Regenerative Happiness
ส่งต่อ...ความสุขไม่สิ้นสุด
ก้าวสู่ทศวรรษที่ 5

Biodiversity Management 2025

Standard and Guideline

The company collects data, assesses biodiversity risks, and develops measures using **GRI standard-304** biodiversity which is a standard for reporting requirements on the topic of biodiversity. Topic-specific disclosures including ;

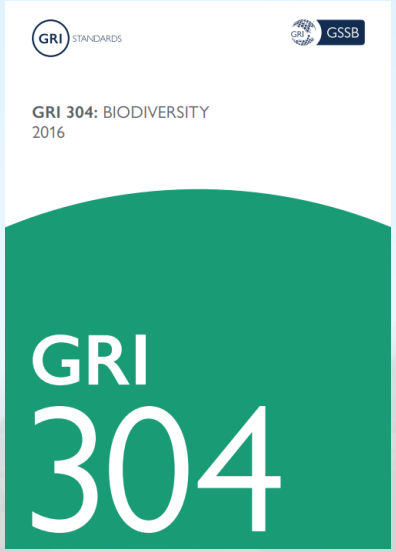
Disclosure 304-1 Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas

Disclosure 304-2 Significant impacts of activities, products, and services on biodiversity

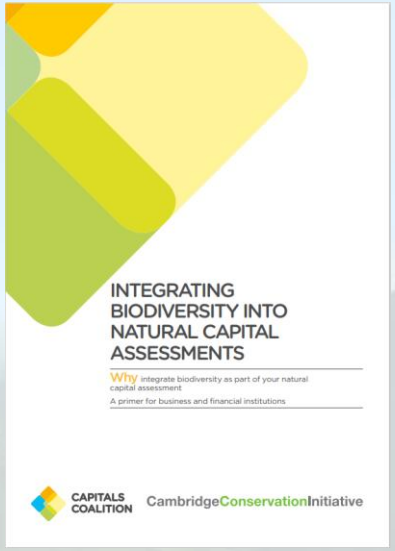
Disclosure 304-3 Habitats protected or restored

Disclosure 304-4 IUCN Red List species and national conservation list species with habitats in areas affected by operations

Furthermore, the company is employing the "**Integrating Biodiversity into Natural Capital Assessments" framework**, which was developed as a guideline for the private sector by the Cambridge Conservation Initiative and the Capitals Coalition. This framework helps companies develop biodiversity strategies, aiming to minimize impacts and effectively manage dependencies on nature.



https://www.globalreporting.org/standards/media/1011/gri-304-biodiversity-2016.pdf



https://capitalscoalition.org/wp-content/uploads/2020/10/Biodiversity-Guidance_COMBINED_single-page.pdf

Biodiversity Management

Bangchak Group recognizes the importance of balancing the ecosystem and biodiversity to ensure sustainable business operations, allowing all stakeholders to utilize ecosystems and biodiversity fairly and equitably.

Bangchak Biodiversity Management and Anti-Deforestation Policy

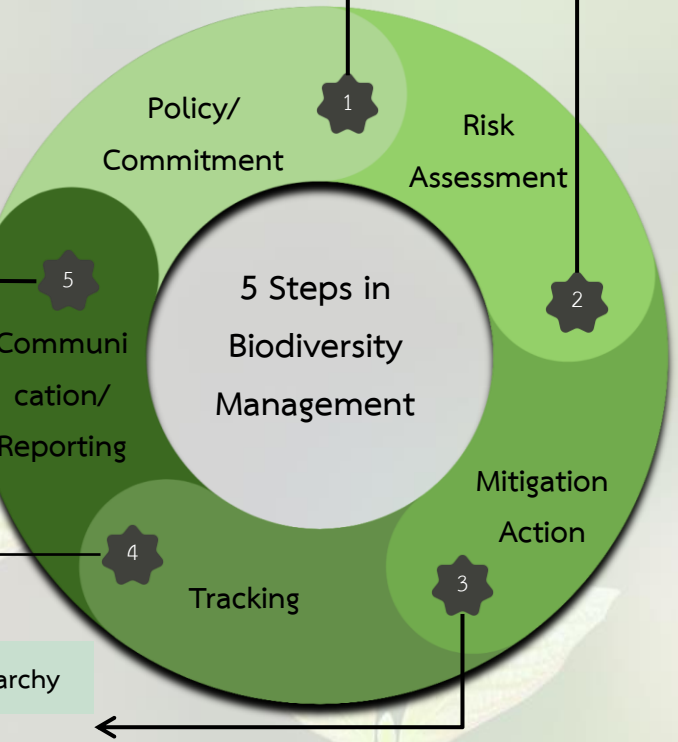
Encourage executives and employees at all levels to be aware of risks and impacts arising from business operations on biodiversity.


Refinery


Oil Terminal


Service Stations

Business Operations



Assess impacts at all stages of business operations throughout the business value chain using:

Location: To identify impact if the operational sites owned and managed in are locate near the Protected Areas using “satellite maps (ArcGIS)”.

IUCN
International Union for the Conservation of Nature (IUCN)
6 categories of protected area

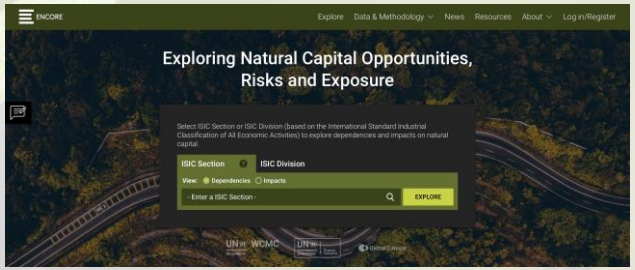
UNESCO World Heritage Sites
in cultural and/or natural significance in Outstanding Universal Value

Ramsar
Rare or unique wetlands under Ramsar Convention

Impact Pollutions: Assess business impacts on

Soil Water Air Waste

Dependency: Evaluate business dependency on biodiversity using the “ENCORE tool.”



Prepare reports and communications on progress and strategies for stakeholders.

Measure and monitor the results of mitigating actions.

Minimize any impacts according to the **Mitigation Hierarchy**

Offset for impacts in areas not directly affected by the project.
Restore and Regenerate biodiversity affected at the local level.
Minimize any unavoidable impacts immediately
Avoid impacts on biodiversity during business operations

Mitigation Hierarchy

Biodiversity Management and Anti-Deforestation Policy and Commitment

Biodiversity Management and Anti-Deforestation Objectives;

1. Avoid operating business at UNESCO World Heritage sites, Ramsar Convention wetlands and conservation areas designated by the International Union for Conservation of Nature (IUCN).
2. Avoid causing negative impacts on the environment and biodiversity as a result of business activity.
3. Avoid causing impacts on forests and, wherever impacts occur, strive to rehabilitate or replant forests to compensate for deforestation (No Net Deforestation).

Practice Guidelines

1. Assess impacts in every stage of business that affects biodiversity and forest areas throughout the entire business value chain (biodiversity risk assessment).

2. Monitor to check for biodiversity and forest risks covering every area (due diligence process) and set in place corrective measures for when there are actions or participation in actions that cause negative impacts on biodiversity and forests (access to remedies) and adopt practice guidelines to **"hierarchically mitigate impacts"** covering avoidance of severe impacts, minimizing impacts and making improvements to restore and offset losses that occur.

3. Monitor and report the results of activities and seek opportunities to continuously make improvements.

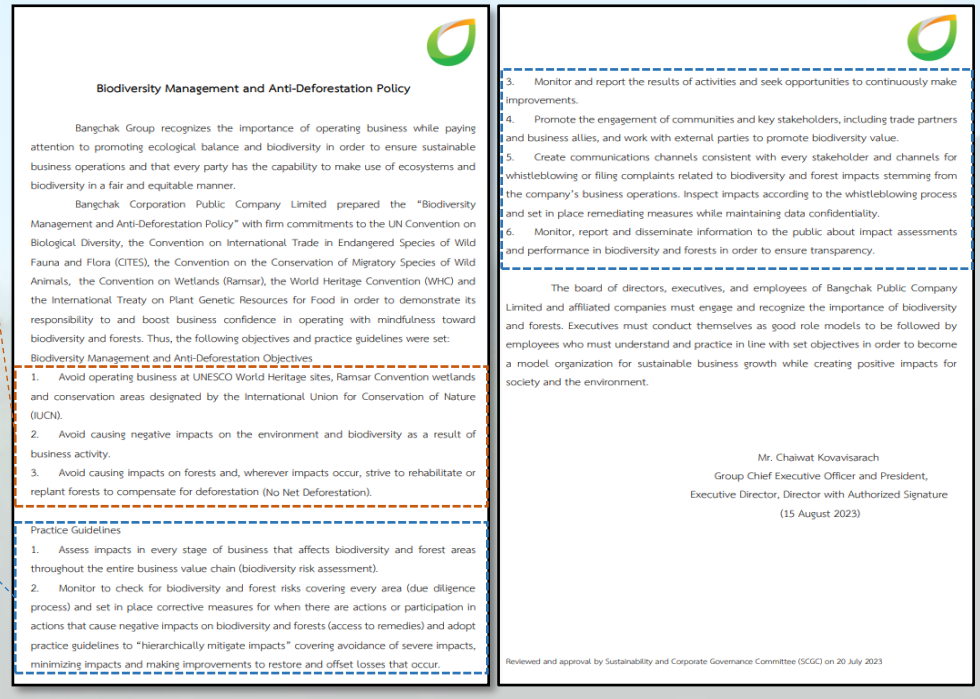
4. Promote the engagement of communities and key stakeholders, including trade partners and business allies, and work with external parties to promote biodiversity value.

