlands conservation and efficient use among the communities by 2007

Currently there are 11 wetlands communities (in Goal 5) linked for information sharing and lessons learned.

Wetlands Strategic Plan 2008–2012; As a part of the 2008–2012 National Biodiversity Strategy and Action Plan (NBSAP); the plan focus more on negative impact from the development activities on biodiversity, and the diminishing globally biodiversity. In addition many countries are establishing a common set of guideline for wetlands management to achieve their goals by 2010, with the main objective to reduce biodiversity loss significantly

The 2008–2012 NBSAP consists of 5 strategies as follows:

- Strategy 1: Protection of biodiversity components;
- Strategy 2: Enhance sustainable utilization of wetland biodiversity;
- Strategy 3: Reduce threats to biodiversity;
- Strategy 4: Enhance capacity building, research and awareness raising, and biodiversity networking; and
- Strategy 5: Strengthening national capacity to achieve biodiversity management with international mutual understanding

Other than the related government agencies: the Department of Marine and Coastal Resources; Department of National Park, Plants and Wildlife Conservation; Land Department; Department of Water Resources, the 2008–2012 Strategic Plan has involved numerous locally stakeholders from educational institutes and local administrative organizations.



Strategic plan/ management plan for Ramsar sites

Management Plan for Nong Bong Kai Wetlands

Strategic plan for Nong Bong Kai Wetlands in Chiang Rai Province, was established according to the mission of the implementation of Ramsar Convention, Infection and Management of Wetland Area, funded by the Danish Government. The 4 key strategies are:

- 1) Ecosystem approach
- 2) Conservation and wise use of natural resources in the wetlands
- 3) Participatory planning
- 4) Protection policy

The strategic plan is divided into 2 major parts: 20-year wetland strategic plan (2004–2024) and a 5-year action plan (2004–2008). The vision that "Nong Bong Kai has a variety of birds, flocks of fish, crisp clear water, increasing green forest; being an ecotourism destination, protects the environment, manages community use, developing, rehabilitating and enabling sustainable and wise use of natural resources", allocate to 3 key missions:

- 1) Ecosystem rehabilitation to maintain the role and value of the wetlands
- 2) Protection and conservation of the wetlands through collaboration with local stakeholders
- 3) Enhancing the natural resources wise use and providing an ecotourism destination

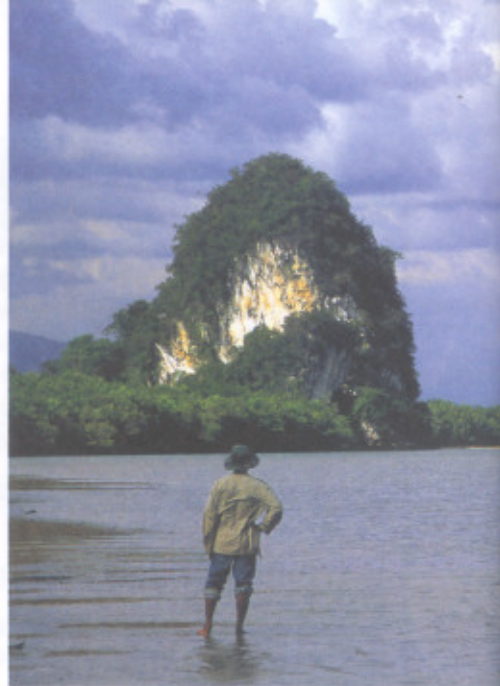


Management plan of Krabi River Estuary

The wetlands management plan of Krabi River Estuary, Krabi Province has adopted the Ramsar site treaty and fundamental philosophy related to ecosystem, participatory management for their long-term vision, and objectives of the plan. Key zones in the management plan are 3 zones; Inter Tidal Zone, Sub Tidal Zone and City-Agriculture Zone.

The management plan is integrated with the Krabi Provincial authority plan. The vision is "being the world ecotourism and sustainable natural resource province", with its missions

- 1) Enhancing wetlands resources utilization in the way of more integration and wise use;
- 2) Combining conservation with participatory utilization by all stakeholders; and
- 3) Generate more effective control on development and wetlands resource utilization.



Management plan of Laem Son National Park - Kapoe Estuary - Kra Buri River Estuary

Laem Son National Park – Kapoe Estuary – Kra Buri River Estuary, Ranong Province is a good wetlands platform by its biogeography with natural utilization and healthy biodiversity. It contains more endangered species and has a high potential for ecotourism. In order to balance the conservation and natural resources use particularly in mechanism of ecotourism development, the wetlands management plan has applied a systematic approach to conserve natural resources, environment and tourism. There are 6 strategies as follows:

- 1) Reserving, conserving, restoring and exploitation of the natural resources and environment;
- 2) Facilities development for tourism services;
- 3) Participatory management for awareness raising to the communities;
- 4) Enforcement and organizational management;
- 5) Research and development; and
- 6) Monitoring and evaluation, protection and observation



Management plan at Hat Chao Mai National Park - Libong Islands Wildlife Non-hunting Area - Trang River Estuary

Hat Chao Mai National Park – Libong Islands Wildlife Non-hunting Area – Trang River Estuary, Trang Province are another wealthy wetlands site in terms of both species, and ecosystems. The combination of natural resources: fresh water, brackish water and salt water, and the habitat of endangered species combined with terrestrial and shoreline scenery is a major asset of this wetland site. In effort to maintain the biodiversity wealth along with the current situation, a strategic plan for the conservation and efficient utilization of the natural resources need to be formed as a guideline for related government agencies. Related stakeholder from private sector, and local authorities collaborated to develop a strategic plan. The strategic plan has 7 key measures and 26 action plans as following:

- Measure 1: Awareness raising, education and training on the value and importance of the wetland;
- Measure 2: Protection, conservation and rehabilitation of the wetlands site;
- Measure 3: Motivation enhancement of wetlands utilization;
- Measure 4: Capacity building for wetlands management;
- Measure 5: Research and database management for the wetland;
- Measure 6: Strengthening international collaboration; and
- Measure 7: Monitoring, protecting and observing the wetland site.



The Addendum of the Cabinet Resolution on 1 August 2000

This resolution was announced to respond to several recent natural disasters, resulting in severe flooding in Thailand that damage local communities. The major cause of flooding could be assumed due to the invasion and encroachment on natural wetlands, either by infrastructure development, agriculture, industrial development, and urban expansion. Presently, threats to the wetlands sites are more severe, particularly in the local importance wetlands sites. The cooperation and coordination among related stakeholder will be needed to maintain and conserve these local important wetlands.

