



Taiwan Mobile 5G



GeSI
ENABLING
DIGITAL
SUSTAINABILITY

RE100

CLIMATE
GROUP

CDP



DIGITAL
WITH
PURPOSE

2023 TNFD REPORT

The **T**askforce on **N**ature-related **F**inancial **D**isclosures

About the Report.....	2
Speech from the Chairman.....	3
1 Guardians of Nature.....	5
1.1 Sustainable Governance.....	5
1.2 Management Rights and Responsibilities.....	10
1.3 Policy Commitment.....	11
1.4 Human Rights Policy and Negotiation Activities.....	14
2 Dependency and Impact.....	15
2.1 Adopted the LEAP approach.....	15
2.2 Identification of Site Activities.....	17
2.3 Dependency Materiality Assessment.....	29
2.4 Impact Materiality Assessment.....	33
3 Risks and Opportunities.....	36
3.1 Indicators and Metrics.....	36
3.2 Management Measures.....	48
3.3 Ecological Conservation Projects.....	50
3.4 Value Chain Natural Risks.....	52
3.5 Scenario Analysis.....	63
4 Targets and Performance.....	87
4.1 Emissions.....	87
4.2 Short, Medium, and Long-Term Targets.....	94
5 “Vision for 2050”.....	100
Appendix.....	101
TNFD’s recommended disclosures.....	101
Reference Materials.....	102

About the Report

In addition to the climate crisis, preventing the loss of biodiversity and ensuring the provision of ecosystem services has clearly become another pressing global issue for sustainable development, with significant implications for both society and ongoing business operations.

Taiwan Mobile Co., Ltd. (hereinafter referred to as TWM) has long been committed to supporting the Task Force on Climate-Related Financial Disclosures (TCFD) and published its first TCFD report in October 2023. As growing economic activity, market demand for natural resources is gradually rising, leading to the depletion of natural capital and species at risk of extinction. This poses a significant threat to the achievement of corporate and natural sustainability. TWM is voluntarily committed to improving the sustainability of its natural capital, taking into account the recommendations of the Taskforce on Nature-related Financial Disclosures (TNFD) V1.0, released in September 2023.

This report systematically assesses the impacts and dependencies between TWM's operations and nature and ecosystems, as well as the associated risks and opportunities. The assessment uses the LEAP (Locate, Evaluate, Assess, Prepare) approach (version 1.0) recommended by the Taskforce on Nature-related Financial Disclosures (TNFD) and covers the entire value chain of TWM's, including both its assets and those of its suppliers. The report examines green products and services that can create a positive impact on nature, including related indicators and targets that have been established. It also considers future natural and economic conditions to analyze different scenarios that could affect telecommunications services.

Speech from the Chairman

Ecosystem degradation and biodiversity loss are not only environmental issues, but also critical societal challenges. These issues, along with the climate crisis, are likely to shape the future of humanity and business growth. To address this challenge, a cross-sector group of experts and government agencies established the Taskforce on Nature-related Financial Disclosures (TNFD) in 2020. The TNFD aims to develop a framework for biodiversity financial disclosures that will direct corporate capital flows toward value creation that have a positive impact on nature. To achieve no net loss and positive impact on natural, companies must not only improve their performance to avoid ecosystem and biodiversity risks, but also explore new business opportunities and foster innovation that drives business growth.

TWM recognizes that protecting the Earth's biodiversity and limited resources is crucial for sustainable human development. In 2022, the company issued a "Biodiversity and No Deforestation Commitment" and designated 2023 as "TWM's Biodiversity Year." The Company supports the United Nations Convention on Biological Diversity and has set strategic goals at the corporate level. Internally, TWM is developing innovative biodiversity solutions that leverage its core competencies. Externally, it is collaborating with academic and research institutions, conservation organizations, communities, and other stakeholders. TWM is also engaging key value chain partners to evolve this journey. In 2024, TWM became an industry leader by publishing the first TNFD report. This report presented a comprehensive analysis of the natural dependencies and impacts associated with its operations and global value chain. At the same time, the Company continues to reduce its environmental footprint through initiatives such as EV100, RE100 and its commitment to achieving net zero emissions. Through cross-functional collaboration, TWM has developed short, medium and long-term management actions and innovative low-carbon services. These efforts are aligned with the Company's vision to achieve net zero emissions by 2050, a net positive impact on biodiversity by 2050, and an end to all forms of deforestation (No Gross Deforestation).

With the objective of biodiversity conservation, TWM has leveraged digital empowerment to launch two collaborative initiatives. In partnership with the National Taiwan University research team, the Company is using IoT technology and resource allocation to promote the development of research on Taiwan salamanders. In addition, TWM has partnered with the social innovation team "BlueTrend" to develop "AI Ocean," Taiwan's first citizen-driven marine biodiversity database with AI recognition capabilities. This initiative aims to promote the understanding and conservation of Oceano sphere. TWM has collaborated with its value chain partners to incorporate a "Biodiversity Topic Group" into its supply chain ESG questionnaire. To build capacity and recognize nature-related impacts, dependencies, risks, and opportunities

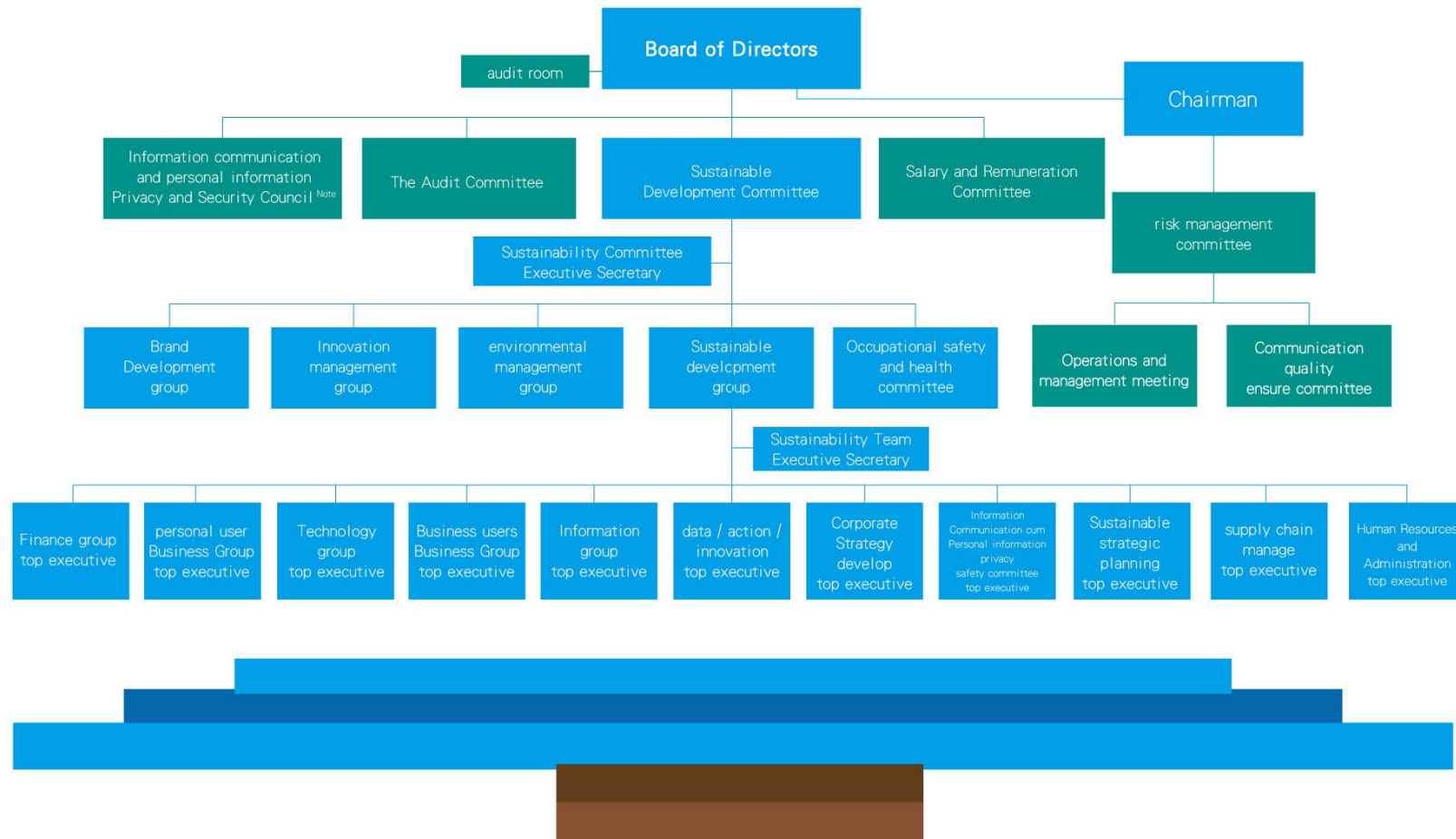
in value chain, the Company has also invited over 100 suppliers to sign the "Commitment to Protecting Biodiversity." In the future, we will also invest in the restoration of blue carbon ecosystems. This will not only help improve Taiwan's natural carbon sink, but also create a more complete habitat environment that will enrich the biodiversity of coastal vegetation.

The natural environmental crisis is imminent. On the path to sustainability, TWM remains committed to the spirit of benefiting all. We hope to comprehensively lead all stakeholders to jointly protect our precious natural resources, participate in ecological restoration and regeneration, and ensure a beautiful future for the earth and the sustainable development of mankind.

1 Guardians of Nature

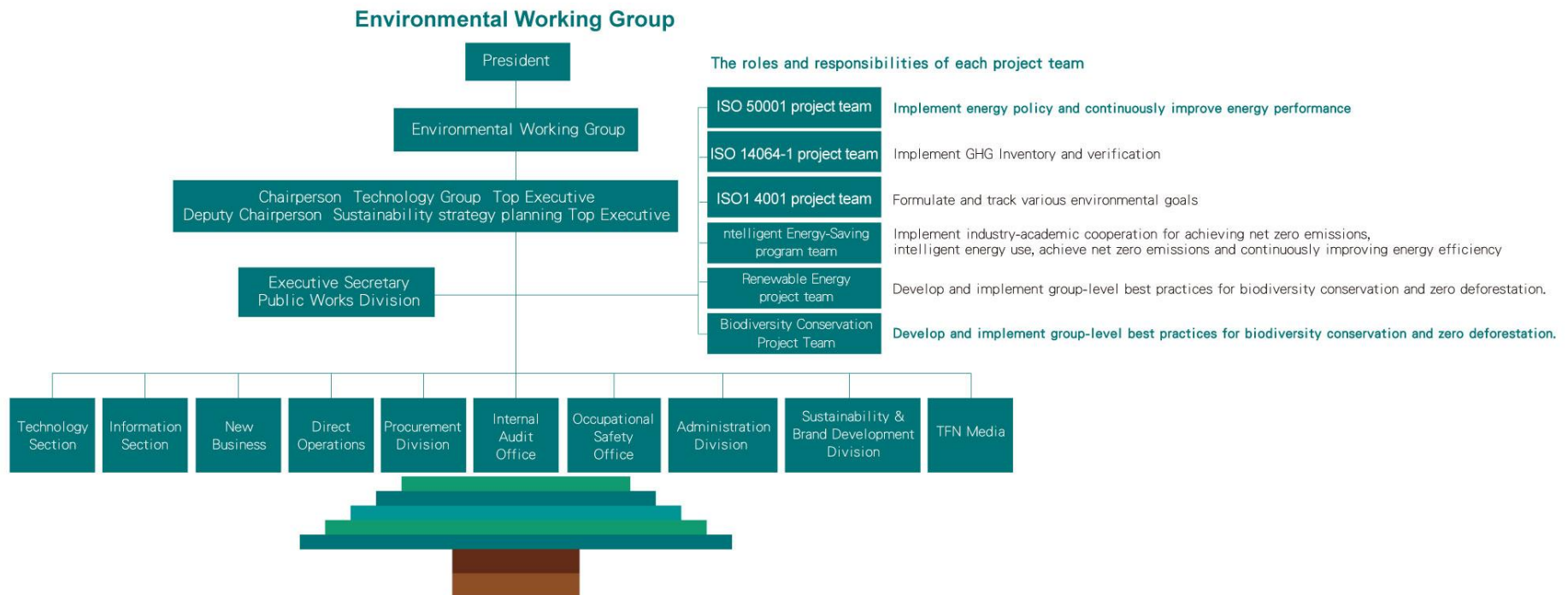
1.1 Sustainable Governance

Taiwan Mobile continues to work on sustainable corporate development. Since the establishment of the Sustainability Promotion Team in 2008, we have been striving to improve our sustainability performance and strengthen our organization's resilience to climate change. The ISO 14064-1 greenhouse gas inventory and the ISO 50001 energy management system were implemented in 2012, followed by the implementation of the ISO 14001 environmental management system in 2015. The CSR Committee was formally established under the Board of Directors in 2014. It was later renamed the ESG Working Group in response to the establishment of the ESG Steering Committee at the Board level on May 6, 2022. The ESG Working Group is chaired by the Chairman of the Board of Directors and the Vice Chairman of the Board of Directors. Senior management from various business groups are members of the task force, which is responsible for identifying risks and opportunities related to environmental, social and governance issues. The working group closely integrates operations and core resources to set the vision and strategy for conservation and biodiversity. In addition, to enhance the level and breadth of the Company's sustainable management, a Board-level ESG Steering Committee was established and approved by the Board in May 2022. It is composed of the Chairman of the Board and five independent Directors of the Company. Supervise and guide the functional groups at the management level, including "Sustainable Development", "Environmental Management", "Innovation Management", "Brand Development", and "Occupational Safety and Health Committee", establish sustainability strategies for the issues related to the three aspects of ESG, review the annual sustainability plans of each functional group, monitor and track the implementation results.



