The ecological restoration of abandoned shrimp farming area at Mu Ko Chumphon National Park as an ecotourism area

Amphoe Chumphon, Chumphon Province
Area: 2,300 Rai (368 ha.)

Country / City	Thailand, Chumphon
University / School	Kasetsart University / Faculty of Architecture, Landscape Architecture
Academic year	2019
Title of the project	The ecological restoration of abandoned shrimp farming area at Mu Ko Chumphon National Park as an ecotourism area
Authors	Siririn Montreemuk

TECHNICAL DOSSIER

Title of the project	The ecological restoration of abandoned shrimp farming area at Mu Ko Chumphon National Park as an ecotourism area
Authors	Siririn Montreemuk
Title of the course	Final graduate project
Academic year	2019
Teaching Staff	Associate Professor. Dr.Sani Limthongsakul
Department/Section/Program of belonging	Faculty of Architecture, Landscape Architecture
University/School	Kasetsart University

Written statement, short description of the project in English, no more than 250 words

Although the mangrove forest ecosystem is one of the important and must-preserved ecosystems, nowadays mangrove forests were destroyed by a human for development activities such as agriculture, tourism industry and urban development. Mangrove forest in Mu Ko Chumphon National Park is one of the areas that was also destroyed by shrimp farming concession. However, currently, this area has been continually recovered by the department of Mu Ko Chumphon National Park and PTT PCL. The restoration process aims to regenerate the mangrove forests as an important source of the local livelihood as well as to facilitate ecotourism activities. Therefore, the purpose of this project is to present the mangrove ecological restoration concept.

The ecological restoration of abandoned shrimp farming area focused on the concept of Sustainable development that considers the balance of ecosystems, social and local economy.

The site analysis revealed the site potential of becoming the new intensive zone for tourist bridging in-land and water route attractions. This project aims to restore and conserve the ecosystem by proposing activities that can coexisting with the restoration process through environmental learning and recreation activities. The planning and design process was divided into three phases following the restoration timing. The tourism and other activities were proposed in accordance with the area carrying capacity. Land use planning and landscape design were conducted with a consideration of minimal footprint that reduce the negative impact on the ecosystem, which can sustain the Mu Ko Chumphon National Park ecotourism as well as local habitat and livelihoods.

For further information
Máster d'Arquitectura del Paisatge -DUOT - UPC

T: + 34 93 401 64 11 / +34 93 552 0842
Contact via email at: biennal.paisatge@upc.edu

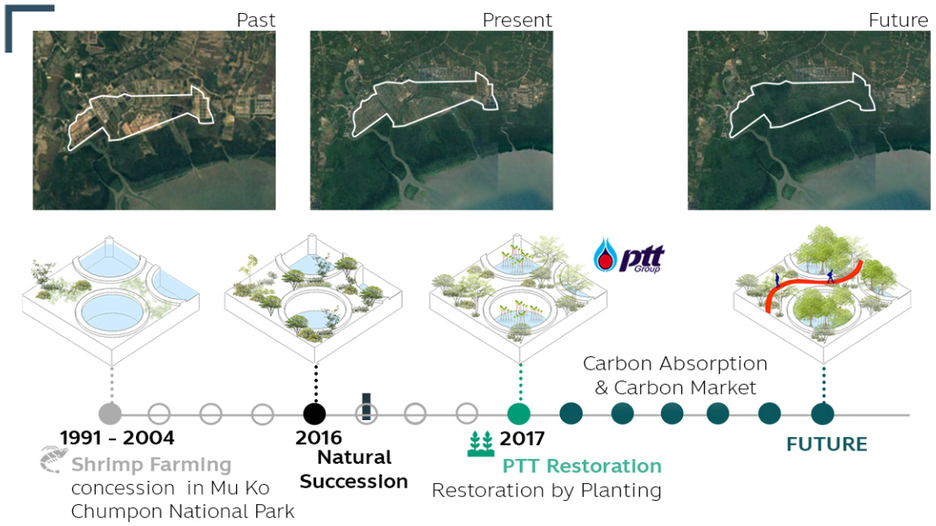
Máster d'Arquitectura del Paisatge -DUOT - UPC
ETSAB - Escola Tècnica Superior
d'Arquitectura de Barcelona
Avenida Diagonal, 649 piso 5
08028 Barcelona-Spain