The wetlands technical working group agreed to have a regulation related to the protection of ecosystem in natural wetlands. Though the existing resolution of the Cabinet Resolution (1 August 2000) is insufficient to recover the local wetlands that have been affected. The resolution was made by requiring landscape regulations as an enforcement measure. Office of Natural Resources and Environmental Policy and Planning, as the secretary to the wetlands technical working group and national wetlands management committee, in coordination with related public and private organizations, institutes and communities, has convened the addendum to the 1 August 2000 resolution. The summary of the addendum is as follows:

1. Conservation measure: require more measures on surveying the wetlands site that is registered as locally important, monitoring, controlling and encroachment regulation, designating green zone and white diagonal line as a natural water reservoir, according to the civil landscape regulation.
2. Appending the list of wetlands of international importance and national importance.
3. Appending the prioritization of the wetlands importance to be proposed as Ramsar site
4. Appending the wetlands prioritization for protection, restoration, and survey.

Collaboration with Ramsar Secretariat and international cooperation

- ◆ At the 9th Conference of the Contracting Party, Thailand was appointed as the Ramsar Standing Committee Member for Asian countries, in partnership with; China PDR, Republic of Korea and the Islamic Republic of Iran. Thailand has nominated participants to attend the 35th; 36th; and 37th Ramsar Standing Committee meetings and being a sub-group member for the 10th Conference of the Contracting Parties (COP 10).
- ◆ At the 35th Ramsar Standing Committee Meeting, Thailand was assigned to host the "Asia Regional Preparatory Meeting" to coordinate preparations for the forthcoming COP 10. The regional meeting was organized on 14–18 January 2008, at the Maruay Gardens Hotel, attended by 150 participants from 22 party countries and 2 countries as observers. Attendants were from National convention organizations, joined by private sector organizations from the Republic of Korea, Japan and Thailand. At the meeting, a study tour to Bang Pu Nature Education Centre was organized by the Royal Thai Army, and WWF Thailand, supported by corporate sector partners including; Chevron Ltd., Toyota Motor Thailand Ltd., Thai life Insurance Ltd., and Advance Agro Ltd. (Plc).



- ◆ Thailand attended the Asia-Pacific Migratory Waterbird Conservation Committee (MWCC) meeting in 2003, and attends the 8th and 9th Committee meeting. Thailand was the host of the 10th Committee meeting on 15–20 December 2005 in Krabi Province. On the 9 November 2005 Thailand proposed Krabi River Estuary, Krabi Province, as the 1,101 Ramsar site and to be the first Shorebird Network Site of Thailand and arrange certification ceremony with the Governor of Krabi Province on 15 December 2005. The relevant committees accepted Krabi River Estuary as a member of East Asia–Australia migratory bird conservation alliance network.



For 10 Years, Thailand has been an active contracting party to the Convention

1998

- ◆ Thailand became the 110th contracting party to the Convention (13 September 1998).
- ◆ Phu Khuan Khe Sian in Thale Noi Wildlife Non-hunting Area, Phattalung Province was selected and nominated to be Thailand's first wetlands of International Importance (Ramsar Site) under the convention.
- ◆ Implemented Wetlands policy, measure and action plan, 1997-2002.



1999

- ◆ Completed the status survey and inventory preparation of Thailand's wetlands.
- ◆ Attended to the 7th meeting of the Conference of the Contracting Parties to Ramsar Convention (COP-7) at San Jose, Costa Rica.



2000

- ◆ August 1, 2000, The Cabinet approved on the proposed list of national and international important wetlands and agreed that the priority sites should be proposed as Ramsar Sites under the convention. Protection, rehabilitation, scientific survey, and conservation would be supported at each of these sites.

2001

- ◆ Hosted the Southeast and East Asia Sub Regional Meeting for COP 8.
- ◆ Thailand nominated five wetlands to be Ramsar Sites.
 1. Bung Khong Long Wildlife Non-hunting area, Nong Khai Province
 2. Nong Bong Kai Wildlife Non-hunting area, Chiang Rai Province
 3. Don Hoi Lot, Samut Songkram Province
 4. Krabi River Estuary in Krabi Province
 5. Princess Sirindhorn Wildlife Sanctuary (Phru To Daeng), Narathiwat Province
- ◆ Implement the Project on "Implementation of Ramsar Convention, Management and Protection of Wetland Areas", on the agreement of the Royal Thai Government with the Danish International Development Agency (Danida), in 2 wetland areas; Ang Chiang San Wetlands of Chiang Rai Province and Krabi River Estuary of Krabi Province (2001-2006).



2002

- ◆ Thailand nominated four additional wetlands to be Ramsar Sites.
 1. Had Chao Mai National Park - Libong Islands Wildlife Non-hunting Area - Trang River Estuary, Trang Province
 2. Phang Nga Bay National Park, Phang Nga Province
 3. Laem Son National Park - Kapoe Estuary - Kra Buri River Estuary, Ranong Province
 4. Ang Thong Islands National Park, Surat Thani Province
- ◆ Attended to the 8th meeting of the Conference of the Contracting Parties to the Ramsar Convention (COP-8) at Valencia, Spain.
- ◆ Implemented the Mekong Wetlands Biodiversity Conservation and Sustainable Use Program collaborate with Cambodia, Laos and Vietnam. Thailand is selected Songkhram River Basin as one of the demonstration sites (2002-2007).



2003

- ◆ Formulated the Wetland Management Plan 2003-2007 and integrated it into the National Biodiversity Strategy and Action Plan 2003-2007.
- ◆ Implemented the Enhancement of Public Education and Awareness for Sam Roi Yot Wetlands site. Sponsorship from the Ramsar Small Grant Fund.
- ◆ Established the Local Wetland Committee in 5 Ramsar Sites; Nong Khai Province, Don Hoi Lot in Samut Songkram Province, Krabi Province, Chiang Rai Province, and Phang Nga Bay in Phang Nga Province.



