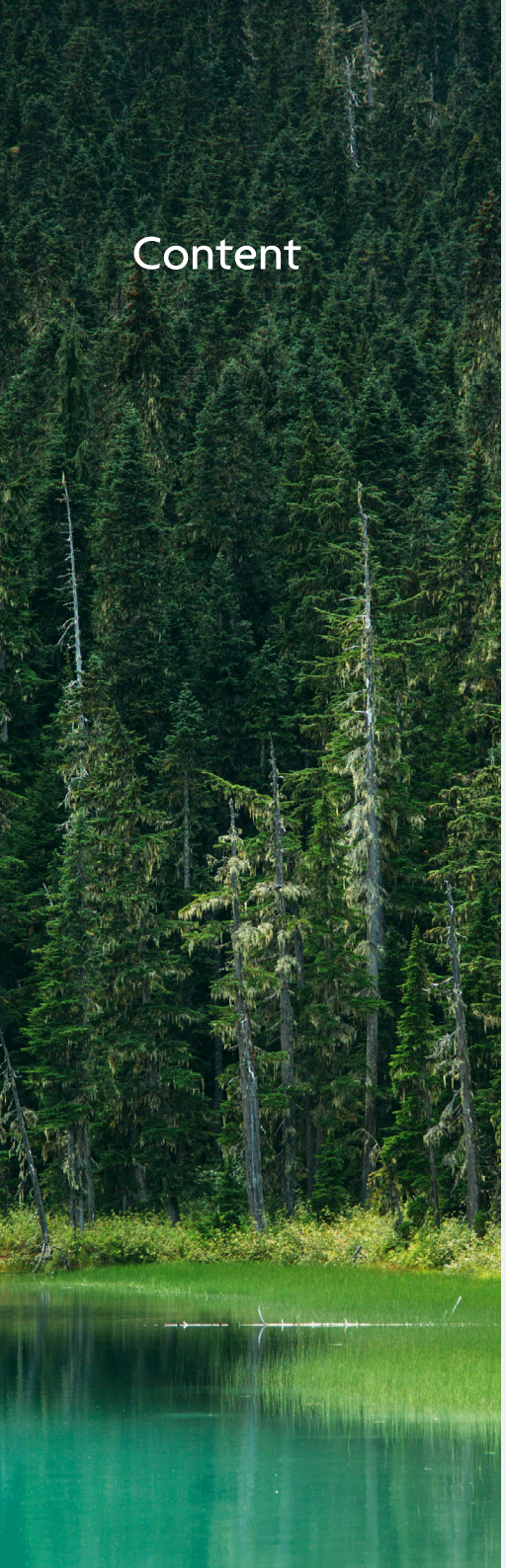
中華電信 Chunghwa Telecom ESG

2024 TNFD

Report for Taskforce on Nature-Related Financial Disclosures



Content

Message from Management

As the leader in Taiwan's telecommunications industry, Chunghwa Telecom (hereinafter the CHT) is committed not only to providing excellent communication services but also to fulfilling the responsibility of protecting the natural environment. We deeply understand that the success of an enterprise is inextricably linked to the harmonious coexistence with nature, and that biodiversity is crucial for ecosystem stability and human well-being. Therefore, we regard nature conservation and biodiversity as key strategic priorities for the Company's long-term development.

Our vision is to support nature conservation through technological innovation to achieve the international biodiversity goals set by the Fifteenth Meeting of the Conference of the Parties to the Convention on Biological Diversity (COP15), namely "halting and reversing biodiversity loss" by 2030 and "living in harmony with nature" by 2050. We are committed to achieving the targets of "Net Positive Impact" (NPI) and "No Net Deforestation" (NND) by 2030. To this end, we have designated 2024 as the "The launch year of Biodiversity Initiatives" and established a dedicated biodiversity project team. This team, led by the Senior Executive Vice President of the head office as convener, will develop long-term biodiversity conservation pathways based on two core principles: "mitigating nature loss" and "promoting nature positivity."

Our strategy is built on four key pillars: "Science-based Nature Assessment," "No Net Deforestation," "Alignment with the Nature Positive Initiative," and "Mainstreaming Nature Positive." Through science-based nature assessments, we gain a comprehensive understanding of the Company's dependencies and impacts on nature and formulate targeted conservation measures. We have established a No Net Deforestation Policy to eliminate the use of deforestation-linked products and actively engage in international No Net Deforestation initiatives to promote supply chain sustainability. We align with the Nature Positive Initiative and collaborate with international organizations to jointly advance biodiversity conservation. We mainstream Nature Positive by sharing biodiversity conservation achievements with stakeholders and progressively raising public awareness and attention to nature-related issues.

In 2024, we made significant progress in biodiversity conservation. First, we promoted the Black-faced Spoonbill ecological conservation project, leveraging smart technologies to monitor the ecological environment of Black-faced Spoonbills and implementing effective measures to protect the habitats of these rare birds. We launched the Hundred-Species Restoration Project, focusing on the conservation of threatened native Taiwanese plants at our operational sites. Our first demonstration site were established at the Taipei Jinshan Building. We also participated in the "Bamboo Forest Management" ESG project led by the Forestry and Nature Conservation Agency of the Ministry of Agriculture (hereinafter the "Forestry Agency"), supporting bamboo thinning in Fuxing District, Taoyuan City, and bamboo industry management of the Atayal tribe. Additionally, we pioneered a corporate volunteer citizen scientist training program to cultivate citizen scientists for tree carbon, who serve as green guardians of Taiwan's campuses and environment. These efforts not only demonstrated our commitment to nature conservation but also set a benchmark for other enterprises.

In the future, we will continue to enhance the depth and completeness of our disclosures in line with the Taskforce on Nature-related Financial Disclosures (TNFD) framework, progressively expand the analysis scope to include the supply chain and group subsidiaries, and further analyze physical risks and plan response measures. We also recognize that beyond our own efforts, we should exert our influence to inspire cross-sector collaboration on biodiversity, so that future generations can enjoy the same richness of nature as we do today.

Key Initiatives for Advancing Sustainability

CHT takes "becoming a global benchmark for sustainable development*" as one of its core visions, and is committed to working with various sustainability partners to jointly build a future of "living in harmony with nature". CHT deeply understands that the energy consumed, equipment operated, and waste generated in daily operations all have an impact on the natural environment. In response, CHT leverages its core technologies to actively implement environmental sustainability initiatives, integrating sustainability considerations into business operations and products and services. By strengthening its core competencies, the company aims to lead development in a sustainable, low-carbon direction that generates positive impacts on nature.

Significant milestones driven by previous nature sustainability initiatives are as follows:

2006

- Established a "Corporate Social Responsibility Committee" to promote corporate social responsibility and environmental sustainability with keener insight, a forward-looking mindset, and a systematic approach.

2007

- Published the first Corporate Social Responsibility (CSR) Report, marking an important milestone in CHT's engagement and communication with stakeholders.

2008

- Led the industry in conducting Greenhouse Gas (GHG) inventories, covering 100% of operational sites, and verified by SGS-Taiwan, becoming the first telecommunications operator in Taiwan to obtain ISO 14064-1 certification.

2018

- Proposed the "Sustainable Supply Chain Initiative" with reference to the "ISO 20400 Sustainable Procurement Guidelines," and introduced a "Supplier Sustainability Grading System."

2021

- Restructured the "Corporate Social Responsibility Committee" into the executive-level "Sustainable Development Committee."

2022

- Became the first telecommunications operator in Taiwan to issue sustainability bonds, with an issuance amount of NTD 3.5 billion – the largest sustainability bond issuance by a non-manufacturing enterprise in Taiwan at that time.
- Piloted internal carbon pricing, with carbon emissions priced at NTD1,600 per metric ton of carbon.

2023

- Published the "Biodiversity and No Deforestation Commitment," pledging to achieve Net Positive Impact (NPI) and No Net Deforestation (NND) by 2030.
- Integrated the "Sustainable Development Committee" and the "Strategy Committee" into the "Sustainable Development and Strategy Committee," and elevated it to the level of a functional committee under the Board of Directors.
- Joined the RE100 initiative, committing to 100% renewable energy use across the Group* by 2040.
- Validated by SBTi for near-term greenhouse gas emission reduction targets, committed to halving Scope 1 and Scope 2 carbon emissions by 2030.
- Joined the "Nature and Biodiversity Initiative Platform" launched by BCSD Taiwan.

2024

- Became the first telecommunications operator in Taiwan to join the EV100 initiative, committing to achieving the goal of 100% electrification of engineering and official vehicles by 2030.
- Established a "CHT No Net Deforestation Policy" in accordance with the EU Deforestation Regulation (EUDR) to prevent all forms of deforestation activities.
- Became the first telecommunications operator in Taiwan to issue a Taskforce on Nature-related Financial Disclosures (TNFD) report, and the first to establish a localized biodiversity scientific assessment procedure in Taiwan.
- Verified by SBTi for greenhouse gas net-zero targets, committed to achieving net-zero by 2045.

* The scope of application for joining RE100 includes the parent company and five subsidiaries (Chief Telecom Inc., Honghwa International Corporation, Chunghwa Precision Test Tech.Co., Ltd., Chunghwa Leading Photonics Tech Ltd., and International Integrated Systems, Inc.).

2024 Key Performance Highlights

The year 2024 marks the "The launch year of Biodiversity Initiatives" for CHT. Adhering to the two core principles of "mitigating nature loss" and "promoting nature positivity," the Company continues to plan and implement long-term biodiversity conservation pathways, striving to fulfill the "Biodiversity and No Deforestation Commitment." These efforts aim to achieve No Net Deforestation (NND) and Net Positive Impact (NPI) on biodiversity by 2030. The key performance highlights for 2024 include:

Black-faced Spoonbill Conservation Project

CHT launched the first project in Taiwan's telecommunications industry to use AI technology for habitat conservation. Focusing on the Qigu Salt Field, a nationally important wetland, the Company developed Taiwan's first "AI-enabled Black-faced Spoonbill monitoring system." This system utilizes CHT's 5G high-speed network, combined with continuously iterated AI recognition algorithms and multi-model advancements, to stably monitor and quickly and accurately identify black-faced spoonbills 24/7. This effectively supports bird population surveys, demonstrating the potential of technology in environmental protection and reflecting corporate responsibility in ecological conservation. Cross-sector collaboration promotes the integration of diverse resources. Additionally, by using electronic fence technology to monitor the surroundings of nesting sites and promptly alert any intruder images, we help safeguard the habitat of the Black-faced Spoonbills. (Figure 1).

Hundred-Species Restoration Project

CHT launched the first project in Taiwan's telecommunications industry to conserve endangered plants, using its operational sites as conservation bases and integrating AIoT technology to monitor plant growth conditions. This effort aims to protect threatened species not covered by protected area regulations. In 2024, CHT designated Taipei Jinshan Building as a demonstration site, prioritizing the conservation of four threatened species: "Hypericum monogynum", "Arundina graminifolia", "Angelica pubescens", and "Asarum taitonense" (Figure 2).

Participating in the "Bamboo Forest Management project" of the Forestry Agency

CHT, through the Forestry Agency's matchmaking platform, collaborated with local communities, including the Atayal tribe in Fuxing District, Taoyuan City, in September 2024 to launch the "Bamboo Forest Management project", a four-year initiative employing professional techniques for bamboo forest tending and management. The project seeks to balance bamboo forest ecology with circular production, driving the development of a local green economy and jointly safeguarding the sustainable ecology of bamboo forests (Figure 3).

Cultivating Citizen Scientists for Tree Carbon

In 2024, CHT collaborated with the team led by an Associate Professor from National Taiwan University to provide its employees with a solid foundation in tree ecology, carbon sink, and field survey techniques. By the end of 2024, more than 127 employees had been trained as citizen scientists equipped with both scientific literacy and hands-on skills in tree carbon (Figure 4).

Ongoing promotion of the forestation program

In 2023, CHT announced the expansion of its "150,000 trees in 8 years" forestation program. By the end of 2024, the Company had planted 41,415 trees across eight sites—including Xinwu District (Taoyuan), Wufeng Township (Hsinchu), Mailiao Township (Yunlin), Yujing District (Tainan) and four other locations—covering 20.23 hectares. Species were chosen to match local ecological goals: plantings ranged from Taiwan sassafras, the sole larval host of the Broad-tailed swallowtail butterfly, to trees for post-wild-fire restoration, coastal shelterbelts and corridors that reconnect fragmented forest habitats.

Hosting a No Net Loss and No Deforestation Forum

CHT and E.SUN FHC jointly hosted the "No Net Loss and No Deforestation Forum" in November 2024, responding to the government's sustainability policies and fostering in-depth exchanges among industry, government, academia, and research sectors on this topic. Together, we strive for the future of the Earth by delving into the importance of sustainable forestry in maintaining ecological balance and the roles and responsibilities of enterprises in promoting sustainable practices.

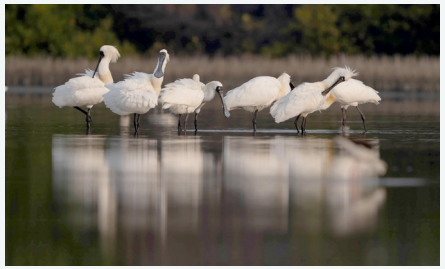


Figure 1. CHT's Efforts in Black-faced Spoonbill Ecological Conservation

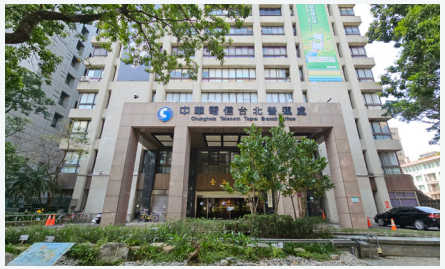


Figure 2. CHT Launched Hundred-Species Restoration Project

Figure 3. CHT Officially Kicked off the "Bamboo Forest Management Project"

Figure 4. CHT Organized Citizen Scientists for Tree Carbon Event

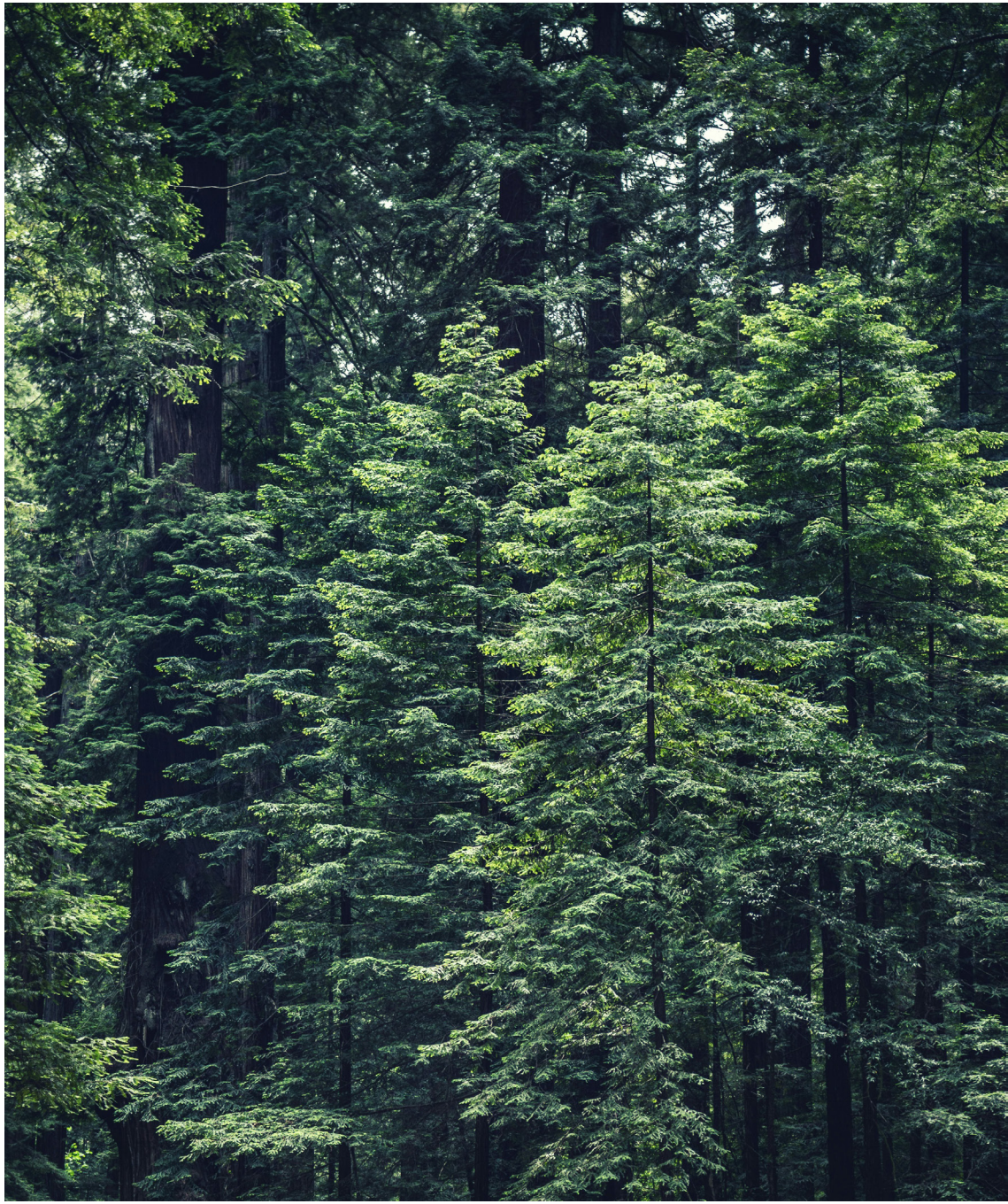
About the Report

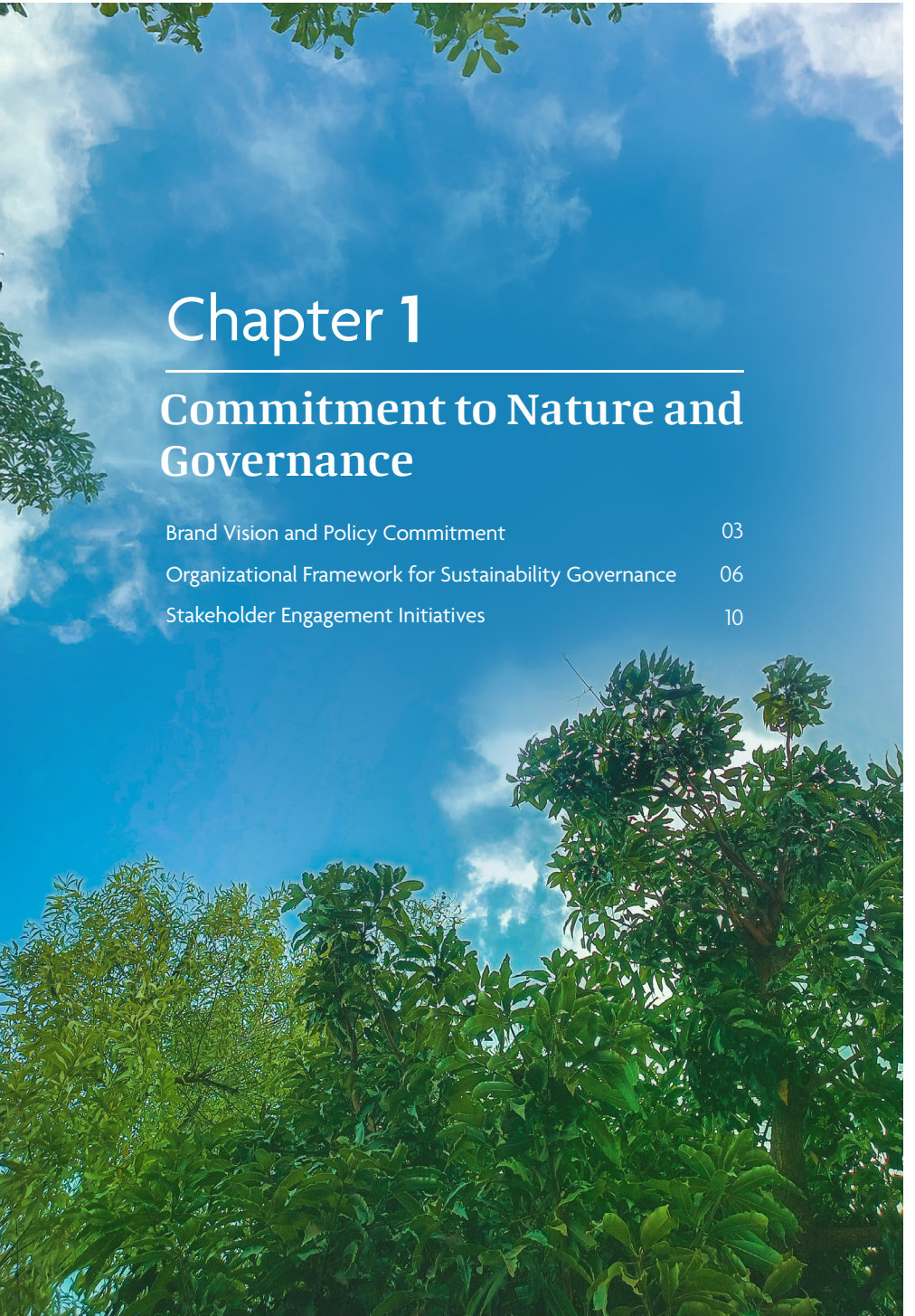
In 2022, the 15th meeting of the Conference of the Parties to the Convention on Biological Diversity (COP15) finalized the Kunming-Montreal Global Biodiversity Framework, with the Conference of the Parties committing to 23 action targets for 2030 and 4 long-term goals for 2050. In 2024, the 16th meeting of the Conference of the Parties to the Convention on Biological Diversity (COP16) further negotiated the responsibilities and targets of national governments, focusing on advancing the implementation of the Kunming-Montreal Global Biodiversity Framework to address global biodiversity challenges.