Note : The board of directors appoints independent directors to attend and provide guidance

On the implementation side of environmental management, TWM established the Environmental Management Committee (which was included under the ESG Steering Committee in 2022 and renamed the Environmental Working Group) in February 2016. The committee is chaired by the CTO of the Technology Group, and the vice chairman is the top director of Sustainable Strategy Planning. They are responsible for overseeing environmental and biodiversity issues and goals, formulating policies to guide the company in implementing various environmentally friendly strategies and measures, and integrating six major teams, including ISO 14001, ISO 14064-1, ISO 50001, Smart Energy Saving, Renewable Energy, and Biodiversity Conservation projects. The Environmental Management Committee meets every six months to assess performance and identify improvements, and the executive secretaries of each group regularly track progresses.



Board of Directors: Review and oversee goals and targets related to climate, nature, and biodiversity issues, examining the risks and opportunities faced by the Company. When reviewing or guiding the Company's overall operations, factors related to climate, nature, and biodiversity are taken into consideration. For example:

- Approved 2040 commitment to 100% renewable energy, 2050 commitment to net zero emissions, energy resource reduction achievement rate, greenhouse gas reduction, renewable energy promotion process, etc. TWM has already submitted its commitment to achieve net zero emissions by 2050 to the Science-Based Targets Initiative (SBTi) to meet the "net zero" emissions target by 2050 set out in the Paris Agreement.
- Commitment to achieve Net Positive Impact on biodiversity by 2050 and to cease all forms of deforestation (No Gross Deforestation).

ESG Steering Committee: Oversees the comprehensive decision-making on all aspects of ESG, including strategies and goals related to climate, nature, and biodiversity risks and opportunities. It convenes meetings twice a year and reports to the Board of Directors on the progress and achievement of related issues and goals.

Risk Management Committee: Conducts assessments and approves relevant prevention and adaptation measures according to the risk management mechanism. It periodically reports the Company's risks (including climate risks, nature, and biodiversity risks) to the ESG Steering Committee and the Board of Directors.

Environmental Working Group: Responsible for regularly identifying and managing risks and opportunities related to climate change and biodiversity according to the Company's risk management system. It also reports climate, nature, and biodiversity risk trends and issues to the Risk Management Committee. For instance, the establishment of the TWM's Declaration of Biodiversity Conservation and Zero Deforestation in 2022.

ESG Working Group: Conduct research on international climate risk trends, nature, and biodiversity risk trends and provide feedback on the latest risk trends to the Environmental Management Team.



1.2 Management Rights and Responsibilities

TWM's Environmental Working Group hosts a meeting twice a year to identify, assess, and manage risks and opportunities related to climate, nature, and biodiversity. The ESG Working Group regularly conducts research on international climate, natural and biodiversity risks and opportunities. The latest trends in climate, nature and biodiversity risks are then reported to the ESG Working Group. These trends and related issues are then presented to the Risk Management Committee.

The Risk Management Committee meets every six months to conduct assessments and approve relevant measures according to the risk management mechanism. It periodically reports the company's risks (including climate risks, nature, and biodiversity risks) to the ESG Steering Committee and the Board of Directors. The ESG Steering Committee is chaired by the Chairman personally and comprises five independent directors as members. It oversees the decision-making on all aspects of ESG, including strategies and goals related to climate, nature, and biodiversity risks and opportunities. It also monitors the achievement of detailed project objectives. The Board of Directors Oversees the progress and achievements on climate, nature and biodiversity issues at its biannual meeting.

While implementing sustainable governance, the Company also links ESG more closely to its operations through the performance and remuneration of the president and vice president. In the annual goal setting, ESG indicators relevant to duties and commonality are incorporated, such as net zero emissions, renewable energy usage, water and energy conservation, customer satisfaction, complaint volume, employee turnover rate, and corporate volunteering. This is considered during the annual performance evaluation. When evaluating annual performance, indicators related to risk management are also taken into consideration, including audit and information security management. To further enhance the connection between ESG performance and executive compensation, a linkage ratio of 30% has been established for executive variable pay and ESG performance. The variable compensation of each manager is proposed by the Remuneration and Nomination Committee and issued after approval by the Board of Directors.

1.3 Policy Commitment

TWM established the “Declaration on Biodiversity Conservation and Zero Deforestation” in 2022 and revised it in 2023. The company will work with key value chains, including primary and non-primary suppliers, to actively promote the protection of natural ecosystems and habitats, prevent biodiversity loss, and implement the most effective biodiversity protection and zero deforestation measures. TWM will also work with research institutions, conservation organizations and local communities to restore the Earth’s ecological systems and their natural adaptive capacity. This Declaration covers the UN Sustainable Development Goals (SDGs): SDG 7 Affordable and Clean Energy, SDG 9 Industry, Innovation and Infrastructure, SDG 12 Responsible Consumption and Production, SDG 14 Life below Water, SDG 15 Life on Land, and SDG 17 Partnerships for the Goals. Taiwan Mobile carries out low-carbon green operations and implements environmental education and ecological restoration. In the case of impact residuals, the maximum compensation is made with the principle of No Net Loss, and it is planned to achieve Net Positive Impact on biodiversity and end any form of deforestation (No Gross Deforestation) by 2050.

Taiwan Mobile’s biodiversity policy is as follows:

Deepening Biodiversity Conservation

Implement risk identification for all operating activities (including major production and economic activities upstream and downstream of the value chain) of its subsidiaries, employees, operating locations, locations of facilities, products and services. Consider the degree of dependence and impact, assess the impact on ecology and biology, and avoid activities in areas with high natural value and their vicinity.

Actively Promote Ecological Restoration

Reduce operations in and around important biodiversity and its adjacent areas at the international and national levels, using mitigation tiers to reduce impacts.

1. Construction projects of operating facilities including the construction of renewable energy source facilities and new Internet Data Center (IDC) server rooms need to follow the legal and mandatory standards and regulations to 100% comply with the relevant regulations in

the region for site surveys. IDC server rooms are particularly selected to in the urban areas. All construction projects are carried out after obtaining permits and ensure that local species and the native ecosystem are not affected.

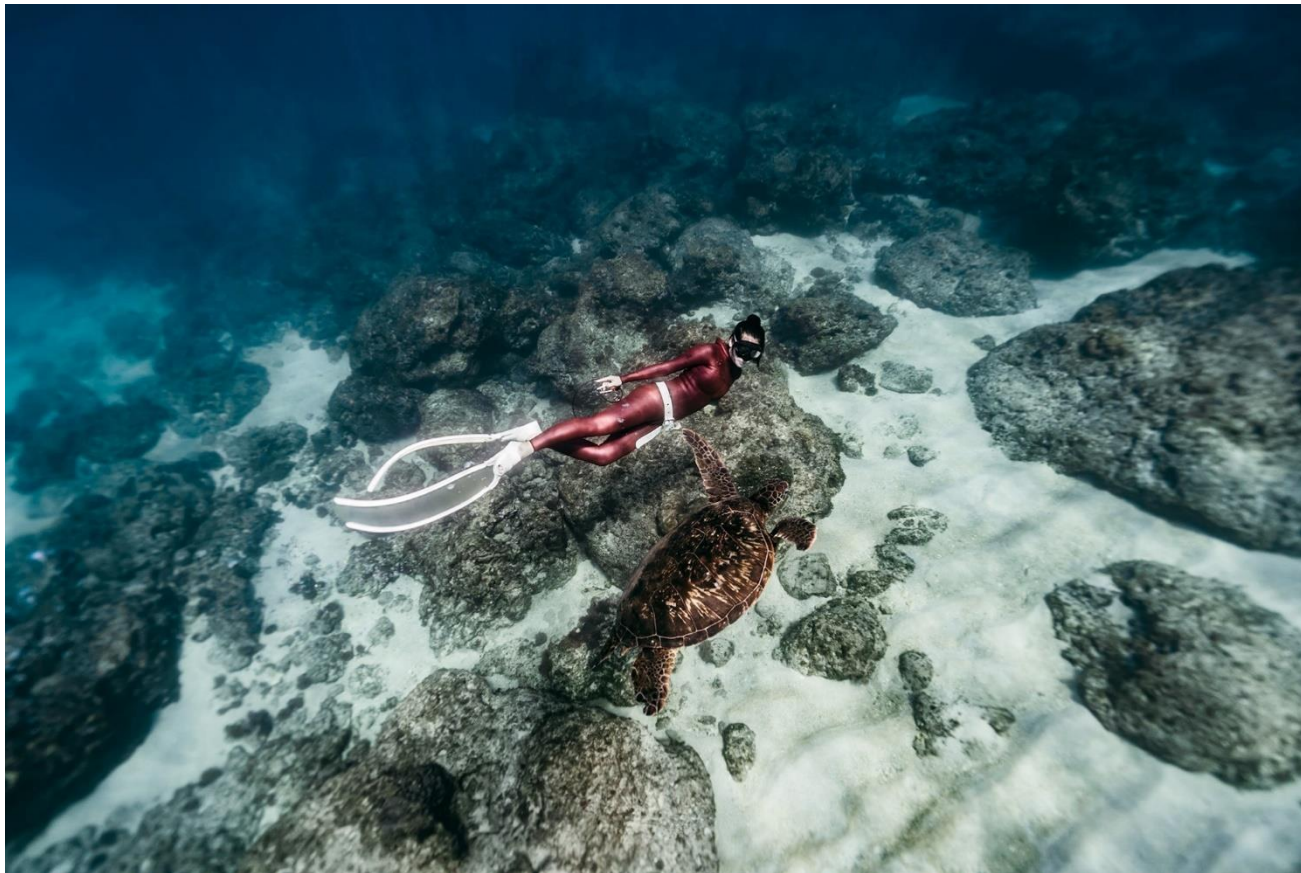
2. In case of emergency relief and national infrastructure needs, exceptions are made for the construction of telecommunications infrastructure at or near sites of biodiversity importance (described in 3 below).
3. Continuing from 2, for the purpose of emergency relief and infrastructure needs, base stations must be set up in rural and mountainous trail areas. In addition to conduct site surveys and environmental impact assessments in accordance with relevant regulations of governing government agencies such as the National Park Law and The Forestry Act; use method of mitigation hierarchy and implement the mitigation principle to “avoid, reduce, repair and compensate”, give priority to measures with high impact and effectiveness from the perspective of biodiversity and commerce; rely on scientific and technological services, technological development and process innovation, to avoid activities in natural habitat areas that may interfere with species to eliminate irreversible losses. Practices include:
 - The construction projects are carried out in a natural environment-friendly way to avoid harming the ecological habitat of local animals and plants.
 - For construction project operations (moving, placement and construction), on-site backfilling of soil, pruning and transplanting of trees are implemented.

Promote Nature and Environmental Protection

From time to time, TWM actively discloses the effectiveness and details of nature and biodiversity, forestry and conservation. We actively collaborate with biodiversity-related external entities (NGOs, experts and scholars), local communities, research institutions and environmental associations to assess the amount of biodiversity and the value of the flow. Carry out conservation and support research programs to cultivate professionals in the long run. We practice the business operations of TWM Group by monitoring the effectiveness of the measures taken to protect and preserve biodiversity to fulfill the requirements related to biodiversity conservation and zero deforestation, and to negotiate and respond to the expectations of TWM’s stakeholders.

Partnering with Supply Chains to Reduce Environmental Impacts

Work with key value chains (including tier 1 suppliers, non-tier 1 suppliers, customers and business partners) to comply with and practice the best measures for biodiversity conservation and zero deforestation when conducting operational activities. Follow the relevant procedures to avoid and reduce environmental impacts to jointly protect the ecology of natural environment.



1.4 Human Rights Policy and Negotiation Activities

Land use is a critical factor in the creation and growth of businesses, involving complex relationships between human activities, human rights implications, business ethics and economic development. To avoid adverse impacts on local communities resulting from the use of land resources, Taiwan Mobile is committed to upholding, respecting and protecting human rights in line with the United Nations Sustainable Development Goal SDG16. The Company has developed a comprehensive human rights policy and implemented rigorous human rights due diligence processes. TWM's Human Rights Policy is divided into four main sections: support for international human rights conventions, respect for human rights in the workplace, full implementation of information security, and responding to the needs of society with core competencies and resources.

TWM must ensure that its current and future business expansion, which includes the acquisition and use of land and natural resources, is compliant and considers potential human rights issues. This requirement applies to human rights due diligence throughout the Group and its subsidiaries. Value chain: suppliers, employees, customers, communities, etc., with a coverage rate of 100% Number of sites implementing human rights mitigation measures in 2023: 692 (including 8 companies such as Taiwan Mobile and its subsidiaries, as well as 376 directly operated stores and 308 distribution sites of TWM). Surveyed by questionnaire, the recovery rate is 93% (2,869 copies sent out, 2,677 copies returned). As a result, all human rights indicators fall within the quadrant of "high degree of influence, but low probability of occurrence and vulnerability".