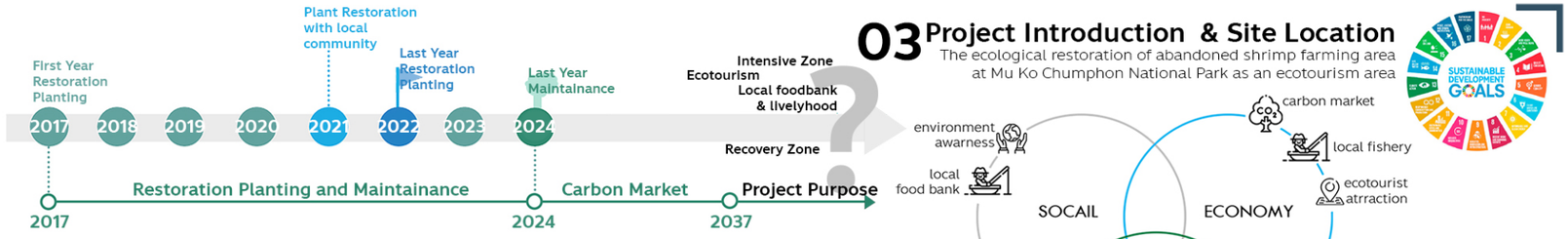
CLIMATE CHANGE AGAIN

11th International Biennial Landscape Barcelona

Barcelona September 2020

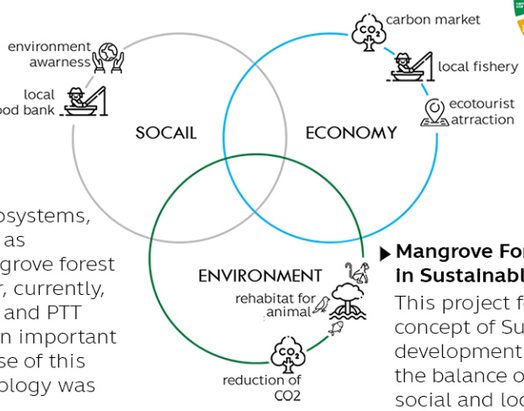
SCHOOL PRIZE





03 Project Introduction & Site Location

The ecological restoration of abandoned shrimp farming area at Mu Ko Chumphon National Park as an ecotourism area



Project Introduction & Background

Although the mangrove forest ecosystem is one of the most important and must-preserved ecosystems, nowadays mangrove forests around the world were destroyed by anthropogenic activities such as agriculture,e.g. shrimp farming and salt fields, tourism industry, and urban development. Mangrove forest in Mu Ko Chumphon National Park was also destroyed by shrimp farming concession. However, currently, this area has been continually recovered by the department of Mu Ko Chumphon National Park and PTT Public Company Limited. The restoration process aims to regenerate the mangrove forests as an important source of the local livelihood as well as to facilitate ecotourism activities. Therefore, the purpose of this project is to present the mangrove ecological restoration concept. The concept of landscape ecology was utilized and integrated with PTT forest restoration process.

Mangrove Forest Benefit In Sustainable development

This project focused on the concept of Sustainable development that considers the balance of ecosystems, social and local economy.