Chunghwa Telecom has advanced the implementation of Target 15* of the Kunming-Montreal Global Biodiversity Framework- which requires businesses to regularly monitor, assess, and disclose their risks, dependencies, and impacts on biodiversity; it further advocates for sustainable consumption patterns with the aim of gradually reducing negative impacts on biodiversity by adopting the official framework by the Taskforce on Nature-related Financial Disclosures (TNFD), unveiled at the New York Climate Week in September 2023. Following governance, strategy, risk and impact management, as well as relevant metrics and targets, CHT discloses nature-related information and employs the recommended LEAP (Locate, Evaluate, Assess and Prepare) methodology to systematically analyze its dependencies and impacts on nature. Moreover, CHT also references the international GRI Standards in analyzing natural biodiversity, aiming to responsibly address nature-related risks, collaborate with related parties to strengthen corporate resilience, and promote Nature Positive growth.

This report primarily discloses information pertaining to CHT's headquarters, related business sites, and key suppliers in the Company's supply chain, covering the period between January 1, 2024, and December 31, 2024. However, as advancing nature sustainability actions requires long-term commitment, some sections include content from previous and subsequent years. The taskforce for this report is a collaboration between CHT, the International Climate Development Institute (ICDI), the team led by a retired associate professor of National Taiwan University, and the Sustainable Transformation Service Team from Deloitte & Touche Risk Management Advisory Co., Ltd. (Hereinafter referred to as "the Taskforce").

* Target 15 of the Kunming–Montreal Global Biodiversity Framework states: "Businesses should regularly monitor, assess, and transparently disclose their risks, dependencies and impacts on biodiversity and promote sustainable consumption patterns in order to progressively reduce negative impacts on biodiversity."





Chapter 1

Commitment to Nature and Governance

(1) Brand Vision and Policy Commitment

CHT fully recognizes the importance of biodiversity and no deforestation to ecological balance and climate stability. Therefore, we commit to preserving and promoting biodiversity, avoiding all deforestation activities, and further advancing forest restoration not only in our own operations, but also jointly with our Tier 1 suppliers and non-Tier 1 suppliers across the supply chain and other partners, so as to align with the United Nations Sustainable Development Goals (SDGs) 6, 12, 13, 14, and 15. Furthermore, in 2023, we announced the "Biodiversity and No Deforestation Commitment", leading the industry by pledging to achieve Net Positive Impact (NPI) on biodiversity and No Net Deforestation (NND) by 2030. This commitment aims to honor the "Kunming-Montreal Global Biodiversity Framework", and achieve the 2030 milestone of "halting and reversing biodiversity loss" and the 2050 vision of "living in harmony with nature," thereby realizing our goal of "becoming a global benchmark for sustainable development". Our commitment includes:

- As a general principle, our new operating activities (including the establishment of office buildings/ service centers, central offices, base stations, etc.) should be avoided in areas adjacent to key biodiversity areas (KBAs). Where national infrastructure development necessitates the construction of telecommunications facilities in areas adjacent to KBAs, we will conduct environmental impact assessment in compliance with relevant national regulations. This includes the assessment and monitoring of risks related to biodiversity and forest degradation, and formulating measures to prevent, mitigate, restore and offset the impacts. Additionally, we'll collaborate with external partners to protect the ecosystem in areas adjacent to KBAs and strive for No Net Loss (NNL).
- If current operating activities are carried out in areas adjacent to KBAs, we will progressively conduct risk assessments and monitoring associated with the use of natural resources and biodiversity conservation , in order to plan response actions, reduce reliance on natural resources, and minimize negative impacts. We aim to achieve a Net Positive Impact (NPI) on the biodiversity in the affected areas by 2030.
- We will inventory the current use of wood-based products in operational activities (such as paper, packaging, building materials, and furniture) and allocate resources for forest restoration, with the goal of progressively achieving No Net Deforestation (NND) by 2030.
- We will continuously raise stakeholders' (employees, clients, suppliers, partners) awareness of the importance of biodiversity and forest conservation.
- We will engage in major domestic and international biodiversity initiatives, and collaborate with external experts (such as scholars, consultants or non-governmental organizations) to keep abreast of biodiversity progress and formulate long-term strategies.
- We will regularly disclose the progress of biodiversity and no net deforestation initiatives through the Company's official website or sustainability reports.

(2) Organizational Framework for Sustainability Governance

CHT's Sustainable Development and Strategy Committee is the highest guiding body for the Company's sustainable development, serving as a functional committee under the Board of Directors. The committee consists of five to nine directors, with the convener elected by all the members. Its primary role is to provide strategic guidance on the vision, medium- to long-term goals, long-term policies, and management approaches on sustainable development. Through regular meetings, the committee regularly supervises and reviews CHT's progress in addressing climate change and managing nature-related risks and opportunities. Members of the Company's Board of Directors possess extensive backgrounds and experience. To further enhance the Board's capabilities in sustainability governance, the Company places great importance on ongoing education and training for its highest governance body in sustainability and biodiversity-related topics. To oversee CHT overall development direction, external experts were invited in 2024 to present on biodiversity conservation challenges and opportunities, with participation by more than half of the Board members. This ensures that sustainability strategies are effectively integrated into business operations.

In addition, under the Sustainable Development and Strategy Committee, CHT has established a Sustainable Development Promotion Committee composed of the management team. The Chairman and President serve as the Chairperson and Vice Chairperson, respectively, representing the Board in the formulation and review of sustainability strategies, policies, and targets. This committee is responsible for promoting company-wide sustainability strategies and initiatives, coordinating tasks among departments, supervising implementation progress, and regularly reporting execution results and future sustainability plans to the Board. This structure supports the Board in policy setting, management, and enhancing sustainability risk management. Additionally, the Company has appointed a Chief Sustainability Officer to further strengthen the promotion and implementation of sustainability efforts. (Figure 5).

Given the increasing severity of biodiversity loss and ecosystem imbalance in recent years, which the World Economic Forum's Global Risks Report 2025 identifies as the second most significant risk over the next decade, with potential long-term impacts on ecosystems that could affect the economy, environment, and society, CHT has further strengthened its biodiversity management by establishing a dedicated governance framework for biodiversity. This framework is led by the Senior Executive Vice President of Technology as the convener and is supported by task forces focusing on technology, restoration, forestation, public relations, and other related areas. (Figure 6). These groups are dedicated to executing projects addressing nature-related dependencies, impacts, risks, and opportunities. Key activities include habitat restoration, tree-planting events, promoting industry-academic cooperation, and keeping abreast of sustainable natural development trends and international initiatives.

In the future, we will extend related activities and initiatives across our entire Group value chain, working together with subsidiaries and suppliers to implement relevant projects and jointly contribute to protecting the ecological environment and creating a better, sustainable future.

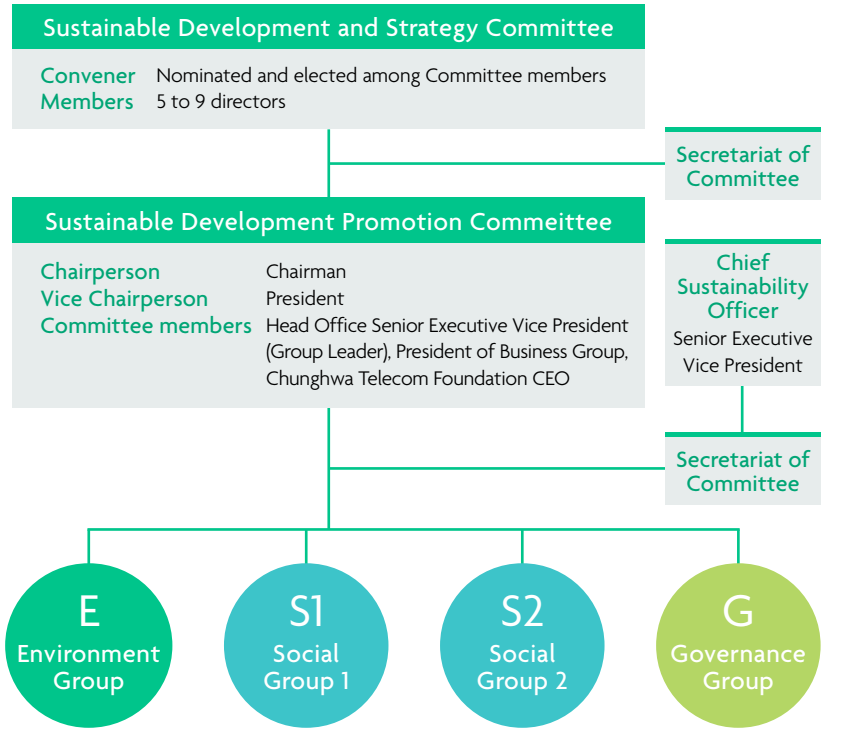


Figure 5. Sustainable Development Governance Framework

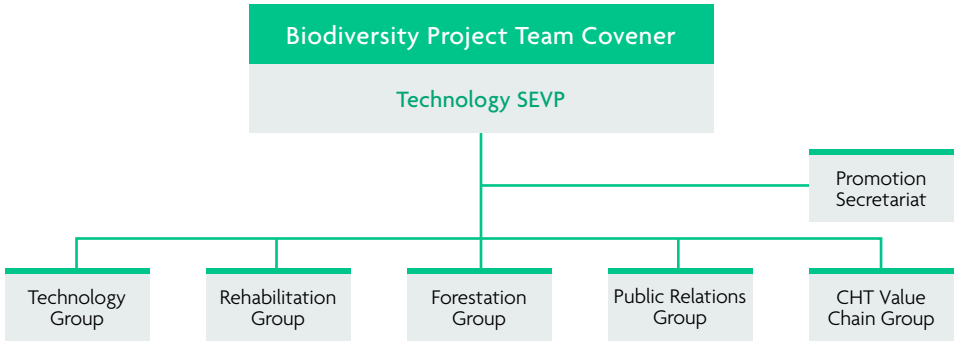


Figure 6. Biodiversity Management Governance Framework

(3) Stakeholder Engagement Initiatives

CHT supports and voluntarily adheres to internationally recognized human rights conventions, including the *Universal Declaration of Human Rights*, the *United Nations Global Compact*, the *United Nations Guiding Principles on Business and Human Rights*, and various human rights frameworks and guiding principles of the conventions formulated by the International Labour Organization. The Company is committed to safeguarding human rights issues such as anti-discrimination, gender equality, freedom of association, collective bargaining, the prohibition of child labor, and the protection of indigenous peoples' rights.

CHT conducts regular human rights due diligence to mitigate and eradicate human rights violations across its entire value chain. In the event of human rights risk incidents, the Company has developed appropriate remediation measures. The responsible departments assess the necessary improvements and scope of actions and make ongoing adjustments as needed. For detailed results of human rights assessment within the value chain, as well as mechanisms for mitigating and remedying human rights incidents, please refer to the Human Rights Management section on the official website of CHT.

In addition to conducting human rights assessments, CHT also follows the recommendations of the final version of the TNFD by integrating nature-related stakeholders into its overall assessment and management processes. Relevant factors are incorporated into the LEAP analysis conducted for the Company's operations and value chain (please refer to "Ch2 Natural LEAP Analysis" in this report). We also convene cross-functional workshops on major nature-related stakeholders associated with CHT's operational activities and interactions with nature.

The process for identifying major nature-related stakeholders is as follows:

- Referencing international nature-related trends and the official recommendations of TNFD to compile a list of stakeholders associated with CHT's natural environment.
- Assessing stakeholders according to the principles of responsibility, impact, and diversity of perspectives stipulated in the AA1000 SES Stakeholder Engagement Standard; each department evaluates stakeholders based on their relationship and level of impact; relevant assessment details are provided in the table below (Table 1).

Evaluation Dimensions	Definition
Responsibility	Departments are responsible for protecting the natural environment, preventing biodiversity loss, and safeguarding the rights and interests of stakeholders' habitats or residential environments.
Impact	Stakeholders whose actions affect the department's nature-related impacts or decisions.
Perspective diversity	Diverse opinions from stakeholders benefit the departments by allowing them to gain new insights into special situations or discover new opportunities.

Table 1. Stakeholder Evaluation Dimensions and Definitions

- Consolidating and statistically standardizing the assessment results from each department, and identifying a list of CHT's nature-related stakeholders and the degree of their relationship with the Company.
- Based on criteria such as the closeness, significance, and degree of impact on nature-related stakeholders, CHT has selected the top two-thirds, resulting in seven categories of nature-related stakeholders identified as the Company's major nature-related stakeholders. (Table 2).

Item	Nature-related stakeholders	Relevancy
1	Government agencies	High
2	Customers	
3	Influential advocacy organizations	
4	Local communities / Indigenous people	
5	Investors / Shareholders	
6	Employees	
7	Non-profit organizations	
8	Academic institutions	
9	Suppliers / Contractors	
10	Financial institutions	Low

Table 2. Identification Results for Major Stakeholders of CHT in 2024

CHT believes that understanding stakeholders' perspectives on corporate operational and management topics, engaging in dialogue, and building consensus form the core foundation for advancing sustainable actions and ensuring long-term business sustainability. Therefore, to strengthen engagement with stakeholders affected by CHT's operations, we organize diverse activities and forums, actively participate in public policy briefings and public hearings hosted by government agencies, and maintain exchanges with academic institutions and other organizations. We collaborate with employees to promote various nature conservation activities, while recognizing the critical role that indigenous peoples and local communities play in environmental protection and management. We actively engage with them and incorporate their feedback as a valuable reference for Chunghwa Telecom's business planning and implementation. For detailed information about CHT's engagement with major nature-related stakeholders, please refer to the table below.

Stakeholders	Key Engagement Activities
Government agencies	• Bamboo Forest Management Project: CHT, through communication with and coordination by the Forestry and Nature Conservation Agency, launched the Bamboo Forest Management Project in September 2024. This project collaborates with local communities, including the Atayal tribes in the Fuxing District, Taoyuan City, to introduce sustainable management practices that maintain the ecological health and sustainability of bamboo forests. This is a four-year program for bamboo forest tending and management, aiming to promote the local green circular economy and support the preservation of traditional bamboo craftsmanship.
Customers	• No Net Loss and No Deforestation Forum: Join hands with E.Sun Financial Holdings to co-host the "No Net Loss and No Deforestation Forum" in November 2024 to respond to the government's policy of promoting sustainable development and enhance in-depth exchanges among industry, government, academia, and research institutions on this topic. • Old for New Device Trade-in: CHT, in line with its circular economy philosophy, allows customers to bring their old mobile phones to designated stores for appraisal and recycling, ensuring that the devices enter an effective recycling process and helping to reduce environmental pollution. • Continued promotion of e-billing: We continue to encourage customers to adopt e-billing, and currently 73.2% of customers have opted for paperless billing. Over the past 3 years, a total of 62.23 million e-bills have been issued, saving over 1.886 billion pieces of paper and reducing 12,694 tons of carbon dioxide emissions.
Influential Advocacy Organizations	• BCSD Taiwan held a "New Year Tea Reception with Chief Sustainability Officer": discussed the development of Taiwan's nature strategy with the Ministry of Environment and the heads of domestic nature conservation agencies (the Forestry and Nature Conservation Agency, Ocean Conservation Administration of the Ocean Affairs Council, and National Park Service of the Ministry of the Interior), and exchanged views with the Asia head of Business for Nature, a leading organization promoting nature action initiatives internationally.

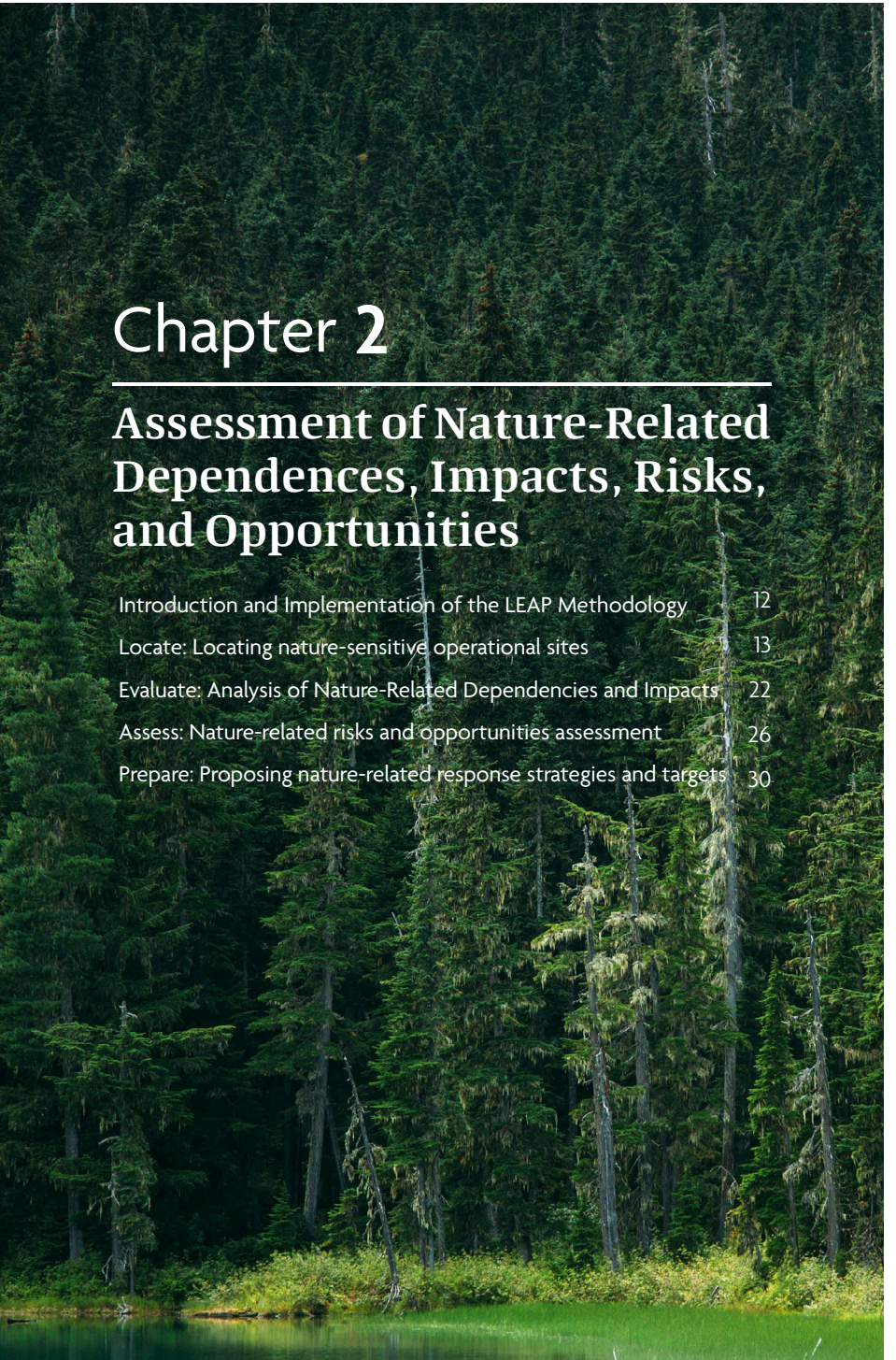
Stakeholders	Key Engagement Activities
Local Communities / Indigenous People	• Bamboo Forest Management Project*1: CHT, through communication with and coordination by the Forestry and Nature Conservation Agency, launched the Bamboo Forest Management Project in September 2024. This project collaborates with local communities, including the Atayal tribes in the Fuxing District, Taoyuan City, to introduce sustainable management practices that maintain the ecological health and sustainability of bamboo forests. This is a four-year program for bamboo forest tending and management, aiming to promote the local green circular economy and support the preservation of traditional bamboo craftsmanship.
Investors / Shareholders	• Investor Conference: CHT holds quarterly investor conferences to explain the Company's ESG-related actions to shareholders and investors, including the advancement towards carbon reduction commitments, the promotion of natural sustainability initiatives, and the ESG-related awards won and ratings received. This enables investors and shareholders to fully understand the Company's sustainability performance.
Employees	• Education and training for Hundred-Species Restoration Project: CHT utilizes its operational sites as conservation bases for threatened plant species, and trains employees as interpreters to enhence community and stakeholder engagement and recognition. • Citizen Scientists for Tree Carbon: In collaboration with the team led by a retired Associate Professor from the National Taiwan University, we cultivate colleagues to become citizen scientists for tree carbon with scientific literacy and practical operational capabilities. In addition, a total of 127 colleagues participated in the licencing course on citizen scientists for tree carbon and obtained relevant licences. • Net Zero Manager and Biodiversity Licencing Training Program: 42 employees obtained licences in 2024. • Ecological Sustainability/Smart Agriculture Live Course Series: Exploring surrounding biodiversity and underground economics using iNaturalist, soil carbon sequestration and ecological balance, protecting Taiwan's biodiversity by joining citizen scientists, the hidden marine carbon reduction force – blue carbon, and international certification for smallholder carbon farming and sharing of SDGs & ESG quantitative performance, with 715 employee participating.
Non-profit organizations	• Black-faced Spoonbill Conservation Project: We developed AI technology jointly with the Industrial Technology Research Institute (hereinafter referred to as "ITRI"), and promoted the application of the "AI-enabled Black-faced Spoonbill Monitoring System," the "Dingshan Birdhide Black-faced Spoonbill Live Video and Habitat AI Ecological Observation System," and the "Qianliyan Platform" system, etc. jointly with organizations such as Taiwan Black-faced Spoonbill Conservation Association*2. This demonstrates the fulfilment of our corporate responsibility of promoting ecological conservation in collaboration with third parties. • Participated in the 2024 Taiwan Climate Action Expo under the theme of 'Brilliant Sustainability, Advancing Generations' showcasing multiple achievements from biodiversity projects driven by integrated information and communications technology. The exhibition attracted over 1,500 visitors who engaged in interactive activities. At the Expo's high-level forum, the Company delivered a presentation titled 'Opportunities and Challenges of AI Digital Empowerment for ESG,' sharing insights on how AI development creates various opportunities for climate change mitigation and biodiversity conservation.