2 Dependency and Impact

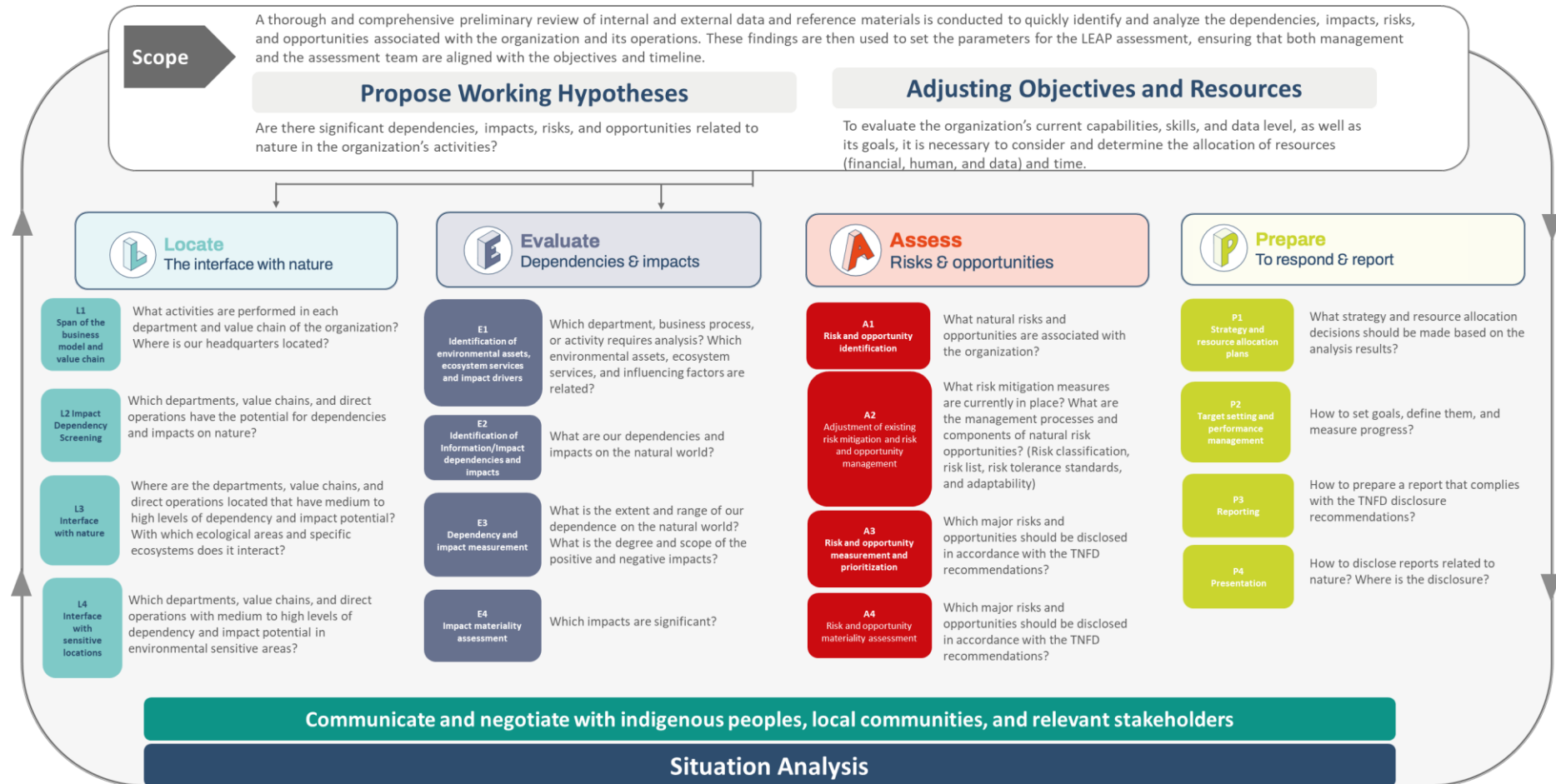
The relationship between natural capital and businesses and society can be divided into two main categories - dependence and impact:

- **Dependency:** Business operations are dependent on the natural environment, and external changes in the ecosystem can affect this dependency and cause changes in the state of the environment. As a result, there may be risks or opportunities due to fluctuations in the natural capital on which the business originally relied.
- **Impact:** The operation of the Group may result in changes to natural capital and potential risks related to regulations, reputation, or other factors.

2.1 Adopted the LEAP approach

The LEAP method is considered by TNFD as a procedural guide to help market participants of all sizes, industries, and value chains to identify and assess nature-related issues. It also helps to identify the potential material risks and opportunities associated with nature for businesses. This includes formulating risk management strategies for key governance risks and opportunities, linking scenario simulation and analysis to financial quantification. Identify the content that should be included in sustainability reports and the other stakeholders who are expected to use them. The acronym L/E/A/P stands for Locate, Evaluate, Assess, and Prepare, which are the four stages an organization must follow.

Scope and Steps of LEAP Approach Evaluation

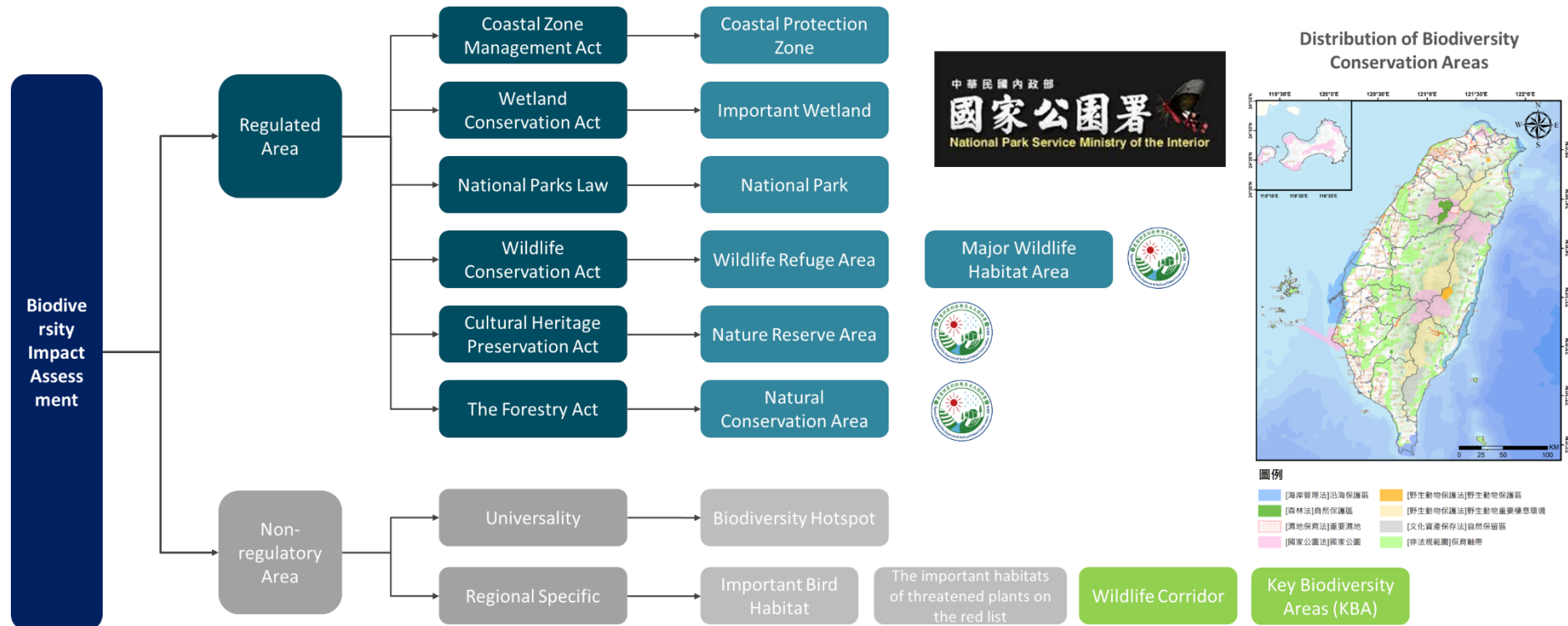


2.2 Identification of Site Activities

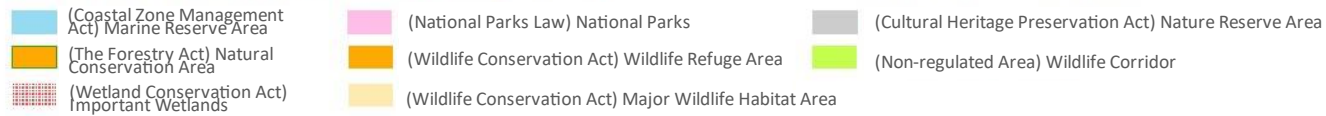
A spatial analysis was conducted to evaluate the impact of organizational and supply chain activities on nature and biodiversity in Taiwan. The analysis examined whether the coordinates of the base overlapped with areas of natural and biodiversity significance in accordance with the positioning requirements of LEAP. Among them, the sources of data collection for natural biodiversity maps comes from the Ministry of Agriculture and the National Parks Administration.

Step 1: Collecting Natural and Biodiversity Geospatial Data	Marine Reserve Area, National Park, Major Wildlife Habitat Area, Wildlife Refuge Area, Nature Reserve Area, Nature Conservation Area, Important Wetland, etc.
Step 2: Site Location Analysis	Location Address > Location Coordinates > Analysis within a 2000 Meter Radius
Step 3: Geospatial Overlay Analysis	Analysis of intersection between natural biodiversity and site distribution > Completion of analysis, preparation of report

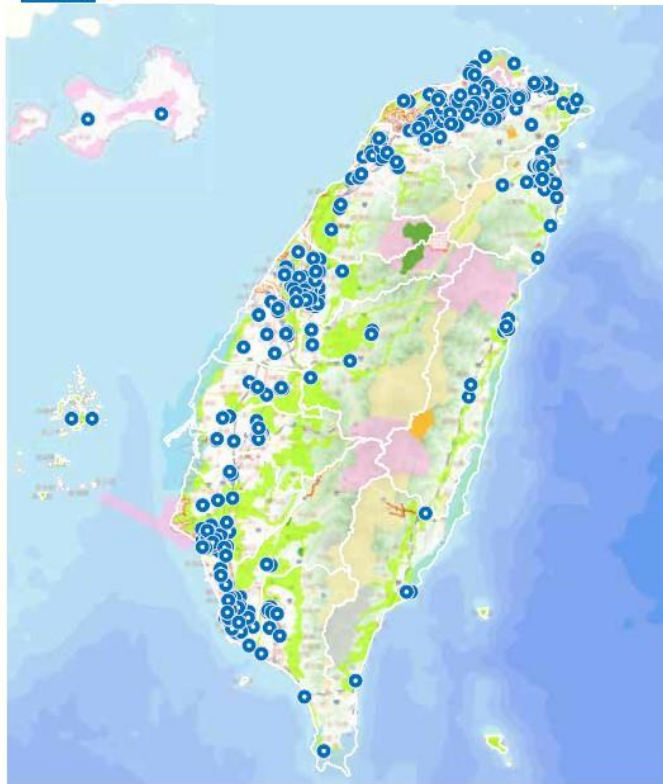
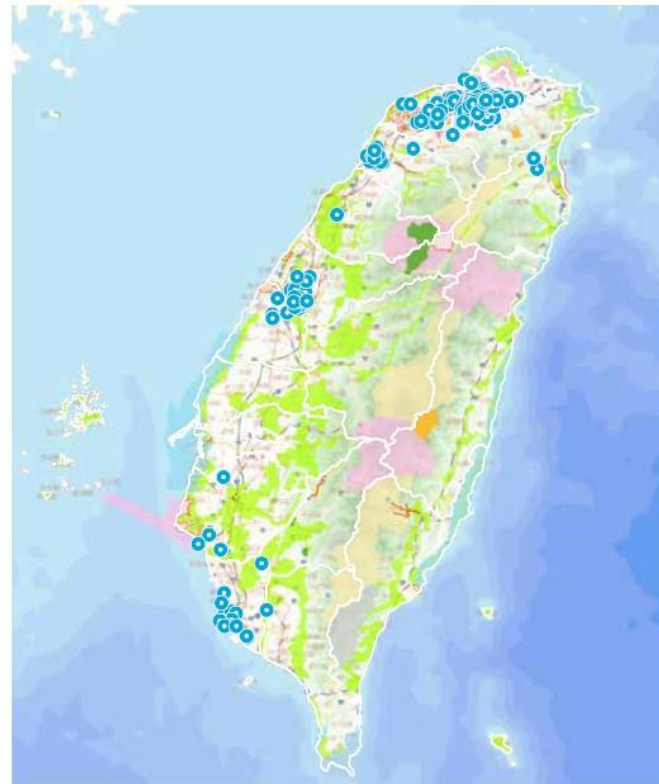
Types of Map Data for Overlapping Locations of TWM's Natural Environment and Biodiversity



Biodiversity Conservation Area Analysis



Owned assets

 **Suppliers**

Biodiversity Assessment and Analysis Report- Owned assets in Taiwan



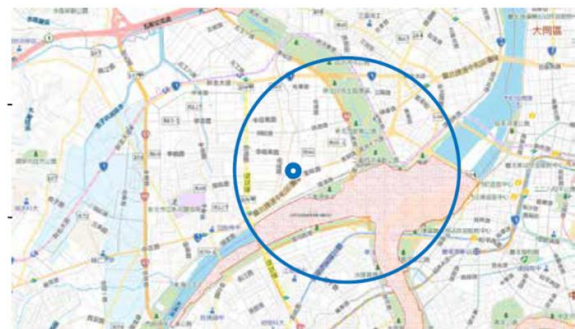
Owned assets: Office

- Location of the Subject of Analysis: No. 10, Ln. 609, Sec. 5, Chongxin Rd., Sanchoing Dist., New Taipei City 241, Taiwan (R.O.C.)
- Latitude: 25.046494 Longitude: 121.468117
- Whether it falls within the scope of biodiversity impact

IUCN Classification	Name	Regulatory Scope of Biodiversity Mapping	Is it located at...
Ia	Strict Nature Reserve Area	Nature Reserve Area	No
Ib	Wilderness	-	No
II	National Park	National Park	No
III	Natural Monument or Phenomenon	Natural Conservation Area	No
IV	Habitat/Species Management Zone	Important Wetland	Yes
		Wildlife Refuge Area	Yes
		The Important Habitats of Wildlife and Plants	Yes
V	Scenic and Marine Protected Area	Marine Reserve Area	No
VI	Natural Resource Sustainable Utilization Zone	-	No
-	Others	-	No

- Base Locality

 The area within a two-kilometer radius of the location.