5. Create communications channels consistent with every stakeholder and channels for whistleblowing or filing complaints related to biodiversity and forest impacts stemming from the company's business operations. Inspect impacts according to the whistleblowing process and set in place remediating measures while maintaining data confidentiality.

6. Monitor, report and disseminate information to the public about impact assessments and performance in biodiversity and forests in order to ensure transparency.

Anti-Deforestation Commitment; Avoid causing impacts on forests and maintain zero deforestation and no conversion of forested areas into operational areas.

Biodiversity Management and Anti-Deforestation Policy



Biodiversity Management and Anti-Deforestation Policy

Bangchak Group recognizes the importance of operating business while paying attention to promoting ecological balance and biodiversity in order to ensure sustainable business operations and that every party has the capability to make use of ecosystems and biodiversity in a fair and equitable manner.

Bangchak Corporation Public Company Limited prepared the "Biodiversity Management and Anti-Deforestation Policy" with firm commitments to the UN Convention on Biological Diversity, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the Convention on the Conservation of Migratory Species of Wild Animals, the Convention on Wetlands (Ramsar), the World Heritage Convention (WHC) and the International Treaty on Plant Genetic Resources for Food in order to demonstrate its responsibility to and boost business confidence in operating with mindfulness toward biodiversity and forests. Thus, the following objectives and practice guidelines were set:

Biodiversity Management and Anti-Deforestation Objectives

1. Avoid operating business at UNESCO World Heritage sites, Ramsar Convention wetlands and conservation areas designated by the International Union for Conservation of Nature (IUCN).
2. Avoid causing negative impacts on the environment and biodiversity as a result of business activity.
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6. Monitor, report and disseminate information to the public about impact assessments and performance in biodiversity and forests in order to ensure transparency.

The board of directors, executives, and employees of Bangchak Public Company Limited and affiliated companies must engage and recognize the importance of biodiversity and forests. Executives must conduct themselves as good role models to be followed by employees who must understand and practice in line with set objectives in order to become a model organization for sustainable business growth while creating positive impacts for society and the environment.

Mr. Chaiwat Kovavisarach
Group Chief Executive Officer and President,
Executive Director, Director with Authorized Signature
(15 August 2023)

Reviewed and approval by Sustainability and Corporate Governance Committee (SCGC) on 20 July 2023

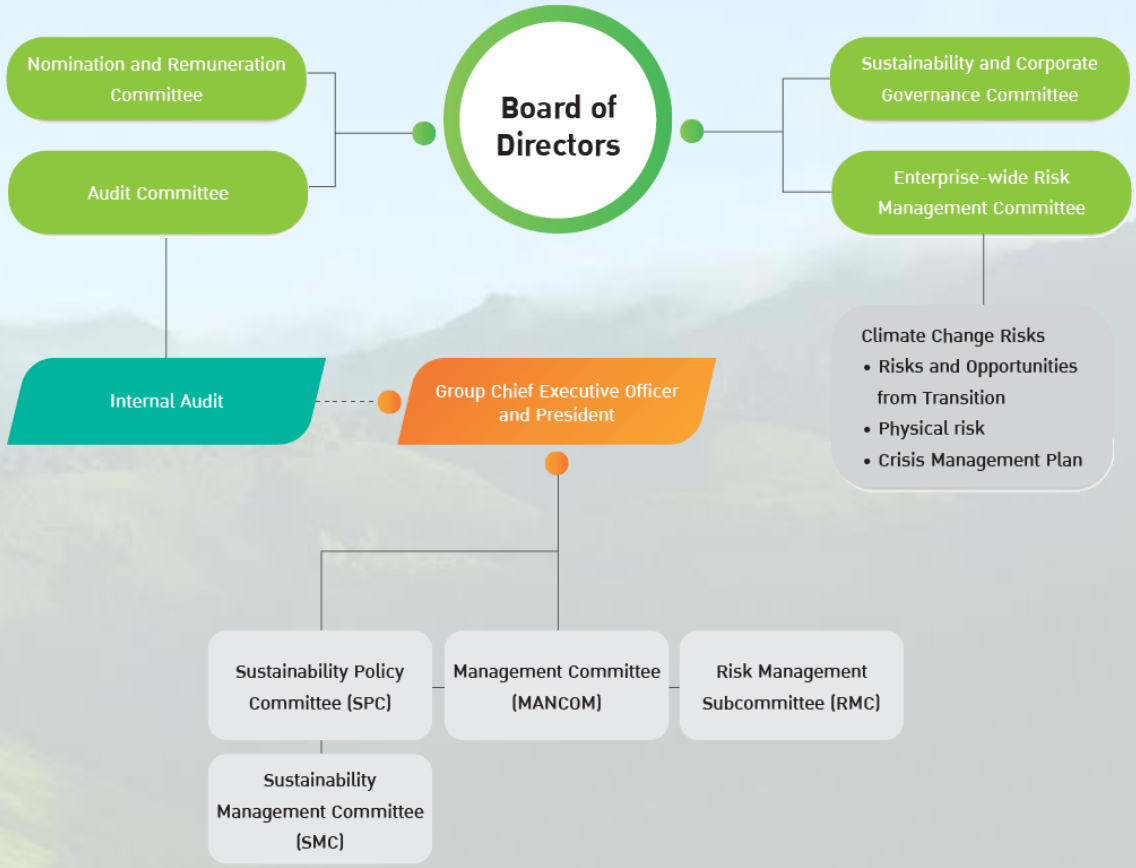
Link to Biodiversity Policy :
https://www.bangchak.co.th/storage/document/biodiversity/2023/biodiversity-management-policy-en.pdf

Management Structure

The Biodiversity Management and Anti-Deforestation Policy has received endorsement from the Board of Directors.

It undergoes preliminary approval by **the Sustainability Management Committee (SMC)** acts as a main coordinator to monitor, collect, evaluate and report on progress and performance outcomes to the Sustainability Policy and subsequently by **the Sustainability Policy Committee (SPC).** The SPC is chaired by Bangchak Group's Chief Executive Officer and President, with executives of business groups and functions working as committee members. The Sustainability Policy Committee is responsible for establishing goals, directions, policies, and strategies for sustainability development within Bangchak Group. The final approval is granted by the **Board of Directors through the Sustainability and Corporate Governance Committee (SCGC)** as illustrate in the management structure.

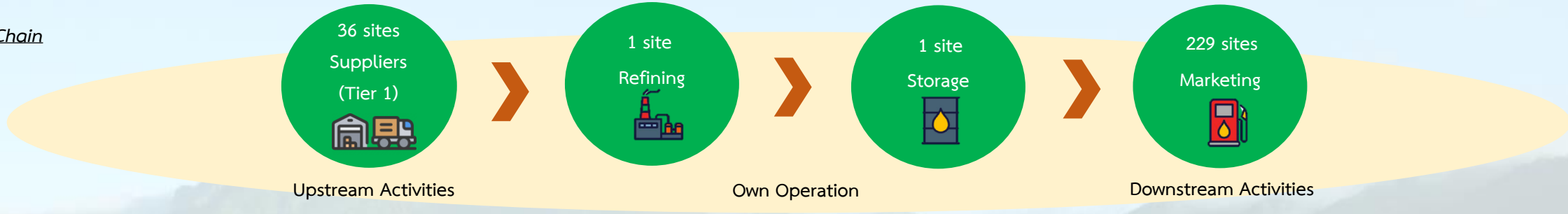
Management Structure



Scope of Assessment

In 2025, the Company evaluated biodiversity impacts and dependencies across its entire value chain at 267 sites. These assessments covered **1 site of the Bangchak Phra Khanong oil refinery and oil depot, 1 site of Bang Pa-in oil depots, and 229 sites of Company-Owned, Company-Operated (COCO) service stations**. Among these, 9 new sites were assessed this year. **The total area of the Company's own operations,** where it conducts its primary activities, **is 211.7 hectares**. Additionally, the company has expanded risk assessment to suppliers, **Tier 1 suppliers** have undergone initial biodiversity risk assessments **totaling 36 sites.** The below table is summary of the operation areas that would be included in the assessment.