*1 Chunghwa Telecom is committed to promoting natural sustainability actions and seeks opportunities for multi-party cooperation to amplify the effectiveness of these actions. Therefore, relevant projects sometimes involve various stakeholders, which is the reason for the repeated discussion of key engagement activities here.

*2 There are also institutions such as the Southwest Coast National Scenic Area Administration and Taiwan Cooperative Bank.

In summary, CHT actively communicates with various stakeholders throughout its operations and promotes relevant engagement activities. Feedback gathered through these interactions serves as a valuable reference for CHT's business development. The Company is committed to empowering conservation efforts with innovative smart technology, driving various sustainability initiatives and supporting nature conservation through technological innovation, with an aim to promote a green economy, ecological conservation, and a sustainable future featuring harmony between humanity and nature (Figure 7).

Figure 7. Through open dialogue, CHT actively engages with stakeholders.



Chapter 2

Assessment of Nature-Related Dependences, Impacts, Risks, and Opportunities

As a leading telecommunications operator in Taiwan, CHT places immense importance on the stability of the natural environment. Recognizing the interactions between operating activities and nature, which in turn affect stakeholders, we follow the TNFD framework and analytical methodology. By considering the perspectives of all stakeholders, CHT evaluates the impacts of its operations on nature and stakeholders. This is a top priority for CHT and a critical step in fostering a harmonious coexistence between people and nature.

(1) Introduction and Implementation of the LEAP Methodology

By adopting the LEAP methodology recommended by TNFD and considering the local natural conditions of Taiwan and the availability of relevant data, the taskforce has developed a localized Locate and Evaluate analysis process to make the entire analysis more aligned with local realities. We focused on the overlap of CHT's operational sites and key value chains with nature and sensitive areas, and structurally assessed their dependencies and impacts on nature. In the Assess phase, TNFD categorizes nature-related risks into physical risks*1, transition risks*2, and systemic risks*3. Based on the dependencies and impacts identified in the Evaluate phase, the taskforce conducted an analysis of the physical risks facing its own operations, as well as the transition risks associated with overall operations, external regulations, and trend changes. Meanwhile, it examined the possible nature-related opportunities*4 created by promoting nature-related risk management and conducted materiality analysis of nature-related risks and opportunities. Then, it incorporated the identified material nature-related risks and opportunities into questionnaire design and distributed the questionnaires to major nature-related stakeholders and suppliers*5 to collect their opinions, which were summarized and used in subsequent analysis. This demonstrates CHT's concern for stakeholders' feedback.

The LEAP analysis mentioned above paved the way for CHT's subsequent refinement of nature-related issue management. Finally, disclosures were made in accordance with the four disclosure dimensions recommended by TNFD (Governance, Strategy, Risk & Impact Management, Metrics and Targets) (Figure 8).

*1 Risks posed to organizations by natural degradation, which are further categorized into acute risks: specific events having a strong impact or occurring in a short period that lead to changes in natural conditions, such as natural disasters causing changes in natural conditions; and chronic risks: long-term cumulative impacts that cause gradual changes to natural conditions, such as climate change causing changes in natural conditions.

*2 Risks arising from the inconsistencies between management strategies and reduction of negative nature-related impacts, including policy and legal risks, market risks, technology risks, reputation risks, and liability risks.

*3 Considering that nature-related systemic risks are relatively rare, they are not included in this analysis.

*4 Nature-related opportunities are categorized into business performance, such as markets, resource efficiency, products and services, capital flows and financing, and reputational capital; and sustainability performance, such as ecosystem protection, restoration and regeneration, and the sustainable use of natural resources.

*5 Although suppliers were not included in the identification of major nature-related stakeholders in 2024, CHT places great emphasis on supply chain sustainability and has in place supply chain sustainability management strategies and supplier ESG plans, among others. Consequently, the Company has commenced LEAP assessments for its important Tier 1 suppliers.

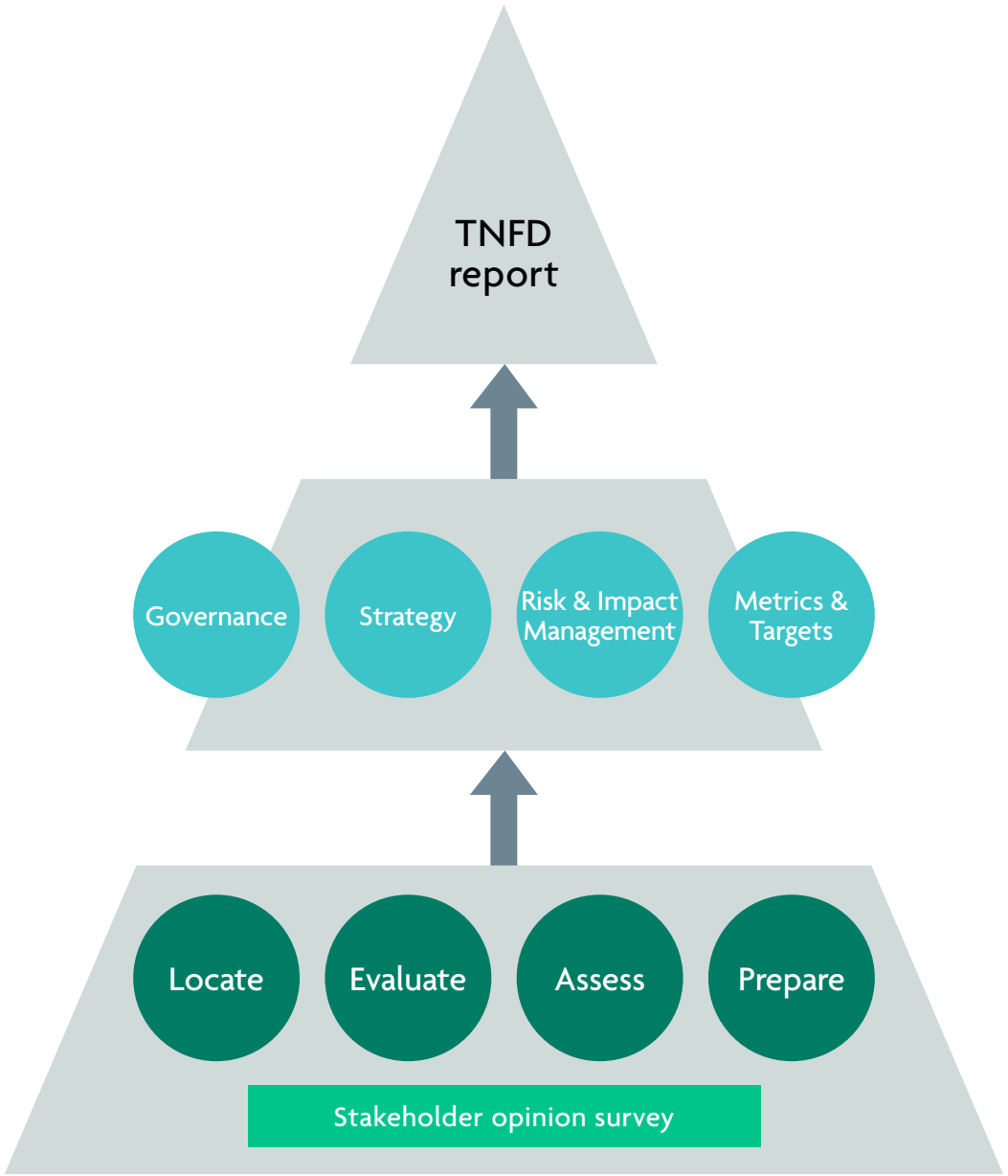


Figure 8. Chunghwa Telecom TNFD Implementation Roadmap

(2) Locate: Locating nature-sensitive operational sites

Analysis Methdology

Own Operations

According to the LEAP methodology recommended by TNFD, the Company first performed the Locate step based on the localized analysis process (Figure 9). This step involves confirming the business footprint and value chain, as well as initially identifying the potential dependencies and impacts of the Company's operations on nature. Following localized analysis Criterion I Natural Sensitivity and Criterion II Operational Impact, we analyzed the ecological environment near operational sites using localized analysis, identified sensitive locations, and prioritized them for subsequent Evaluate analysis.

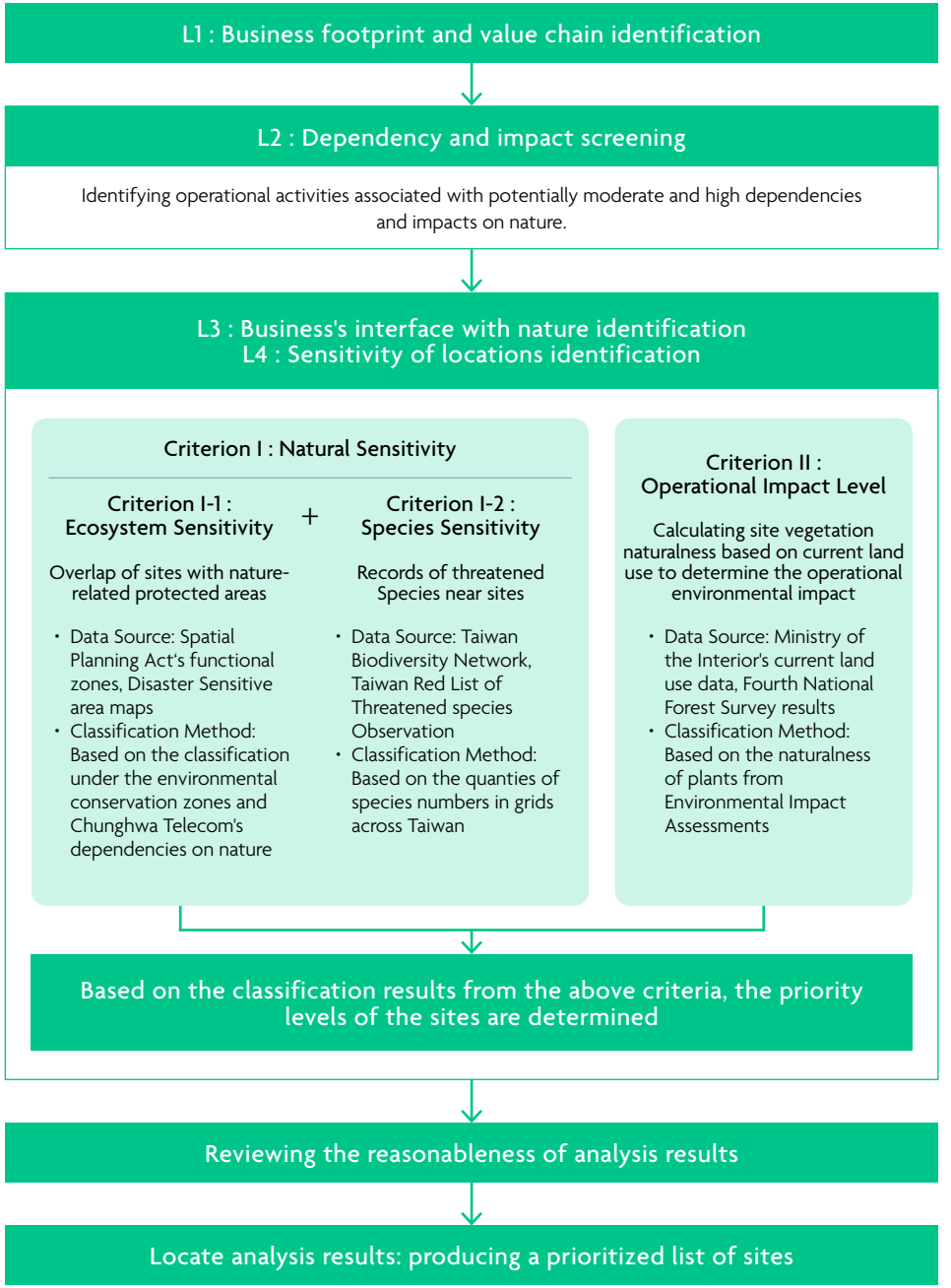


Figure 9. The Localized Locate Analysis Process

Suppliers

Given the critical role suppliers play in the Company's operations, this year, we expanded the analysis scope to the value chain, to more comprehensively identify nature-related risks and opportunities. Referencing TNFD-recommended analysis steps, we conducted the localized Locate analysis (Figure 10). The taskforce first screened key Tier 1 suppliers, and then identified the number of industries in accordance with the International Standard Industrial Classification (ISIC). In addition, the taskforce used the ENCORE* database to analyze the ecosystem services and impact drivers that the aforementioned industries depend on, and created a nature-related dependency and impact matrix. Industries with high nature-related dependencies and impacts, as well as high total contract values, were then selected as priority categories. For companies within these categories that have medium to high contract values, their location information was collected. Finally, based on the two major criteria for screening mentioned above, the location sensitivity of their sites was identified for subsequent Evaluate analysis.

* Exploring Natural Capital Opportunities, Risks and Exposure is a natural assessment database jointly developed by the United Nations Environment Program World Conservation Monitoring Center (UNEP-WCMC) and the Natural Capital Finance Alliance (NCFA).

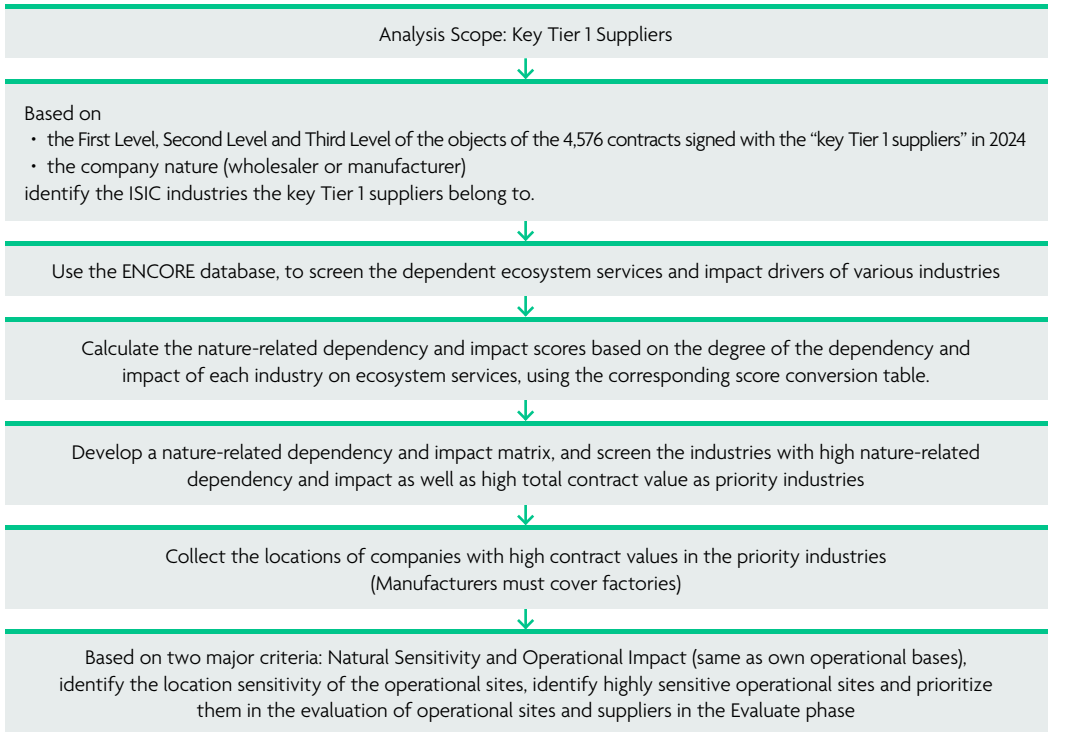


Figure 10. Supplier Localization Analysis Process

L1: Identifying Business Footprints and Value Chain

Own Operations

CHT's scope of business footprints and value chain can be divided into three parts: upstream suppliers, direct operational activities, and downstream consumers (Figure 11). Upstream suppliers mainly include facility suppliers and engineering contractors. Regarding its own operations, CHT's established sites include base stations, central offices, service centers and office buildings, pipeline facilities (cross-connect cabinets and telecommunication rooms), satellite stations, and submarine cables* (Figures 12 to 15), to provide customers with comprehensive and diverse communication services, such as domestic fixed communication, international fixed communication, mobile communication, data communication, and ICT services, meeting the needs of downstream individual and enterprise customers.

Following last year's analysis scope of highly nature-sensitive base stations, this year's analysis scope for our own operational sites has been expanded to cover all land areas, including base stations, central offices, pipeline facilities (including cross-connect cabinets and telecommunication rooms), satellite stations, service centers, and office buildings.

* Base stations serve as the central points for transmitting signals from mobile devices to telecommunication networks, enabling normal operations such as calls and data transmission. Central offices are large information and data storage hubs for enterprises to access and manage information. The service centers and office buildings primarily serve as locations for staff to work, receive clients, and provide services. The cross-connect cabinets and telecommunication rooms connect external telecommunication cables with the telecommunication equipment inside the buildings.

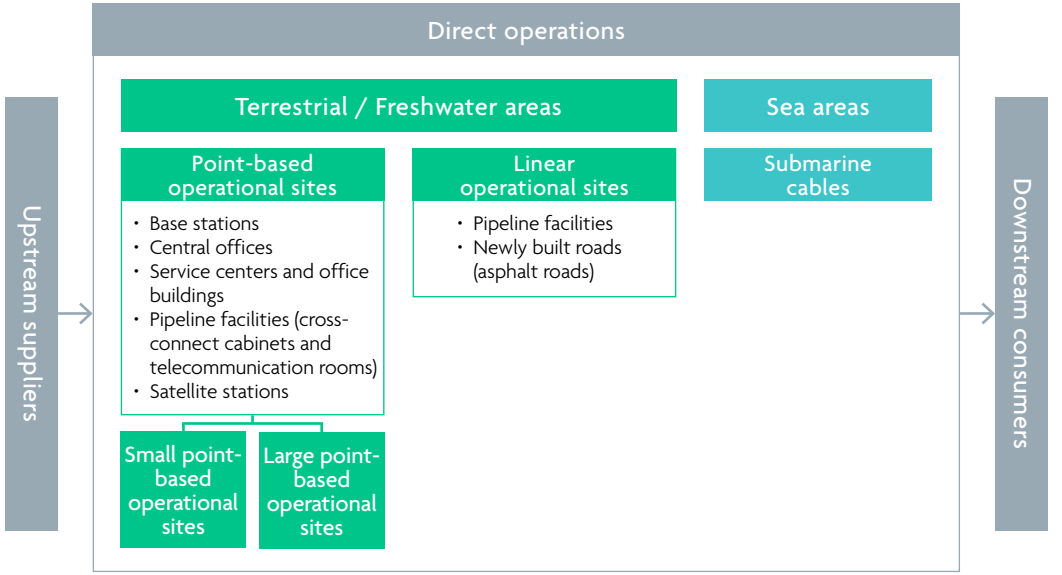


Figure 11. Chunghwa Telecom's Business Footprint and Value Chain

Figure 12. Chunghwa Telecom's base station

Figure 13. Chunghwa Telecom's central office

Figure 14. Chunghwa Telecom's service center and office building

Figure 15. Chunghwa Telecom's cross-connect cabinet

Suppliers

In this year's supplier analysis, we focused on 186 key Tier 1 suppliers (accounting for 85.6% of the procurement amount) and evaluated their nature-related dependencies and impacts. Based on the types of contracts with key Tier 1 suppliers in 2024 and the nature of suppliers' operational activities, the taskforce identified a total of 36 industries where the Tier 1 suppliers operate in line with ISIC.