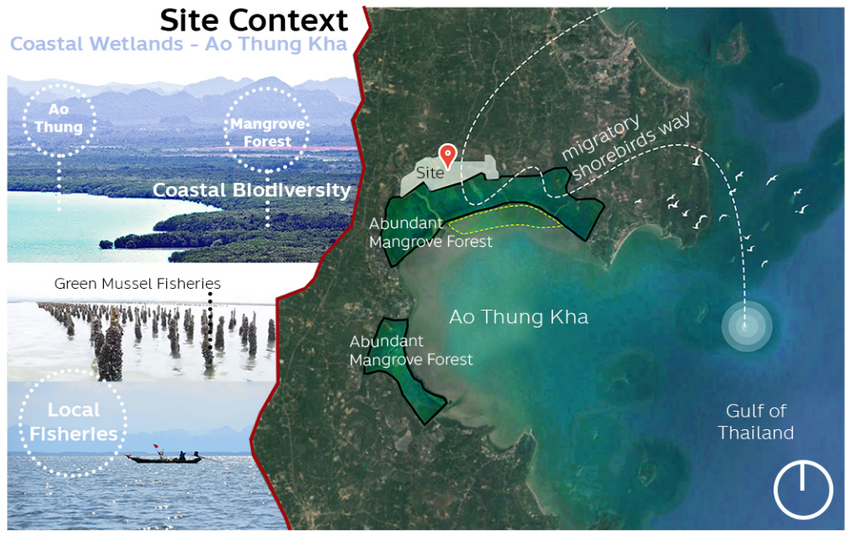
Site Location

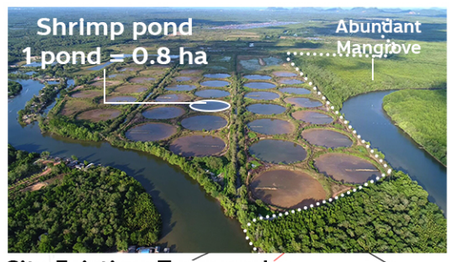
Mu Ko Chumphon National Park

Site Project is abandoned **shrimp farming** concession area of 2,300 Rai (368 ha.) in Mu Ko Chumpon National Park, Chumphon Province, Thailand.

Mu Ko Chumpon National Park is famous for its abundant biodiversity of natural resources which contributes to learning and research activities.

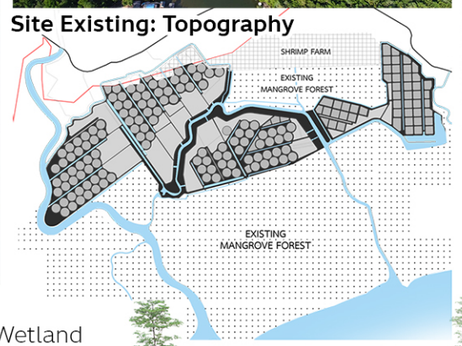
Site Context





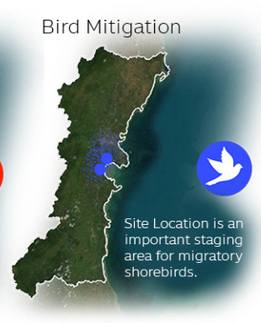
Site Exisiting Condition

Site Existing: Topography



Land +0.00
Shrimp pond -4.00
Waterbody

The distinguish existing topography of shrimp ponds and building structures becam the mandatory of any future site planing and design proposal.

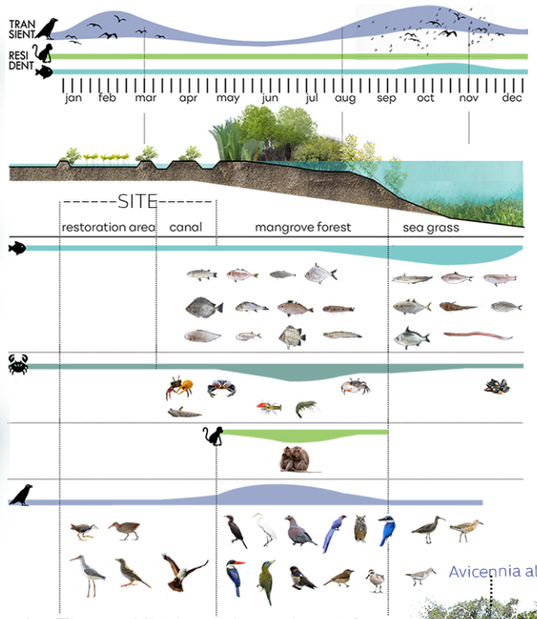


Site Biological Factor

Mangrove Resource

Sea Grass Resource

Coral Resource



▸ Ao Thung Kha's wide variety of vegetation and animal

Site Context

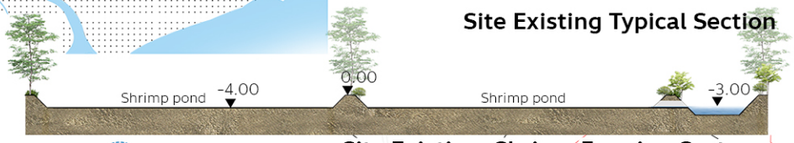
Ao Thung Kha is a Coastal Wetland which contains the extensive intertidal mudflats ,sea grass and a large area of mangroves.
The mangrove vegetation is dominated by **Rhizophora spp. and Sonneratia spp.** Therefore, it is an important habitat for various animal species such as Macaque, Shorebirds & Economic Fish.