2004

- ◆ Implemented the Water Quality Management of Bung Boraphet in the Central Plains of Thailand. Sponsorship from Ramsar Small Grant Fund.
- ◆ Established the Local Wetland Committee in 5 Ramsar Sites; Narathiwat Province, Trang Province, Phang Nga Province, Ranong Province and Surat Thani Province
- ◆ Formulated the Management and Action Plans in Wetlands of Had Chao Mai Marine National Park – Libong Islands Wildlife Non-hunting Area – Trang River Estuary, Trang Province.
- ◆ Formulated the Strategic Management Plans in Wetlands of Bung Khong Long Wildlife Non-hunting Area, Nong Khai Province
- ◆ Formulated the Strategic Management Plans in Wetlands of Krabi River Estuary, Krabi Province.



2005

- ◆ Submitted the Second National Report to the Ramsar Secretariat
- ◆ Attended the 9th meeting of the Conference of the Contracting Parties to the Ramsar Convention (COP-9) at Kampala, Uganda. Displays an exhibition on "Management of Wetlands in Thailand"
- ◆ Selected as a representative of Asia region together with Islamic Republic of Iran, People Republic of China and the Republic of Korea for the Ramsar Standing Committee: SC.

2006

- ◆ Attended the 34th Ramsar Standing Committee (SC) meeting held in Gland, Switzerland
- ◆ Formulated the Strategic Management Plans in Wetlands of Laem Son National Park – Kapoe Estuary – Kra Buri River Estuary, Ranong Province



2007

- ◆ Attended the 35th Ramsar Standing Committee (SC) meeting held in Gland, Switzerland



2008

- ◆ Submitted the Third National Report to the Ramsar Secretariat
- ◆ Formulated the Wetlands Strategic Plan 2008 – 2012 and integrated it into the National Biodiversity Strategy and Action Plan 2008-2012.
- ◆ Thailand nominated one additional wetlands to be Ramsar Site; Khao Sam Roi Yot National Park, Prachuap Khirikhan Province
- ◆ Attended the 36th and 37th Ramsar Standing Committee (SC) meetings held in Gland, Switzerland
- ◆ Hosted the Asian Regional Preparatory Meeting for COP-10 on the Ramsar Convention
- ◆ Associate Professor Dr. Sansanee Choowaew of Mahidol University, Thailand was awarded a Ramsar Wetlands Conservation Award in the education category.
- ◆ Attended to the 10th meeting of the Conference of the Contracting Parties to the Ramsar Convention (COP-10) at Changwon, Republic of Korea. Displays a exhibition on "10 Years; Thailand is the Contracting Party of Ramsar Convention"



Mainstreaming of Wetlands Concerns

Wetlands Management Sub-Committee

In 1993, the National Wetlands Management Committee of Thailand was established, responsible to coordinate the government agencies, non-governmental organizations, and communities for wetlands awareness raising, to improve understanding of the values and benefits of wise use of wetlands across the country. Activities aimed at mainstreaming wetlands issues in Thailand are as follows:

Mainstreaming to Education



Provide local Curriculum

The National Education Act of 1999 and the additional revision (2nd issue) of 2002, assigns local schools to define part of their own curriculum related to local issues. The ratio of core course with the local course could be as much as 70:30. This has facilitated active cooperation between local knowledge sources, communities to develop curriculum. It has been realized that in many provinces with important wetlands (Ramsar site), had developed a course of study related to wetlands for primary and secondary school level to strengthen the knowledge and understanding of the value and importance of wetlands and the wise use of wetlands to the students. These courses were developed in concert with all related organizations such as educational institutes, students and local communities. If the area was close to the sea, the course was developed with special emphasis on marine ecosystem, coast, mangrove forest or intertidal forest, sustainable marine resources management, etc. If the area was close to the forest, the course was developed with special emphasis on local knowledge of forest resource use, or forest resources for vocational activities such as natural dye for printing etc.

The local curriculum aims to promote the recognition of the value of the wetland and to foster a positive attitude towards the conservation of the wetlands to students and local inhabitants. The success of the local curriculum had provided a veritable example for nationwide efforts for the conservation and rehabilitation of wetlands in Thailand.

World Wetlands Day (WWD)

World Wetlands Day (WWD) is an efficient tool to mobilize actions to raise public awareness of wetland values and benefits and for the promotion of the conservation and wise use of wetlands. Each year, Thailand has organized activities to celebrate WWD.

During 2006–2008 Thailand undertook WWD activities as follows:

2006

The Office of Natural Resources and Environmental Policy and Planning (ONEP) organized a conference on "Thailand and COP-9" on February 6, 2006 at Rama Gardens Hotel, Bangkok. The conference included special lectures on; Wetlands and Sustainable Development (The Royal Project); the Resolution of the 9th Contracting Parties to the Convention on Wetlands in Uganda; presentation on the International Youth Camp in Uganda; debate on different points of view on the COP and international cooperation support for wetlands management in Thailand. A total of 250 participants attended the conference.



Phattalung Province, organized a meeting to discuss the management of Thale Noi wetlands and the development of the Songkhla River basin on 2 February 2006 at Phattalung City Hall. There were debates on Phattalung and Songkhla Lake Valley Development Project, Thale Noi Wetlands, Ramsar Management and Thale Noi Wetlands management method.

The World Wide Fund (WWF), Thailand supported the WWD 2006 activities on the 2 February 2006 at the Quartermaster Department of the Royal Thai Army at Bang Pu. The activities were composed of VDO presentation, introduction of Bang Pu recreation place, lectures on Bang Pu Wetlands and Biodiversity, bird studies of Bang Pu: Heron, and Seagulls, additional activities included the cleaning and development of an area in Bang Pu Nature Education Center. The total number of participants was around 144.

The Wildlife Fund Thailand organized WWD on 2 February, 2006 at Ban Koh Phai School, Prachuap Khirikhan Province. The activities involved raising awareness and learning about the wetlands management at Khao Sam Roi Yot National Park, Prachuap Khirikhan Province. These activities will help build knowledge on the importance of wetlands in community, local network cooperation and sustainable use of natural resources.

Bird Conservation Society of Thailand has promoted WWD during the 5th Shorebird Conservation Festival on 5 February, 2006 at Ban Khokkam, Samut Sakorn Province. The activities included raising awareness on wetland management for sustainable use, puppet performance, students performance, bird-drawing training, identification of shorebird and printing brochures to promote the importance of wetlands and shorebirds.