L2: Screening Dependencies and Impacts

Regarding the types of sites operated by CHT as identified in the L1 phase, to identify those that may have a moderate to high dependency and impact on nature, the taskforce referenced the ENCORE database, and initially screened the dependencies and impacts that CHT's operational sites and key Tier 1 suppliers have on nature, using general global assessment metrics and considering Taiwan's natural conditions.

Own Operations

Analysis shows that all types of operational sites have a certain degree of dependency on specific ecosystem services and have varying impacts on nature. Since Taiwan is located in the circum-Pacific seismic belt and on the path of typhoons in the Northwest Pacific, it is prone to frequent disasters such as earthquakes, floods, landslides, and debris flows. Given Taiwan's local natural conditions, disaster protection is therefore included as an additional highly dependent ecosystem service in the ENCORE analysis. According to observation and analysis results, in terms of dependency, service centers and office buildings have a lower degree of dependency on nature compared to other types of operational sites; in terms of impacts, central offices have a higher degree of impact on nature compared to other types of operational sites (Table 3).

	Dependencies										Impacts									
	Ecosystem services										Impact drivers									
Types of operational sites	Local climate regulation	Global climate regulation	Rainfall pattern regulation	Biological control	Soil and sediment preservation	Water flow regulation	Water supply	Air filtration	Flood and storm mitigation	*Natural disaster protection (e.g., earthquakes, landslides, tsunamis)	Disturbances	GHG emissions	Non-GHG air pollutant emissions	Discharge of toxic pollutants into water bodies and soil	Solid waste generation and discharge	Use of freshwater ecosystem areas	Use of terrestrial ecosystem areas	Use of marine ecosystem areas	Water use
Base stations																			
Central offices																			
Telecommunications rooms																			
Cross-connect cabinets																			
Satellite stations																			
Service centers and office buildings																			

Very high risk | High risk | Medium risk | Low risk | Very low risk | No risk

* Dependency items newly added based on Taiwan's natural conditions and the characteristics of CHT's operational sites.

Table 3. Dependencies and Impacts on Nature by Type of Chunghwa Telecom's Operational Sites

Suppliers

Based on the 36 industries identified in Phase L1, the taskforce used the ENCORE database to screen the ecosystem services and impact drivers that each industry relies on. The degree of dependency and impact of each industry was then converted into scores to establish a matrix of supplier dependency and impact for each industry (Figure 16).

Through the matrix of supplier dependency and impact across various industries, the industries with high dependency and impact on nature, and high total contract values, were selected as priority categories. This year, four priority industries were selected: public utility construction, electrical pipeline and other installation works, industrial machinery and equipment installation, and communication equipment manufacturing.

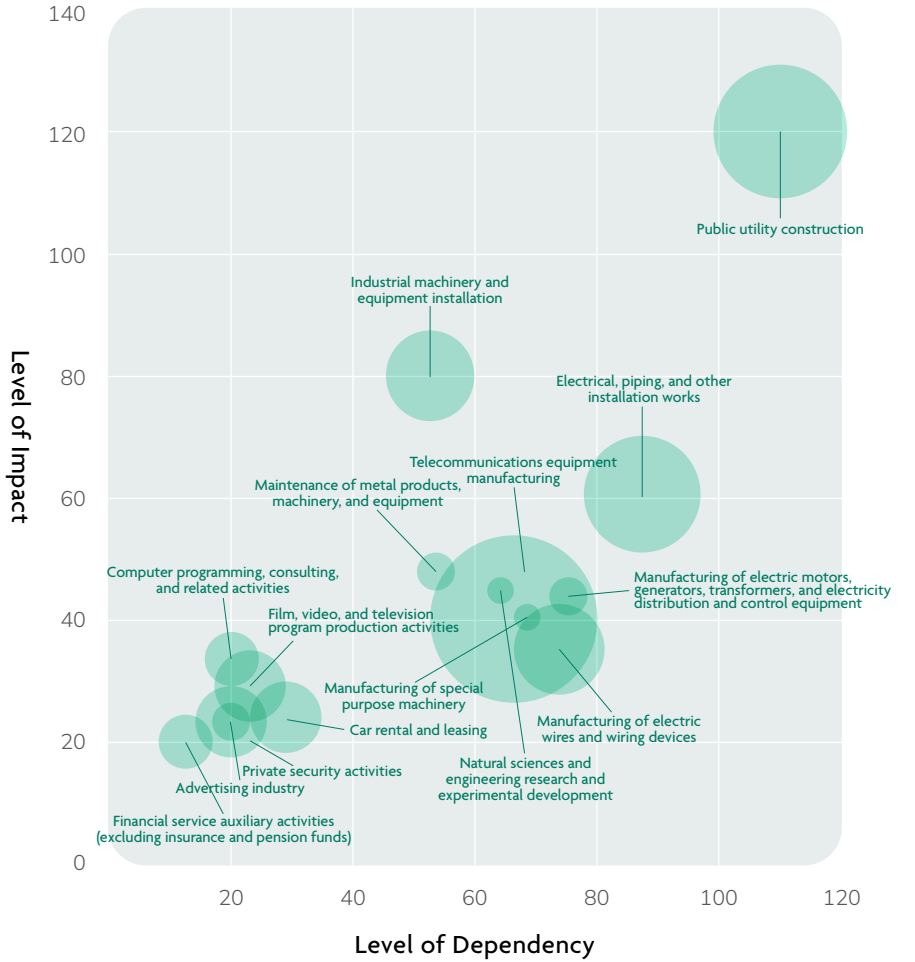
Compared with other services, the four types of priority industries show a higher degree of dependency on water resources (such as water supply and water regulation) and the ecosystem services related to natural disaster protection (such as flood and storm mitigation, and natural disaster protection). In terms of impacts, different industries have significantly different impacts on nature, reflecting the varying types and degrees of impact caused by the characteristics of their operational activities (Table 4).

	Dependencies															Impacts									
	Ecosystem services															Impact drivers									
CHT's Suppliers in Priority Categories	Local climate regulation	Global climate regulation	Rainfall pattern regulation	Soil and sediment preservation	Water flow regulation	Water purification	Water supply	Air filtration	Flood and storm mitigation	Noise attenuation	Solid waste management	Other regulation and maintenance (regulation of sensory impacts)	Other regulation and maintenance (dilution through atmosphere and ecosystem)	*Natural disaster protection (e.g., earthquakes, landslides, tsunamis)	Disturbances	GHG emissions	Non-GHG air pollutant emissions	Discharge of toxic pollutants into water bodies and soil	Solid waste generation and discharge	Use of freshwater ecosystem areas	Use of terrestrial ecosystem areas	Use of marine ecosystem areas	Introduction of invasive species	Water use
Manufacturing of telecommunications equipment																									
Public utility construction																									
Electrical, piping, and other installation works																									
Industrial machinery and equipment installation																									

Very high risk | High risk | Medium risk | Low risk | Very low risk | No risk

* Dependency items newly added based on Taiwan's natural conditions and the characteristics of CHT operational sites.

Table 4. Dependencies and Impacts of Priority Industry Suppliers



* Only industries with a total contract value greater than TWD50 million in 2024 are presented. In terms of dependency, to focus on the physical and ecological dependency of various industries on nature, cultural services in ecosystem services (such as esthetic, spiritual, or symbolic values) are not included in the dependency score calculation. The x-axis represents the degree of dependence, the y-axis represents the degree of influence, and the bubble size represents the total contract value for each industry. Priority industries are indicated with solid bubbles.

Figure 16. Matrix of supplier dependency and impact by industry

L3: Identifying the Interface of Operations and Nature

Compared with other types of operational sites, CHT's base stations are more widely distributed, with more than 20,000 locations across Taiwan*[1], many of which are located in ecological preservation areas. Therefore, base stations were included in the analysis as ever. However, to comprehensively examine the interface between CHT's own operations and nature and facilitate nature-related risk management, the scope and number of analyzed sites are significantly expanded when compared with 2023. This year's analysis scope includes not only base stations, but also central offices, satellite stations, telecommunication rooms, cross-connect cabinets, service centers, and office buildings.

L4: Identifying the Sensitivity of Operational Sites

The identification of the sensitivity degree of operational sites is divided into two stages: The first stage involves preliminary screening of operational sites based on whether they are located within or near biodiversity-related environmentally sensitive areas*[2], as defined in the "Environmental Impact Assessment Operating Guidelines for Development Activities." released by the Environmental Protection Administration. The operational sites located within or adjacent to biodiversity-related environmentally sensitive areas are prioritized for assessment. In the second stage, the two major localization criteria developed by the taskforce were used to assess the location sensitivity of the sites, so as to identify the priority order for site evaluation.

Based on publicly available data and considering the significant dependencies and impacts of CHT, the taskforce established two major localization criteria: Criterion I is Natural Sensitivity, including Criterion I-1 Ecosystem Sensitivity and Criterion I-2 Species Sensitivity. Criterion I-1 Ecosystem Sensitivity is used to assess the overlap between operational sites and Taiwan's natural preservation areas; Criterion I-2 Species Sensitivity is used to evaluate the number of threatened species on Taiwan's Red List near the operational sites. Criterion II is Operational Impact, which is used to assess the naturalness of operational sites through current land use conditions to understand the potential degree of impact of site establishment and operation on the environment. The analysis process for each criterion is explained below:

*[1] The entire region includes Taiwan, Penghu, Kinmen, and Matsu areas.

*[2] Biodiversity-related environmentally sensitive areas include nature reserves, natural conservation areas, wildlife protection areas, important wildlife habitats, reservoir storage areas, water quality protection areas, Taiwan Coastal Area Nature Conservation Plan (I), Taiwan Coastal Area Nature Conservation Plan

Criterion I: Natural Sensitivity

Criterion I-1: Ecosystem Sensitivity

According to the "Spatial Planning Act", the functional zones include four types: environmental conservation zones, urban-rural development zones, agricultural development zones, and marine resource zones. The designation of the "Environmental conservation zones" refers to the distribution of natural resources, ecology, landscapes, disasters, and the deployment of corresponding disaster prevention facilities; "marine resources zones" are demarcated based on the current situation and future development needs of inland waters and territorial seas, with consideration of the conservation and utilization of marine resources, traditional use by indigenous people, special purposes, and others.

The analysis method references the sensitivity levels of environmental conservation zones and the classification of marine resources zones by the nature of use, with consideration of CHT's high reliance on disaster resilience, to establish the Ecosystem Sensitivity classification standard (Figure 17).

Environmental Conservation Zones	Marine Resource Area	Dependency (VH)	Classification Criteria	Sensitivity*[1]
Category 1 Very high sensitivity	Category 1-1 Nature-Related Conservation (Breeding and Retention) Zone*[2]	Natural disaster protection (e.g., earthquakes, landslides, tsunamis)	Category 1 Environmental Conservation Zones, Category 3 Environmental Conservation Zones, Disaster Sensitive Area, Category 1-1: Nature-Related Conservation (Breeding and Retention) Zone	VH
Category 2 High sensitivity			Category 2 Environmental Conservation Zones	H
Category 3 National parks			Category 4 Environmental Conservation Zones	M
Category 4 Urban protected areas			Non-Environmental Conservation Zones, Non-Marine Resource Area Category 1-1 Nature-Related Conservation (Breeding and Retention) Zone	L

*[1] VH is Very High, H is High, M is Medium, and L is Low.

*[2] Marine Resource Zone Category 1 refers to areas with exclusive use, of which Category 1.1 comprises various protected (conservation, retention) areas designated in marine waters under other laws. Considering that the natural conservation (conservation, retention) areas are designated with the purpose of protecting biodiversity, they are included in the Ecosystem Sensitivity grading standard.

Figure 17. The Ecosystem Sensitivity Classification Standard

Criterion I-2: Species Sensitivity

The Species Sensitivity analysis aims to assess the number of threatened species on the Red List (i.e., Critically Endangered CR, Endangered EN, Vulnerable VU species) potentially present around CHT sites. The analysis is based on publicly available data in Taiwan. During the analysis, with the focus on the occurrence points of Critically Endangered (NCR), Endangered (NEN), and Vulnerable (NVU) species on the Taiwan Biodiversity Network's Taiwan Red List, as well as a 2 km buffer zone around these points (Table 5), the number of threatened species per unit grid is calculated, and a dataset of threatened species counts for all grids across Taiwan is established. Then, with the quartiles (1st quartile Q1, 2nd quartile Q2, 3rd quartile Q3) of the threatened species counts for all grids in Taiwan as the basis for grading, the Species Sensitivity grading standards are established. Finally, the threatened species count recorded in the grid where a site is located is used to determine the site's Species Sensitivity level according to the classification standards (Figure 18).

Taxon	Mammals	Amphibians	Birds	Reptiles	Freshwater fish	Vascular plants	Total
Number of threatened species	12	11	52	5	25	989	1094

Table 5. The Number of Threatened Species in Each Taxon

The classification results of Criterion I-1 Ecosystem Sensitivity and Criterion I-2 Species Sensitivity are integrated to determine the site's Natural Sensitivity level based on the Natural Sensitivity matrix (Table 6).

Natural Sensitivity		Ecosystem Sensitivity			
		VH	H	M	L
Species Sensitivity	VH	VH	VH	H	M
	H	VH	H	M	L
	M	H	M	M	L
	L	M	L	L	L

Table 6. The Natural Sensitivity Matrix

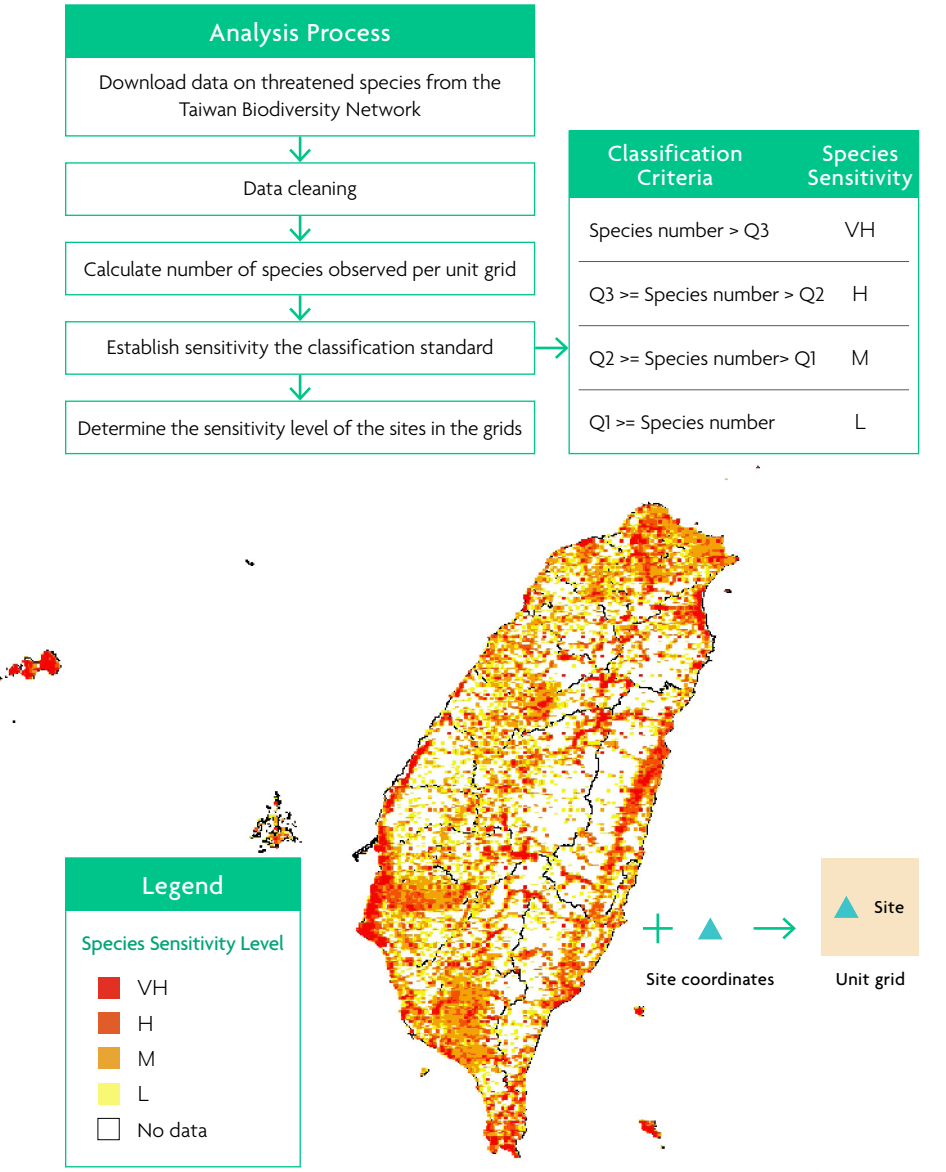


Figure 18. Species Sensitivity Analysis Process

Criterion II: Operational Impact

With reference to the naturalness investigation method for plants in the environmental impact assessment*, the land use data provided by the National Land Surveying and Mapping Center of the Ministry of the Interior and the results of the Fourth Forest Survey are used to assess the naturalness of the operational sites. It is inferred that the higher the naturalness of an operational site is, the greater impact the establishment and operation of the site will have on the environment. The classification standards for operational impact are shown in the table below (Table 7).

* The technical specifications for plant ecological assessment are formulated in accordance with Article 58 of the "Operational Regulations for Environmental Impact Assessments for Development Activities."

Operational Impact	Naturalness	Naturalness description	Reference Land Use Category defined by the Ministry of the Interior (Category Code)	Reference data from the fourth forestry investigation
VH	5	Natural forest areas	Forest (02)	Natural forests
H	4	Primary grassland	Grassland (0902), Wetland (0901)	-
	3	Planted forests and bamboo forests	Forest (02)	Planted forests, bamboo forests
M	2	Farmland is for cultivated crops	Agriculture (01)	-
L	1	Exposed areas are vegetation-free areas caused by natural factors	Transportation (03), Water Resources (04), Construction (05), Public (06), Recreation (07), Salt Mines (08), Others (09)	-
	0	Vegetation-free areas caused by human activities, such as buildings and roads		

Table 7. Operational Impact Classification Criteria

Based on the classification results of the two major criteria, the priority scores for the two major criteria of the operational sites are calculated according to the Priority Scoring Matrix (Table 8). Finally, the location evaluation order is determined by following the Corresponding Priority Table (Table 9).

Priority Score		Natural Sensitivity			
		VH	H	M	L
Operational Impact Level	VH	16	12	8	4
	H	12	9	6	3
	M	8	6	4	2
	L	4	3	2	1

Table 8. The Priority Scoring Matrix

Priority	Score
1st	9-16
2nd	4-8
3rd	1-3

Table 9. Corresponding Priority Table

Own Operations

This year, the types of operational sites analyzed in the Locate step include base stations, central offices, satellite stations, telecommunication rooms, cross-connect cabinets, service centers, and office buildings. The scope and number of relevant analysis sites significantly expanded compared with 2023, demonstrating CHT's comprehensive improvement in operational site management and risk control. The analysis results show that first-priority sites account for approximately 0% to 1.5% (Table 10). Among them, satellite stations, telecommunication rooms, service centers, and office buildings are all located in human activity areas; thus no sites fall into the first-priority scope.

Type of operational sites	Ratio of first-priority sites
Base station	0.8%
Central office	1.5%
Satellite station	0%
Telecommunications room	0%
Cross-connect cabinet	Nearly 0% (fewer than 5 locations)
Service center	0%
Office building	0%

Table 10. Locate Analysis Types and Results for Our Operations

Suppliers

There are 4 priority categories, from which 65 suppliers with high contract values were selected. Their operational sites were prioritized for collection, totaling 68 in Taiwan, including 62 business addresses and 6 factory addresses. Based on Criterion I and Criterion II, the sensitivity of these operational sites was identified, leading to the identification of supplier sites for priority assessment.

Based on the L2 analysis results, focusing on the four priority categories, the operational sites of 65 companies with medium to high contract values (including manufacturing plants) were collected. Following the localized analysis criteria consistent with our own operations—Criterion I Natural Sensitivity and Criterion II Operational Impact—the location sensitivity of the sites was identified. The results show that no sites fall into the first priority scope.

(3) Evaluate: Analysis of Nature-Related Dependencies and Impacts

To comprehensively assess the dependencies and impacts of various types of operational sites on nature, the taskforce adopted the LEAP methodology recommended by TNFD and simultaneously developed the localized Evaluate analysis process (Figure 19), taking into account Taiwan's local conditions.

Based on the nature-related dependencies and impacts identified in the Locate L2 phase, the Company reviewed the interdependencies between various site types (base stations, central offices, cross-connect cabinets and telecommunication rooms, satellite stations, service centers, and office buildings) and nature across their lifecycle, from site selection, planning and design, construction, and operation to decommissioning. This process identified the dependencies and impacts of CHT's actual operations on nature. Based on this, metrics for measuring the dependencies and impacts of each types of operational site as well as criteria for determining impact materiality were established. With these metrics and criteria, as well as the sensitivity analysis results of the operational sites from the Locate phase, the focus was placed on high-sensitivity first-priority sites to measure dependencies and impacts. This allowed for a deeper understanding of the priority dependency and significant impact items for high-sensitivity sites. The analysis results from this phase—the dependency and impact items for each site type, and the key dependency and impact items for first-priority sites—will serve as the basis for assessing corporate physical risks in the Assess phase and for future site management and target setting.