Value Chain

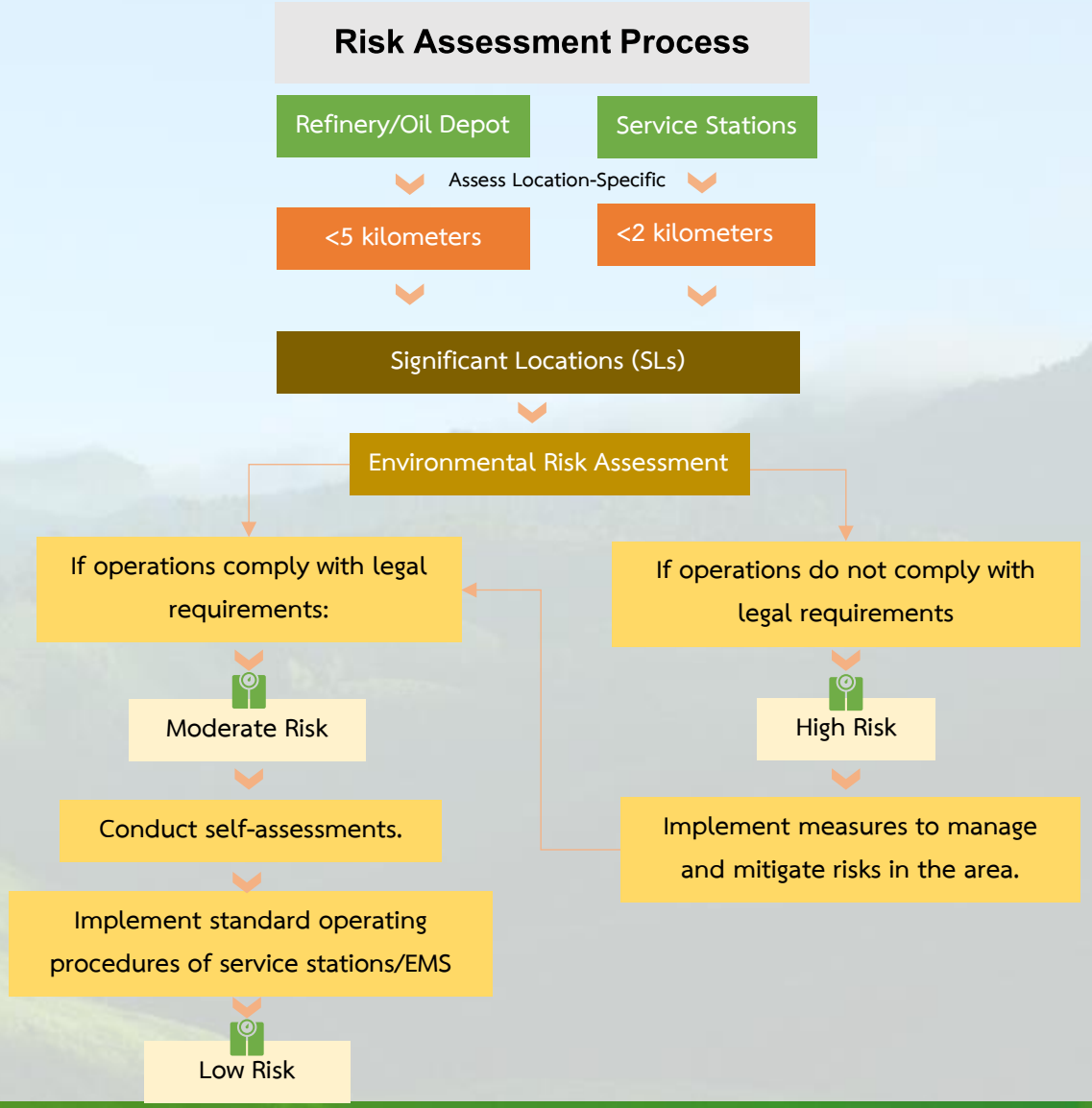


Type of Business	Number of Sites	Site's Name	Location	Total Areas (Hectares)
Upstream Activities /Suppliers	36	Significant Suppliers (Tier 1)	Thailand	-
Own Operation /Oil Refinery & Oil Depot	1	Bangchak Phra Khanong Oil Refinery & Oil Depot	Phra Khanong, Bangkok, Thailand	76.8
Own Operation /Oil Depot	1	Bang Pa-in Depot	Bang Pa-in, Ayutthaya, Thailand	25.0
Downstream Activities /Service Stations	229 (Data as of 31.12.2024)	COCO service stations	**Central Region**: Bangkok, Pathum Thani, Samut Prakan, Nonthaburi, Lopburi, Saraburi, Singburi, Suphanburi, Nakhon Pathom, Ayutthaya, Phitsanulok, Kamphaeng Phet, Samut Sakhon **Northern Region**: Uttaradit, Chiang Mai, Tak **Northeastern Region**: Nakhon Ratchasima, Maha Sarakham, Surin, Chaiyaphum, Udon Thani, Khon Kaen, Roi Et, Buriram **Eastern Region**: Chachoengsao, Chonburi, Rayong, Chanthaburi, Sa Kaeo **Western Region**: Kanchanaburi, Phetchaburi, Prachuap Khiri Khan, Ratchaburi **Southern Region**: Phuket, Nakhon Si Thammarat, Songkhla, Surat Thani, Chumphon, Krabi	109.9
Total	**267**			**211.7**

Assessment of Location-Specific and Impact from Business Operations

The assessment of biodiversity impacts from business operations involves evaluating the location of own operation areas and adjacent areas surrounding own operation in conjunction with environmental factors. This includes considering the proximity of business locations to areas with high biodiversity, such as UNESCO World Heritage sites, Ramsar Convention wetlands, and conservation areas designated by the International Union for Conservation of Nature (IUCN) within a 2-kilometer radius for service stations or 5-kilometer radius for oil refinery or oil depot. Geographic Information System (GIS) technology is used to screen business locations near high biodiversity areas within both radius, referred to as Significant Locations (SLs). Subsequently, environmental impact assessments on air, water, soil, and waste are conducted in these SLs, ensuring compliance with legal requirements and implementing mitigation measures aligned with the identified risk levels (as detailed in the workflow diagram).

SLs identified with moderate risk must undergo self-assessment and audits according to company criteria. For service stations, any non-compliance issues must be rectified following company guidelines to be considered low risk. Similarly, refineries and oil depots adhering to environmental management systems are also deemed low risk.



The Areas of High Biodiversity Value

Area to Consider

1. **The International Union for Conservation of Nature (IUCN).** The definition of six management categories are summarized below.

Ia Strict nature reserve	Strictly protected for biodiversity and also possibly geological/ geomorphological features, where human visitation, use and impacts are controlled and limited to ensure protection of the conservation values
Ib Wilderness area	Usually large unmodified or slightly modified areas, retaining their natural character and influence, without permanent or significant human habitation, protected and managed to preserve their natural condition
II National park	Large natural or near-natural areas protecting large-scale ecological processes with characteristic species and ecosystems, which also have environmentally and culturally compatible spiritual, scientific, educational, recreational and visitor opportunities
III Natural monument or feature	Areas set aside to protect a specific natural monument, which can be a landform, sea mount, marine cavern, geological feature such as a cave, or a living feature such as an ancient grove
IV Habitat/species management area	Areas to protect particular species or habitats, where management reflects this priority. Many will need regular, active interventions to meet the needs of particular species or habitats, but this is not a requirement of the category
V Protected landscape or seascape	Where the interaction of people and nature over time has produced a distinct character with significant ecological, biological, cultural and scenic value: and where safeguarding the integrity of this interaction is vital to protecting and sustaining the area and its associated nature conservation and other values
VI Protected areas with sustainable use of natural resources	Areas which conserve ecosystems, together with associated cultural values and traditional natural resource management systems. Generally large, mainly in a natural condition, with a proportion under sustainable natural resource management and where low-level non-industrial natural resource use compatible with nature conservation is seen as one of the main aims