Ia	(Cultural Heritage Preservation Act) Nature Reserve Area	IV	(Wetland Conservation Act) Important Wetlands
II	(National Parks Law) National Parks	IV	(Wildlife Conservation Act) Wildlife Refuge Area
III	(The Forestry Act) Natural Conservation Area	IV	(Wildlife Conservation Act) Major Wildlife Habitat Area
		V	(Coastal Zone Management Act) Marine Reserve Area



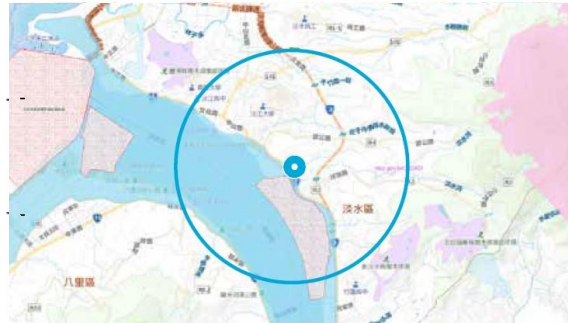
Owned assets: Factory

- Location of the Subject of Analysis: No. 33, Ln. 3, Sec. 1, Zhongzheng E. Rd., Tamsui Dist., New Taipei City 251, Taiwan (R.O.C.)
- Latitude: 25.165729 Longitude: 121.452285
- Whether it falls within the scope of biodiversity impact

IUCN Classification	Name	Regulatory Scope of Biodiversity Mapping	Is it located at...
Ia	Strict Nature Reserve Area	Nature Reserve Area	Yes
Ib	Wilderness	-	No
II	National Park	National Park	No
III	Natural Monument or Phenomenon	Natural Conservation Area	No
IV	Habitat/Species Management Zone	Important Wetland	Yes
		Wildlife Refuge Area	No
		The Important Habitats of Wildlife and Plants	No
V	Scenic and Marine Protected Area	Marine Reserve Area	Yes
VI	Natural Resource Sustainable Utilization Zone	-	No
-	Others	-	No

- Base Locality

 The area within a two-kilometer radius of the location.



Ia	(Cultural Heritage Preservation Act) Nature Reserve Area	IV	(Wetland Conservation Act) Important Wetlands
II	(National Parks Law) National Parks	IV	(Wildlife Conservation Act) Wildlife Refuge Area
III	(The Forestry Act) Natural Conservation Area	IV	(Wildlife Conservation Act) Major Wildlife Habitat Area
		V	(Coastal Zone Management Act) Marine Reserve Area

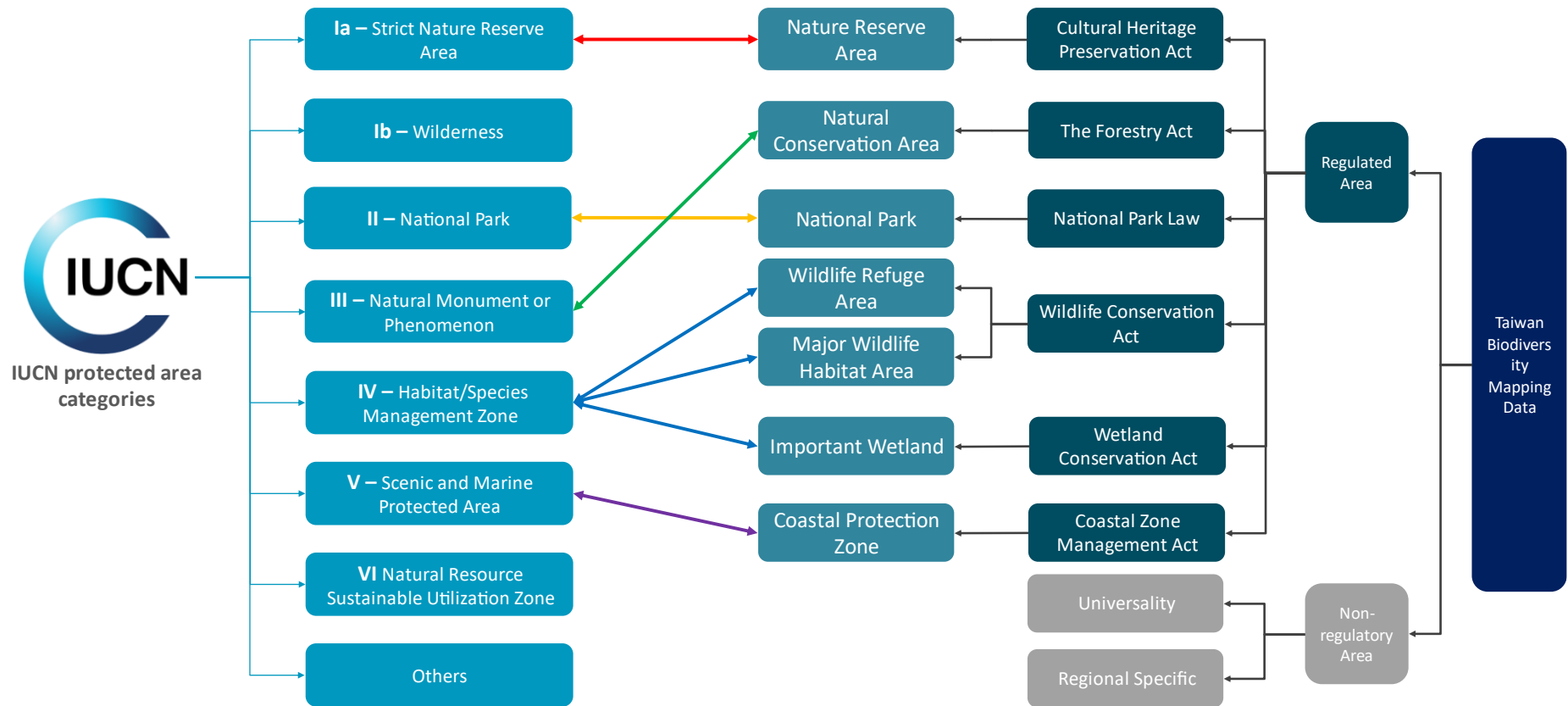
Analysis of Self-operated Site in Taiwan

Due to the lack of overlap with “Nature Conservation Area”, the regulatory areas that may have an impact on nature and biodiversity are classified into six categories and the locations where potential impacts occur are listed.

Coastal Protection Zone	National Park	Wildlife Conservation Area	Important Wildlife Habitat	Nature Reserve	Important Wetland
Tamsui River Mouth Conservation Area, North Coast Coastal Protection Area, Northeast Coast Coastal Reserve, Kenting Coastal Conservation Area, Lanyang Coast Conservation Area, Suhua Coastal Reserve	Yangmingshan National Park, Taijiang National Park, Kenting National Park, and Kinmen National Park	Taipei City Waterbird Refuge, Taoyuan Gaorong Wildlife Refuge, and Hsinchu City Coastal Wildlife Refuge	Important wildlife habitats include Taipei City Zhongxing and Yungfu Bridges Waterbird Major Wildlife Habitat, Taoyuan Gaorong Wildlife Refuge, Guanyin Coast Major Wildlife Habitat, and Keya River Mouth and Sianshan Wetland Major Wildlife Habitat.	Tamsui River Mangrove Nature Reserve, Waziwei Nature Reserve, Wushibi Coast Nature Reserve	Important wetlands in the Tamsui River Basin, Taoyuan’s Reservoir and Canal Important Wetland, Ecological Park of Toucian River, Siangshan Important Wetland, Lanyang Estuary Important Wetland, Fifty-Two Jia Important Wetland, Jianan’s Reservoir and Canal Important Wetlands, Yanshuei Estuary Important Wetland, Banping Lake Important Wetland, Chouchai Wetland, Niasong Important Wetland, Linyuan Manmade Important Wetland.

Based on the International Union for Conservation of Nature and Natural Resources(IUCN) Protected Area Management Classification, taken directly from the WDPA database, and combined with Taiwan's regulatory regional classification, the analysis shows that TWM's major organizations have 303 sites that overlap with their suppliers' natural and biodiversity areas. Among them, there is no impact potential due to the lack of overlapping points with natural protected areas domestically. The World Database on Protected Areas (WDPA) is currently the most comprehensive and complete database of protected areas in the world, covering both terrestrial and marine areas. It collects, manages and makes available data on protected areas worldwide, with the aim of facilitating public and shared access to information on protected areas worldwide. Its purpose is to promote conservation and sustainable land management. WDPA operates within an international cooperation framework that involves multiple partners, including the International Union for Conservation of Nature (IUCN), the World Wildlife Fund (WWF), and the United Nations Environment Programme (UNEP). This multi-stakeholder participation helps ensure the global and authoritative nature of the data. Data from the WDPA are used to monitor and assess global biodiversity, support international and national conservation goals, and formulate and implement environmental conservation policies. To maintain methodological consistency, we conducted an impact analysis on 12 international sites using the IUCN Protected Area Management Classification. Of these sites, 4 have the potential to impact biodiversity, specifically South Korea (1 site), Singapore (2 sites), and the United States (1 site).

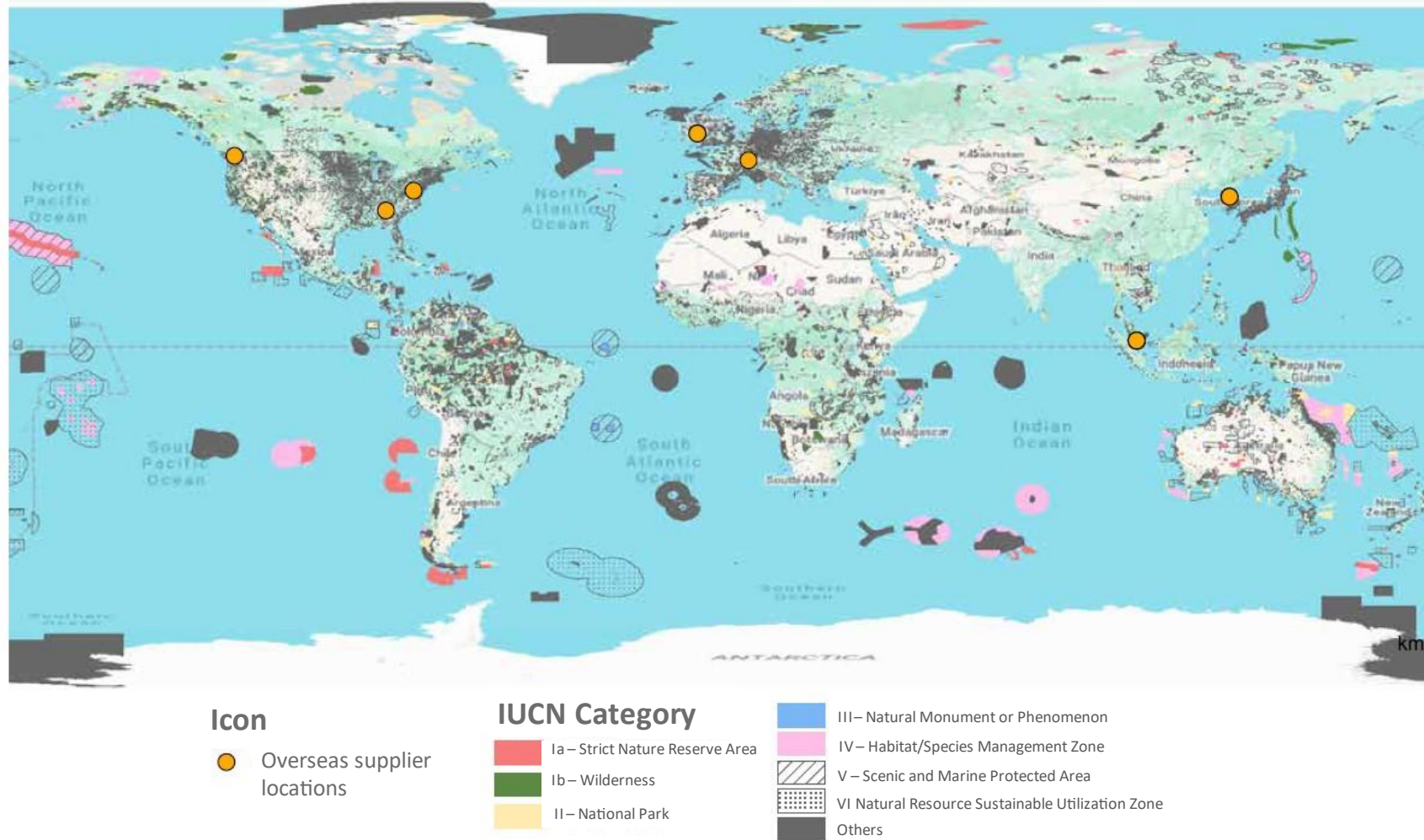
IUCN Protected Area Management Categories and Taiwan Regulatory Areas