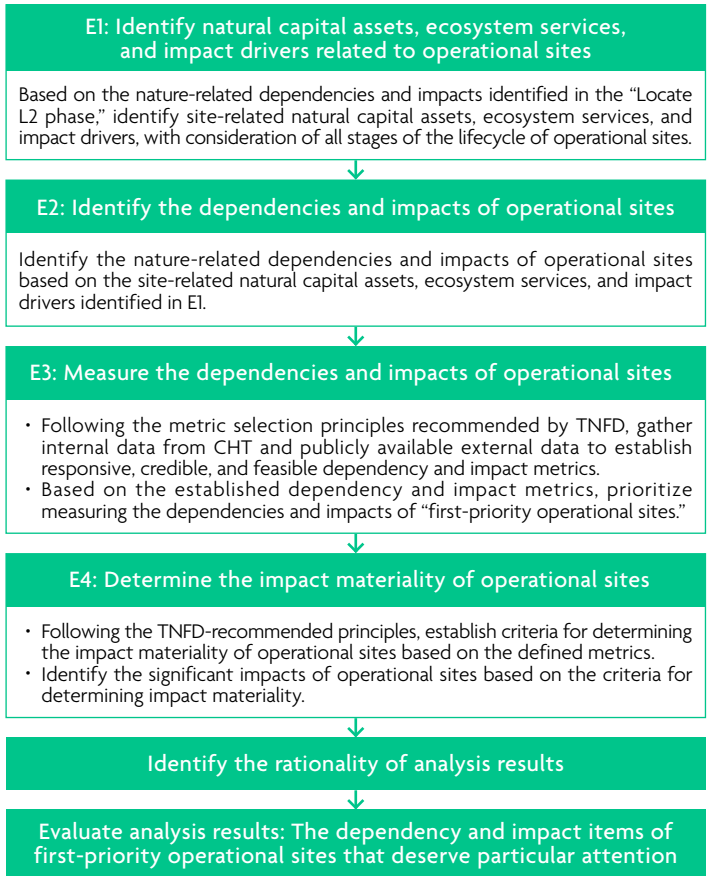


Figure 19. Evaluate: Localization Analysis Process

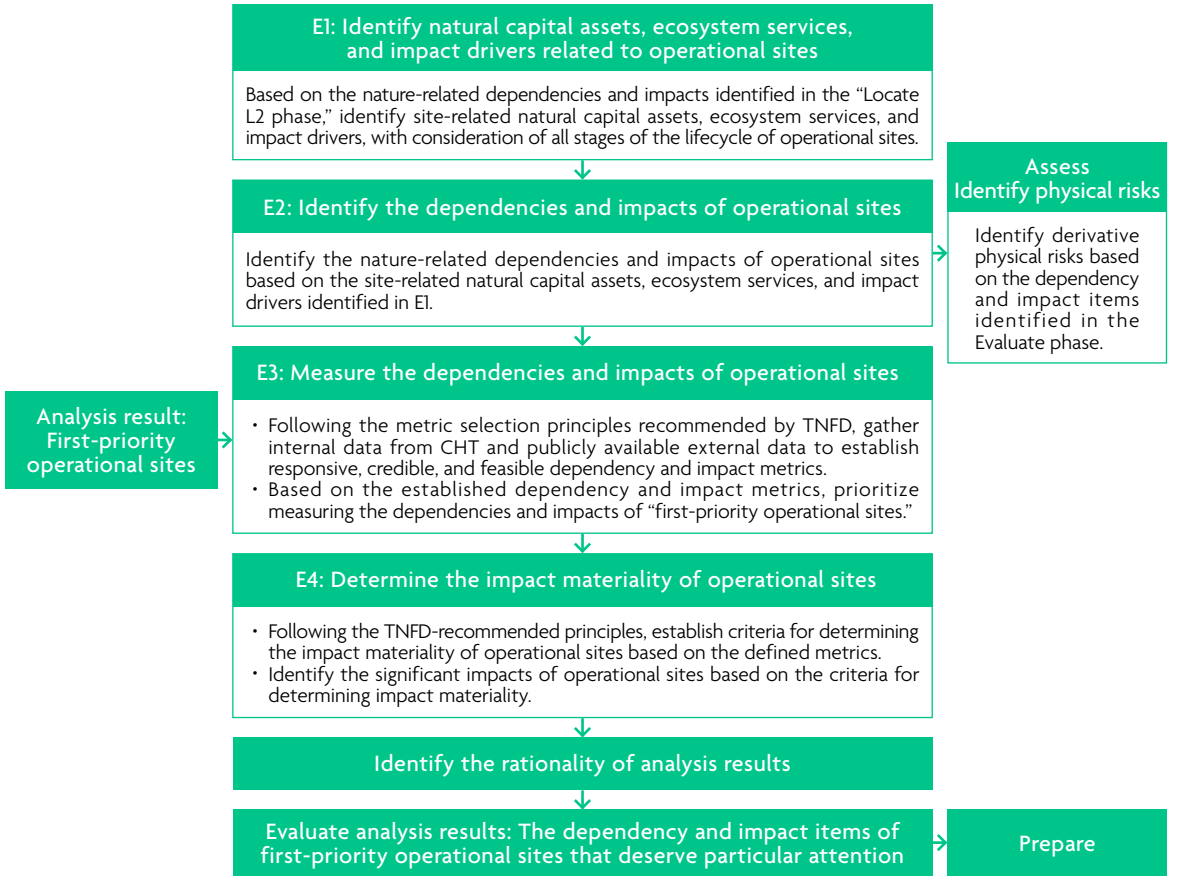


Figure 20. Evaluate: the Localization Analysis Process and Its Linkages with Other Stages

Own Operations

In the Evaluate phase, based on the nature-related dependencies and impacts identified with ENCORE using the Locate analysis, the focus shifts from a global scale to specific physical sites. Considering Taiwan's local natural conditions, the assessment of dependencies and impacts is conducted by examining the characteristics of CHT's various types of sites and suppliers.

Through phases E1 and E2, the taskforce identified the actual dependencies that maintain the normal operation of CHT's various site types and the impacts of each site type on nature across the lifecycle. In terms of dependencies, base stations, telecommunication rooms, and cross-connect cabinets are small and unstaffed site types with similar dependencies: stable bases and electricity. In contrast, central offices, satellite stations, service centers, and office buildings are larger site types, often staffed, with large equipment requiring cooling and heat dissipation, and equipped with diesel generators as backup power sources. Therefore, in addition to stable bases and electricity, dependencies also include water and oil products (Table 11).

The normal supply of the aforementioned dependencies relies on related ecosystem services (Table 12), the operation of which requires the support of natural capital. The ecosystem services that the base stability depends on include "soil and sediment retention", which prevents foundation loosening and soil erosion, "flood and storm mitigation" and "water flow regulation", which helps reduce erosion and flooding risks caused by extreme weather, "natural disaster protection", which reduces the impact of disasters such as landslides, and "rainfall pattern regulation", which helps maintain a stable hydrological environment, thereby enhancing the stability and resilience of the base and infrastructure as a whole.

Electricity supply depends on various regulatory and maintenance ecosystem services, including "global climate regulation" and "local climate regulation", which maintain stable temperature and humidity, ensuring the stable operation of power generation, transmission and distribution systems; "water flow regulation" and "water supply" are particularly important for power generation or cooling systems that require water; "air filtration" helps mitigate the corrosion and efficiency impact of air pollution on equipment, thereby enhancing the overall stability and reliability of power operations.

Oil-product operations, encompassing exploration, transportation, and storage, rely heavily on various ecosystem services for support. "Hazard protection" and "flood and storm mitigation" help reduce the risk of damage to facilities from extreme weather or geological disasters; "soil and sediment retention" maintains

	Items of dependencies				Items of impacts				
Types of sites	Site stability	Water resources	Electricity	Oil	Land use (facilities)	Land use (access roads)	Solid waste	GHG emissions	Electromagnetic radiation
Base stations	●		●		●	●	●	●	●
Central offices	●	●	●	●	●	●	●	●	
Satellite stations	●	●	●	●	●	●	●	●	●
Telecommunication rooms	●		●		●	●	●	●	
Cross-connect cabinets	●		●		●	●	●	●	
Service centers	●	●	●	●	●	●	●	●	
Office buildings	●	●	●	●	●	●	●	●	

Table 11. Items of Dependencies and Impacts for Different Site Types

Ecosystem services	Dependencies			
	Base stability	Water resources	Electricity	Petroleum Products
Local climate regulation		▲	▲	
Global climate regulation		▲	▲	
Rainfall pattern regulation	▲	▲		
Soil and sediment preservation	▲	▲		▲
Water regulation	▲	▲	▲	
Water purification		▲		▲
Water supply		▲	▲	
Air filtration			▲	▲
Flood and storm mitigation	▲			▲
Other regulation and maintenance—atmosphere and ecosystem				▲
Natural disaster protection	▲			▲

Table 12. Corresponding Ecosystem Services for Each Dependency Item

the stability of foundations and pipelines; "water purification" can lower environmental and operational risks caused by leakage pollution, while "air filtration" and "atmospheric and ecosystem regulation" support the quality and resilience of the environment surrounding the facilities.

Water resource management highly depends on ecosystem services related to the water cycle and ecological purification, including "water supply", which provides stable water sources; "rainfall pattern regulation" and "global climate regulation", which affect the spatiotemporal distribution and availability of water resources. "Water flow regulation" helps conserve and distribute water resources, while "water quality purification" reduces treatment costs and health risks. Additionally, "soil and sediment retention" supports the stability and water storage function of water sources.

Dependency and Impact Items		Metrics
Dependencies	Base stability	Disaster Potential Level*
	Electricity	Annual electricity consumption
		Reserve power and its duration of supply
	Oil products	Annual oil consumption
	Water	Water use
Impact	Land Use—Facilities	Naturalness of operational sites
		Building areas
	Land Use—Roads	Site-related land or road development
	Waste	Standardized Recycling Process
	Carbon emissions	Carbon emissions
	Electromagnetic wave	NCC Non-compliant Electromagnetic Radiation Measurement Record

* The assessment of disaster potential is based on whether the site is directly located within or near 500 meters of areas prone to flooding, debris flow, large-scale landslides, dip slopes, rock mass slides, debris slides, rockfalls, soil liquefaction active faults, tsunami inundation, and volcanic eruption.

Table 13. Dependency and Impact Measurement Indicators

Based on the dependency and impact metrics defined in E3, and in accordance with the principles recommended by TNFD, the Company has established criteria for identifying key impacts, considering regulatory standards, the degree of impact, and the Company's sustainability goals. Also, the Company has defined criteria for identifying key dependencies, taking into account conditions and scenarios that could lead to the abnormal operation of its sites.

For the first-priority operational sites with high location sensitivity identified in the Locate phase, the taskforce has summarized corresponding dependency and impact metrics based on the dependency and impact items of each type of operational sites. To date, 100% of the metric data has been collected; based on the criteria for identifying key items, the priority dependency and impact items of each site have been identified to facilitate future management of operational sites. Analysis results show that in terms of dependencies, electricity is a critical dependency item that should be prioritized over others. In terms of impacts, considering the current environmental conditions of the first-priority site and CHT's net-zero emissions target for 2045, land use (facilities) and greenhouse gas emissions deserve particular attention among the impact items.

Suppliers

In the Evaluate phase, the focus is on priority industries. Based on the results of the Locate phase, further analysis is conducted on their dependence on and impact on nature. By consolidating contract contents of high-contract-value suppliers, operational activities related to the Company are summarized, and relevant dependency and impact items are identified with reference to their operational characteristics at various stages of the lifecycle.

- **Public Works Construction:**

  In the field of public utility construction, the Company's related operational activities include cable laying, civil engineering, relocation and renovation works. These activities are highly dependent on base stability to ensure that the ground does not slide or settle during the construction period, thereby guaranteeing construction safety and facility stability. The accessibility of external roads is also a necessary condition for the entry and exit of engineering materials and construction equipment. In addition, the construction process requires a large amount of building materials and raw materials, such as sand, gravel, cement, and rebar, and depends on water resources for concrete curing and dust suppression. Equipment operation also requires stable power supply and fuel support. These activities also have multiple impacts on nature, such as land use changes and habitat structure destruction caused by facility and road construction, and ecological disturbances caused by construction noise and vibration. If the project is near water bodies, it may also cause disturbance and pollution to freshwater or marine ecosystems. In addition, the waste generated from the use of engineering vehicles and equipment, increased water consumption, greenhouse gas and non-greenhouse gas emissions, and the potential release of toxic substances are also impact items.

  In the field of public utility construction, the Company's related operations include cable laying, civil engineering, relocation, and renovation works. These operations are highly dependent on base stability to support construction quality, and on external road access for the entry and exit of materials and personnel. The required building materials and raw materials come primarily from natural mineral resources, and stable water supply is also needed for operations such as dust suppression and concrete mixing. In addition, the operation of engineering equipment involves the use of electricity and fuel. Regarding impacts, interaction with the natural environment may occur at different stages of construction lifecycle, such as changes in land use patterns for construction sites, habitat disturbance caused by the construction of temporary facilities and roads, and the potential impact on freshwater or marine environments during construction near water bodies. Engineering activities also involve use of water resources, waste generation from the packaging and demolition of construction materials, and emissions of greenhouse gases and other pollutants resulting from energy consumption.

- **Installation of electrical conduits and others:**

  These operational activities include the installation of user equipment, mobile communication equipment, transmission equipment, and information equipment. They depend primarily on base stability to ensure safe facility installation, and on transportation accessibility to facilitate execution of works. The equipment components and materials required for these operations are mostly processed products of natural resources, and water resources and temporary electricity or fuel may also be used during the installation or testing process. The potential impacts on the natural environment include land use changes due to facility construction, disturbances such as light and noise generated during operations, and potential ecological interaction risks when the project is located near ecologically sensitive areas. In addition, the installation process will also involve generation of material packaging and old equipment waste, as well as emissions associated with energy and material consumption required for the project.

- **Installation of industrial machinery and equipment:**

  The Company's related operational activities include the installation of exchange equipment, power, and air-conditioning equipment, and require stable foundations and clear roads to support the transportation and installation of large equipment. The installation or cooling test process often requires a large amount of water, and construction is highly dependent on electricity and fuel supply. In terms of impacts, interactions with nature during the operational process include changes in land use involved in site planning and spatial layout adjustments, noise and vibration interference generated during equipment operation, and potential contact with the ecology of nearby sea areas in some installation scenarios. Lubricants, refrigerants, and hydraulic oils used during the equipment installation and testing phases will generate waste, while the electricity and fuel consumed in operations will result in greenhouse gas and non-greenhouse gas emissions.

- **Manufacturing of communication equipment:**

  The Company's supply chain operations related to equipment manufacturing include manufacturing of switching equipment, mobile communication equipment, and transmission equipment. Such activities rely on a stable base and a good transportation system to support factory establishment and logistics circulation. Metal mineral resources (such as copper, aluminum, rare earth elements, etc.) required in manufacturing are important nature-related dependencies. Stable power supply and sufficient water resources are also required during the production phase for processes such as cooling and cleaning, and may involve fuel consumption. Impacts are associated with land use changes, heat and noise emissions, water consumption, waste management from manufacturing processes, and material safety and emission management during the use of specific chemicals or heavy metal materials.

The analysis results regarding the dependencies and impacts on nature by the priority industries will serve as a reference for the Company in promoting supply chain risk management and sustainable procurement policies.

(4) Assess: Nature-related risks and opportunities assessment

To comprehensively analyze potential nature-related risks and opportunities, the taskforce summarized and identified nature-related risks and opportunities in four steps (Table 14), based on the actual operating conditions of CHT.

Phase	Process	Items	Description
1	Collection	Listing nature-related risks/ opportunities	Based on the analysis results from the Evaluate step as well as internal and external information, a list of relevant risks and opportunities is developed.
2	Identification	Organizing TNFD workshops	Departments assess nature-related risks and opportunities arising from their business's dependency on nature and corresponding impact; in particular, they evaluate the most significant factors affecting the business and organization within the value chain, and explain the timing of these impacts.
		Consolidating identification results	The taskforce integrates nature-related risks and opportunities related to the business of various departments.
3	Materiality assessment	Nature-related risk/ opportunity matrix	Calculate the likelihood of occurrence and degree of impact of the nature-related risks and opportunities, and plot the corresponding matrix.
4	Response strategy	Formulating response strategies	CHT's responsible departments formulate strategies to address material nature-related risks and opportunities.
		Setting indicators and targets	CHT's responsible departments formulate corresponding indicators and targets to evaluate the implementation of relevant response strategies.
		Nature-related policy management and related work	The Sustainable Development Promotion Committee regularly monitors the implementation progress, and provides regular reports to the Board of Directors, which serve as a reference for tracking performance.

Table 14. Nature-related Risks and Opportunities Identification Process

Phases 1 & 2: Collection and identification of nature-related risks/opportunities

First, with reference to the analysis results from the Evaluate phase regarding the degree of dependency and impact of various types of operational sites on nature, the taskforce assessed various factors that may arise in the operational process, and then developed a list of nature-related risks and opportunities. According to the TNFD classification, nature-related risks can be categorized into physical risks, transition risks, and systemic risks. Among them, physical risks are closely associated with the shortage of nature-dependent items at specific sites.

The process of collecting and identifying physical risks is based on the dependencies identified in the Evaluate phase. According to the pathways through which physical risks arise (Figure 21), external drivers of natural changes (such as natural disasters and climate change) or the enterprise's own impact drivers (such as greenhouse gas emissions and land use) may cause changes in the natural capital and ecosystem services that the enterprise relies on for its operations. This can lead to shortages in the supply of dependencies, thereby triggering nature-related physical risks. The physical risks that may arise from the dependencies under the interaction of the aforementioned two types of drivers are explained below:

Figure 21. Pathways for Physical Risk Generation

Base stability

The base relies on geological and land stability to maintain daily operations. External drivers such as natural disasters (e.g., earthquakes, heavy rainfall) and climate change may lead to facility collapse, equipment damage, or road closures, thereby triggering operational interruption risks. Additionally, land development in neighboring areas or by the enterprise itself (e.g., clearing original vegetation) may weaken the land's resistance to disasters and increase the risk of base instability. The physical risks associated with base stability cover all operational sites, such as base stations, equipment rooms, satellite stations, and exchange cabinets.

Energy supply (electricity and oil products)

Stable energy supply is the foundation for maintaining normal operations at various sites. Natural disasters (such as earthquakes and heavy rain) and climate change are two external drivers that could lead to disruptions in the power grid or oil supply chain, rendering primary and backup power systems inoperable, and thereby increasing the risk of service interruptions. At the same time, the enterprise's own greenhouse gas emissions may exacerbate climate change, further increasing disaster risks and indirectly affecting the stability of energy supply. Risks associated with energy supply also cover all operational sites.

Water resources

Water shortage will affect the normal operation of cooling systems and sanitation facilities. Natural disasters (such as droughts and floods) and climate change are two external drivers that may lead to water depletion, water quality deterioration, or supply system failures, which will affect equipment operation and employee work. If enterprises discharge wastewater or waste that pollutes water bodies, it may also lead to a decrease in water resource availability. The operational sites involved in water resource-related risks are primarily those that rely on water resources for operation, including central offices, satellite stations, service centers, and office buildings.

Based on the above analysis, the physical risks can be classified into four major categories by the types of driving factors:

- Natural disaster events (excluding climate change) – Risk of service disruptions caused by natural disasters
- Climate change – climate change exacerbates the risk of service disruptions
- Land use and declining ecological regulation functions – land development and utilization reduce the resilience of land to disasters, exacerbating the risk of service disruptions.
- Shortage of natural resources – water pollution caused by wastewater and waste leads to the shortage of water, resulting in service disruption risks.

Based on the four categories of physical risk identified in the analysis, the taskforce convened a TNFD workshop to discuss CHT's current operational situation with various departments and evaluate transition risk issues such as external regulations and trend changes as the basis for analysis. Then, the taskforce comprehensively assessed the potential impacts of changes in the natural environment, business models, and regulatory adjustments on the enterprise's entire value chain, identified nature-related risks and opportunities facing business operations and the organization, and specified the timing of these impacts.

Phases 3 & 4: Materiality Identification and Response Strategies

We plotted a nature-related risk and opportunity matrix by assessing the "likelihood of occurrence" and "degree of impact" of nature-related risks and opportunities to identify their materiality, with the analysis results listed below. Then, we proposed corresponding response strategies, advanced and tracked their implementation. For related content, please refer to "Ch3-2 Response Strategies for Nature-Related Risks and Opportunities" in this report.

At the same time, to engage more nature-related stakeholders, we distributed online and physical questionnaires to the 7 identified categories of major nature-related stakeholders and key Tier 1 suppliers. The aim was to gather feedback from various stakeholders and to understand their ideas, expectations, and suggestions regarding CHT when facing material nature-related issues.