Source: Guidelines for applying protected area management categories, IUCN (https://portals.iucn.org/library/sites/library/files/documents/PAG-021.pdf)

The Areas of High Biodiversity Value

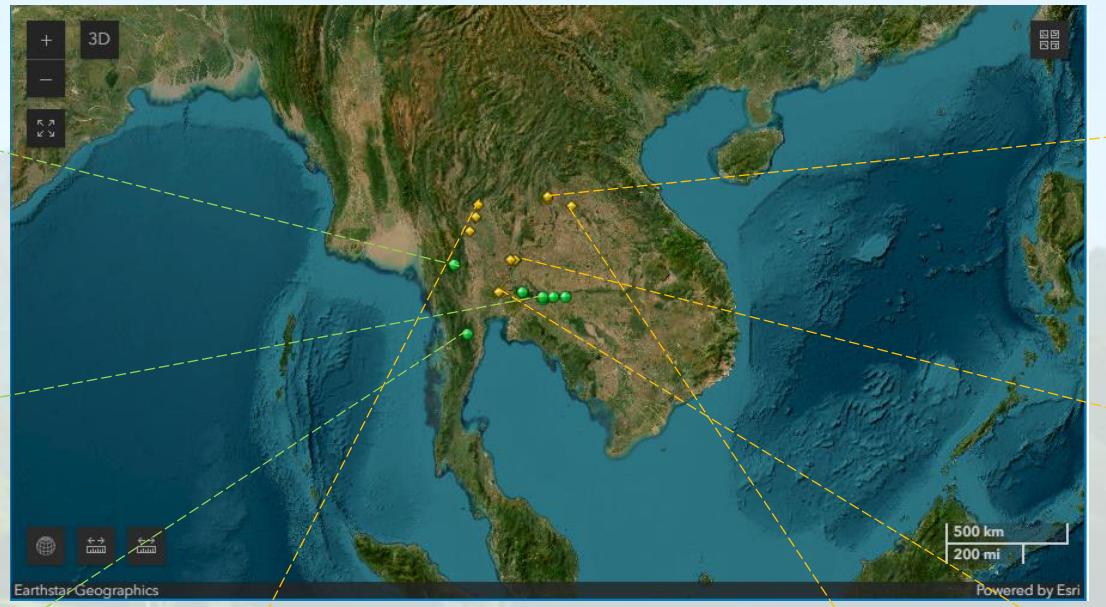
Area to Consider

2. UNESCO World Heritage sites is a natural or cultural site that demonstrates influence or significance in a global context and has been inscribed on the World Heritage List by the United Nations Educational, Scientific, and Cultural Organization's (UNESCO) World Heritage Committee. In 2024, the World Heritage Committee (WHC) inscribed the "Phu Phrabat, a testimony to the Sīma stone tradition of the Dvaravati period " as the eight World Heritage site in Thailand, bringing the total number of sites in the country to eight.

1. Thungyai-Huai Kha Khaeng Wildlife Sanctuaries (1991)

2. Dong Phayayen-Khao Yai Forest Complex (2005)

3. Kaeng Krachan Forest Complex (2021)



4. Historic Town of Sukhothai and Associated Historic Towns (1991)

5. Ban Chiang Archaeological Site (1992)

8. Phu Phrabat, a testimony to the Sīma stone tradition of the Dvaravati period(2024)

7. The Ancient Town of Si Thep and its Associated Dvaravati Monuments (2023)

6. Historic City of Ayutthaya (1991)

Source : UNESCO World Heritage Convention (http://whc.unesco.org/en/statesparties/th)

The Areas of High Biodiversity Value

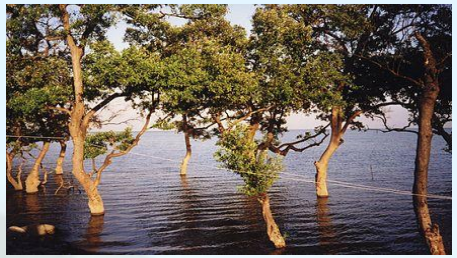
Area to Consider

3. Ramsar Convention wetlands. The government of Thailand signed the Ramsar Convention in 1998, promising to work toward wetland conservation. Today, there are 15 Ramsar Sites.

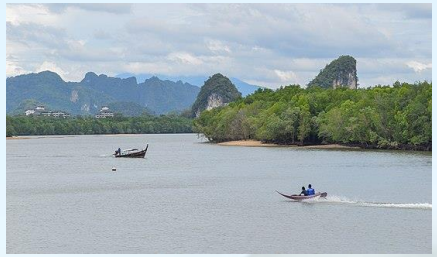
1. Kuan Ki Sian of the Thale Noi Non-Hunting Area

2. Bueng Khong Long Non-hunting Area

3. Don Hoi Lot



4. Krabi River Estuary



5. Nong Bong Kai Non-hunting Area

6. Princess Sirindhorn Wildlife Sanctuary (Pru To Daeng Wildlife Sanctuary)

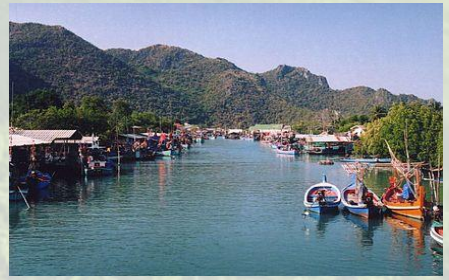
7. Hat Chao Mai Marine National Park -Ko Libong Non-Hunting Area -Trang River Estuaries