2007

The ONEP organized a conference on "Wetlands: World Food Resources" on 5 February 2007 at Rama Gardens Hotel, Bangkok. 220 participants from government, non-government organization (NGO) and other interesting person participated. The conference provided a seminar on wetlands and fishery resources, fishery resources and community life, sustainable fisheries, and future directions for sustainable wetland management.

The Wild Life Fund Thailand joined with ONEP and Wetlands Conservation Group of Khao Sam Roi Yot National Park, Prachuap Khirikhan Province undertook WWD activities on the 2 February 2007 at Sam Roi Yot Nature Observation Center.



The WWF Greater Mekong Programme arranged WWD celebration in recognition of His Majesty the King Bhumibol Adulyadej Auspicious Occasion of His Majesty's 80th Birthday Anniversary on 1–2 February 2008 at Sala Khanab Nam, Bung Khong Long Municipality, Nong Khai Province. Activities included fish release, boat races and community activities to raise understanding of the project and the value and role of the wetlands in local livelihoods.

The Bird Conservation Society and Khok Kham Conservation Club organized the 6th Festival of Sandpiper Bird Conservation on 6 February 2006 at Khokham Sub-district, Muang District, Samut Sakhon Province. 200 participants had attended the festival (170 students, 30 staff and others). The objective of this activity was to support youth, local people and other interested person in order to gain knowledge and understanding of the Sandpiper Bird. The vision is to encourage and inject into youth, local people and other interested persons about environmental and wildlife resources conservation. Local tourism was also promoted.

2008

The ONEP organized a Conference on "Healthy wetlands, healthy people" on 5–6 February 2008 at Rama Gardens Hotel, Bangkok. 200 participants attended. There were special lectures on 10 years of Ramsar Implementation in Thailand, "Healthy wetlands, healthy people", Wetlands and Avian Influenza, Wetlands and Climate Change, Wetlands and culture There were debates on research related to various wetland topics such as the survey on wetlands, campaign on knowledge understanding on wetlands, wetlands resources and fishery, wetland and water pollution management, wetlands inspection and wetland and poverty solutions.

Sam Roi Yod Wetlands Executive Management Education Project organized WWD entitled "Sam Roi Yot into the Future" on 1–2 February 2008 at Khao Sam Roi Yot National Park, Prachuap Khirikhan Province.

Community Management of Wetlands in the Mekong River Basin project of WWF Greater Mekong in partnership with Nong Khai Provincial administration, Local schools, local partners and other related organizations organized WWD celebrations on 2 February 2008 at Bung Kan School in Nong Khai Province. This celebration was chaired by the Governor of Nong Khai Province. The activities included a lecture on the future potential of Kudting Wetlands and Bung Kan's people, roles and responsibilities for effective wetland management. The celebrations also included exhibitions on wetlands conservation, land conservation and student drawing and essay competitions. Other activities arranged at the WWD included a local traditional cooking competition using local wetlands resources from Kudting, sport competition to strengthen community spirit. There were 1,450 attendants including local students, community leaders, local administration organization staff, local villagers and some people from neighboring provinces etc.

Srisaket Province organized "Wetland of Tam Forest Cerebration" at Rasisalai District, headed by the Governor of Srisaket Province. The activity provided a technical forum to exchange information and experience on policy, law and experience on the wetlands of Tam Forest for conservation and rehabilitation. The activity was supported as public policy outreach by private organizations to rehabilitate the wetland of Tam Forest by North-eastern community foundation, The Environmental Fund and the Ministry of Natural Resources and Environment in Srisakate Province.

The Natural Resources and Environmental Office of Phattalung Province in partnership with the Southern Community Development Association, the Wetlands International: Thailand programme organized WWD celebration in Phattalung Province. This celebration provided a dialogue to discuss various issues including, what do you think of wetlands over the last 10 years, what Ramsar sites will be in the future and how to make Thale Noi and local communities sustainable?. It was chaired by the Deputy Governor of Phattalung Province who was joined by 80 local participants.



Thai Baan Research

The research was created in 2003 from the activities of the Thai Baan research network of the lower Songkhram River basin. Thai Baan Research network was initiated as a cooperation among 4 villages as follows: Baan Pak Yam, Baan Auan, Baan Yang Ngoy and Baan Thabor of Sri Songkhram District, Nakhon Panom Province. By 2004 Thai Baan networks had been extended to new villages. The objectives of research were to collect data and create database on natural resource use, knowledge, social values, economic values, traditional cultures and community traditions. The database helps in conservation and habitat restoration planning for Tam Forest, Bung Forest of the lower Songkhram River basin. Information is useful to guide habitat restoration policy and to promote awareness on conservation and habitats of the lower Songkhram River Basin in collaboration with local administrative organization, government and the private sector.



Thai Baan Research had disseminated this approach to other communities. One of the most well-known is the "Ecology and History of Bung Forest and Tam Forest of lower Songkhram River basin". The research has strengthened knowledge on the ecology and to access community's historical resources such as dates of settlement of communities, economic systems, cultures and life style of villagers in Tam Forest, lower Songkhram River Basin. The research found that the ecology in Tam Forest, Songkhram River Basin is highly complex, 28 sub-ecosystems have been identified such as jungle, hill-rock, swamp, creek etc., the plants and aquatic species associated with these sub-ecosystems greatly enrich the biodiversity of the wetlands complex. The Thai Baan community research approach has identified; 208 plants, 124 fish species, 5 turtle species and 4 shrimp species. Tam forest had been threatened by; illegal fishing practices, tree cutting for charcoal production, the construction of the Songkhram Dam and impact from developments in the upper Mekong River. Among the crisis faced, Thai Baan Research has provided information and awareness of issues in efforts to solve the vulnerabilities that threaten the wetland; such as implementing the fish conservation zone, prohibit illegal fishing practices. All the activities have been supported by the district chief, local communities and religious leaders. By respecting local wisdom and understanding of natural resources, such as "Fish in Tam forest, based on the knowledge of fisherman in the Songkhram River basin" provides knowledge about fish breeds, fish habitats and proper fishing tools. The Thai Baan researchers had also conducted and assessed the current situation of fish populations, established a conservation committee and written conservation regulations and enforcement methods for controlling and protecting the community resources, most of these activities strengthen and are enabled by unity within the community.