County and Cities	[V] Coastal Protection Zone	[II] National Park	[IV] Wildlife Conservation Area	[IV] Important Wildlife Habitat	[Ia] Nature Reserve	[III] Natural Conservation Area	[IV] Important Wetland
Keelung City	0	0	0	0	0	0	0
Taipei City	6	1	44	44	0	0	66
New Taipei City	26	0	66	66	11	0	165
Taoyuan City	0	0	2	2	0	0	18
Hsinchu City	0	0	1	1	0	0	1
Hsinchu County	0	0	0	0	0	0	4
Miaoli County	0	0	0	0	0	0	0
Taichung City	0	0	0	0	0	0	0
Changhua County	0	0	0	0	0	0	0
Nantou County	0	0	0	0	0	0	0
Yunlin County	0	0	0	0	0	0	0
Chiayi City	0	0	0	0	0	0	0
Chiayi County	0	0	0	0	0	0	0

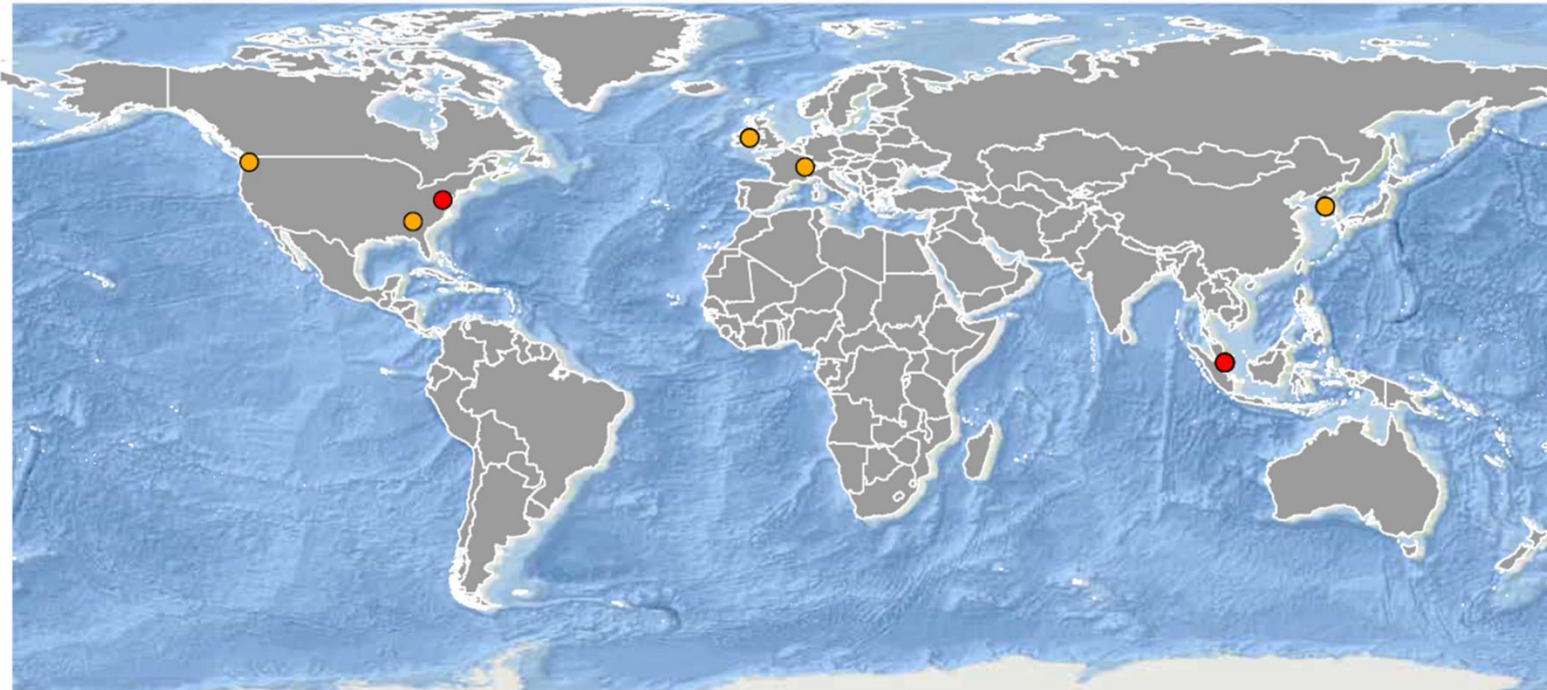
County and Cities	[V] Coastal Protection Zone	[II] National Park	[IV] Wildlife Conservation Area	[IV] Important Wildlife Habitat	[Ia] Nature Reserve	[III] Natural Conservation Area	[IV] Important Wetland
Tainan City	0	6	0	0	0	0	6
Kaohsiung City	0	0	0	0	0	0	13
Pingtung County	2	1	0	0	0	0	0
Yilan County	5	0	0	1	1	0	1
Hualien County	1	0	0	0	0	0	0
Taitung County	0	0	0	0	0	0	4
Penghu County	0	0	0	0	0	0	0
Kinmen County	0	1	0	0	0	0	0
Lienchiang County	0	0	0	0	0	0	1

TWM Overseas supplier locations



Analysis of Self-operated Sites Overseas

Is it located within the protected area? ● No(8) ● Yes(4)



A site in South Korea	The intersection of the regional scope and the local ‘habitat/species management area’ impacts Changgyeonggung Gardens and Namsan Park.
Two sites in Singapore	The intersection of the regional scope and the local “wilderness” area has implications for both the Central Catchment Nature Reserve and the Labrador Nature Reserve.
A site in the United States	The intersection of the regional scope and the local “natural monument or phenomenon” area impacts Scott’s Run Stream Valley.

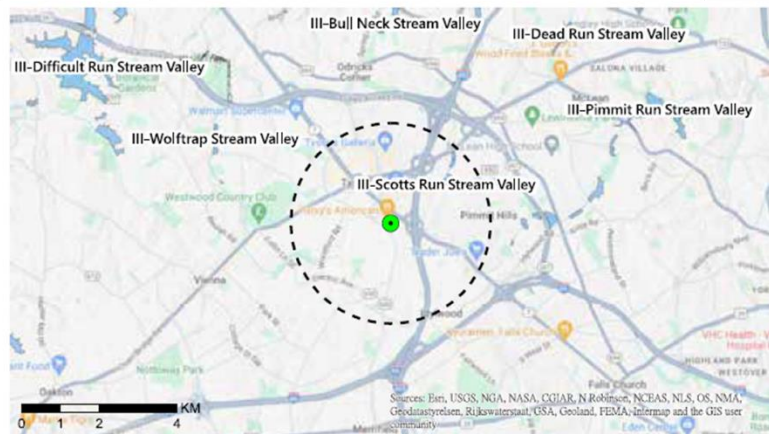
Biodiversity Assessment and Analysis Report- Owned assets overseas

Information services and equipment (USA)

- Location of the Subject of Analysis: 1950 Old Gallows Rd 8th Floor, Vienna, VA, The United States
- Latitude: 38.911245 Longitude: -77.223375
- Whether it falls within the scope of IUCN

IUCN Classification	Name	is it located at...
Ia	Strict Nature Reserve Area	No
Ib	Wilderness	No
II	National Park	No
III	Natural Monument or Phenomenon	Yes
IV	Habitat/Species Management Zone	No
V	Scenic and Marine Protected Area	No
VI	Natural Resource Sustainable Utilization Zone	No
-	Others	No

- Base Locality

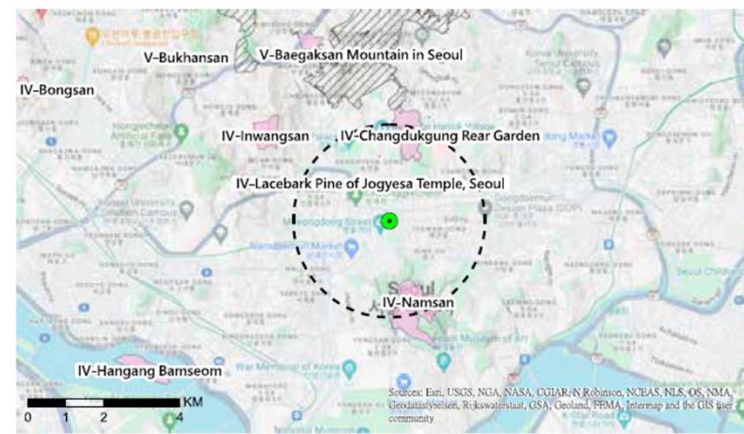


Telecom equipment (South Korea)

- Location of the Subject of Analysis: 65-37 Euljiro 2(i)-ga, Jung-gu, Seoul, South Korea
- Latitude: 37.566229 Longitude: 126.986604
- Whether it falls within the scope of IUCN

IUCN Classification	Name	is it located at...
Ia	Strict Nature Reserve Area	No
Ib	Wilderness	No
II	National Park	No
III	Natural Monument or Phenomenon	No
IV	Habitat/Species Management Zone	Yes
V	Scenic and Marine Protected Area	No
VI	Natural Resource Sustainable Utilization Zone	No
-	Others	No

- Base Locality



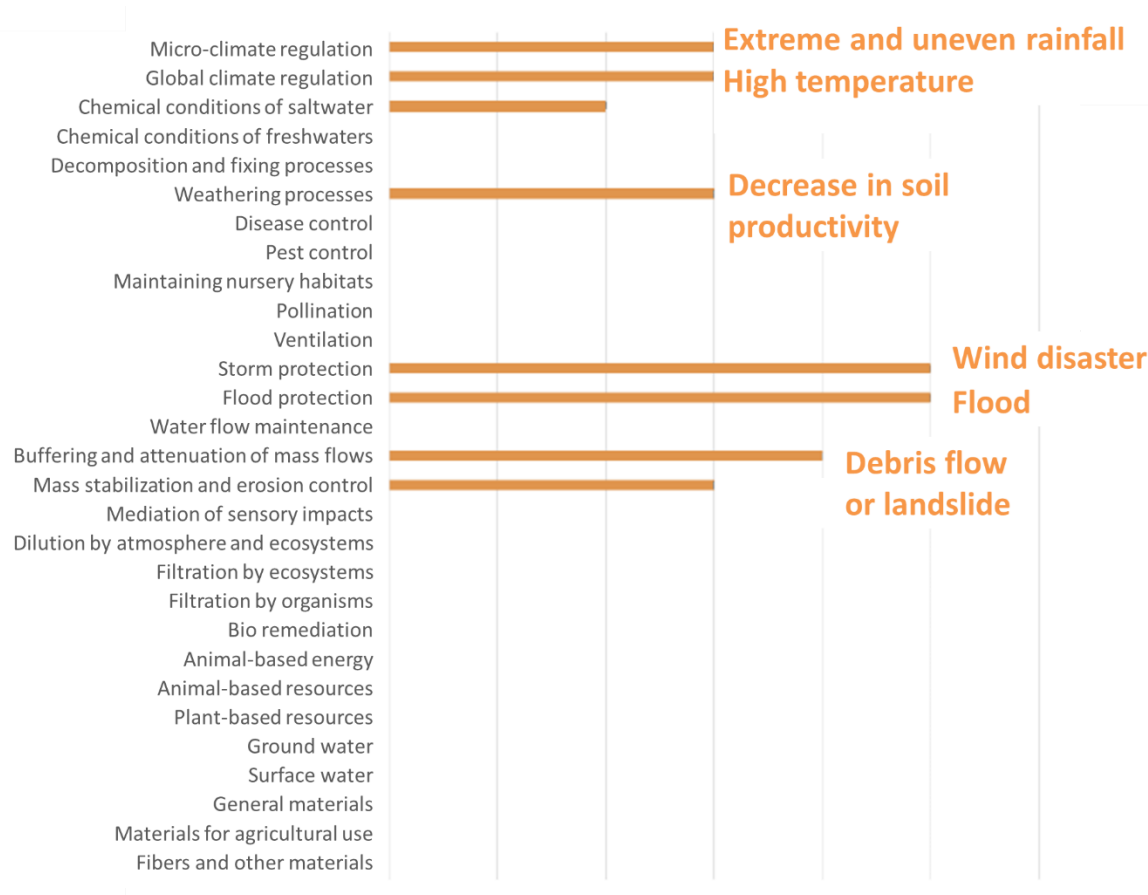
2.3 Dependency Materiality Assessment

1. The dependence of businesses on natural capital refers to the possibility that businesses may face risks or opportunities due to changes in the state of the natural environment caused by external changes in the ecosystems upon which they rely. The telecommunications industry's dependence on nature and ecosystems is primarily manifested in the following aspects:
Energy consumption: The telecommunications industry requires a large amount of electricity to operate. Whether it is data centers, base stations, or office facilities, a stable power supply is required. This presents challenges to the availability and sustainability of energy resources.
2. Electronic equipment manufacturing: The telecommunications industry produces various communication devices, including mobile phones, computers, routers, etc. Manufacturing these products requires a significant amount of raw materials, including metals, plastics, glass, and other materials. This process involves the extraction and processing of mineral resources.
3. Resource recycling and electronic waste: The rapid advancement of technology has led to an accelerated pace of updating communication devices, which in turn has resulted in the generation of a significant amount of electronic waste. proper disposal of these waste materials is essential for environmental and resource management, involving recycling, reusing, and handling toxic substances in electronic waste.
4. Base station construction: The construction of communications networks requires the installation of multiple base stations and communications equipment, which typically requires a certain amount of land. This may have an impact on local ecology and land use.
5. Data center operations: Large telecommunications companies operate massive data centers that require cooling systems and consume a significant amount of energy to maintain stable data operations. This poses challenges to the demand for resources such as water and electricity.
6. Supply chain management: The telecommunications industry relies on a global supply chain that includes the procurement, transportation, and processing of raw materials. The stability and sustainability of the global supply chain is affected by factors such as geopolitics, climate change, and more.