Identification of Material Nature-Related Risks

The taskforce, following the analysis process described above, collected a total of 9 issues related to physical risks and transition risks. Subsequent analysis was conducted to produce a Nature-Related Risks Matrix (Figure 22). Ultimately, 1 physical risk with high likelihood of occurrence and high degree of impact, along with 3 transition risks, were selected as material nature-related risks for priority management.

Physical risks include "occurrence of natural disasters," while transition risks encompass "Stricter nature-related disclosure and environmental assessment regulations," "demand for high-efficiency, low-impact technological transformation (suppliers)," and "customers' preference shifting towards nature-friendly products or services (customer)." The relevant results are as follows.

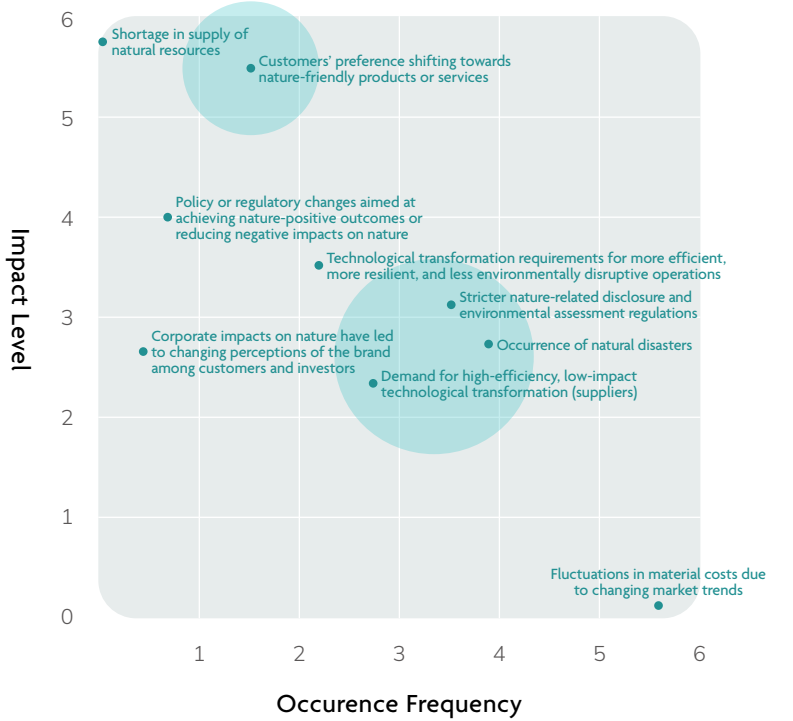


Figure 22. CHT's Nature-Related Risks Matrix

After identifying 4 material nature-related risks, we distributed online and physical questionnaires to the 7 identified categories of major nature-related stakeholders and key Tier 1 suppliers to understand the extent of their connection to nature-related risks and their expectations. This helps the Company better incorporate the perspectives of major nature-related stakeholders when formulating nature-related risk management strategies.

According to the survey results, most major nature-related stakeholders attach great importance to CHT's response to 4 material nature-related risks, and believe that these risks are moderately to highly correlated with their rights and interests. Among them, influential advocacy organizations and suppliers are highly to extremely highly correlated with the occurrence of natural disasters. Influential advocacy organizations are generally concerned about the impact of natural disasters, and suggest that CHT should strengthen the integrated assessment of natural and climate risks to enhance operational resilience. For suppliers, the occurrence of natural disasters can significantly impact supply chain operations and delivery stability, and relevant risk prevention should be discussed and promoted with CHT as needed. Therefore, they place a certain level of importance on this issue.

In addition, these identification results also echo the previous analysis results from Locate and Evaluate, indicating that the risk of natural disasters will impact the operations of our own sites and supplier-dependent items, leading to operation or supply chain disruptions. For other material nature-related risks, influential advocacy groups and non-profit organizations also report a medium to extremely high correlation, demonstrating the impact of CHT's intensive cooperation with both parties in driving sustainability during its operations.

Overall, different types of stakeholders show a clear correlation with nature-related risk items, further strengthening CHT's representativeness in identifying nature-related risks. This will also serve as a reference for prioritizing future response strategies, so as to fully implement nature-related risk management and enhance the Company's biodiversity resilience.

Identification of Material Nature-Related Opportunities

As for the identification of the aforementioned material nature-related opportunities, the taskforce collected 13 issues related to business performance and sustainability performance. Then, it conducted analysis to produce the Nature-Related Opportunities Matrix (Figure 23), ultimately selecting 1 business performance issue and 2 sustainability performance issues with high occurrence frequency and high level of impact as material nature-related opportunities for prioritized management.

The business performance issue is "entrance into emerging markets", while the sustainability performance issues include "protection/conservation/sustainable management of threatened species" and "collaborate with stakeholders to improve the ecological environment". The relevant results are as follows.

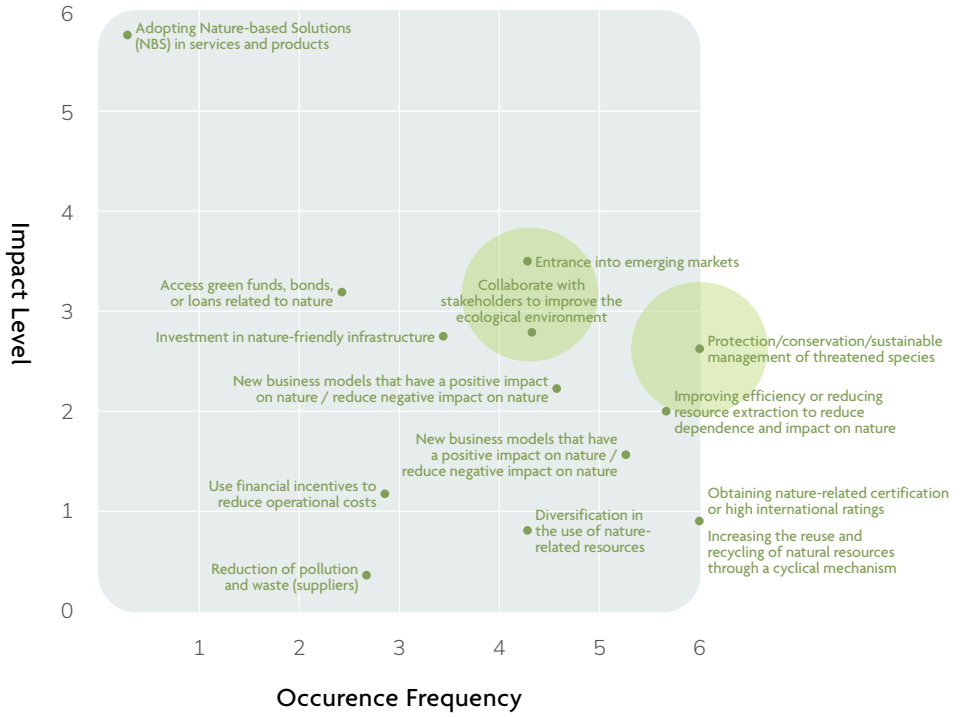


Figure 23. CHT's Nature-Related Opportunities Matrix

After identifying 3 material nature-related opportunities, we also distributed online and physical questionnaires to 7 types of major nature-related stakeholders and key Tier 1 suppliers. According to the questionnaire responses, most major nature-related stakeholders believe that material nature-related opportunities are moderately to highly correlated with their existing rights and interests. This aligns with CHT's consideration of stakeholders' needs and perspectives during the process of identifying nature-related opportunities. Among them, influential advocacy organizations and non-profit organizations' responses to the three opportunities all indicated a high to extremely high correlation. Also, they expressed expectation that CHT would continue to drive nature-related actions based on its existing foundation and strategies, and expressed concerns for CHT's application of its core technologies in promoting nature-related management.

Supported by data collected from questionnaires, the future strategies for natural mitigation, adaptation, and protection formulated and promoted by CHT will not only help manage nature-related risks identified in its own operations, but also contribute to creating more opportunities than industrial peers to drive nature-related actions jointly with major nature-related stakeholders for win-win outcomes.

To actively manage the aforementioned 4 material nature-related risks and 3 material nature-related opportunities, the Company formulated response strategies and action plans, demonstrating CHT's responsible attitude towards natural and ecological protection. For explanations regarding relevant response strategies, please refer to "III (II) Response Strategies for Nature-Related Risks and Opportunities" in this report.

(5) Prepare: Proposing nature-related response strategies and targets

Based on the results of the Assess phase, to actively mitigate the impact of nature-related risks, seize nature-related opportunities and thus enhance competitive advantages, the taskforce, in collaboration with various business units, evaluated the impacts of risks and opportunities arising from nature-related dependencies and influences on the Company's business model, and formulated corresponding response strategies. For detailed explanations of the response strategies for material nature-related risks/opportunities, please refer to "Ch3-2 Response Strategies for Nature-Related Risks and Opportunities" in this report.

Additionally, the Company set overall goals centering on commitments to "mitigating nature loss" and "promoting nature positivity."

In terms of the "mitigating nature loss" commitment, there are "science-based nature assessment" and "no net deforestation" targets. Regarding "science-based nature assessment," relevant initiatives include the Company's collaboration with the taskforce in 2024 to conduct TNFD Locate and Evaluate analysis*. First, base stations were included in the analysis scope, which was disclosed in the 2023 TNFD report and is currently being continuously expanded. Regarding "no net deforestation," relevant initiatives include co-hosting the "No Net Loss and No Deforestation Forum" with E.SUN Financial Holding Co., Ltd..

In terms of the "promoting nature positivity" commitment, there are targets of "alignment with nature-positive initiatives" and "mainstreaming nature positivity." Regarding the "alignment with nature-positive initiatives," related efforts include organizing 3 citizen science education training sessions on tree carbon sequestration in 2024, with 100 participants in total. Regarding "mainstreaming nature positivity," efforts include promoting the Hundred Species Restoration Project, where we selected 4 rare plants for conservation. For detailed information, please refer to "Ch5 Hundred Species Restoration Project."

Details of CHT's long-term biodiversity conservation pathway commitments, targets, and indicators are described below (Table 15). Going ahead, CHT will continue to review the implementation of various measures, to ensure the action plan is effectively carried out, demonstrate its strong commitment to natural capital, and achieve the vision of long-term conservation step by step.

* For details, please refer to "Ch2-1 Introduction and Implementation of the LEAP Methodology." As previously mentioned, the scope of this analysis has been expanded to the value chain.

Commitment		Target	Strategy	Action plan	Execution plan	Indicators
Biodiversity and No Deforestation	Mitigating nature loss	Science-based nature assessment	Building a scientific evaluation process	Developing science-based assessment procedures (including TNFD)	TNFD Initiative	TNFD analysis scope (types of operational sites, value chain, subsidiaries)
				Reviewing the impact of operating activities (TNFD - Locate, Evaluate, Assess)		
			Developing and adopting mitigation measures	Adopting mitigation and positive solutions (TNFD – Prepare)	Operating procedures incorporate nature-related considerations and mitigation benefit assessment methods	Scope of adjustment of operating procedures (types of operational sites)
				Assessing mitigation benefits (TNFD – Prepare)	NPI of existing operational sites in affected areas	Conduct a preliminary assessment using the on-site evaluation form and arrange for an ecological survey as appropriate
						Implement mitigation measures, including simple measures and major improvement projects

Commitment		Target	Strategy	Action plan	Execution plan	Indicators
Biodiversity and No Deforestation	Mitigating nature loss	No Net Deforestation	Eliminating the use of deforestation-linked products	Completely eliminating the use of deforestation-linked products	Forest Products (Paper)	Total consumption of forest products (paper) and certification ratio
					Other deforestation-linked products: Included in green procurement contracts	Other deforestation-linked products: Expanding the scope of suppliers included in green procurement contracts year by year
			Promoting the no-deforestation initiative	Publicizing the impact of deforestation and promoting no-deforestation practices	Signing green procurement contracts (incorporating no-deforestation considerations)	Proportion of suppliers and subsidiaries included in green procurement contracts (incorporating no-deforestation considerations)
					Hosting the "No Net Loss and No Deforestation" Forum or sharing sessions	Number of no deforestation forums or sharing sessions held
	Mainstreaming Nature Positive	Alignment with the Nature Positive Initiatives	Participating in nature-positive communities	Participating in domestic and international nature-positive initiatives	Joining domestic and international communities and participating in exchange activities	Number of domestic and international nature-positive activities attended
				Engaging with nature-positive communities		
			Promoting the concept of nature positivity	Aligning with a nature-positive trend	Tree carbon sequestration citizen scientists	Number of citizen science education and training sessions on tree carbon sequestration and number of participants
				Promoting the concept of natural positivity		Number of trees measured on site
		Mainstreaming Nature Positive	Building a nature-positive paradigm	Promoting a local conservation paradigm (Ecological field restoration)	Ecological field restoration	Progress of ecological field restoration
				Combining relevant conservation site verification (Ecological field restoration)		
			Promoting the mainstreaming of nature positivity	Establishing species conservation guidelines (Hundred Species Restoration Project)	Hundred Species Restoration Project	Number of fields
				Building a nature-positive showcase network (Hundred Species Restoration Project)		Number of conserved species

Table 15. Long-term Conservation Pathway Indicators

Chapter 3

Response Planning for Nature-Related Risks and Opportunities

(1) Building a Resilient Organization

CHT faces challenges from the rapid changes in the external environment, including market competition, technological changes, regulatory shifts, ecological impacts, and climate change. In response to the challenges and to ensure the company's long-term development and sustainable operations, CHT established a functional committee under the Board of Directors, the "Risk Management Committee", as the highest decision-making and supervisory body for risk management under the Board of Directors. Additionally, an executive-level committee, the "Risk Management Steering Committee", has been set up to coordinate and implement risk management activities across the entire company. (Figure 24).

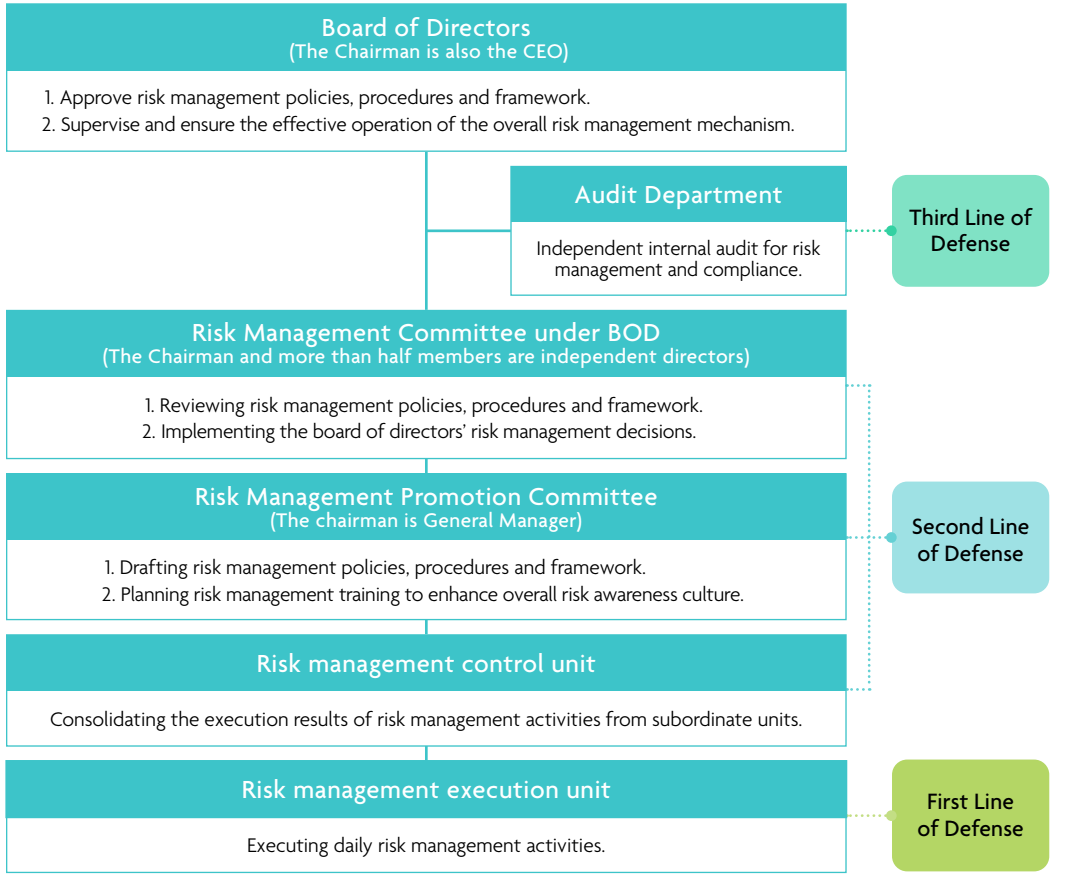


Figure 24. CHT Risk Management Organization Structure

CHT is committed to realizing the vision of "living in harmony with nature" and creating long-term sustainable value for the Company and its stakeholders. CHT adopts the LEAP methodology recommended by TNFD to analyze the nature dependencies and impacts of operational sites, departmental activities, as well as upstream and downstream value chain. The LEAP enables the Company to identify nature-related risks and opportunities associated with company's business operations and strategic implementation. The Company integrates nature-related risk management into the Enterprise Risk Management (ERM) system to ensure that all nature-related risks faced by the Company are effectively controlled, thereby maintaining uninterrupted operations and safeguarding the interests of stakeholders.

To enhance the awareness of nature-related risks across all levels of the organization, CHT regularly provides environmental education and corporate sustainability training for its employees. These training programs help employees understand the interdependence between business operations and the natural environment, stay informed about international sustainability trends, and promote the concept of environmental sustainability.

(2) Response Strategies to Nature-Related Risks and Opportunities

Based on the material nature-related risk factors identified, namely "occurrence of natural disasters", "stricter nature-related disclosure and environmental assessment regulations ", " demand for high-efficiency, low-impact technological transformation (suppliers)" and " customers' preference shifting towards nature-friendly products or services (customer)", the Company has proposed corresponding response strategies and is carrying out subsequent implementation and monitoring. The relevant details are as follows:

Risk 1: Occurrence of natural disasters

Based on the results of the Evaluate analysis, disaster protection is identified as an ecosystem service essential for the operation of our sites. Natural disasters such as typhoons and landslides may disrupt telecommunications infrastructure services in remote areas, leading to increased operational costs, negatively impacting brand reputation and customer loyalty, and potentially posing risks to employee safety and wellbeing. These factors collectively constitute a significant physical risk to overall operations. Failure to respond in a timely manner may result in higher costs, reduced revenue, customer attrition, reputational damage, and a diminished ability to secure capital.

Risks	Response Strategy
Products and Services: • The telecommunication infrastructure in offshore islands may be impacted by natural disasters such as typhoon, earthquake, and landslide, which could damage auxiliary facilities and cause service interruptions, affecting the region's critical external communication channels. • Post-disaster repair and restoration work may involve safety risks and high work intensity, potentially leading to overwork, increasing occupational health and safety challenges. **Reputation:** • Service interruptions due to equipment damage, resulting in frequent or prolonged disruptions of communication services, may negatively impact brand reputation and customer loyalty. • The uncertainty associated with the occurrence of natural disasters may reduce investor confidence in CHT's development prospects, potentially affecting the Company's stock price and market performance. **Environment and Society:** • Building materials from base stations, such as metal and plastic components, may be scattered during disasters, causing impacts on the environment and local ecosystems. • When power is disrupted due to natural disasters, diesel generators must be activated, and the resulting exhaust emissions and noise may have impacts on the local ecosystem and residents.	• In response to the need of local community and indigenous peoples identified as major nature-related stakeholders, CHT establishes a comprehensive microwave network, strengthening network resilience and disaster response capabilities to ensure stable communications after a disaster occurs. • Regularly conduct comprehensive inspections of base stations to ensure their structural and environmental safety, such as drainage systems, equipment and rack fixation, and corrosion prevention. • Provide employees with regular education and training on disaster response and occupational safety to enhance their ability to respond during disasters and to ensure their safety and work efficiency. • Conduct regular risk assessments, identifying potential nature-related risks and threats, and implementing corresponding management measures to prevent possible risks in advance. • Analyze the impact of communication interruptions on customer satisfaction and brand image, quantify potential customer churn and decline in loyalty, and use the findings as a basis for service quality improvement. • Actively disclose nature-related risk management measures to demonstrate the Company's commitment to ecological protection and enhance investors' trust and support for CHT. • Conduct comprehensive environmental impact assessments in areas susceptible to natural disasters in the site selection and design phase of base stations, paying attention to potential impacts on local biodiversity and ecosystems. • Cooperate with multiple suppliers to improve the stability of the supply chain, reduce the risk of material shortages, and minimize the impact and losses of communication interruptions.

Figure 25. CHT is making every effort to restore communications.

Risk 2: Stricter nature-related disclosure and environmental assessment regulations

Considering increasingly stringent regulations related to nature disclosures and environmental assessments, risks may arise such as increased high energy consumption, carbon emissions, challenges in managing electronic waste, noise issues, and obstacles to base station construction. Failure to respond in a timely manner may lead to higher operating costs, reputational damage resulting in reduced revenue and limited access to capital, ultimately undermining the company's resilience in addressing transition risks.