Mainstreaming to Communities

Wise use of Wetlands

Bio-Liquid Fertilizer from Golden Apple Snail

The Golden Apple Snail is a major freshwater invasive alien species in Chiang San Lake, Chiang Rai Province. They quickly spread through waterways and rice fields. At the beginning, the members of the community used chemical to eradicate them. However, chemical runoff into community water supplies caused health problems.

The Pasak Community, the Leader of a local Bio fertilizer group, from village 3 Pasak Sub-district, Chiang San District, Chiang Rai Province disseminated a methodology to produce Bio-Liquid Fertilizer from the Golden Apple Snail as follows:

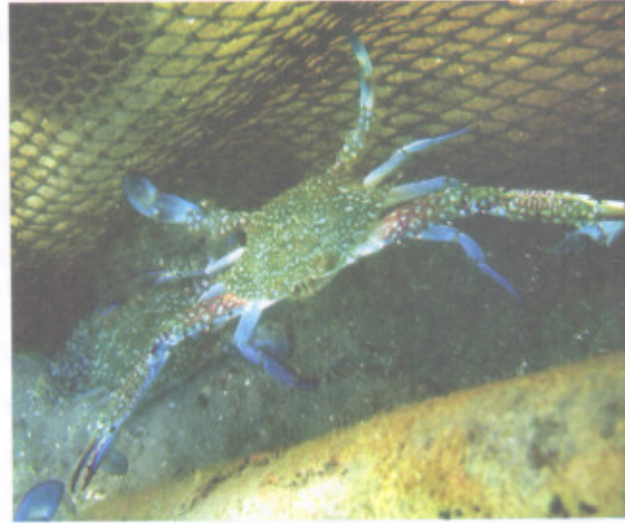


50 Kilograms of ground Golden Apple Snail, 50 liter of Banana shoots Enhanced Microbial liquid, 10 Kilograms, Powdered rice bran, mixed all together, leave for 7 days then add 1 Kilogram of cleaved citrus. Continue fermentation for 1 month.

They distributed the bio-liquid fertilizer to the members of community for demonstration in rice field and vegetable and fruit farms. After using the bio-liquid fertilizer, they agreed that the efficiency was the same as non-organic fertilizer but THB 800,000 (USD 25,000) of expenses per year was reduced and it was safer. For convenience, the bio-liquid fertilizer was developed to organic fertilizer.

Crab Bank

The Ao Thung Maha community in Chumporn Province recognized the important value of the local ecology and sustainable fisheries for the community and thus they developed a crab bank project. The members selected crabs with eggs inside, placed them in the floating baskets as a crab bank. Each time a villager made a crab deposit they recorded the numbers of crab they placed in the bank. This allowed the crabs to release their eggs into the sea with the larva released back into the sea. According to the color of the eggs, crabs took 7 days, 5 days, 3 days or 1 day to release their eggs. One crab would release 300,000–500,000 baby crabs. The cost of crabs from the bank increased to THB 10 per kilogram. The total amount made from selling the crabs was shared among the members based on the numbers of crabs they deposited. The Thung Maha Crab Bank provided a demonstration site for other local fisherman in areas such as in Krabi Province and Phang-Nga Province. This project helped the villager receive a sustainable income without depleting their local natural resources.



Wetlands Restoration

Green Coast Project of Prathong Island, Phang Nga Province

The Green Coast project is a collaborative programme between WWF, Wetlands International, IUCN and BothEnds Netherland. It is supported by Oxfam/Novib, an association dedicated to establish a fair world with no poverty, based in the Netherlands. The Green Coast activities aimed to rehabilitate the livelihoods of coastal communities through the restoration of coastal ecosystems post, December 2004 Tsunami. Marine and coastal ecosystems support the diversity of natural life and provide local livelihoods for many people. The project activities started during 2004–2008 at Prathong Island, Phang Nga Province one of the areas most devastated by the Tsunami. The coastal ecosystems were damaged and affected the livelihoods of the local communities on the island, especially, the traditional "Morgan" or sea gypsy communities. The Morgan have their own language, culture and traditions which are very marine based and quite different from the Thai. The project worked with local villagers to restore the sea grass beds, which are an important source of income for the island community. Awareness and knowledge regarding the intricate relationships between the sea grass beds, shells and their livelihoods were promoted.

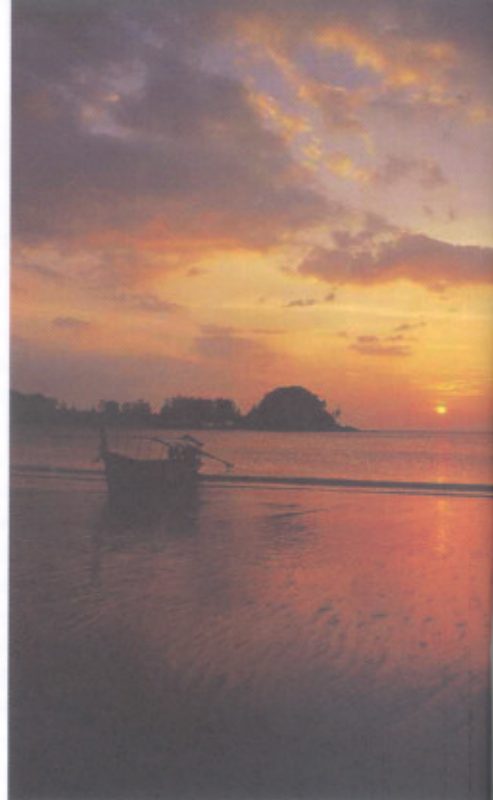


Ao Thung Nang Dam Village: The community restored natural resources by closing the local harbor for 1 year with the reduced boat traffic allowing the near shore marine habitat to restore naturally. After one year, the aquatic animals had returned; such as blue swimming crab, three-spot swimming crab, pen shell, wing shell, black sea cucumber, etc. Every 3 months, the community monitors the seagrass condition in the area as an indicator of the health of the habitat.

Pae Yoy Village: The community established a seagrass conservation zone. The total area is 70 Rai. This zone was established to become an Aquatic Animals Nursery. The community regulations ban the collection of wing shell and black sea cucumbers from here is forbidden. The sea grass conservation provides a refuge and supports the local ecosystem upon which the local community depends.

Thung Daab Village: Mangrove forest of 9.6 sq.km had been adopted by the local community and divided into 3 zones,

1. Mangrove forest and aquatic animal conservation zone. The area of this zone is around 1.12 sq.km and fishing or collection of aquatic animals and cutting of trees in this area is forbidden,
2. Restoration zone the area of this zone is around 0.8 sq.km,
3. General use zone is 9.28 sq.km.