Moreover, Ao Thung Kha Biodiversity is an important source for the local livelihoods and local Economy such as local fisheries ,green mussel farming and facilitate ecotourism.

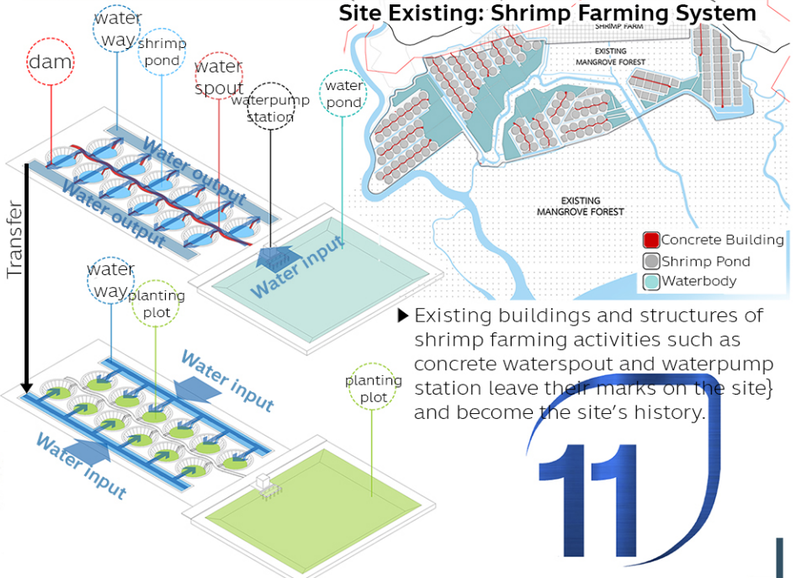
Vegetation

Mangrove Zonation in Chumpon

Site Existing Typical Section



Site Existing: Shrimp Farming System



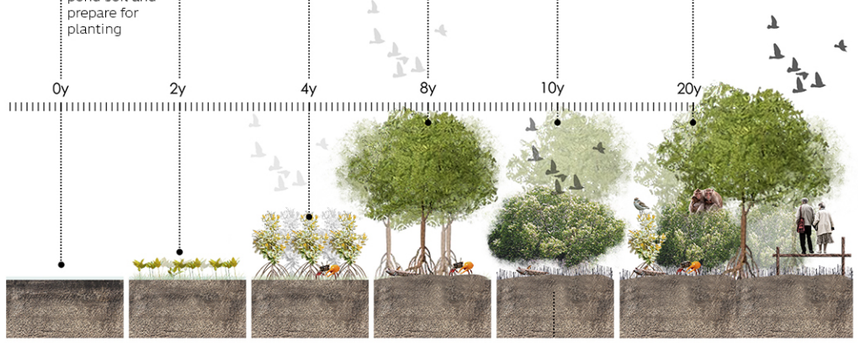
▸ Existing buildings and structures of shrimp farming activities such as concrete waterspout and waterpump station leave their marks on the site} and become the site's history.