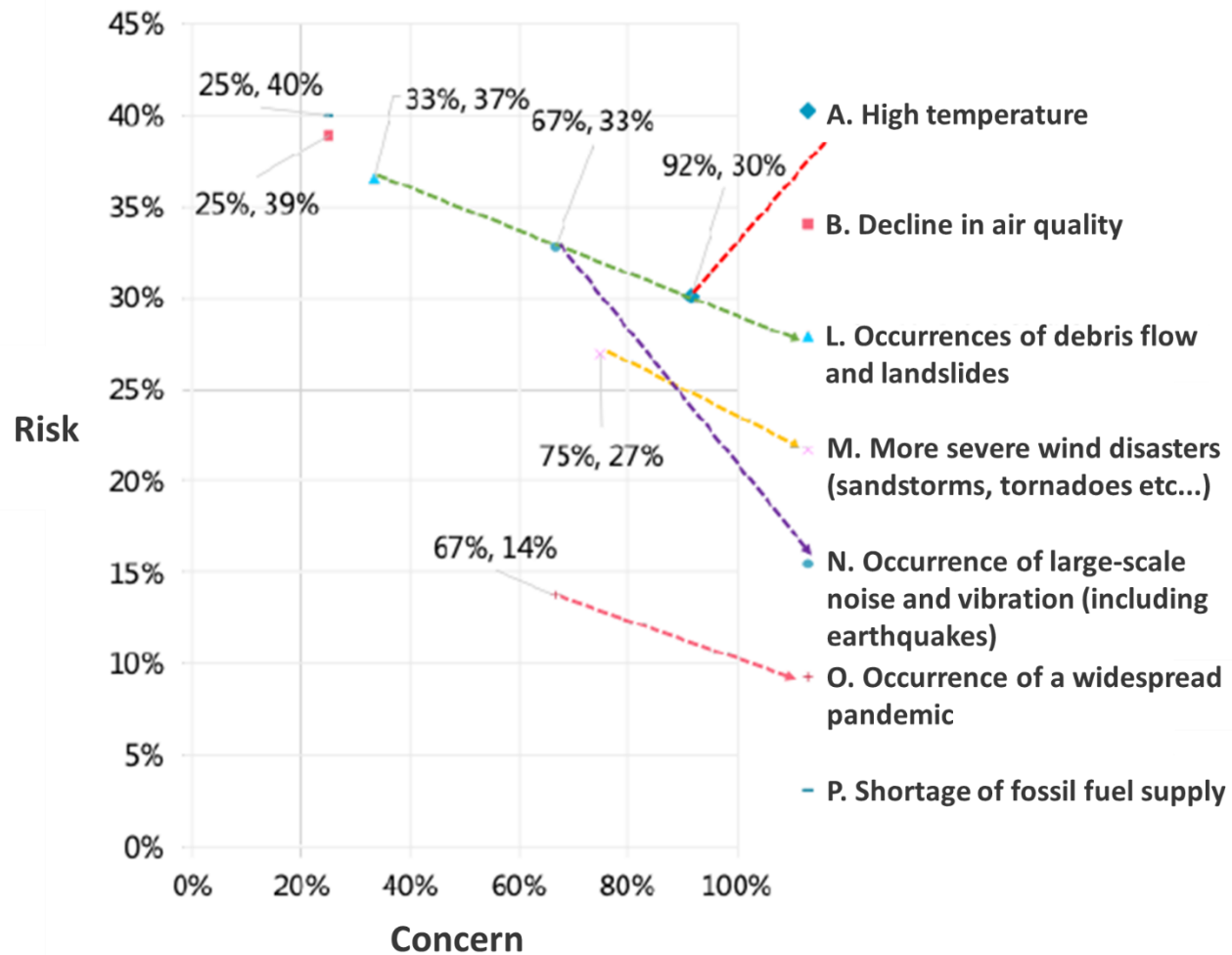
In assessing the materiality of TWM's dependence on natural and ecosystem services, we approach it from two perspectives: international

databases and self-identification. The international database is based on Encore's industry expertise and is self-identified through questionnaires and group discussions in workshops. There are six significant natural and ecological system interdependencies in the telecommunications services industry, as identified in the Encore database. The workshop identified five dependencies, three of which overlap with the international database.

Degree of Dependence Risk Score



Self-identification of ecosystem service dependence

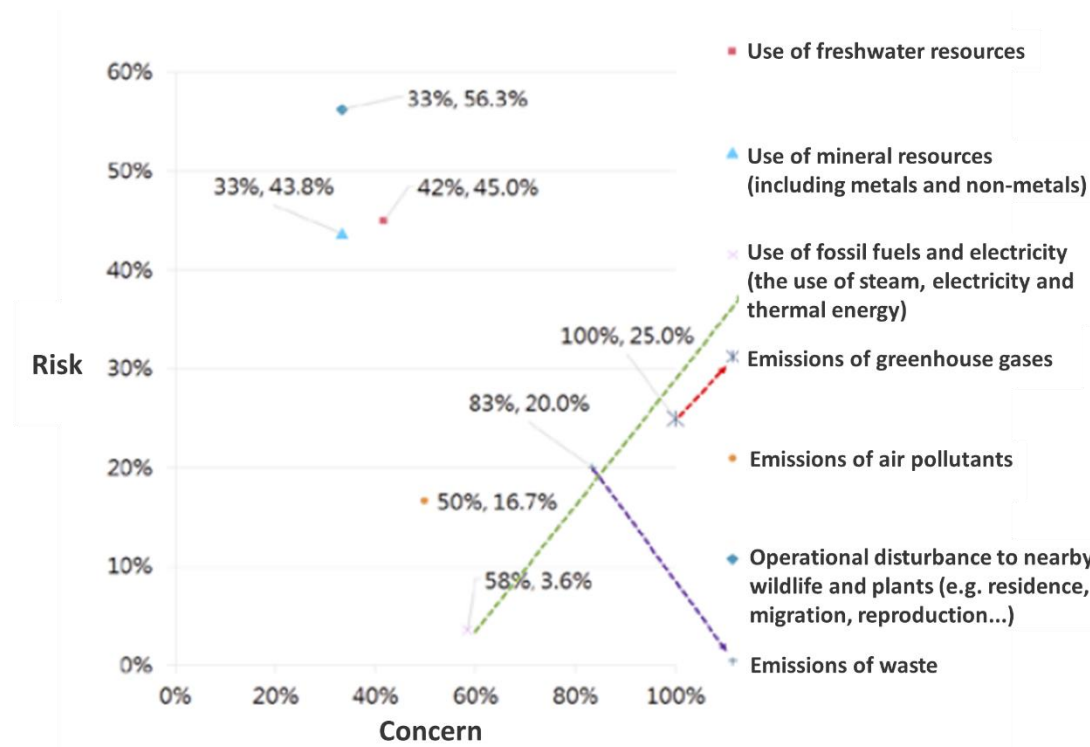


Item on Nature and Ecosystem Dependency	Method of Determination	Explanation of Dependency	Corresponding Disasters
Flood control	International Database	Flood mitigation services are derived from the ability of ecosystems to absorb and store water, thereby reducing the impacts of floods and other water-related extreme events.	Flood
Microclimate regulation	International Database	Vegetation contributes to the ecosystem by maintaining rainfall patterns through evapotranspiration. Forests and other vegetation return water to the atmosphere, which helps to produce rainfall.	Rainfall
Weathering processes	International Database	Healthy soil can produce good yields, but once degraded or contaminated, it can affect both the yield and quality of crops.	Decrease in soil productivity
Global climate regulation	International Database Internal Organization	Local climate regulation services refer to the contribution of vegetation in the ecosystem to regulating the ambient air, improving living conditions and supporting economic production.	High temperature
Stable quality and erosion control Buffering and attenuation of mass flow	International Database Internal Organization	The soil structure is stable, and there is no possibility of soil liquefaction. The underground is composed of solid bedrock, rather than fault zones or sloping hillsides.	Debris flow or landslide
Storm protection	International Database Internal Organization	Storm mitigation services refer to the contributions of vegetation to the ecosystem that reduce the impact of wind, sand, and other storms on the local area.	Storm disaster
Noise reduction	Internal Organization	Noise mitigation is the ecosystem's contribution to reducing the impact of noise on people, thereby mitigating its harmful or stressful effects.	Noise/Vibration
Disease control	Internal Organization	High-quality natural environments such as geographical barriers, flowing air, and clean water sources can reduce the incidence or transmission of diseases.	Pandemic

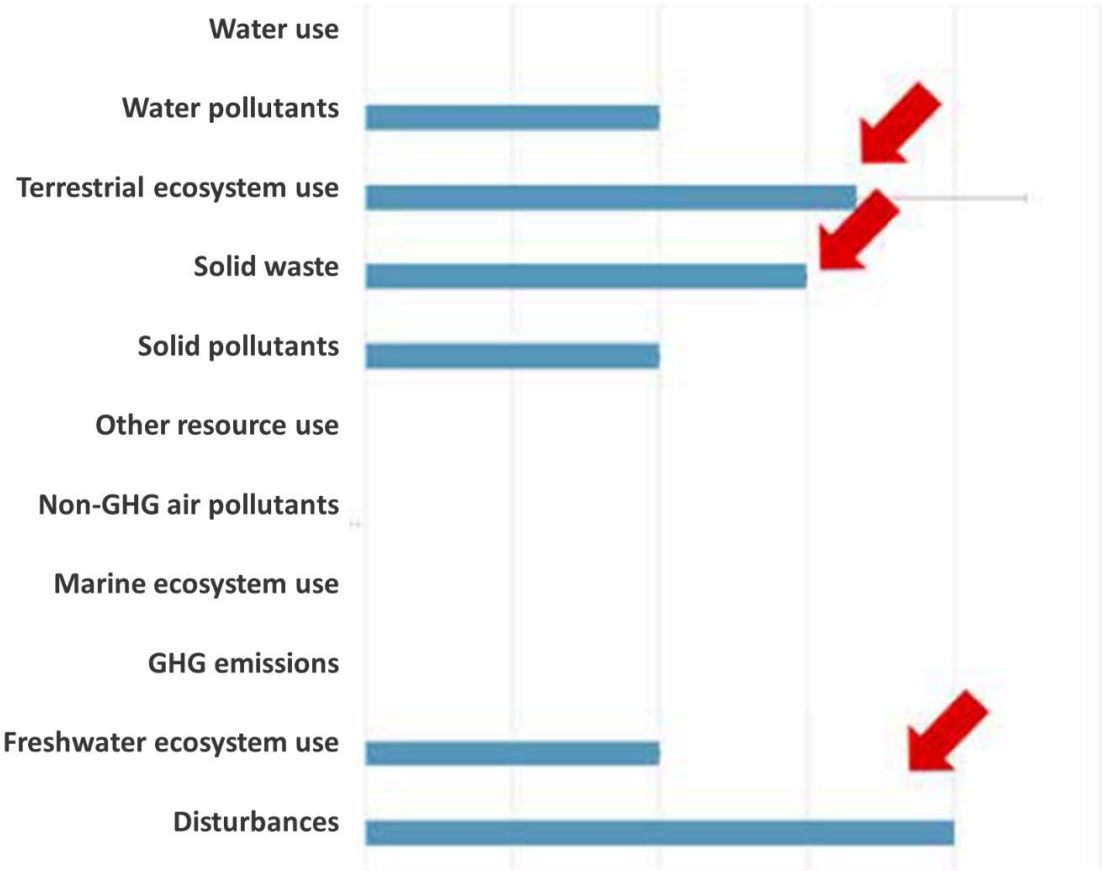
2.4 Impact Materiality Assessment

Like the significant dependence assessment, TWM also conducts database identification and self-identification to determine the significance of the impact. The impact significance analysis conducted by the database indicates that the three most significant nature-related impacts for TWM are “land ecosystem use”, “interference and disturbance”, and “solid waste”. The three most significant impacts of self-identification in nature are fossil fuel and energy consumption, greenhouse gas emissions, and waste generation.

Identification of Natural Impact



Degree of Impact Risk Score



Impact Items on Nature and Ecosystems	Method of Determination	Impact Description
Land ecosystem utilization	International Database	Changes to the original terrestrial ecosystem include changes in geographic features and shifts in land use.
Disturbances	International Database	Temporary changes in environmental conditions can lead to significant changes in the ecosystem. Disturbances can modify the physical structure or organization of both living and non-living components and can also affect the biodiversity within an ecosystem.
Solid waste	International Database	Pollution of the natural environment results in the degradation of soil quality, the presence of chemicals or pollutants in water sources, the degradation of water quality through eutrophication, and biological toxicity.
Generation of waste	Internal Organization	
Generate greenhouse gas	Internal Organization	Greenhouse gas concentrations are increasing worldwide, leading to greater warming capacity, changes in global average temperature, global sea level rise, and an increase in the frequency of extreme weather events.
Fossil Fuels and Energy Consumption	Internal Organization	

3 Risks and Opportunities

3.1 Indicators and Metrics

The types of operating bases for TWM include offices, stores, data centers/base stations, and cloud data centers. Each type of base faces different dependency risks, and even the same natural disaster can have a different financial or operational impact on different operating bases. To accurately assess the financial or operational impact of risk dependency on TWM's major bases, an impact assessment is conducted for disasters that pose a high dependency risk. These include wind and flood disasters themselves, as well as the resulting flooding, landslides and mudslides. Heat waves, high temperatures and pandemics are also considered. The impact assessment is performed separately for offices, stores, data centers/base stations, and cloud data centers. Risk indicators and units of measurement are formulated for each dependency. In the operational impact, the interruption of services caused by disasters is the most significant; financially, the decrease in revenue and expenditure costs are the most direct.