Wetlands Conservation

Mae Ram Pueng Swamp Forest, Prachuap Khirikhan Province

Mae Ram Pueng Swamp Forest, Bangsapan District, Prachuap Khirikhan Province is a peat swamp forest. The key plant found in this swamp is *Melaleuca leucadendron*. The swamp forest serves as a reservoir, flood barrier and provide local food resources. The swamp is threatened by industrial expansion of steel factories that are moving into this area. Therefore the local communities initiated a study process to examine the value of Mae Ram Pueng swamp forest on the local environment and the quality of life of the surrounding communities. Survey and data collection were conducted, to assess the biodiversity situation of the swamp forest. Lesson learned from these participatory environmental activities enable understanding and awareness among the communities members. A local wetlands conservation group has been established to strengthen the community to protect their environment. Empowered communities can negotiate with the industrial group in EIA report. The news EIA had been conducted by taking into account on wetlands ecosystem in particularly the peat swamp forest and coastal wetlands have been provided.



Nong Chamrung Swamp Forest, Rayong Province

The Nong Chamrung Swamp Forest is a big swamp in Klang District, Rayong Province. The swamp forest serves as a reservoir, provides flood protection and food resources. The importance of the wetlands is recognized in its role to help protect the coastal margin. The communities around this area are fruit growers who depend on the water source for their agriculture year round. A local conservation group from Nong Chamrung community collaborated with the Provincial Botanical Garden Organization and Sub-district Administration to recognize the Nong Chamrung swamp as a wetland of national importance. A public survey was conducted among 4,330 people from the local population. The survey form included an explanation of the advantages and disadvantages of registration Nong Chamrung as a wetland of national importance. The results found that 80% agree and 15% disagree from the survey returns received from 2,649 forms (68%).



Mainstreaming to Private Organizations

Environment and Natural Resources Conservation activities have expanded to non-governmental organizations, the private sector, communities and government agencies. The education has restored and conservation of wetlands has been implemented.

Chevron Thailand Exploration and Production Co.,Ltd.

Sustainable management of mangrove resources through local community action, Thailand Environment Institute was the responsible organization to implement these activities together with the local communities, local administrative organization and local schools in the target area. These activities were sponsored by Chevron Thailand. The duration of this project was 3 years (June 2005 – April 2008). The target area were:

1. Nakha Sub-district of Suk Samran District, Ranong Province
2. Bangwan Sub-district of Kuraburi District, Phang Nga Province
3. Koh Kor Khao Sub-district of Takua Pa District, Phang Nga Province

The activities undertaken included; dialogue exchange, learning about the mangrove forest, the efficiency and benefit of plantation, the story of community settlement, the status of the mangrove forest resources in the past and mangrove forest plantation.

Peat Swamp Restoration activities were undertaken in partnership with the Community and Citizen Development Foundation. To restore and recover the peat swamp forest to be sustainable for 14 villages in Nakhon Si Thammarat Province and Phattalung Province. The project areas were La-uad, Kreng, Thasamed and Nanglong Sub-districts of Nakhon Si Thammarat Province and Panangtung and Thale Noi Sub-districts in Phattalung Province. The duration of the project was 3.5 years (June 2002 – November 2005). The main activities were to restore the peat swamp forest with tree planting in the damaged area, to raise awareness and cooperation of the communities for livelihoods development.



Petroleum Authority of Thailand Public Co.,Ltd.

Petroleum Authority of Thailand Public Co.,Ltd. had joined forces with a huge number of government, non governmental and community based organizations to support tree planting activities in Celebration of His Majesty King Bhumibol Adulyadej 50 Years Anniversary on the Accession to the Throne in 1995, and has subsequently helped to plant and restore the forest area in Thailand covering a 1,600 sq.km target.

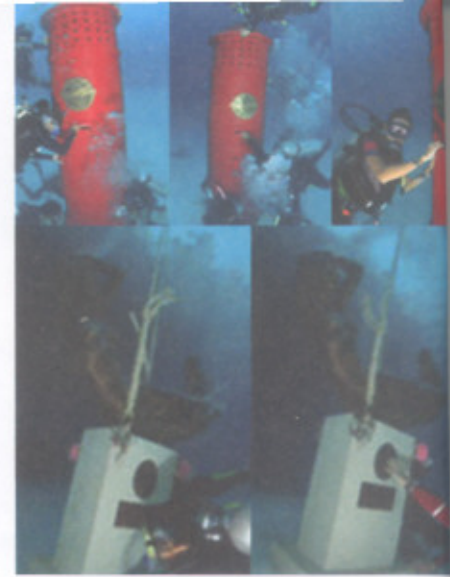
Thai Beverage Public Co.,Ltd.

“Sangsome See Thai Sea Club” this project was by Thai Beverage Public Co., Ltd. that realized the value of natural resources and natural life of the sea. Department of Coastal and Marine Resources, the Agricultural Research and Development Office and Kasetsart University have cooperated for to restore island and coral reef habitats in 6 coastal provinces along the Andaman sea as follows:



1. Ranong Province: Sponsoring construct of an artificial coral reef
2. Phang Nga Province: Sponsoring provincial tourism by creating under water post box and time capsule
3. Phuket Province: Sponsoring construct of a pavilion for public recreation.
4. Krabi Province: Sponsoring construction of sculptures celebrating Thai literature.
5. Satun Province: Sponsoring construct of an artificial coral reef

In addition, at all sites the project promoted public relation activities for marine tourism enhancement such as sponsoring publication of materials on Andaman sea coral reef restoration.



Trans-Thai-Malaysia (Thailand) Co.,Ltd.

Fishery Fund, Trans Thai-Malaysia (Thailand) Co., Ltd had provided funds for a fisheries fund to increase the reproduction of aquatic animals and marine resource conservation at Jana and Thepa sub-districts of Songkhla province. The programme aids the development and support of the local fishing industry with a total fund of THB 1,000,000 (USD 31,250) per year.

Thai Bridgestone Co.,Ltd.