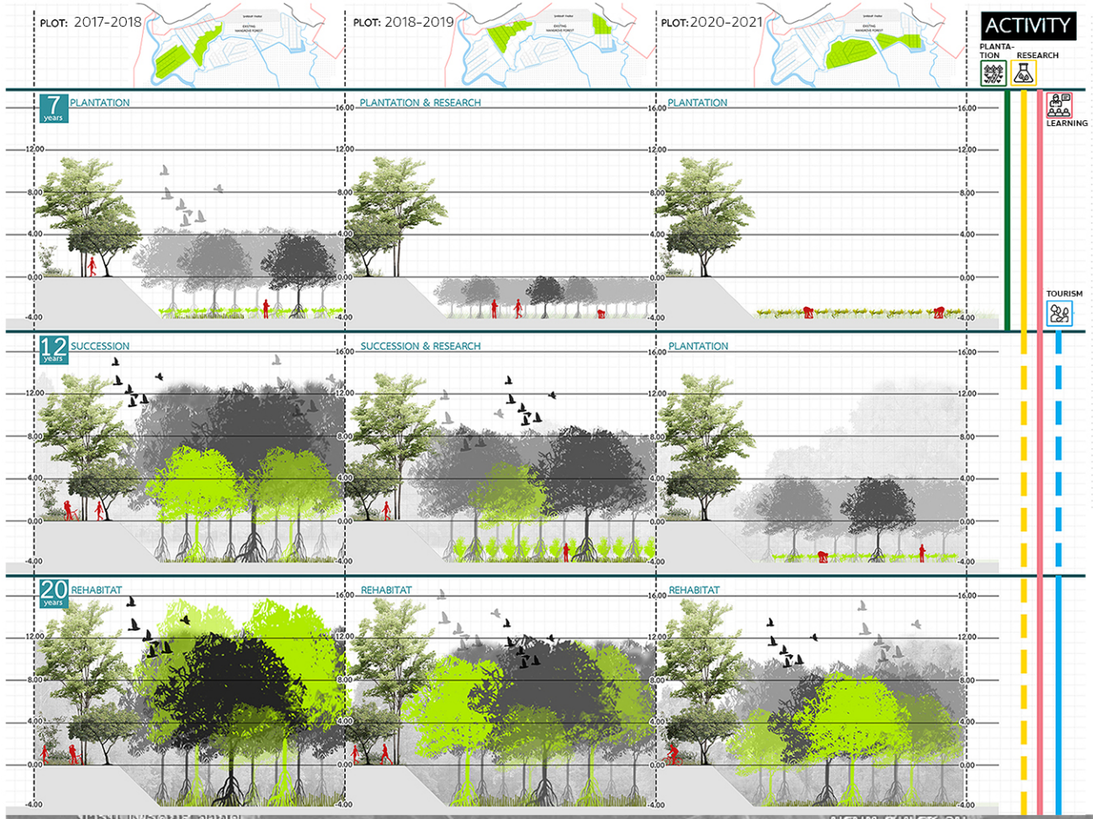
04 Project Programming & Design Plan

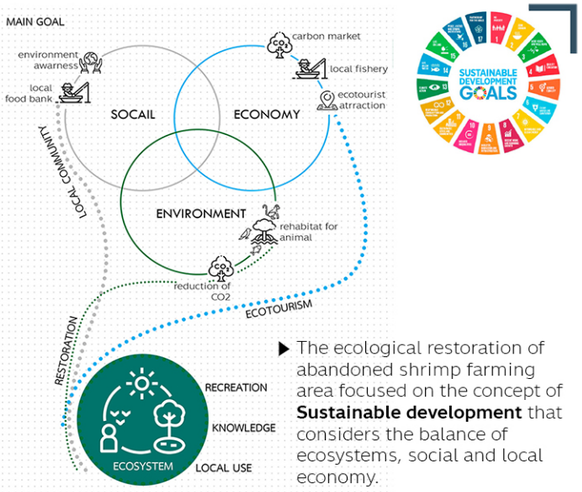
The ecological restoration of abandoned shrimp farming area at Mu Ko Chumphon National Park as an ecotourism area

Restoration Process & Timeline

- **Soil Improvement** reduce salty and hardness of pond soil and prepare for planting
- **Planting Restoration** planting Rhizophora as pioneer plant
- Planting maintenance for **habitats & foodbank**
- Full-grown pioneer plant
- **Ecological succession &** new batch of mangrove plant growing
- **Abundant Mangrove Forest**







▶ The ecological restoration of abandoned shrimp farming area focused on the concept of **Sustainable development** that considers the balance of ecosystems, social and local economy.

This project aims to restore and conserve the ecosystem by proposing activities that can co-existing with the restoration process through environmental learning and recreation activities. The planning and design process was divided into **three phases** in accordane with the restoration timing.

Phase 1: (0-7 years) Planting Restoration Activities
Phase 2: (8-12 years) Natural Succession contribute to Learning Activities
Phase 3: (13years up) Abundant Nature contribute to Ecotourism in National park

▶ Landuse & Management Plan

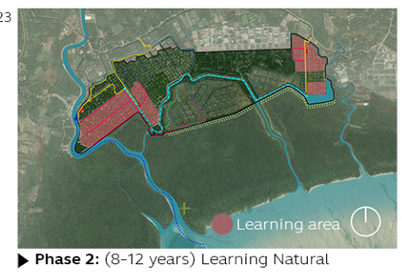
Landuse planning and landscape design were conducted with a consideration of minimal footprint that reduce the negative impact on the ecosystem, which can sustain the Mu Ko Chumphon National Park ecotourism as well as local habitats and livelihoods.Nature is the main facilitater for Ecotuorism in National park