8. Kaper Estuary - Laem Son National Park - Kraburi Estuary

9. Mu Ko Ang Thong Marine National Park

10. Ao Phang Nga National Park

11. Khao Sam Roi Yot National Park



12. Kut Ting Marshland

13. Ko Kra Archipelago

14. Ko Ra-Ko Phra Thong Archipelago

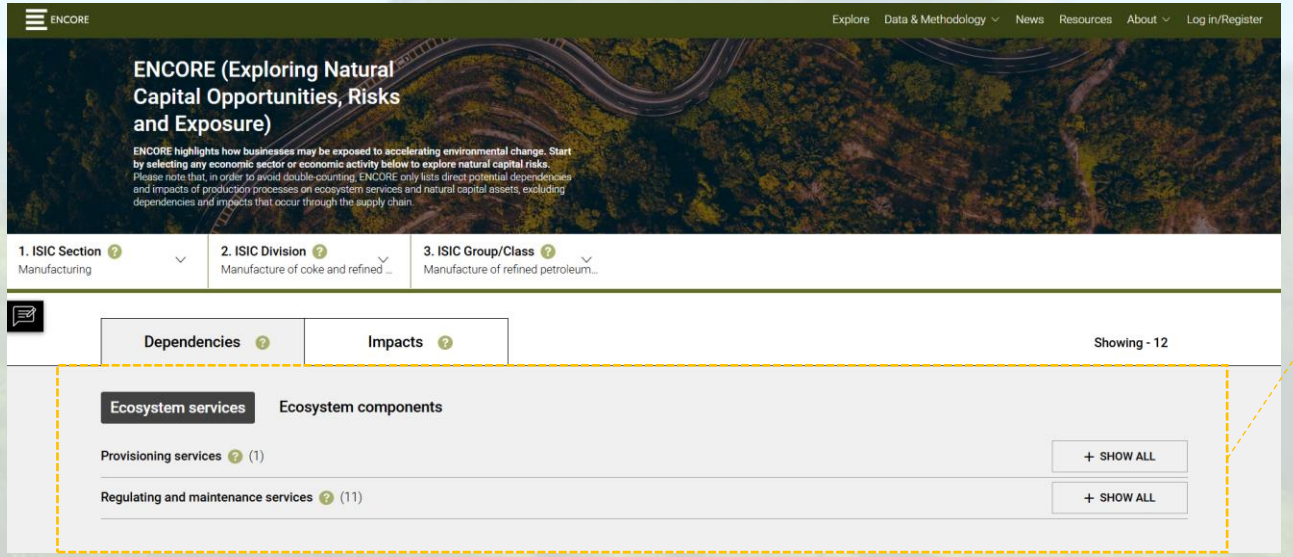
15. Lower Songkhram River

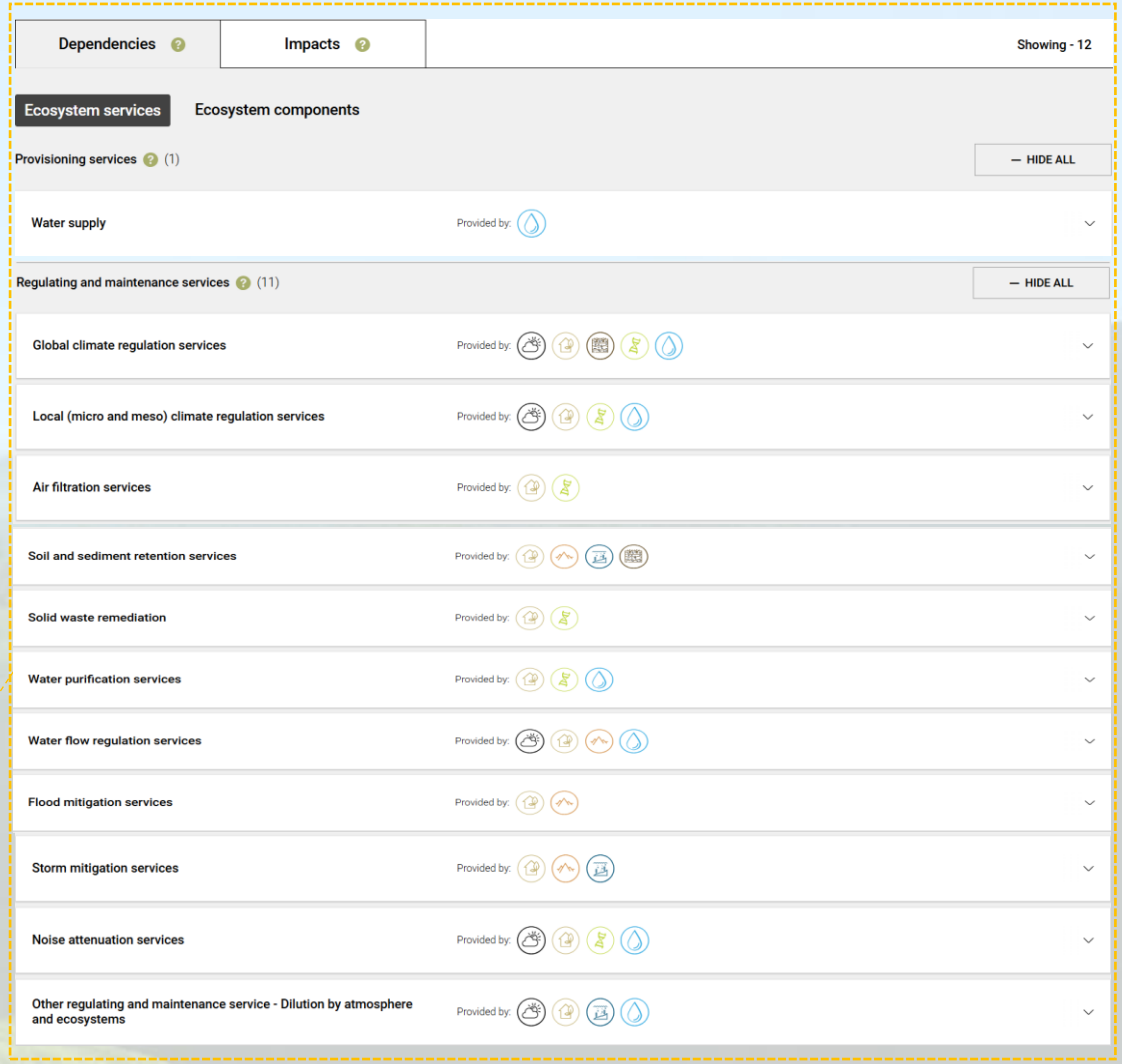
Source : List of Ramsar Sites, ONEP (https://www.onep.go.th/ramsar-2/) & Picture of List of Ramsar wetlands in Thailand, Wikipedia

Assessment of dependencies on nature in business operations

The Company considers its dependencies and use of ecosystems in business activities, including provisioning service such as the water supply etc. Regulating and maintenance services such as Global climate regulation services, Water purification services, Water flow regulation service, Flood mitigation service, Storm mitigation service etc. The assessment is done using the Exploring Natural Capital Opportunities, Risks and Exposure (Encore) tool.

Business Dependencies exploring by Encore



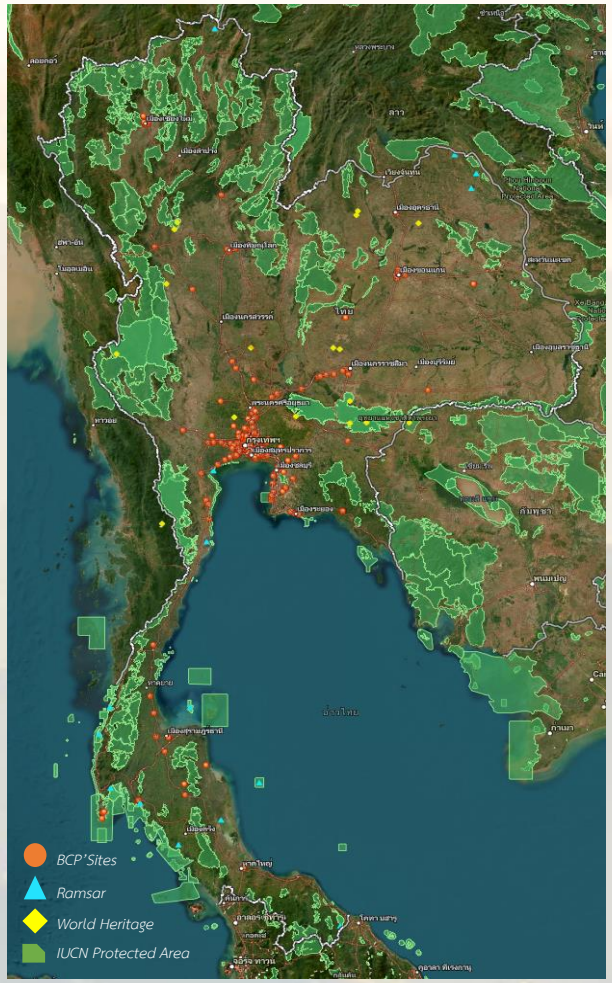


See the definition of each parameter by click link ; https://www.encorenature.org/en/explore

The results of the risk assessment on impacts and dependency on nature

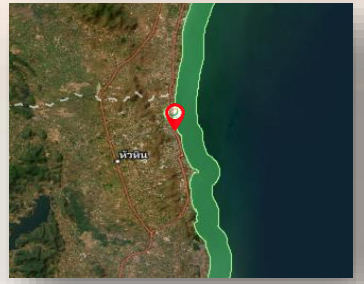
The assessment results of the distance between business own operation areas and adjacent areas to own operations (231 sites) with areas of high biodiversity value, found that **11 service stations sites (6.32 hectares) are within less than 2 kilometers radius from areas of high biodiversity value where is considered a service station that has a potential to be at risk in terms of biodiversity**. This includes service stations in Eastern region comprising 7 service stations in Chonburi province with 4.11 hectares total area, Western region comprising 1 service station in Prachuap Khiri Khan province with 1.13 hectares total area, Northern region comprising 2 service stations in Chiang Mai province with 0.80 hectares total area, Southern region comprising 1 service stations in Phuket provinces with 0.28 hectares total area as shown on the map. Subsequently, the area will undergo further assessment to evaluate its environmental impacts on air, water, soil, and waste, with consideration given to compliance with legal requirements in operations. It was found that all the 11 service stations have a low risk of creating severe impacts on biodiversity; hence, further monitoring and surveillance will continue to be carried on.

In the assessment of the dependency on natural for business operations, the results indicated that the company's activities rely on natural systems for flood and storm protection. To mitigate the impacts of sudden flooding, the company has developed a crisis management plan and closely monitors flood conditions and water levels in operational areas.

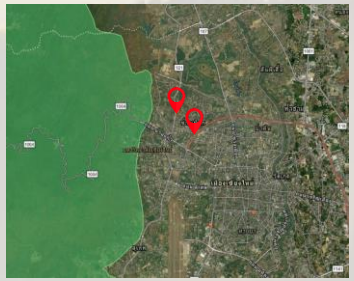


The map illustrated the location of IUCN protected area , UNESCO World Heritage sites and Ramsar Convention wetlands in Thailand.