Dependence Item	Indicators	Risk Metrics	Financial or operational impact			
			Office	Stores	Server Room / Base Station	IDC
Flood	Operational disruption due to disaster	Average number of times each year that branches, stations, or cloud data centers are shut down or halted due to flooding, and the resulting financial impact.	The annual capital expenditure for disasters is approximately NT\$1 million.	Due to the disaster, the closure of stores has resulted in an average daily revenue impact of approximately NT\$24,000 per store.	The average monthly overtime cost per person due to disasters is about NT\$88,000.	The potential revenue loss caused by disasters each year is approximately NT\$150 million, capital expenditure is about NT\$840 million, and operating expenses

Dependence Item	Indicators	Risk Metrics	Financial or operational impact			
			Office	Stores	Server Room / Base Station	IDC
						amount to around NT\$180,000.
Rainfall	Operational disruption due to disaster	Average number of times each year that branches, stations, or cloud data centers are shut down or halted due to flooding, and the resulting financial impact.	The annual capital expenditure for disasters is approximately NT\$1 million.	Due to the disaster, the closure of stores has resulted in an average daily revenue impact of approximately \$24,000 per store.	The average monthly overtime cost per person due to disasters is about NT\$88,000.	The potential revenue loss caused by disasters each year is approximately NT\$150 million, capital expenditure is about NT\$840 million, and operating expenses amount to around NT\$180,000.
High temperature	Due to high temperatures, the cost of electricity has increased.	Relationship between high temperature and electricity consumption	Estimated electricity costs will increase by 0.3 times the current amount, resulting in an annual increase in	The average annual electricity bill per store is approximately NT\$110,000. If the electricity rate is increased by 1%,	The HUB data center consumes approximately 6.6 million kWh of electricity annually, with air conditioning	Increasing the temperature by 1°C will result in a 6% increase in electricity consumption for air conditioning,

Dependence Item	Indicators	Risk Metrics	Financial or operational impact			
			Office	Stores	Server Room / Base Station	IDC
			electricity costs of approximately \$12,449,470. (Using the electricity consumption of the Y23 office, calculated as NT\$41,498,232 * 0.3 = NT\$12,449,470)	each store will incur an additional expense of approximately NT\$1,143 per year.	accounting for approximately 20% of the total. For every 1°C increases in temperature, the electricity consumption for air conditioning will increase by 6%. With a unit price of electricity of NT\$3.7 (low voltage), the cost of electricity will increase by approximately NT\$300,000.	resulting in an approximate cost increase of NT\$2 million.
Debris flow or landslide	Loss of equipment or infrastructure due to a	The average number of times per year that locations/sites/data centers are damaged	The annual capital expenditure for disasters is approximately	Due to the disaster, the closure of stores has resulted in an average daily	Damage to the computer room will result in a loss of revenue of	-

Dependence Item	Indicators	Risk Metrics	Financial or operational impact			
			Office	Stores	Server Room / Base Station	IDC
	disaster	by debris flows or landslides, and the financial impact caused as a result.	NT\$1 million.	revenue impact of approximately NT\$24,000 per store.	NT\$2.8 million to NT\$22.8 million. If reconstruction is required, the average construction cost for a HUB computer room is approximately NT\$1 million. The reconstruction of the computer room is expected to be completed within one week, and on average, one additional staff member is required for each computer room. The additional operating cost for	

Dependence Item	Indicators	Risk Metrics	Financial or operational impact			
			Office	Stores	Server Room / Base Station	IDC
					one staff member is NT\$22,000.	
Storm disaster	Operational disruption due to a typhoon	The average number of times per year that locations/sites/data centers are damaged by typhoon, and the financial impact caused as a result.	The annual capital expenditure for disasters is approximately NT\$1 million.	Due to the disaster, the closure of stores has resulted in an average daily revenue impact of approximately NT\$24,000 per store.	The average monthly overtime cost per person due to disasters is approximately NT\$88,000.	The potential revenue loss caused by disasters each year is approximately NT\$150 million, capital expenditure is about NT\$840 million, and operating expenses amount to around NT\$180,000.
Pandemic	Temporary business interruption due to a major pandemic	The average number of business interruptions caused by pandemics each year and the resulting financial impact.	No significant financial impact	Due to the pandemic, store closures resulted in an average daily revenue impact of approximately NT\$24,000 per	-	Operating expenses increased by approximately NT \$45,000 as a result of the pandemic.

Dependence Item	Indicators	Risk Metrics	Financial or operational impact			
			Office	Stores	Server Room / Base Station	IDC
				store.		
Noise/Vibration	This is not applicable after evaluation.					
Soil productivity	This is not applicable after evaluation.					

Like dependency risk, the four types of bases face different impact risks, which vary depending on their operational characteristics when exposed to external factors. In response to the significant risks to nature and ecology caused by TWM's operational requirements, such as land ecosystem use, solid waste generation, greenhouse gas emissions, fossil fuel and energy consumption, and disturbance, TWM has conducted impact assessments for its offices, stores, data centers/base stations, and cloud data centers. Risk indicators and metrics have been developed for each impact category. Among the impacts on the natural environment, offices have the highest spatial requirements, making them the most prevalent in terms of land ecosystem utilization among the four types of facilities. Office buildings, storefronts, and data centers/base stations all generate greenhouse gases and waste and consume fossil fuels and energy. In contrast, cloud data centers produce greenhouse gas emissions only through electricity consumption.

Impact Item	Indicators	Risk Metrics	Financial or Operational impact			
			Office	Stores	Server Room / Base Station	IDC
Land Ecosystem	Total space footprint	The area (in square kilometers) occupied by	The total area is approximately	The area of owned stores is 0.000174	There are a total of 80 data centers located in	-

Impact Item	Indicators	Risk Metrics	Financial or Operational impact			
			Office	Stores	Server Room / Base Station	IDC
Utilization		sites or base stations in regulated or sensitive areas.	0.02 square kilometers, of which approximately 2% is leased to third parties without significant financial impact.	square kilometers, while the area leased from others is 0.35 square kilometers, with no significant financial impact.	regulatory or sensitive areas with an estimated total area of approximately 0.05 square meters. These locations are complying and do not have a material financial impact.	
Solid waste Generation of waste	Industrial waste Household waste Plastic waste	Production volume (metric tons)	In 2023, the amount of household waste generated was 100.12 metric tons.	In 2023, household waste amounted to 116.96 metric tons, with 62.9 metric tons being recycled.	2023 Total output: 1,986.1 metric tons; Total output of industrial waste: 1,597.6 metric tons Total recycling amount: 1,067.4 metric tons Total recycling volume of industrial waste: 968.1 metric tons	-

Impact Item	Indicators	Risk Metrics	Financial or Operational impact			
			Office	Stores	Server Room / Base Station	IDC
					Total incineration amount: 857.8 metric tons The total volume of industrial waste incinerated is 587.9 metric tons Total burial amount: 30.5 metric tons Total landfill volume of industrial waste: 20.9 metric tons Other total: 30.3 metric tons. Total other volume of industrial waste: 20.8 metric tons	
Generate greenhouse	Category 1 Emissions	GHG emission (metric tons of CO ₂ e)	958,251.5 metric tons of CO ₂ e	175,412.2 metric tons of CO ₂ e	2,062.9115 metric tons of CO ₂ e	Category 1

Impact Item	Indicators	Risk Metrics	Financial or Operational impact			
			Office	Stores	Server Room / Base Station	IDC
gas	Category 2 Emissions		5,300.8808 metric tons of CO2e	5,054.9643 metric tons of CO2e	248,224.2391 metric tons of CO2e	13,726.2852 metric tons of CO2e
	Category 3 Emissions		341,603.4850 metric tons of CO2e			
Fossil Fuels and Energy Consumption	The use of various fuels and energy sources	1. Energy consumption unit: Total energy consumption (kWh) Energy intensity (kWh/Revenue) Cloud data center performance indicator: PUE 2. Consumption of renewable energy (kWh) Renewable energy category Market classification	The total electricity consumption is 10,708,850 kWh	The total electricity consumption is 10,212,049 kWh	1. Fuel for company vehicles: 297,535 liters (equivalent to 2,699,404 kWh) 2. Electricity consumption: 537,993,742 kWh 3. Energy intensity: 109 kWh/PB 4. Renewable energy usage: 36,530,633 kWh	Average PUE in 2023=1.63
Disturbances	This is not applicable after evaluation.					

Since its inception, TWM has been actively working towards its climate change mitigation and adaptation goals. The Company has established specific plans to help keep global warming within the 1.5°C target range. However, we recognize the importance of environmental protection, which encompasses not only climate change but also the preservation of natural ecosystems and biodiversity. By leveraging the power of connecting the value chain, we strive to find optimal solutions that not only drive economic growth but also minimize environmental impact and promote harmony with nature. Therefore, in recent years, TWM has been actively promoting the development of innovative green products and services using digital technology. This initiative aims to prevent, minimize or offset adverse impacts on the natural environment, while capitalizing on opportunities for innovation.

Products and Services	Method	Opportunity Item
Customer Service App	The Customer Service App provides a variety of online services for TWM users, including bill inquiry and payment, roaming plan application, etc. Customers no longer need to visit physical stores and can now easily apply for various services through the app, replacing the traditional paper-based customer service process in an environmentally friendly way.	Reducing Dependence on Natural Resources
Innovative Billing Services	The Company has been promoting electronic billing services since 2008. We use intelligent processes and mobile data transmission methods to collect customer identification and signatures. In addition, we have extended our paperless services to distribution channels. In 2023, our stores achieved a paperless operation rate of over 92%, saving approximately 17.26 million sheets of installation forms.	Reducing Dependence on Natural Resources
myfone	Online insurances: When customers place an order with myfone, TWM will provide anti-theft insurance, damage insurance, and screen insurance for 3C products. Customers can easily apply for insurance online. In 2023, the total number of applications reached 28,000, saving 66,000 sheets of paper and reducing logistics transportation by 16,570 km.	Reducing Energy Demand

Products and Services	Method	Opportunity Item
MySports APP	By allowing users to track their calorie intake and participate in mission challenges, we promote outdoor activities and green transportation. In 2023, the MySports app recorded a total distance of 677,000 km for users who walked or biked to work. This resulted in a reduction in carbon emissions of nearly 64.32tCO ₂ e, which is equivalent to a total calorie consumption of 32.85 million calories.	Carbon Emissions Reduction
Solar and Wind Energy	The Company generated 316.8 KW of green power for self-use in 2022, which provided renewable energy for TWM's base stations and machine rooms.	Reducing Dependence on Fossil Fuels
Cloud-Based Machine Room with Energy-Saving Design	The IDC cloud-based machine room uses separated heating and cooling channels, professional HVAC equipment (such as water chillers, cooling towers, etc.) for natural cooling, infrared controlled LED lighting, and ISO 50001 management system for energy consumption control. The IDC cloud-based machine room PUE decreased to 1.63 in 2023 (1.65 in 2022).	Reducing Energy Demand Improving Energy Efficiency
MyVideo	1. MyVideo is an online video and audio streaming service that can reduce the production demand for plastic disks, the number of covers printed, and the related carbon emissions. 2. MyVideo can also avoid the need for transportation, repackaging of traditional disks in stores or warehouses and the related carbon emissions.	Reducing Energy Demand

Products and Services	Method	Opportunity Item
MyMusic	1. MyMusic is an online music streaming media service that can replace traditional CDs and albums. 2. MyMusic offers nearly 9 million digital music tracks in 320 kbps AAC format, providing users with a better listening experience.	Reducing Resource Consumption
Geforce Now	Using GFN's cloud gaming service, online gamers will be able to share hardware resources, reducing hardware requirements for approximately 300,000 users.	Reducing Energy Demand
Fleet Management	As of fiscal year 2023, a total of 1,120 corporate vehicles have successfully implemented Fleet Management 3.0. The implementation of features such as idle speed monitoring, track monitoring, and anomaly management, along with optimized vehicle maintenance modules, has enhanced the efficiency of data-driven management. The TWM's public fleet has effectively reduced carbon emissions by 87 tons.	Improving Energy Efficiency
Cloud-Based AI Energy Management System	1. By building IoT sensors into electronic products, users can monitor energy consumption in real time through a computer or mobile APP. 2. Transforming energy statistics into a UI design improves management efficiency and realizes environmental benefits by reducing energy consumption.	Improving Energy Efficiency
TAMedia	Project execution and invoicing documents were moved from paper-based to a system and online form approval process, saving 5,034 sheets of A4 paper. The project document approval process has been streamlined and the data filtering process has been automated, resulting in reduced work time, improved efficiency and reduced office power consumption. As a result, carbon emissions were reduced and 1,002.1 hours were saved.	Reducing Dependence on Natural Resources Improving Energy Efficiency

3.2 Management Measures

To mitigate the adverse effects of disasters resulting from high dependency risks and risks with significant impact on nature and ecology, TWM has implemented management practices to minimize these effects. In projects that involve risk, establishing an early warning mechanism is of utmost importance. It is crucial to take as many preventive measures as possible before a disaster occurs. For unpredictable natural disasters, assess any potential compensatory measures to mitigate the direct impact on operations or financial losses following the occurrence of a disaster. In the section on impact items, the primary emphasis is on establishing reduction targets or enhancing resource efficiency to maintain an optimal balance between economic development and nature conservation.

Practices to Reduce Dependency or Mitigate the Negative Impact of Risks			
Office	Stores	Server Room, Base Station	IDC
Avoid the Impact of Disasters through Remote Work	In the event of a typhoon, heavy rain, or any other wind-related disasters, it is advisable to acquire waterproof sandbags. The cost of each bag is approximately NT\$110, and on average, each store will need 13 bags. If there are alternative locations nearby due to the disaster, the store will be relocated or a new store will be built to replace the original store.	1. Establishment of a warning and emergency response mechanism for natural disasters, including a leak detection system and a generator power supply system. 2. To lower the effects of high temperatures, improve equipment efficiency and reduce reliance on electricity, it is important to use weather-resistant equipment and minimize the need for air conditioning.	1. Before disasters strikes, it is important to increase resilience of the machine room. The room is designed to withstand a 200-year flood and is equipped with watertight doors. In addition, there is a water pump motor on the B2F level. 2. Using efficient equipment reduces power consumption in the server room, eliminating the costs associated with high temperatures. 3. During the outbreak, office personnel management was conducted in accordance with pandemic prevention regulations issued by the Company's labor and safety office.