- **Recovery zone:** restoration area for animal habitat
- **Recreation zone:** recreation activities area that facilitate for ecotourism
- **Intensive zone:** tourist facilities i.e. camping ground, restaurant, learning center, administrative building
- **General use plan:** local foodbank and hatchery area
- **Buffer Corridor**
- **Vehicle Circulation**
- **Water route**

Phase 1 — 2017

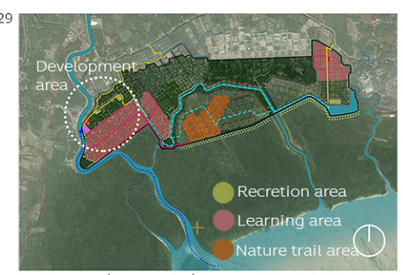
Phase 1: (0-7 years) Planting Restoration Activities.
Using area for Planting and maintenance

Phase 2 — 2023



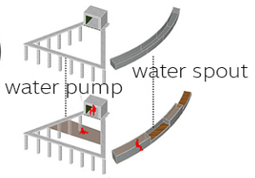
Phase 2: (8-12 years) Learning Natural Succession of Old Planting Mangrove forest plots

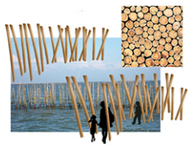
Phase 3 — 2029



Phase 3: (13years up) Ecotourism activities with in abundant nature of the National park are facilitated by campground, restaurant, nature trail

Landscape Element for design

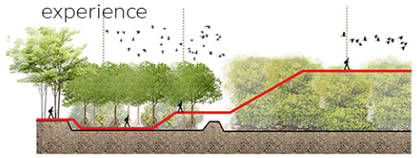




▶ **Existing Element**
existing building retrofit represents site history

▶ mangrove materials and fisheries elements

▶ restore mangrove forest for the ecological biodiversity and learning experience



▶ desing learning area with respect of existing topography and level

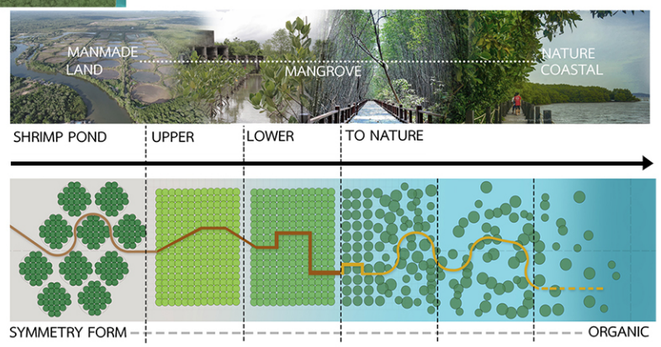
Site Plan: Intensive Zone

▶ **Intensive zone: area with high carrying capacity** for tourist facilities & building such as campground, restaurants, learning center and administrative buildings.

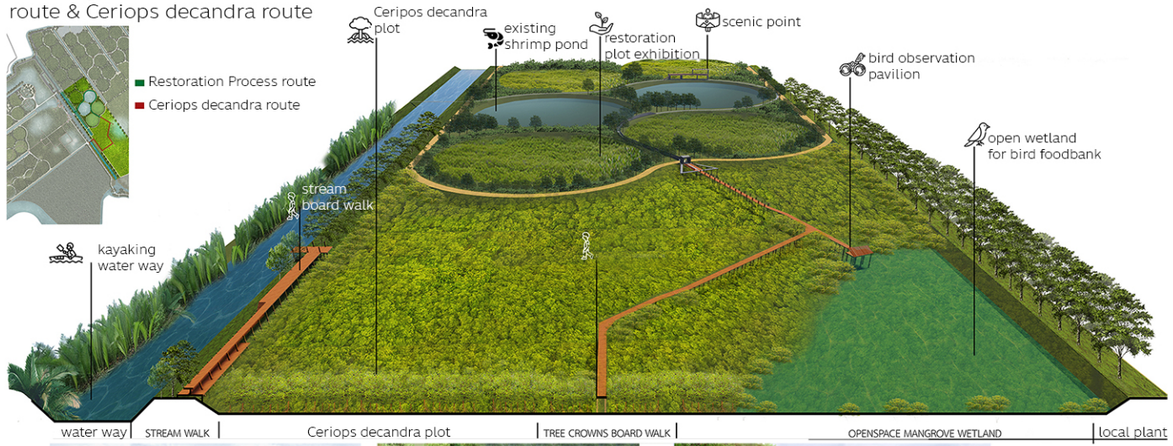
▶ **Eco tourism activity area**

Landscape Perception

Site planning design using gradual form of planting arrangement and boardwalk delineation to offer various landscape perception of manmade to nature for user while moving through the area.