Risks	Response Strategy
Operations: • Internet Data Centers (IDCs) rely on a significant and stable power supply for operation. To meet regulatory and societal expectations, more energy-efficient equipment is adopted to boost efficiency, and green power usage is increased to reduce carbon emissions. **Environment and Society:** • IDC facilities undergo regular hardware upgrades, resulting in significant amounts of electronic waste. Improper disposal may cause environmental contamination. • Noise generated by the operation of equipment may affect the surrounding environment and community. **Reputation:** • Some stakeholders have a negative impression of the electromagnetic waves emitted by base stations, which may increase the uncertainty of base station construction, thus affecting the signal quality and damaging company reputation.	• To meet the expectations of the major nature-related stakeholders – government agencies, investor shareholders, and local community / indigenous peoples, we plan to adopt more efficient equipment and technology to operate more applications with fewer hardware resources; implement energy management systems to enhance resource efficiency and reduce energy consumption. • Increase the proportion of green electricity annually, aiming for all IDC facilities to run entirely on renewable energy by 2030. In the short term, green power purchases mainly come from solar power and onshore wind energy. • Establish a comprehensive system for recycling and reusing electronic waste and implement equipment maintenance and upgrades to prolong the lifespan of existing equipment. • Install soundproofing; conduct maintenance on weekends and holidays to minimize operational noise impact on residents. • Hold seminars to reduce public's negative impressions of electromagnetic waves and assist the public in measuring data to alleviate concerns.

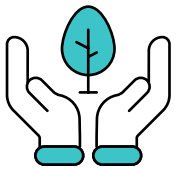
Risk 3: Demand for high-efficiency, low-impact technological transformation (suppliers)

In response to the demand for high-efficiency and low-impact technological transformation, CHT must work collaboratively with its suppliers. Failure to adapt in timely manner to trends in technological innovation and eco-friendly products and services may result in rising costs, customers attrition, poor supply chain management, reduced product competitiveness, and damage to brand image. In the long run, this could significantly reduce the company's revenue and profits, erode market competitiveness, and limit access to capital.

Risks	Response Strategy
Operations: • Suppliers' consideration of adopting sustainable business strategies may lead to increased collaboration costs, including higher procurement costs for company's products and additional investments in green supply chain management. Moreover, in pursuit of environmental sustainability vision, the continued purchase of low-power equipment and the adoption of smart energy-saving features may further raise procurement expenses. • As operating costs rise, the Company's profitability is adversely impacted, which in turn affects investor confidence, resulting in potential pressure on corporate valuations and financial performance.	• Continue to increase the proportion of C-RAN (Centralized-RAN) in mobile networks, which maximizes equipment utilization and saves air conditioning energy, effectively reducing maintenance management and electricity costs. • Closely monitor market trends and competitive dynamics, understand potential customer needs, combine the Company's own products and services, and launch competitive integrated promotional plans to consolidate customer base and increase renewal rates. • Continue to improve the quality of CHT mobile services and strive to win awards in various competitions to enhance the confidence of investor, one of the major nature related stakeholders.

Risk 4: Customers' preference shifting towards nature-friendly products or services (customer)

Customers shifting towards purchasing eco-friendly products and choosing competitor services may lead to customer loss, resulting in revenue decrease and damage to brand image.

Risks	Response Strategy
Operations: • Suppliers' consideration of adopting sustainable business strategies may lead to increased collaboration costs, including higher procurement costs for company's products and additional investments in green supply chain management. Moreover, in pursuit of environmental sustainability vision, the continued purchase of low-power equipment and the adoption of smart energy-saving features may further raise procurement expenses. • As operating costs rise, the Company's profitability is adversely impacted, which in turn affects investor confidence, resulting in potential pressure on corporate valuations and financial performance. 	• Continue to promote digitalization of store services, reduce paper usage, and move towards paperless operation to achieve the long-term goal of no net deforestation. • All shopping bags used in stores are made from materials certified by the globally recognized Forest Stewardship Council (FSC), with annual procurement targets set accordingly. • Promote carbon footprint certification, obtain carbon footprint labels, comply with DJSI and CDP requirements, and include the information in the sustainability report to improve CHT's sustainability rating. ✓ All directly-operated stores in the region have completed the carbon footprint verification for counter services and obtained ISO 14067 certification with Reasonable Assurance Level. ✓ Plan to obtain the product carbon footprint label certificate from the Ministry of Environment. • Establish a green supply chain, incorporate ESG-related standards into procurement conditions and grow together with supply chain partners to improve overall carbon reduction results.

Based on the material nature-related opportunities identified above, namely "entrance into emerging markets ", "protection/conservation/sustainable management of threatened species " and " collaborate with stakeholders to improve the ecological environment ", the Company has proposed corresponding response strategies to conduct subsequent promotion and tracking. The relevant content is as follows.

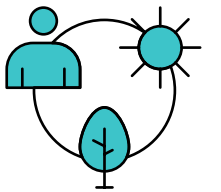
Opportunity 1: Entrance into emerging markets

CHT is committed to the protection, management, and restoration of natural resources, and actively promotes cross-industry cooperation to seize opportunities to enter new markets. The company uses information and communication technology to help upgrade Taiwan's agricultural technology, provide smart technology products required by major nature-related stakeholders to increase the company's revenue and shareholder value and to shape a professional image in the field of sustainable development. In addition, CHT has also created carbon neutrality solutions and planned related products and services such as carbon inventory and carbon offset to reduce damage to the natural environment. If these measures are promptly implemented in line with market trends, they can boost revenue and enhance the company's reputation, create opportunities to stay ahead of industry peers, and deliver multiple positive benefits to stakeholders, thereby effectively increasing opportunities for revenue growth.

Opportunities	Response Strategy
Operations and Reputation • By leveraging information and communication technology, the Company enhance communication quality in agricultural areas and participate in the Ministry of Agriculture's initiative to standardize data formats for agricultural IoT applications. This serves as an important reference standard for agricultural information service providers to share data, improving data interoperability and supporting policy goals such as net-zero carbon emissions and biodiversity conservation. These efforts help advance Taiwan's agricultural technology transformation and increase Chunghwa Telecom's visibility in the smart agriculture sector. • By using the Internet of Things combined with data analysis, farmers or local communities can obtain agricultural environment data in real time through the environmental monitoring platform to conduct precise irrigation and pest and disease prediction, thereby reducing production risks, increasing yields and profits, and reducing the workload of producers. • To help customers meet international standards and green procurement indicators, the Company leverage its technology groups, subsidiaries, and ecosystem partners to empower industries through information technology and develop carbon-neutral solutions. This includes planning products and services related to carbon footprint verification, carbon reduction, energy transition, and carbon offsetting. These solutions contribute to increased revenue and enhanced brand value.	• Through smart agriculture solutions, including the construction of an agricultural big data database and standardized platform, the application of agricultural environmental monitoring in demonstration fields, and the construction of a real-time livestock monitoring system, CHT can help the government to provide the public with a safe food and agricultural environment and promote agricultural technology upgrades and digital transformation. • Through the introduction of smart agricultural solutions, the Company helps customers accurately adjust irrigation volume, reduce the risk of disease spread, strengthen natural capital protection and maintain the resilience of livestock systems to achieve the goal of Nature Positive. • For general corporate customers, CHT uses the carbon inventory system to understand their own carbon emissions, and uses the smart energy-saving platform to understand their energy consumption of electrical equipment and simulate electricity consumption, thereby assisting enterprises in formulating energy-saving and carbon-reduction policies. For large electricity users, CHT promotes energy storage solutions to reduce carbon emissions to achieve the net zero target. • Through the Company's energy conversion solutions, customers can further convert grey electricity into green electricity, significantly reduce their reliance on grey electricity, and reduce damage to equipment caused by unstable power. • In the long term, CHT will create comprehensive carbon neutrality services and provide consulting services to solve clients' carbon-related issues.

Opportunity 2: Protection/conservation/sustainable management of threatened species

CHT hopes to implement measures such as conservation of threatened species and biodiversity restoration to achieve the international biodiversity vision of "halting and reversing biodiversity loss" by 2030 and "living in harmony with nature" by 2050. The Company actively invests in the restoration of threatened species and the protection of biodiversity to enhance the Company's sustainable image, thereby increasing the trust of customers and investors as well as the Company's competitiveness, and effectively obtaining opportunities to increase operating income.

Opportunities	Response Strategy
Operations and Reputation • Using operating sites as restoration bases, combined with AIoT smart restoration technology applications, to implement Hundred-Species Restoration Project, prioritizing the conservation of threatened native plants outside statutory conservation areas by using the Company's technology to fulfill our corporate social responsibility. • Promoting the Black-faced Spoonbill Conservation Project through establishing "AI-enabled Black-faced Spoonbill monitoring system" to identify the population size of Black-faced Spoonbills in real time. Smart monitoring also provides insights into the birds' health conditions, enabling timely rescue measures to protect biodiversity. This initiative effectively improves the surrounding environment and enhance the Company's reputation. 	• Set up interpretation and guided tour as well as check-in and stamp collection areas to strengthen interaction with local communities and reinforce the connection to the corporate's image. This fosters local identity and supports regional revitalization. In addition, by showcasing related outcomes through public events such as participation in climate expos, CHT can increase the visibility of its biodiversity conservation efforts and achievements. • Train employees to serve as conservation volunteer narrator in Hundred-Species Restoration Project to internalize nature positive concepts into the corporate culture and to enhance employees' sense of identity and participation. • Collaborate with academic institutions and government agencies to jointly inventory threatened species across Taiwan, establish SOPs and site criteria for restoration work, further reinforcing the project's scientific basis. • Establish partnerships with the Taiwan Black-faced Spoonbill Conservation Association, relevant departments of the Tainan City Government, the Southwest Coast National Scenic Area Headquarters, academic institutions, and other public and private sectors and non-profit organizations to implement the Black-faced Spoonbill conservation plan and continue to refine algorithms and models, deepen data analysis capabilities, and ensure ecosystem resilience.

Opportunity 3: Collaborate with stakeholders to improve the ecological environment

CHT may enhance its reputation and image through collaborating with stakeholders (e.g. partners across industry, government, and academia) to promote conservation actions such as ecological environment improvement, thereby increasing public trust and strengthening the company's competitiveness.

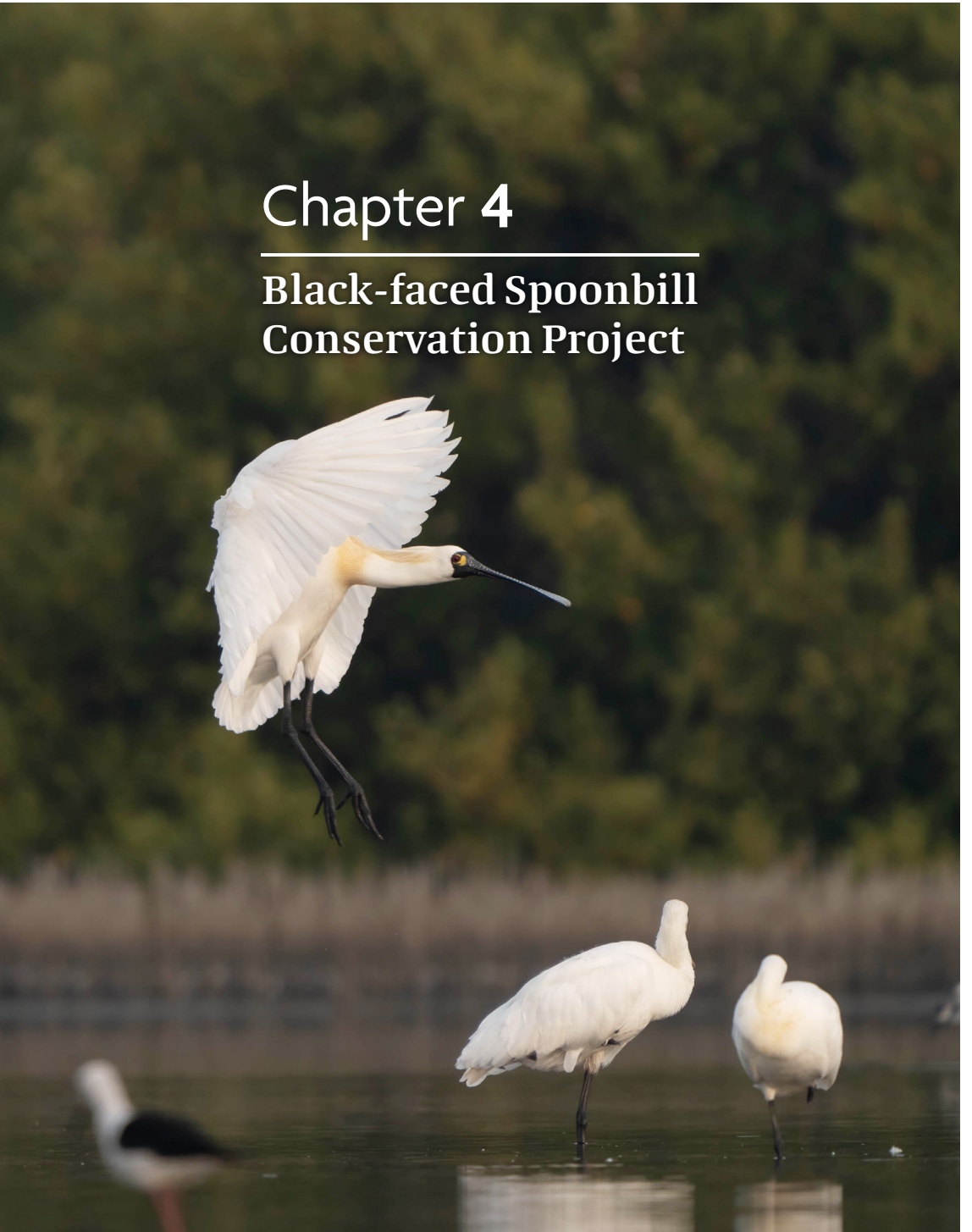
Opportunities	Response Strategy
Reputation • Once effectively implementing cross-sector cooperation among industry, government, and academia, a precise carbon sink database can be established. Through scientific measurement and recording of tree carbon sinks, this provides a scientific basis for promoting net zero emissions and environmental education in school, demonstrating CHT's initiative on nature-related issues and further positively influencing the company's reputation and image.	• Promote the plan of Citizen Scientists for Tree Carbon through cooperating with ICDI, Department of Education of the Taipei City Government, and schools. CHT encourages corporate volunteers and school teachers and students to participate in the tree carbon measurement program, providing scientific data support for biodiversity conservation and climate action.

Figure 26. CHT joins hands with stakeholders to promote the "Citizen Scientists for Tree Carbon" Program

Regarding the above evaluation of the impacts and effects of nature-related risks and opportunities, CHT has identified and formulated corresponding response strategies. However, considering the difficulty in quantifying the value of the natural environment and social benefits, CHT will continue to monitor the trends in nature capital financial assessments and related tools to enhance the disclosure of nature-related financial impacts.

Overall, CHT attaches great importance to nature-related issues throughout its operations and actively responds to stakeholders' expectations for natural sustainability. The Company commits to incorporating feedback from the survey with major nature-related stakeholders into the company's management strategies and simultaneously keeping pace with international sustainability trends and related actions to embed them into daily management practices, contributing to biodiversity conservation and fostering harmonious coexistence between business and nature.

Next, we will introduce the key conservation initiatives implemented in 2024 and provide detailed explanations of their execution. Through sharing these results, we aim to set a benchmark as a leading company in promoting biodiversity actions.



Chapter 4

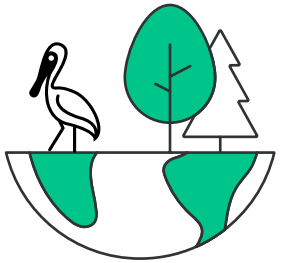
Black-faced Spoonbill Conservation Project

Recognizing the importance of biodiversity, CHT has adopted the LEAP methodology recommended by the TNFD to manage nature-related risks. Through this structured method, the Company assesses the dependencies and impacts of its operational sites on nature and further identifies potential nature-related risks and opportunities across its business operations and value chain.

As outlined in "II. (IV) Assess: Nature-related risks and opportunities assessment," CHT identifies material nature-related risks and opportunities by calculating the "likelihood of occurrence" and "degree of impact" of nature-related risks and opportunities following relevant LEAP steps. For material nature-related opportunity factors such as "protection/conservation/sustainable management of threatened species" and "ecosystem enhancement through stakeholder engagement," CHT not only integrates biodiversity considerations into its own operations but also engages its value chain and partners to jointly preserve and promote biodiversity. These efforts align with the Kunming-Montreal Global Biodiversity Framework and contribute to the 2030 milestone of halting and reversing biodiversity loss.

In 2024, CHT launched the first AI-powered habitat conservation project in Taiwan's telecommunications industry. Focusing on the nationally important Qigu Salt Field, the Company developed Taiwan's first "AI-enabled Black-faced Spoonbill monitoring system," empowering the ecological conservation of Black-faced spoonbill through intelligent technologies.

The Black-faced Spoonbill is an important winter migratory bird in Taiwan. Each year, about two-thirds of the global population choose Taiwan as their wintering habitat. However, the Black-faced Spoonbill is designated as a globally endangered species and is classified as "Nationally Vulnerable" in the "Red List of the Birds of Taiwan 2024" published by the Taiwan Biodiversity Research Institute of the Ministry of Agriculture. Given this, long-term monitoring and conservation of the Black-faced Spoonbill are especially crucial. CHT developed AI technology and collaborated with the Taiwan Black-faced Spoonbill Conservation Association, the Southwest Coast National Scenic Area Headquarters, and Taiwan Cooperative Bank, among other institutions, to promote its application. Together, these efforts aim to advance ecological conservation and make Qigu a permanent home for the Black-faced Spoonbill (Figure 27).



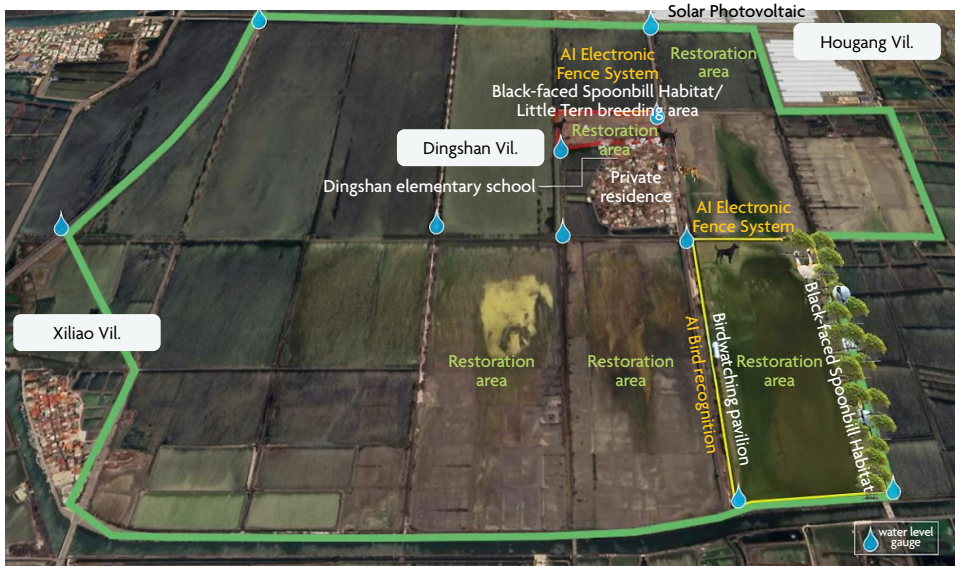


Figure 27: Project scope covers the Qigu Salt Field, a nationally important wetland

CHT made use of AI technology to power the AI-enabled Black-faced Spoonbill monitoring system, which achieves over 90% accuracy in image processing. This system reduces the need for around 200 surveyors annually and enables real-time monitoring of the population and behavioral patterns of the Black-faced Spoonbill (Figure 28). In addition, an AI-powered electronic fencing system accurately identifies intrusions (such as humans or animals) and provides real-time alerts of potential threats (Figure 29). To date, the system has successfully reported an average of 160 intrusion incidents per month, reducing the need for around 100 patrol personnel in the Dingshan community.