The first Nature and Agriculture Environmental Education Center was developed by WWF Thailand in partnership with the Ministry of Agriculture and Cooperatives and is sponsored by the Thai Bridgestone Co., Ltd. In 2007. The objective of this centre is to restore and protect a part of the formerly vast central plains ecosystem of the Rangsit plains and to raise awareness of the value and benefits of wetlands in a human management landscape. Activities planned following the speech of His Majesty the King about the education in schools that integrated curriculum environment education.

Royal Thai Army Natural Education Center (Bang Pu)

The center was established in cooperation with the Royal Thai Army by WWF-Thailand and Samut Prakarn Education Office. The centre has been sponsored by a variety of donors including Toyota Motors Thailand Co.,Ltd., Thai Life Insurance Co.,Ltd., Chevron Thailand Co.,Ltd. etc. The target is to develop an area of degraded mangrove around the Royal Thai Army Quartermasters depot on the coast of Samut Prakarn Province, to be the Environment Education Center. The centre provides a chance for local school children to learn about the mangroves, the local environment and organizes activities for them to join to take care of their local environment. The Nature Education Center covers a total area of 1.02 sq.km, and is divided into 2 zones: East zone, 0.54 sq.km, is an empty zone. It was a former shrimp pond that has been abandoned for many years. This connects the coastal ecosystem with mud flats. This area is a key biodiversity area especially for plants and animals. 190 species of migratory and resident birds rely on this area annually. Activities provided at the centre include; bird identification along the nature trails, visits to the coastal ecosystem on the mud flat and WWF provides special programs to local schools in Samut Prakarn Province as part of the local curriculum for environmental education.



Conclusions

Progress to Meet the 2010 Targets.

Thailand has assigned the importance of wetlands conservation and restoration to meet the 2010 target as follows:

Region of Thailand	Important Wetlands for Conservation and Restoration	
	Conservation	Restoration
Northern	<ul style="list-style-type: none"> ◆ Nong Lom, Chiang Rai Province 	<ul style="list-style-type: none"> ◆ Nong Leng Sai, Payao Province ◆ Nong Hang, Chiang Rai Province
Northeast	<ul style="list-style-type: none"> ◆ Songkram River Basin, Nakhon Panom and Sakon Nakhon Provinces 	<ul style="list-style-type: none"> ◆ Doon Lampan Wildlife Non-hunting area, Maha Sarakham Province
Central and Eastern	<ul style="list-style-type: none"> ◆ Thung Maharacha, Ayudhaya Province ◆ Wat Huychan Wetlands, Lopburi Province ◆ Laem Pak Bia, Baan Pak thale and Kho Takrao, Petchburi Province ◆ Seagrass beds at Tung Kha Bay, Chumporn Province ◆ Had Lane, Prachuap Khirikhan Province 	<ul style="list-style-type: none"> ◆ Bung Borapet Wildlife Non-hunting area, Nakon Sawan Province ◆ Tung Phothong, Tung Kham yad, Anghong Province ◆ Seagrass beds at Khung kraben Bay, Chantaburi Province
Southern	<ul style="list-style-type: none"> ◆ Krabi River Estuary, Krabi Province ◆ Seagrass beds at Libong Islands, Had Lane, Chumporn Province ◆ Kra Island, Nakhon Si Thammarat Province ◆ Seagrass beds at Si Boya Island, Krabi Province ◆ Yao Island, Trang Province ◆ Had Lamae, Chumporn Province (Beach Forest) 	<ul style="list-style-type: none"> ◆ Songkla Lake, Songkla Province (Irrawadee dolphin and River Terrapin) ◆ Seagrass beds at Pattani Bay, Pattani Province ◆ Beach Forest, Chumporn Province ◆ Mangrove Forest, Nakhon Si Thammarat Province



Action plan to meet the Wetlands Convention's strategy plan 2009-2014

Wetlands Convention: Goal and expected outcomes	Action Guideline	National Indicator
Goal 1: Wetlands wise use		
<p>Expected outcome</p> <p>The wise use of all wetlands being achieved in all Parties, including more participative management of wetlands, and conservation decisions being made with an awareness of the importance of the ecosystem services provided by wetlands.</p>	<ul style="list-style-type: none"> ◆ Enhance more cross-cutting activities related marine and coastal management ◆ Expanding coastal protected area along the shoreline with strict monitoring. At least covering 20% of water surface area in specific economic zone by 2010 and 25% by 2012 ◆ Enhance community and support participation for ecology conservation of coastal and island ◆ Strengthen participatory management, by designating zones as protected area and utilization area ◆ Conserving and recovery of watershed by participatory approach, through watershed rehabilitation. The action plan following the HM the King's concept and strengthen networking between watershed conservation and river basin management ◆ Work flow of protected area management and the approach to community acceptance. Exploring and evaluating the current situation of mangrove forest-shoreline and impact analysis. The results of this analysis could be applied for management planning and be recognized by the public 	<ul style="list-style-type: none"> ◆ Conservation plan and sustainable use of Wetlands of International Importance, the area zoning as: developing area; protected area; boundary area, and designated activities suggested in each area, 2 site for each year. ◆ 20% of coastal area was announced as protected area ◆ At least 1 protected area has been announced for seagrass hub and <i>Dugong dugon</i> ◆ Mangrove forest has been replanted around 50,000 Rai ◆ National record on community wisdom and culture related to wetland conservation and sustainable use ◆ Networking of national wetlands ◆ Mechanism, regulation, measure, control and monitoring on invasive alien species threats ◆ At least 10 campaigns on awareness through activities and media ◆ Database on wetlands research for conservation and wise use
Goal 2: Wetlands of international importance (Ramsar Site)		
<p>Expected outcome</p> <p>Parties designating and managing Ramsar sites within their territories with a view to supporting an international network of Wetlands of International Importance, fully implementing their reporting commitments under Articles 3 and 8.2, and using the Montreux Record as part of the Convention's governance process, as appropriate.</p>	<ul style="list-style-type: none"> ◆ Proposing important wetlands site as a new Ramsar Site ◆ Research the wetlands for geography, biology and socioeconomic. This could enable revision of the inventory of important wetlands in Thailand. Also, the revision of regulation relate to efficient management of protected areas. 	<ul style="list-style-type: none"> ◆ At least 5 important wetland sites are authorized as wetlands of the international importance ◆ Monitoring and check the status and situation of the wetlands of the international importance