Eastern Region



Western Region



Northern Region

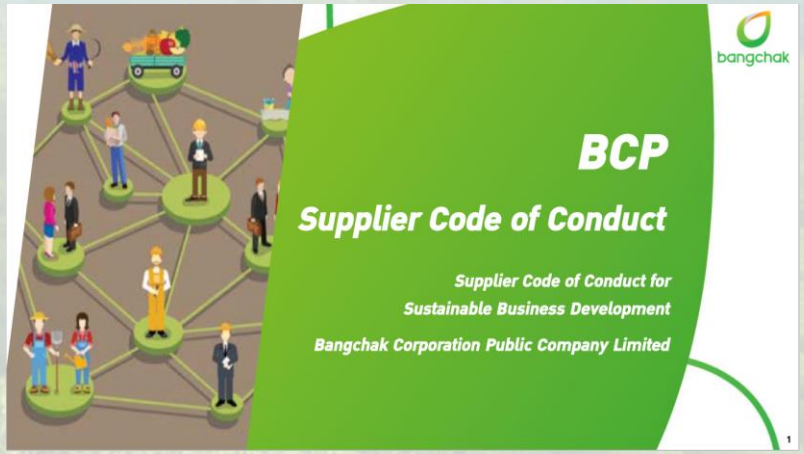
Southern Region

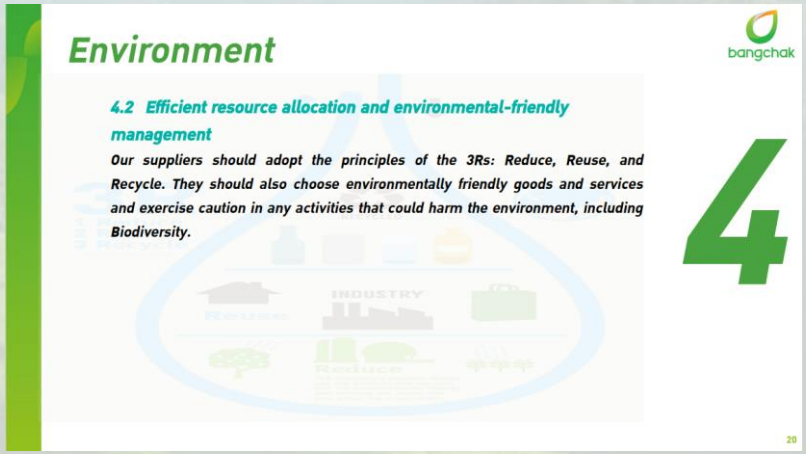
Assessment of Suppliers on Biodiversity

Supplier Code of Conduct (SCOC)

Bangchak Corporation Public Company Limited has been managing its supply chain sustainability from upstream to downstream, incorporating the principles of the UN Global Compact framework to guide its operations with partners and considering sustainable business practices in terms of the Environmental, Social, and Governance (ESG) aspects. Every new registered supplier must adhere to the SCOC, and continuous adherence to ethical business practices is emphasized with the goal to integrate procurement processes into the Company's business strategy, aligning with international standards for sustainable procurement to mitigate business disruptions and delays caused by unforeseen circumstances. One aspect in SCOC which related to the Biodiversity is **4.2 Efficient resource allocation and environmental-friendly management and 4.3 Development of strategies to mitigate and prevent environmental impacts.**

The company collaborated with suppliers to conduct an initial biodiversity assessment through the Suppliers Code of Conduct Assessment, focusing on significant suppliers by evaluating their operational areas and adjacent areas surrounding their operation areas within a radius of 5 kilometers. The initial phase of the biodiversity assessment aims to enhance the company's understanding of biodiversity practices among its suppliers. This effort is crucial for advocating and advancing future biodiversity project initiatives.





Please see BCP's SCOC for more detail : https://www.bangchak.co.th/storage/document/sustainability/2023/bcp-supplier-code-conduct-en.pdf

Mitigation Action

Mitigation action - the management plan are relied on the mitigation hierarchy that mention in the Integrating Biodiversity into Natural Capital Assessments framework. The mitigation hierarchy consist of 4 stages compromising a sequence of actions, in order of priority, to anticipate and mitigate impacts on biodiversity

Offset impacts in areas not affected by the project, when residual impacts occur on-site.

Restore & Regenerate biodiversity that has been impacted at the site level, for example through reforestation or the enhancement of important habitats.

Minimize any impacts where they cannot be immediately avoided.

Avoid biodiversity impacts during business operations, by first anticipating the potential impacts of a business activity, then putting in place measures to prevent these adverse impacts.

Tracking - Monitor and report the results of operations, and identify opportunities for continuous improvement and development.

Mitigating Actions and Tracking

The screening own operation areas and adjacent areas with location-related risks, it was found that 11 out of 231 sites are situated near areas of high biodiversity value within a 2-kilometer radius. However, upon further consideration of environmental impacts, it was found that all 11 sites have a low risk of causing significant harm to biodiversity. Nevertheless, the company still maintains continuous monitoring and surveillance to avoid or minimize impacts on biodiversity in the area. (see Table 7). Additionally, there are medium risk related to dependency of flood and storm protection. The company also has the mitigation action as shown in Table 6.

Table 6 : Mitigation Action to Minimize the Dependency of Flood and Storm protection

Risk	Mitigating Action			Results Tracking
Dependency/ Flood and Storm protection	Minimize	Bangchak Phra Khanong Oil Refinery & Oil Depot	• Monitor flood situation and the sea water level at pier front. Bangkok metropolitan flood Protection could support equivalent to 2.23 m water level above the sea. • Empty the rainwater drainage. • Installed flood prevention equipment • Basic design of the dam for flood refinery area • Business Continuity Management Plan (BCM) • Crisis Management Plan (CMP)	• Based on data collected over the past 5 years, the oil refinery area has never had to halt operations due to flooding.
		Bang Pa-In Oil Depots	• Closely monitor the flood situation and cooperate with the transportation team to prepare the adjusted transportation plan. • Regularly inspecting the readiness of protection equipment and the barrier dike (5.5 m high) around the depot. • Business Continuity Management Plan (BCM) • Crisis Management Plan (CMP)/ BPT 507	• Based on data collected over the past 5 years, the oil depot area has never had to halt operations due to flooding.
		Service Stations	• Selected and designed service stations for flood prevention. • Monitor flood situation in high potential hazard area • Prepare the protection equipment • In case of flooding, protect the important equipment according to the measure and do the oil quality check before returning to normal operation.	• Based on data collected over the past 5 years, the service station area has never had to halt operations due to flooding.

Mitigating Actions and Tracking (Cont.)

Table 7 : Mitigation Action to Avoid and Minimize the Impact from Pollutions

Risk	Mitigating Action			Results Tracking
Pollutions	Avoid	Bangchak Phra Khanong Oil Refinery & Oil Depot	• The Safety, Security, Occupational Health, Environment, and Energy Policy, SHEE Policy • Environmental Impact Assessment • ISO14001, ISO45001, ISO50001	• Complying with the law or exceeding legal specifications SHEE Policy SHEE-MK Policy
		Bang Pa-In Oil Depots	• The Safety, Security, Occupational Health, Environment, and Energy Policy, SHEE Policy • ISO14001, ISO45001, ISO50001	
		Service Stations	• Safety, Security, Occupational Health, Environment, and Energy Policy of Marketing Business Group, SHEE-MK policy • The Announcement of the Ministry of Natural Resources and Environment on the Standard for Controlling the Discharge of Wastewater controlled by the Pollution Control Department	
	Minimize	Bangchak Phra Khanong Oil Refinery & Oil Depot	**Water** – Install Wastewater Treatment Unit and Water Recycle Unit to treat the wastewater from refinery systems, production process, laboratory and rest room – Establish COD Online for real-time monitoring and sending results to Department of Industrial Works and communities around the refinery **Air** – Use clean fuel in all production process – The Vapor recovery unit (VRU) technology with up to 99% effectiveness has been installed to reduce VOCs – Monitors air quality through 7 Continuous Emission Monitoring System (CEMs) units. This system sends real-time data to Department of Industrial Works **Waste** – Manage waste according to the 3Rs principle to minimize the quantity of waste sent for disposal – Operate business according to circular economy to focus on making worthwhile use of resources, raw materials and products, and green economy	• Zero complaint about pollution from community • The results in EIA monitoring report are within acceptable standards

Mitigating Actions and Tracking (Cont.)

Table 7 : Mitigation Action to Avoid and Minimize the Impact from Pollutions (Cont.)