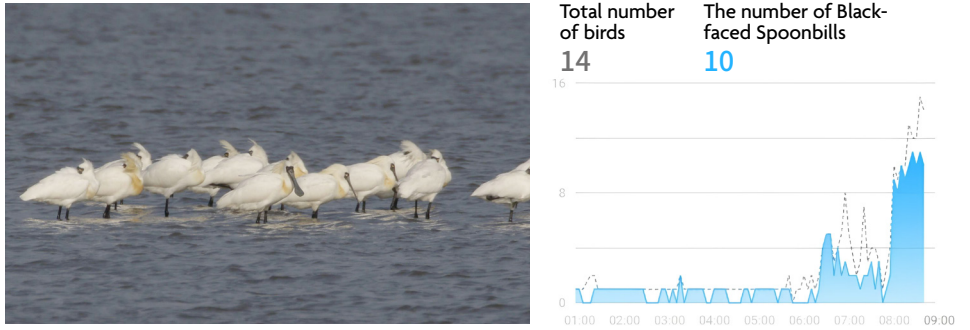


Figure 28: Taiwan's first AI-powered system for automatic identification of Black-faced Spoonbills, enabling real-time monitoring of their population

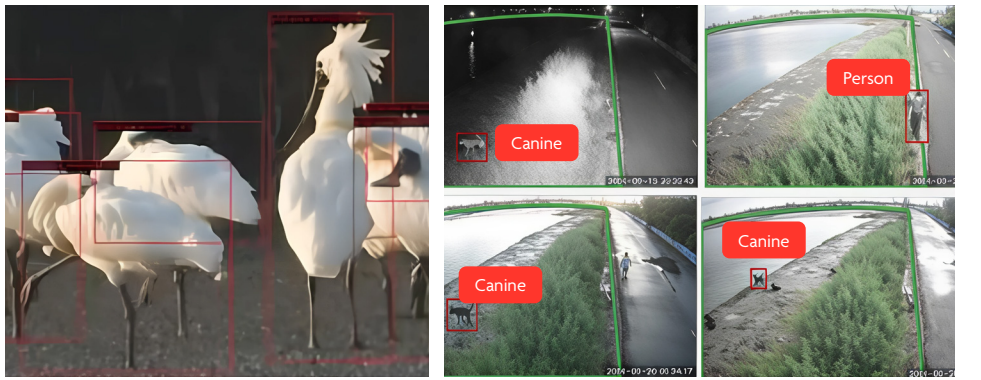


Figure 29. Demonstration of bird identification and electronic fencing AI-based technologies

In addition, an AIoT platform was developed to support a smart hydrological monitoring system, enabling more efficient water level monitoring and regulation in wetland environments (Figure 30). This ensures that environmental conditions support a complete food chain for the Black-faced Spoonbill. The system is also expected to increase the cluster size of migratory birds by over 50%, enhance biodiversity, and strengthen ecosystem resilience.

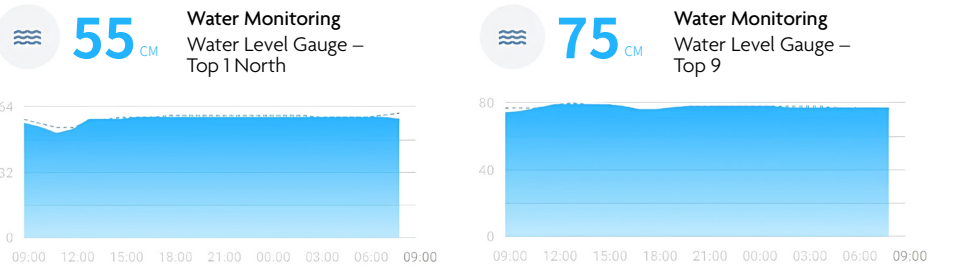


Figure 30. The AIoT platform supports a smart hydrological monitoring system for water level monitoring and regulation in wetland environments

To integrate habitat livestreams, hydrological monitoring, electronic fence surveillance, and migratory bird census data into a unified ecological observation system, CHT developed a visualized monitoring dashboard that overcomes traditional technical limitations in consolidating habitat-related environmental information.

Leveraging advanced information and communications technologies, CHT promotes the ecological conservation of the Black-faced Spoonbill, addressing long-standing challenges in monitoring accuracy and efficiency. This initiative demonstrates the Company's commitment to environmental sustainability as a leader in technological innovation and sets a positive model for nature conservation.

Chapter 5

Hundred-Species Restoration Project

In 2024, CHT continued to demonstrate its strong commitment and proactive efforts toward biodiversity conservation. The Company led the industry by developing Taiwan's first "AI-enabled Black-faced Spoonbill monitoring system," using AI technology to monitor the habitat of Black-faced Spoonbill and assist relevant authorities in tracking ecological changes and risk trends. This not only improves conservation efficiency but also reinforces the scientific foundation. At the same time, CHT actively collaborated with working group members to launch the telecommunications industry's first endangered plant conservation initiative—the "Hundred-Species Restoration Project."

According to the "Red List of Vascular Plants of Taiwan," 989 vascular plant species in Taiwan are classified as Critically Endangered, Endangered, or Vulnerable. However, some of these species inhabit regions outside protected areas and are exposed to human disturbances, leading to rapid disappearance of their habitats due to development, making them the most urgent conservation targets. Therefore, the Company, in collaboration with working group members, launched this initiative, transforming its operational sites into conservation bases for threatened species located outside protected areas. The initiative aims to improve the landscape and ecological environment at various operational sites and achieve the conservation of 100 threatened species over time.

In 2024, CHT selected the Taipei Jinshan Building, which features an ecological pond, small flower beds and enjoys high public visibility, as a demonstration site. After conducting an environmental and ecological survey, consulting with experts, and comprehensively considering factors such as threat levels, local cultural value, and planting feasibility, the Company selected four rare species—*Arundina graminifolia*, *Angelica pubescens*, *Asarum taitonense*, and *Hypericum subalatum*—as conservation targets (Figures 31 to 34).

The Company empowers conservation efforts with its core communication technologies, leveraging its advanced 5G, AI, and AIoT capabilities. By deploying sensors and surveillance cameras, the Company monitors key environmental factors—such as temperature, light intensity, and humidity—around its operational sites to ensure healthy plant growth. Through its proprietary "CHT IVS Platform", the Company continuously tracks plant development, integrating technology into conservation practices to enable real-time monitoring and effective risk management (Figure 36).

In the same year, CHT conducted three training sessions for personnel responsible for the development and management of potential "Hundred-Species Restoration Project" sites, including those from the Taipei Branch Office and other operational locations. These sessions covered topics such as selection and maintenance of conservation species, conservation landscape design, and AIoT monitoring equipment. The Company also invested resources to foster and encourage employee involvement in plant care and interpretation, sharing the concepts of plant conservation and Nature Positive with our customers and local communities, thereby promoting the mainstreaming of Nature Positive.

In the future, CHT will continue to collaborate with working group members to advance the "Hundred-Species Restoration Project" initiative by expanding both restoration sites and the range of species under conservation. The Company will also refine the program based on feedback gathered through employees' engagement with our customers and local communities—where they share the concepts of plant conservation and Nature Positive—thereby strengthening the implementation of biodiversity initiatives.

Arundina graminifolia (D.Don) Hochr.

Source: Gene-Sheng Tung

Species attribute	Native
Red List of Vascular Plants of Taiwan	Critically Endangered
Growing environment	Mainly distributed in mountainous areas below 1,000 meters in central and northern Taiwan, as well as in sunny fields along roadsides in lowland areas.
Features	Known as “bird flower” because its blossoms resemble a bird from a distance
Current situation	Less common in the wild due to exploitation of the environment

Importance and value of conservation

- While notable progress has been made in seedling cultivation, in-situ conservation efforts remain relatively limited.
- As a species with a relatively high chance of successful conservation and visually striking features, it holds strong potential to serve as a local conservation highlight, attracting public attention and promoting nature-positive awareness.

Angelica pubescens Maxim.

Source: Cheng-Te Hsu

Species attribute	New record species
Red List of Vascular Plants of Taiwan	Not evaluated, suggested as vulnerable
Growing environment	Distributed in mountainous areas at elevations between 900 and 3,200 meters, such as Yangmingshan, Yilan, and Hehuanshan
Features	A member of the Angelica genus, a tall perennial herb with cylindrical roots and a distinctive fragrance
Current situation	The population of Angelica pubescens is sparse, making it more susceptible to genetic drift, which may lead to a loss of population diversity.

Importance and value of conservation

- This is a newly recorded species, and related studies on Angelica pubescens are extremely limited.
- Due to its small population size, the species faces a high risk of losing genetic diversity.

Asarum taitonense Hayata

Source: Cheng-Te Hsu

Species attribute	Native, endemic to Taiwan
Red List of Vascular Plants of Taiwan	Not evaluated, suggested as vulnerable
Growing environment	Growing in forests above 500 meters and on grassy slopes below the ridgelines in the Datun Volcano Grou
Features	Beautiful patterns on heart-shaped leaves
Current situation	Ranked among the 25 important rare plant species in Yangmingshan National Park

Importance and value of conservation

- Currently, there are no conservation efforts for this species in Taiwan. Similar to *Angelica pubescens*, research on Asarum taitonense is extremely limited.
- As studies on growth are fundamental to successful restoration, there is an urgent need for both conservation and growth research.

Hypericum subalatum Hayata

Source: Chien-Jung Lin

Species attribute	Native, endemic to Taiwan
Red List of Vascular Plants of Taiwan	Vulnerable
Growing environment	Distributed from the northern to eastern foothills
Features	This shrub is most notably characterized by its four-angled or narrowly winged stems. When in bloom, the entire plant is covered in bright golden flowers
Current situation	Currently, wild populations of Hypericum subalatum are scarce and confined to a limited number of habitats

Importance and value of conservation

- Wild natural populations are scarce, making this species an urgent conservation priority.
- Research on Hypericum subalatum remains very limited.
- Since growth studies form the foundation for successful restoration, there is an urgent need to conduct both conservation and growth research.

Figure 35. Before-and-after comparison of the restoration at Jinshan Building
(left: before restoration; right: after restoration)

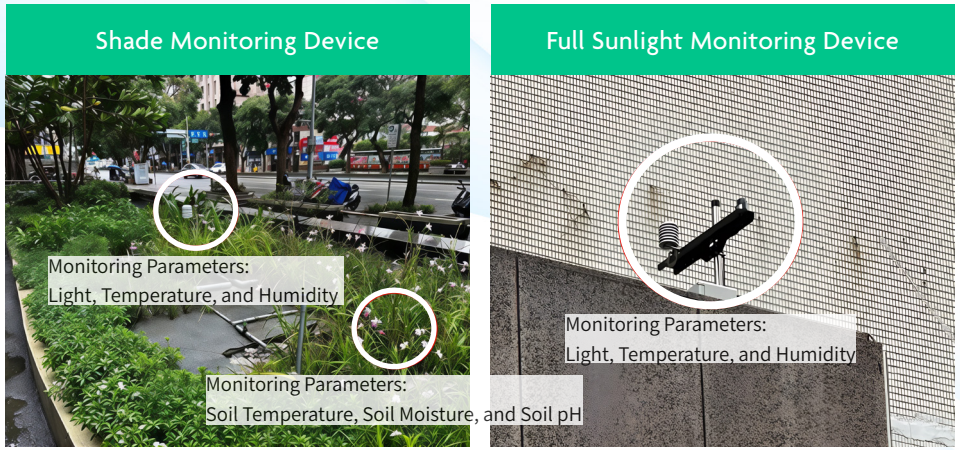
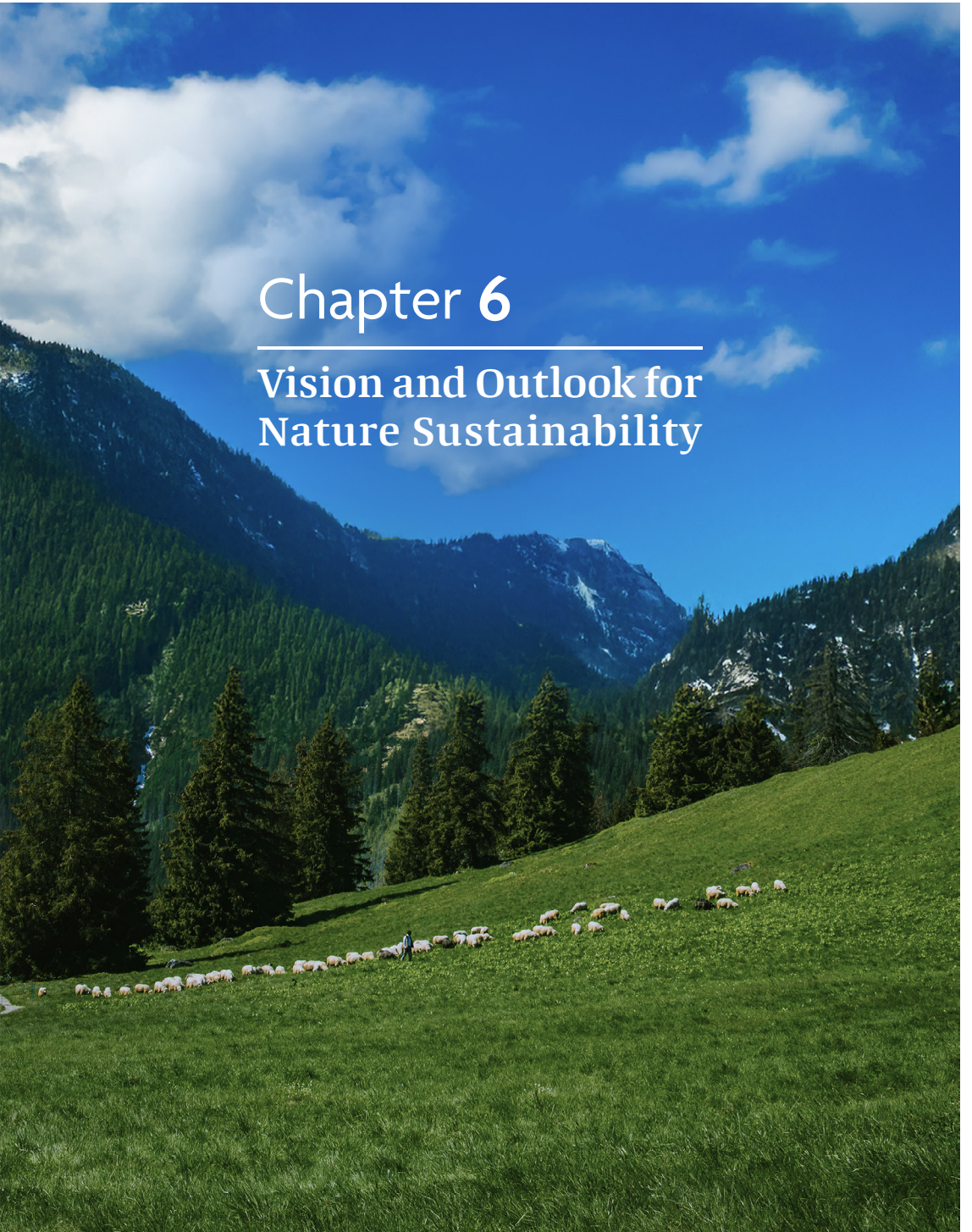


Figure 36. Real-time smart data monitoring platform

Figure 37. Layout plan of native planting for the “Hundred-Species Restoration Project” in Taiwan



Chapter 6

Vision and Outlook for Nature Sustainability

CHT's efforts to promote nature-related actions aim to respond to the United Nations' 2022 Kunming-Montreal Global Biodiversity Framework, striving to achieve the 2030 milestone of "halting and reversing biodiversity loss" and the 2050 vision of "living in harmony with nature."

In 2023, the Company became the first in the industry to commit to achieving Net Positive Impact (NPI) and No Net Deforestation (NND) by 2030. Marking 2024 as its "Inaugural Year for Biodiversity Implementation," CHT established a dedicated biodiversity project team, led by the Executive Vice President of the head office as convener. The team is tasked with charting long-term biodiversity conservation pathways based on two core principles: mitigating nature loss and promoting nature positivity. To realize these goals, the Company focuses on four key areas: "Science-based Nature Assessment," "No Net Deforestation," "Alignment with the Nature Positive Initiative," and "Mainstreaming Nature Positive." Corresponding strategies, action plans, and performance indicator frameworks have been devised to ensure continuous progress tracking.

To this end, CHT has proactively taken actions to lead biodiversity conservation within the telecommunications industry. The "Black-faced Spoonbill Conservation Project" is Taiwan's first biodiversity initiative leveraging AI technology to protect habitats, while the "Hundred-Species Restoration Project" initiative is the first conservation initiative in Taiwan's telecommunications industry focusing on endangered plant species. Through these efforts, CHT aims to set a benchmark for promoting biodiversity conservation and corporate sustainable development.

Looking ahead, while steadily advancing the planning of long-term conservation roadmap, CHT will progressively enhance the depth and completeness of its TNFD disclosures. In 2024, the scope of analysis has expanded beyond base stations to include central offices, pipeline facilities, service centers, office buildings, and satellite stations, with corresponding physical risk assessments conducted. Additionally, location-based analysis has been extended to our supply chain. Moving forward, CHT plans to further broaden the scope of analysis to cover its subsidiaries, thereby strengthening the identification and management of nature-related issues across the entire Group.

We firmly recognize that biodiversity conservation is not only a corporate responsibility, but also a vital opportunity to positively impact society and the environment. As a leading telecommunications company, we will leverage our influence and join hands with the entire value chain and cross-sector partners to raise awareness of biodiversity issues, ensuring that future generations may also enjoy a rich and thriving natural environment.

Appendix TNFD's Recommended Disclosures

Recommended Disclosures		Chapter
Governance	Describe the board's oversight of nature-related dependencies, impacts, risks and opportunities	Ch1-2 Organizational Framework for Sustainability Governance
	Describe management's role in assessing and managing nature-related dependencies, impacts, risks and opportunities	Ch1-2 Organizational Framework for Sustainability Governance
	Describe the organization's human rights policies and engagement activities, and oversight by the board and management, with respect to Indigenous Peoples, Local Communities, affected and other stakeholders, in the organization's assessment of, and response to, nature-related dependencies, impacts, risks and opportunities	Ch1-3 Stakeholder Engagement Initiatives
Strategy	Describe the nature-related dependencies, impacts, risks and opportunities the organization has identified over the short, medium and long term	Ch2-2 Locate: Locating nature-sensitive operational sites Ch2-3 Evaluate: Analysis of Nature-Related Dependencies and Impacts Ch2-4 Assess: Nature-related risks and opportunities assessment
	Describe the effect nature-related dependencies, impacts, risks and opportunities have had on the organization's business model, value chain, strategy and financial planning, as well as any transition plans or analysis in place	Ch2-3 Evaluate: Analysis of Nature-Related Dependencies and Impacts Ch2-4 Assess: Nature-related risks and opportunities assessment
	Describe the resilience of the organization's strategy to nature-related risks and opportunities, taking into consideration different scenarios	Ch2-3 Evaluate: Analysis of Nature-Related Dependencies and Impacts Ch2-4 Assess: Nature-related risks and opportunities assessment
	Disclose the locations of assets and/or activities in the organization's direct operations and, where possible, upstream and downstream value chain(s) that meet the criteria for priority locations	Ch2-2 Locate: Locating nature-sensitive operational sites
Risk and Impact Management	Describe the organization's processes for identifying, assessing, and prioritizing nature-related dependencies, impacts, risks and opportunities in its direct operations	Ch2-2 Locate: Locating nature-sensitive operational sites Ch2-3 Evaluate: Analysis of Nature-Related Dependencies and Impacts Ch2-4 Assess: nature-related risks and opportunities assessment
	Describe the organization's processes for identifying, assessing, and prioritizing nature-related dependencies, impacts, risks and opportunities in its upstream and downstream value chain(s)	Ch2-2 Locate: Locating nature-sensitive operational sites Ch2-3 Evaluate: Analysis of Nature-Related Dependencies and Impacts Ch2-4 Assess: nature-related risks and opportunities assessment
	Describe the organization's processes for managing nature-related dependencies, impacts, risks and opportunities	Ch2-1 Introduction and Implementation of the LEAP Methodology Ch3-1 Building a Resilient Organization
	Describe how processes for identifying, assessing, prioritizing, and monitoring nature-related risks are integrated into and inform the organization's overall risk management processes	Ch3-1 Building a Resilient Organization
Metrics & Targets	Disclose the metrics used by the organization to assess and manage material nature-related risks and opportunities in line with its strategy and risk management process	Ch2-5 Prepare: Proposing nature-related response strategies and targets
	Disclose the metrics used by the organization to assess and manage dependencies and impacts on nature	Ch2-3 Evaluate: Analysis of Nature-Related Dependencies and Impacts
	Describe the targets and goals used by the organization to manage nature-related dependencies, impacts, risks and opportunities and its performance against these	Ch2-5 Prepare: Proposing nature-related response strategies and targets

GRI Standards Comparison Table

GRI Standards	Disclosure Items	Chapter
GRI 101-1	Policies to halt and reverse biodiversity loss	Ch1-1 Brand Vision and Policy Commitment
GRI 101-2	Management of biodiversity impacts	Ch1 Commitment to Nature and Governance
GRI 101-3	Access and benefit-sharing	2024 Performance Highlights Ch4 Black-faced Spoonbill Conservation Project Ch5 Hundred-Species Restoration Project
GRI 101-4	Identification of biodiversity impacts	Ch2-3 Evaluate: Analysis of Nature-Related Dependencies and Impacts
GRI 101-5	Locations with biodiversity impacts	Ch2-2 Locate: Locating nature-sensitive operational sites
GRI 101-6	Direct drivers of biodiversity loss	Ch2-3 Evaluate: Analysis of Nature-Related Dependencies and Impacts
GRI 101-7	Changes to the state of biodiversity	Ch2-1 Introduction and Implementation of the LEAP Methodology Ch2-5 Prepare: Proposing nature-related response strategies and targets
GRI 101-8	Ecosystem services	2024 Performance Highlights Ch1-3 Stakeholder Engagement Initiatives Ch4 Black-faced Spoonbill Conservation Project Ch5 Hundred-Species Restoration Project