Learning Route 1: Restoration route & Ceriops decandra route

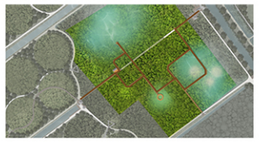


Perspective: Ceriops decandra sceninc point

Perspective: Bird Observation Pavilion

Perspective: Stream Walk

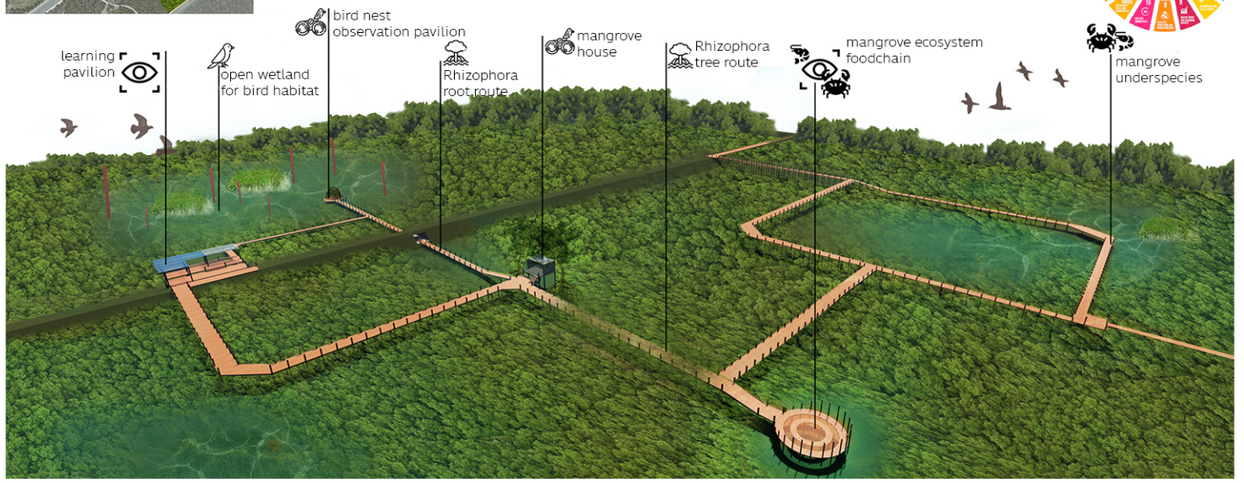
▶ Route 1 emphasize learning about tree crown and local tree

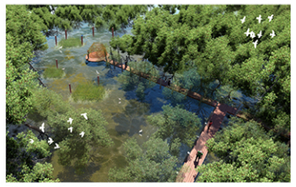


Learning Route 2: Rhizophora route

05 Detail

The ecological restoration of abandoned shrimp farming area at Mu Ko Chumphon National Park as an ecotourism area



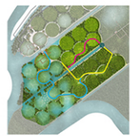


Perspective: Bird nest observation pavilion

Perspective: mangrove ecosystem foodchain

Perspective: mangrove learning pavilion

▶ Route 2 emphasize learning the Rhizophora mangrove tree : root treebody and species in mangrove ecosystem



Learning Route 3: To nature route

Perspective: Round boardwalk

Perspective: waterside route

Perspective: Mangrove Land art walk

Learning Route 3: To nature route

▶ Route 3 emphasize learning the Rhizophora and Avicennia alba mangrove tree ,waterside and local fisheries

Local Community area

Area for Local community public space: workshop buildings ,mangrove multi-purpose court ,library ,restaurants ,walk way and local aquatic hatchery.
Tourist and local people an learn together.

Perspective: workshop building

Perspective: mangrove multi purpose court & libraly