Risk	Mitigating Action			Results Tracking
Pollutions	Minimize	Bang Pa-In Oil Depots	**Water** –Analyze and monitor the wastewater quality within legal specification **Air** – Install Vapor Recovery Unit to reduce air pollution **Waste** – Manage hazardous waste in accordance with legal regulations	• Zero complaint about pollution from community
		Service Stations	**Water** – Analyze and monitor the wastewater quality in accordance with the Announcement of the Ministry of Natural Resources and Environment on the Standard for Controlling the Discharge of Wastewater from Service Stations controlled by the Pollution Control Department **Air** – The installation of the Vapor Recovery System in service stations will be divided into 4 phases. • **Phase 1** : Installation of the vapor recovery system, stage 1 in service stations located in 7 provinces; (1) Chonburi (2) Ayutthaya (3) Rayong (4) Songkhla (5) Samut Sakhon (6) Saraburi (7) Surat Thani **Status of Phase 1 :** Completed • **Phase 2 :** Installation of the vapor recovery system, stage 1 in 22 service stations where is potential to be at risk in terms of biodiversity from the risk assessment in 2023. **Status of Phase 2 :** Completed • **Phase 3 :** Installation of the vapor recovery system, stage 1 in 1 service stations where is potential to be at risk in terms of biodiversity from the risk assessment in 2024. **Status of Phase 3 :** Completed • **Phase 4 :** Installation of the vapor recovery system, stage 1 in all COCO service stations in 2025 **Status of Phase 4 :** Completed	• Zero complaint about pollution from community

Biodiversity Supporting Projects in the Company's Operation Area

The company support the projects to restore and regenerate of biodiversity and ecosystem in own operation area as follow :

Green Areas and Birdwatching Activities at Bangchak Phra Khanong Refinery

The Company prioritizes green space conservation and carries out tree planting projects to maintain biodiversity within its operational areas continuously. Besides, the refinery area includes large gardens, ponds, trees, and flowers. There are initiatives to plant additional trees in suitable areas or replace dried-up trees. In terms of air quality, continuous monitoring and transparent reporting are conducted in accordance with acceptable standards. This has made the Bangchak Phra Khanong refinery a safe area for both resident and migratory birds. Thus, the refinery area is not only used for business operations but also serves as a small ecosystem that supports both people involved and small living creatures. The refinery is considered an excellent bird-watching spot in the heart of the city. Additionally, bird-watching activities are related to the survey of bird populations, which is part of the biodiversity index in the area. The Company plans to conduct annual bird surveys to monitor biodiversity changes and raise environmental awareness among employees and the surrounding community.

Green Areas and Birdwatching Activities at Bangchak Phra Khanong Refinery

Operating Results :

- Maintained green space at approximately 72.21 rai or about 15.63% of the total area (462 rai) by planting a variety of tree species, which helps conserve biodiversity and promotes ecological balance in the area.
- From the survey of bird species and population in the operational area in January 2024, a total of 42 bird species were found, with a total of more than 336 birds, including resident and migratory birds, as listed below.

The bird species found at Bangchak Oil Refinery in Phra Khanong		
Little Cormorant	*Yellow-vented Bulbul*	*Brown-throated Sunbird*
Chinese Pond-Heron	*Streak-eared Bulbul*	*Olive-backed Sunbird*
Little Egret	*Ashy Drongo*	*Scarlet-Backed Flowerpecker*
Little Heron	*Black-naped Oriole*	*Eurasian Tree-Sparrow*
Asian Openbill	*Large-billed Crow*	*House Sparrow*
Peregrine Falcon	*Arctic Warbler*	*Scaly-breasted Munia*
Pink-necked Pigeon	*Inornate Warbler*	*Blue Rock-Thrush*
Rock Pigeon	*Plain Prinia*	*Vinous-breasted Starling*
Red Turtle-Dove	*Common Tailorbird*	*Common Myna*
Spotted Dove	*Oriental Magpie-Robin*	*White-vented Myna*
Zebra Dove	*Asian Brown Flycatcher*	*Asian Palm-Swift*
Common Koel	*Red-throated Flycatcher*	*Common Iora*
Blue-tailed Bee-eater	*Pied Fantail*	*Black-collared Starling*
Indian Roller	*Brown Shrike*	*Coppersmith Barbet*

Listed in Red List Category

- **Red List Category:** It was found that 37 bird species out of a total of 42 species were classified in the Red List and categorized as “Least Concern.” The remaining species are not listed in the Red List.

37
Species

Least Concern (LC)

A taxon is **Least Concern (LC)** when it has been evaluated against the Red List criteria and does not qualify for **Critically Endangered**, **Endangered**, **Vulnerable** or **Near Threatened**.

Species categorized as Least Concern (LC)

The number of bird species found in the area classified according to the Red List status.	CR	EN	VU	NT	LC
	0	0	0	0	37

Source : https://www.iucnredlist.org/

Biodiversity Supporting Projects in Adjacent Areas of Bangchak Phra Khanong Refinery

The Company has supported projects to restore and rehabilitate biodiversity and ecosystems in its adjacent areas as follows:

The Path of Fireflies Conservation Project at Kung Bang Kachao

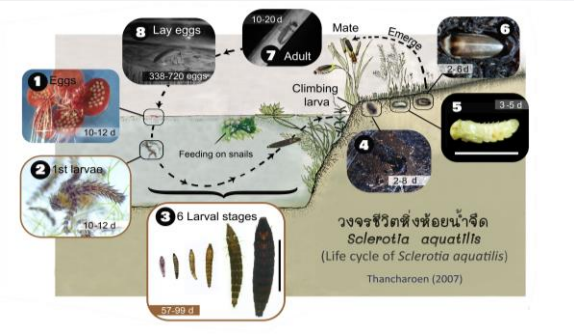
Carrying out projects in the Bang Kachao community area, Phra Pradaeng District, Samut Prakan Province, comprising 6 sub-districts: Bang Nam Phueng, Bang Kachao, Bang Krasop, Bang Yor, Bang Kobua, and Song Khanong, from 2013 to the present. This area is a rich green space with high biodiversity and is a nearby community. The focus is on ecosystem restoration and maintaining the habitat of fireflies in the area naturally. This includes studying the life cycle of fireflies and collaborating with experts and the community to survey the population and species of fireflies in the area annually.

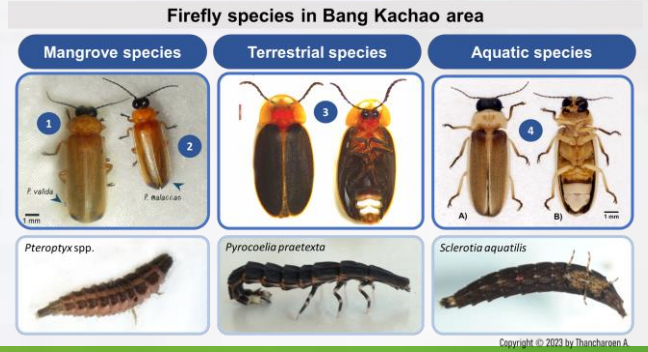
Target

1. Conserving the area and the number of fireflies in the 6 sub-districts of Bang Kachao.
2. Restoring the ecosystem in Bang Kachao to be a conservation area for fireflies.
3. Creating accurate knowledge and understanding about firefly conservation.
4. Establishing a network of local workers for firefly conservation.
5. Encouraging employees to contribute to the community in environmental matters.

Strategy

1. Establishing a committee to drive conservation efforts and plan in collaboration with the Company, from all 6 sub-districts.
2. Developing community/youth leaders to foster participation and awareness in environmental stewardship within their habitats. This includes operational work, development, and academic support for conservation research.
3. Organizing projects/activities for environmental restoration, conservation, and landscape improvement, as well as other appropriate and continuous activities.





The Path of Fireflies Conservation Project at Kung Bang Kachao

Operating Results:

- Established a committee of 39 members from all 6 sub-districts and held working group meetings on annual plans and organizing World Firefly Day.
- Formed a survey/counting team of 60 people from all 6 sub-districts, with an average of 55,819 fireflies found in the survey.
- Organized various projects and activities with around 153 youths participating.
- Supported conservation through landscape improvements:
  - Continuously planted trees in responsible areas.
  - Organized Bangchak & Bang Kachao activities: planted trees, built homes & food storage for fireflies, planted 100 trees, and released 720 firefly larvae and snails.
  - Conducted mangrove reforestation activities and constructed embankment walkways.
- Provided training on conservation knowledge for young guides.
- Created media, promotional signs, and held academic seminars on World Firefly Day, titled “Gathering of Firefly Lovers.”
- Organized economic development/tourism activities, including fine dining cooking classes with a firefly theme, and launched pilot groups.
- Supported researchers both within and outside the area to conduct academic research on the conservation and breeding of fireflies, with 3 research projects.