Wetlands Convention: Goal and expected outcomes	Action Guideline	National Indicator
<i>Goal 3: International collaboration</i>		
<p>Expected outcome</p> <p>Parties developing their coherent national approaches to the implementation of the Ramsar Convention in such a way as to benefit from developing effective partnerships with related conventions and international agencies and with other Parties to the Convention on Wetlands.</p>	<p>Follow the Mission's Program as agreed by the contracting parties; and sign wetlands convention and biodiversity convention</p>	<ul style="list-style-type: none"> ◆ Practical guidelines on biodiversity impact assessment ◆ At least 1 Practical guideline, regulation or rule that support wetlands natural resources sharing is established
<i>Goal 4: Institutional Capacity and efficiency</i>		
<p>Expected outcome</p> <p>Increasing success of the Convention in achieving the conservation and wise use of wetlands, as measured by agreed effectiveness indicators, and increased recognition of the Convention's achievements by other sectors of governments and civil society.</p>	<ul style="list-style-type: none"> ◆ Establishing Ramsar site Management committee at specific site ◆ By 2010, aim to reduce the loss of wetlands ecosystem, at significant ratio by organizing more collaborative activities with private organizations and wetlands communities in order to empower task ◆ Encourage and create system for private organization and communities such as mangrove forest planting management for renewable energy supply, aquatic animals breeding, coastal fisheries support. 	<ul style="list-style-type: none"> ◆ Database on private organizations related to wetlands ◆ Providing and applying educational system in both formal and non-formal approach to enhance wetlands conservation awareness and sustainable use ◆ Establishing wetlands committee in any agency related wetlands
<i>Target 5: Memberships</i>		
<p>Expected result</p> <p>Countrywide join Ramsar Convention in 2014</p>	-	-



Conclusions

During the past 3 years, the implementation of the Ramsar Convention in Thailand has been progressive. The cooperation among the related organizations including government agencies, local administration unit, educational institutes, community development organizations, and local residents has increased.

- ◆ Regulation and measure for wetlands utilization has been set up such as fishery regulation of Nong Bong Kai Wildlife Non-hunting Area, Chiang Rai Province; Bung Khong Long Wildlife Non-hunting Area, Nong Khai Province.
- ◆ More understanding and recognition of wetlands' value and importance, especially the wetlands management aspect. For example, Mae Rambueng Peat Swamp, Prachuap Khirikhan Province, the project development's owner has declined the construction due to the local communities opposition and sound arguments for the swamps conservation.
- ◆ Rapid economic growth is causing competition for land for industrial and urban development. Recently, communities have started to appreciate the negative impacts from the destruction and loss of wetlands and as a consequence there are increasing efforts to improve wetlands protection. It is accepted that registration of the wetland as a site of international importance is a prime tool for wetlands conservation.
- ◆ Related organizations are more aware of the importance of wetlands conservation and wise use. World Wetlands Day celebrations are being held at more and more wetlands sites. These celebrations are being used as a mechanism to promote collaboration between schools and wetlands organizations to apply the wetlands as a natural classroom.
- ◆ Networking of wetlands communities in order to share lesson-learned among each other. Each wetlands site has individual characteristics and has specific aspects of lesson-learned and wise use. Study tour and sharing between sites at each wetland is increasing.

The philosophy of the sufficiency economy, a working concept compiled from remarks made by His Majesty the King support the wise use approach. In addition, the current economic crisis has encouraged an increase in conservation progress and the wise use of wetlands. However, the promotion of wetlands conservation, wise use and parallels with the sufficiency economy still require knowledge and awareness activities for the general population. Especially the knowledge and understanding that effective management of wetlands across the planet could ease global economic problems and provide resilience to natural disasters. Another important awareness issue is that wetlands management should be based on ecology, not just water quality. This could help to ease the vulnerability of biodiversity resources as wetlands are assessed on their biological as well as their water supply functions. Another urgent priority in Thailand is the survey and assessment of national wetlands situation.

Environmental management, and more specifically wetlands management has risen in profile in response to the current ecological crisis. The government's policy and planning should be

developed based on proactive integration across all sectors, for example; recent policies to expand the energy plant palm oil plantations in swamp forest area. The only regulation for wetlands protected area is the Cabinet's resolution of the 1st August 2000, which is not sufficient to protect these areas from such threats.

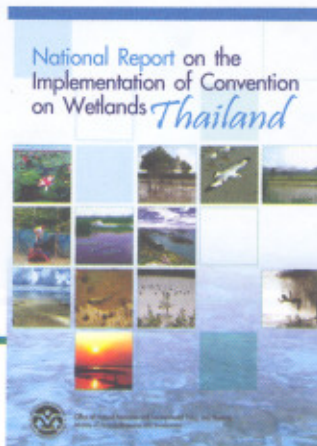
In the near future the wetlands management in Thailand have to reach the following major targets:

- ◆ Education center including natural board walk be developed in every wetlands of international importance
- ◆ Fund for research and study on wetlands be established
- ◆ Wetland laws that enhance and support people participation in wetland conservation and protection be established
- ◆ Partnership financial and technical programme in wetland sites among private sector, non government organizations (NGOs), community organizations and government agencies be developed.



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National Report on the Implementation of Convention on Wetlands *Thailand*

(3rd National Report on 2008)

Available from	Biological Diversity Division Office of Natural Resources and Environmental Policy and Planning Ministry of Natural Resources and Environment 60/1 Soi Phibul Wattana 7, Rama VI Road, Bangkok 10400 THAILAND Telephone & Facsimile (66) 2265 6638, 2265 6640 www.onep.go.th
Copyright	2008 Office of Natural Resources and Environmental Policy and Planning. No use of this publication may be made for resale or other commercial purpose
Citation	Office of Natural Resources and Environmental Policy and Planning. 2008. National Report on the Implementation of Convention on Wetlands. Ministry of Natural Resources and Environment, Bangkok, Thailand. 36 p.
ISBN	978-974-286-568-9
Printing	October 2008
Advisors	National Committee on Wetlands Management Technical Working Group on Wetlands
Editors	Sirikul Bunpapong Nirawan Pipitsombat
Coordinators	Wanlop Preechamart Chaiwat Pramual Parinya Lullahanond Thanunpon Taskhum Monthira Kasemsuk
Translator	Colin I. McQuistan <i>Conservation Programme Manager, WWF Thailand</i>
Designed & Printed by	Integrated Promotion Technology Co.,Ltd. Telephone (66) 2158 1312 - 6