Supporting Project for the Bang Nam Phueng Large Farm Stingless Beekeeper Group

Supporting, promoting, developing, and managing stingless bee farming on the basis of environmental conservation and biodiversity, closely linking with economic promotion in the community through participatory efforts. Additionally, collaborating with the large-scale beekeepers group in Bang Nam Phueng Sub-district, Phra Pradaeng District, Samut Prakan Province, from 2019 to the present. Stingless bees are considered as indicators of environmental health in the area and also benefiting the community's economy.

Target

1. Operating a systematic and standardized stingless bee farming in Bang Nam Phueng Sub-district, gaining recognition and enhancing environmental health in the area.
2. Possessing knowledge in stingless bee farming and related aspects, standardized and suitable for the area.
3. Building a network of community and stingless bee workers both inside and outside the area.
4. Producing quality and standardized stingless bee products, including honey and other products, meeting market demands and elevating to become a stingless bee community enterprise in Bang Nam Phueng Sub-district.
5. Creating stable, sustainable, and continuous income for members and the community.
6. Ensuring sustainability in stingless bee farming operations in the area.

Strategy

1. Supporting the establishment of a large-scale stingless bee farming group.
2. Developing community leaders, establishing a committee in the area to drive efforts.
3. Organizing projects/activities/training and related events.
4. Expanding and increasing the number of farmers, stingless bees, and hives.
5. Supporting the study and expansion of planting bee-friendly trees and flowers, promoting the ecosystem and biodiversity.
6. Creating and supporting participation and cooperation from the community, the public, and various agencies in the area, such as the Phra Pradaeng District Agricultural Office, the Department of Agricultural Extension, the Bang Nam Phueng Sub-district Administration, the District Livestock Office, and the Provincial Livestock Office, the Department of Livestock Development, Ministry of Agriculture and Cooperatives, etc.
7. Supporting operations, studies, and research with relevant external networks.
8. Establishing community enterprises, community shops, and developing community product/brand labels.

Supporting Project for the Bang Nam Phueng Large Farm Stingless Beekeeper Group

Operating Results:

- Established a population of stingless bees in the area (estimated) naturally ≥ 1,500 bees, and farmed ≥ 400,000 bees.
- Maintained 750 bee hives.
- Had flowers and fruit trees as food sources for bees ≥ 12 species, such as coconut, golden penda, banana, mango, lime, sapodilla, orange, etc. (Research results from stingless bee honey samples by King Mongkut's University of Technology North Bangkok, Rayong Campus) The yield improved, with some plants/trees that never bore fruit now bearing fruit, such as kaffir lime, bilimbi, etc.
- Established/registered the Bang Nam Phueng Stingless Bee Community Enterprise and set up a community store “Bang Nam Phueng Stingless Bee Shop” to produce and sell products from the group and under the enterprise/brand label at Bang Nam Phueng Floating Market with a committee/working group of 10 people and 30 members.
- Produced 18 types of products from stingless bee honey and others, including, 1. Honey 2. Soap bar 3. Premium soap bar 4. Shower cream 5. Shampoo 6. Lotion 7. Balm 8. Herbal mosquito repellent spray 9. Concentrated propolis spray 10. Soft serve ice cream 11. Caramel cornflakes 12. Krong Krang Shake 13. Pad Thai 14. Shrimp paste fried rice 15. Sweet shrimp 16. Crispy noodles 17. Boiled dumplings 18. Cake
- Supported cooperation from external parties in development and research, such as joining the Big Brothers Stingless Bees network with the National Research Office (NRCT), the Department of Industrial Promotion, Ministry of Industry, and other networks.
- Created income for the group/community enterprise from various operations in 2024, totaling THB 573,943.

Punsook Urban Greenery Project

The Company implements the "Punsook Urban Greenery" project to increase green spaces, which is an important part of fostering biodiversity. In 2024, the project continued at the community relations level by planting additional trees in areas near the Bangchak oil refinery in Phra Khanong District and Bang Na District. This was done in collaboration with the Bangkok Metropolitan Administration, Phra Khanong District Office, Bang Na District Office, the Expressway Authority of Thailand, local communities, schools, and the Khung Bang Kachao area in Bang Nam Phueng Sub-district, Phra Pradaeng District, Samut Prakan Province. Cooperation was also established with the Bang Nam Phueng Sub-district Administrative Organization, local community leaders, the Royal Forest Department, the Ecological Green Space Management Center, and Nakhon Khuean Khan. Additionally, efforts were reinforced through the “Our Khung Bang Kachao” project.

Target

1. Ensuring green spaces in the operational area are rich, aligned with conditions and environment, promoting biodiversity.
2. Building a network of cooperation to increase green spaces at the community level.
3. Sustaining green space operations to support biodiversity in the area.

Strategy

1. Developing, enhancing, and expanding green spaces to support biodiversity by planting trees in areas near the Company's operational area, community relations area, and external areas.
2. Promoting and selecting tree species for planting and implementing the project, focusing on suitability, benefits, and alignment with the area, as well as participating in the conservation of plant genetics and rare tree species to ensure sustainable biodiversity development.
3. Creating cooperation and participation with networks both inside and outside the operational area, such as the Phra Khanong District Office, Bang Na District Office, Bang Nam Phueng Sub-district Administrative Organization, the Royal Forest Department, the Expressway Authority of Thailand, schools in the area, etc.

Punsook Urban Greenery Project

Operating Results:

- Enhanced green spaces by planting 17,810 trees in areas near the Company's operational area, Bangchak oil refinery in Phra Khanong District and Bang Na District. The tree species were selected in collaboration with the Phra Khanong District Office and Bang Na District Office, including Korean Banyan, Golden Willow, Spanish Moss, Golden Shower Tree, White Champaca, Honey Comb, Yellow Elder, Fukien Tea and Ixora.
- Enhanced green spaces by planting 1,072 trees in the Company's community relations operational area in Khung Bang Kachao, Bang Nam Phueng Sub-district, Phra Pradaeng District, Samut Prakan Province. The planted trees were a mix of local species, other species, and rare species, contributing to the conservation of plant genetics and rare/endangered species, such as Ardisia Polycephala Wall, Monkey Pod Tree, Dipterocarpus alatus Roxb, Fijian longan and Borneo Teak (rare species).

Our Khung Bang Kachao Project

The Company joins the network to support the “Our Khung Bang Kachao” project by the Chaipattana Foundation, collaborating with over 34 government and private agencies to drive the development of the Khung Bang Kachao area. This initiative follows the royal initiative and the royal intentions of His Majesty King Bhumibol Adulyadej and Her Royal Highness Princess Maha Chakri Sirindhorn, along with the direction of the Chaipattana Foundation, to conserve and develop Khung Bang Kachao as a rich green area. The project aims to improve the quality of life and economic growth of local people. Under 7 shared objectives, the Company participated as a working committee to support work in 3 areas/shared objectives, including, development/expansion of green spaces, sustainable tourism and development of youths, education and culture.

Target

Promoting and developing green spaces/increasing green spaces within the Khung Bang Kachao area towards sustainable, environmentally friendly growth (Green Growth).

Strategy

1. Increasing green spaces by participating in the development of state property under the supervision of the Royal Forest Department, covering an area of 400 rai with 95 plots (including the project for Phase 1 operations), specifically 19.71 rai with 11 plots for Bangchak.
2. Selecting tree species for planting based on suitability, benefits, and alignment with the area.
3. Creating cooperation and participation with networks both inside and outside the area, such as the Bang Nam Phueng Sub-district Administrative Organization, the Chaipattana Foundation, Sri Nakhon Khuean Khan Park, the Royal Forest Department, etc.
4. Encouraging customers and employees to participate in the project/community in tree planting through the Company's channels, such as Bangchak card members, the cycling club, and the Company's CSR activities.

Our Khung Bang Kachao Project

Operating Results:

- Planted 1,570 trees in an area of 19.71 rai with 11 plots (100%) by planting a mix of local tree species and other suitable species, such as Cork Tree, Mangrove Tree, Black Mangrove, Honeycomb, Hopea Odorata, White Meranti, Indian Coral Tree and Black Rosewood etc.
- Organized tree planting activities for executives and employees in the area 4 times, with 435 participants.
- Supported the improvement and development of landscapes, learning centers, and various signs under the project's operations for responsible areas, including the forest park at Rong Kwai and other relevant forest parks/gardens/plots.
- Supported the improvement, development, and maintenance of forest parks/gardens/plots in responsibility areas by creating jobs through hiring local personnel, generating income for local personnel, amounting to over THB 300,000.

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