	Waste: Implement waste reduction measures, correctly classify waste, and actively promote resource recycling. Greenhouse gases: Implementing various energy conservation and carbon reduction measures to improve energy efficiency.	1. Land ecosystem utilization: Comply with regulatory standards 2. Waste: Implement waste reduction measures, recycle business waste, use environmentally friendly lithium batteries, optimize cable routing, reduce cable coating, extend equipment life, properly sort office waste and actively recycle resources, promote electronic documents and double-sided printing to reduce photocopying and paper waste. 3. Greenhouse gases: Implement a range of energy-saving and carbon-reduction measures, improve energy efficiency, promote the use of renewable energy, and set an annual energy-saving target of at least 1% for each department. In addition, organize energy-saving competitions and offer incentives. 4. Fossil fuel and energy consumption: Implementation of Fleet Management 3.0, abnormal event management and other functions, and optimization of the vehicle maintenance module to improve data management efficiency and energy consumption efficiency. Each department will be required to save at least 1% of electricity annually. We will organize energy-saving contests and provide incentives. Our targets for the use of renewable energy are 35% by 2030, 60% by 2035, and full use of renewable energy by 2040.	1. Adopting efficient equipment to reduce data center power consumption. 2. Implement equipment maintenance procedures to ensure optimal equipment performance. 3. Implement ISO 50001 energy management.
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3.3 Ecological Conservation Projects

2023 is the hottest year on record, with significant impacts on biodiversity. TWM has implemented the Task Force on Climate-related Financial Disclosures (TCFD) and the Task Force on Nature-related Financial Disclosures (TNFD) to assess the impact of the natural environment and climate change, as well as the impact of business operations on the natural ecosystem. Two biodiversity projects are currently underway to promote cross-cutting efforts in high mountains and oceans by empowering key stakeholders.

TWM Taiwan Hynobius Conservation Program Utilizes Technology to Enhance Research Efficiency

In the high-altitude mountainous areas of Taiwan, there are five native species of hynobius inhabiting the water sources. Among them, the heat-sensitive hynobius is facing the direct impacts of climate change, with its habitat base gradually rising, making it one of the species most affected by global warming.

To protect the endangered Taiwan hynobius, TWM has launched “TWM Taiwan Hynobius Conservation Program” starting in 2023. The program provides resources to the Department of Animal Science and Technology at National Taiwan University, the only research unit dedicated to the Taiwan hynobius. It is headed by Professor Chu Yu-Tien. The program supports research equipment and instruments, collects important parameters related to the habitat and conservation of the Taiwan hynobius, and sets the following recovery goals: by 2025, increase the hatching rate of *Hynobius fucus* in the captive tanks of Shei-Pa National Park to 95% and survival rate to 30% by 2025; maintain 100% hatching rate of *Hynobius arisanensis* in the captive tanks of Yushan National Park, and increase the survival rate to 60%.

Performance in 2023: The breeding program has shown promising results, as evidenced by the successful spawning of Taiwan hynobius eggs in a captive tank in November 2023, followed by 100% successful hatching in February 2024. We have also invited Professor Chu Yu-Tien to present his research on Taiwan hynobius at TWM. In the future, we will integrate TWM’s core communication technology to significantly improve research efficiency. This will be achieved by improving signal coverage in mountainous areas and by working with taggers to facilitate data transfer between habitats and laboratories.

Empowering the Establishment of an AI Oceanic Biodiversity Database with Advanced Technology

TWM launched the “Tech the Dreamers” project in 2021 with the goal of empowering technology and dreams. The project is commissioned by the Taiwan Mobile Foundation and integrated with the Social Enterprise Insights and AppWorks. Each year, teams are recruited and selected to receive funding, technology and human resources support. Through the development of innovative solutions, the project aims to promote local public welfare values and foster growth. It uses technology to support local revitalization and foster community spirit.

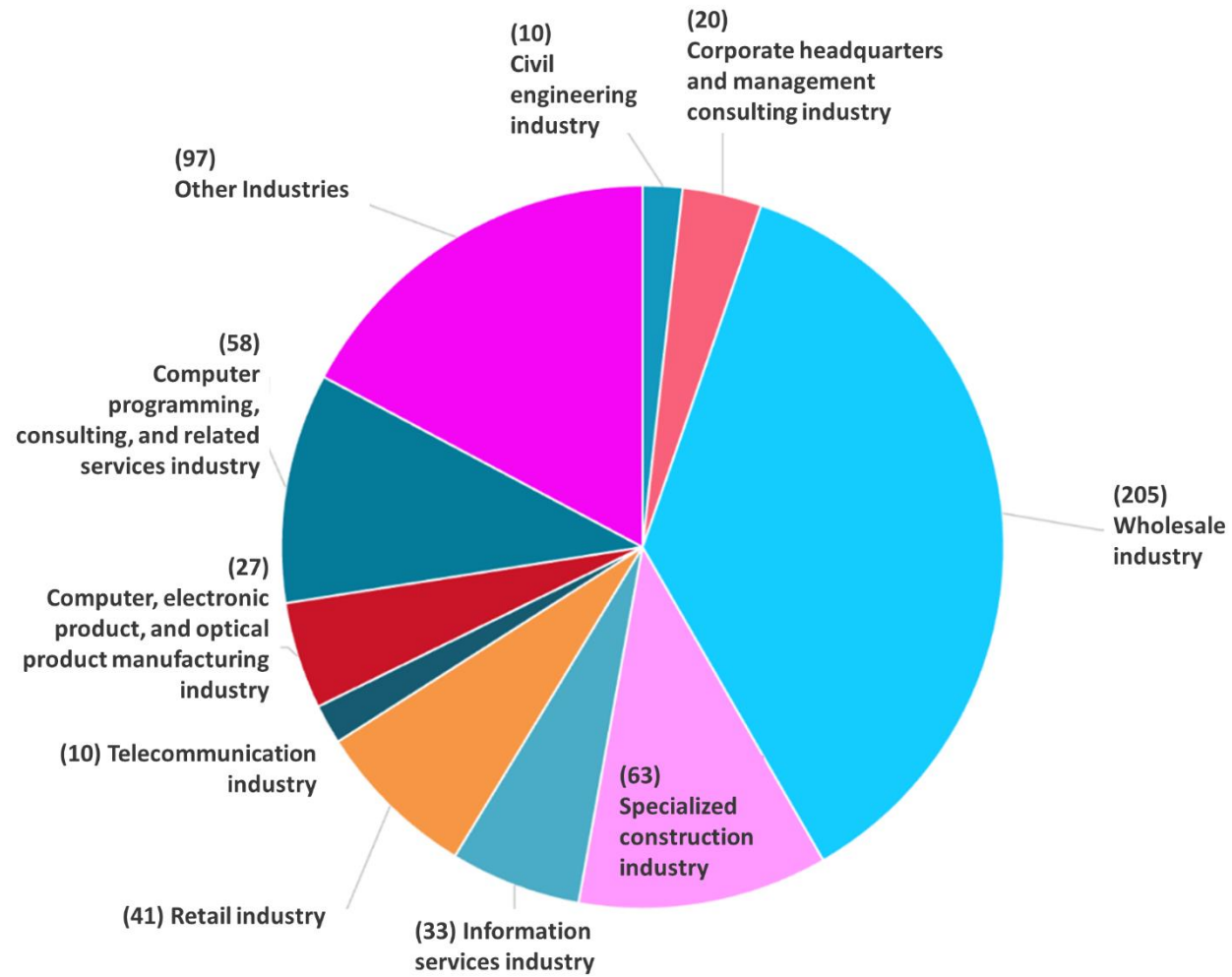
The third edition of “Tech the Dreamers: Technology and Dreams+” project focuses on biodiversity and marine conservation. The foundation has invested over NT\$2 million to develop Taiwan’s first AI-enabled marine biodiversity database, “AI Ocean Data”. This project aims to enhance cultural literacy about the ocean, complement scientific research capabilities, and be successfully launched by 2024. The goal is to engage more than 12,000 citizen scientists, collect more than 10,000 marine biological data records, and identify 150 species. This comprehensive effort aligns with United Nations Sustainable Development Goal 14: Conserve and sustainably use the oceans, seas, and marine resources for sustainable development, and prevent the loss of marine biodiversity and the degradation of marine ecosystems.

3.4 Value Chain Natural Risks

Natural and biodiversity risks can affect different stages of the value chain. Through the supply chain, which encompasses the upstream production processes of products or services, including the extraction, storage, processing, manufacturing, transportation, and distribution of raw materials. As a result, WM not only assesses the natural and biodiversity risks and opportunities of its own sites, but also incorporates value chain risk assessment as an important factor influencing its operations. Using the international database tool Encore, we analyzed a total of 564 suppliers in 44 different industries to assess the extent of natural dependency and impact of TWM's key suppliers. Among them, the industry with the highest number is wholesale/retail, which accounts for 36.3% (205 companies). The analysis results indicate that there are a total of 21 positions in the supply chain that rely on ecosystem services. As a result, TWM's key suppliers are exposed to different natural disasters based on the complexity of their composition and the characteristics of their industries. In the event of a disaster or resource shortage, there is a potential impact on TWM's overall operations.

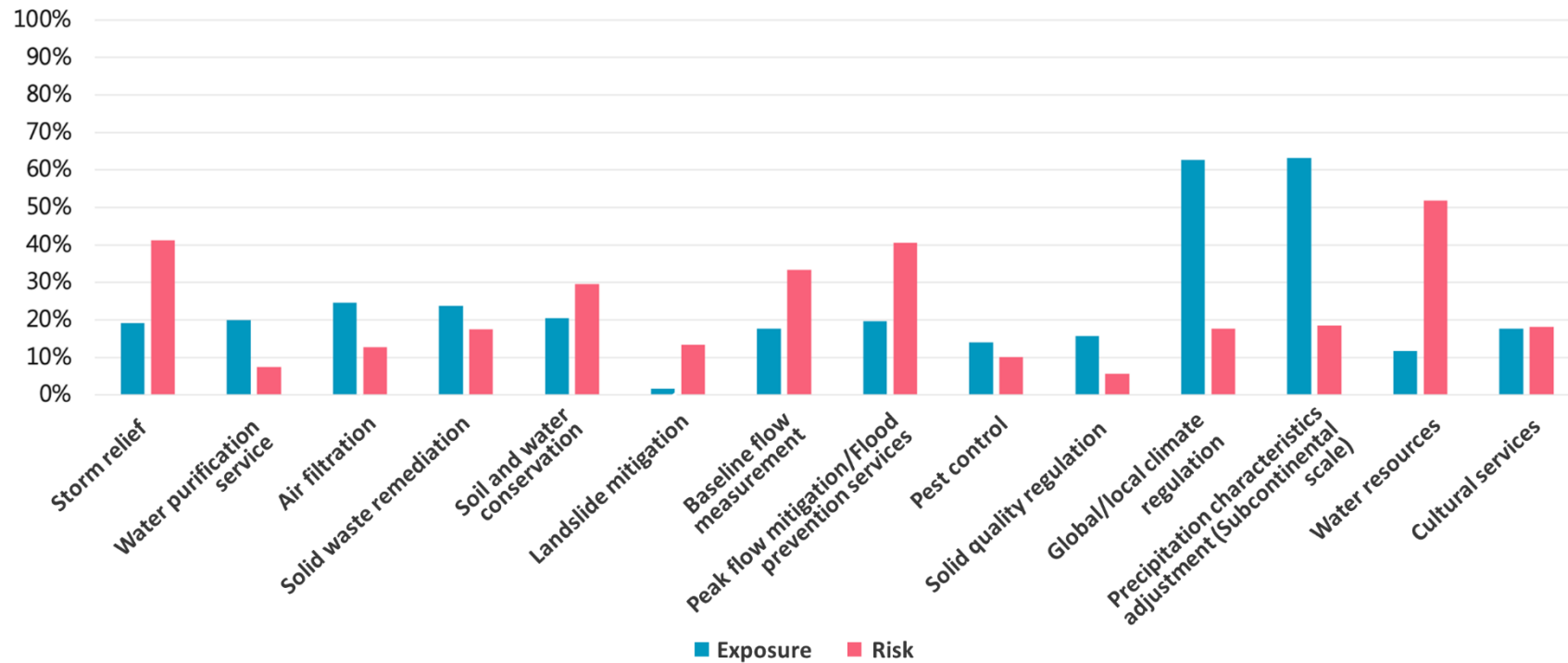
Step 1	Corresponding Industry Category: 1) Using the Unified Business Registration Number to compare national industry categories (Ministry of Finance Classification) 2) Ensure consistency in industry classification by the Directorate General of Budget, Accounting and Statistics
Step 2	Summary and organization of industry categories and the Encore Industry Classification (GICS Classification) by the Directorate General of Budget, Accounting, and Statistics
Step 3	Quantitative weighted analysis using Encore's built-in dependency and impact risk
Step 4	Exposure and risk throughout the entire value chain
Step 5	Exposure and risk levels are standardized and presented in a matrix chart: 1) According to exposure and risk assessment, the maximum value is standardized constant 2) The standardized constant for the post-adjustment risk level depends on the maximum risk before adjustment.

Main Industries Analyzed

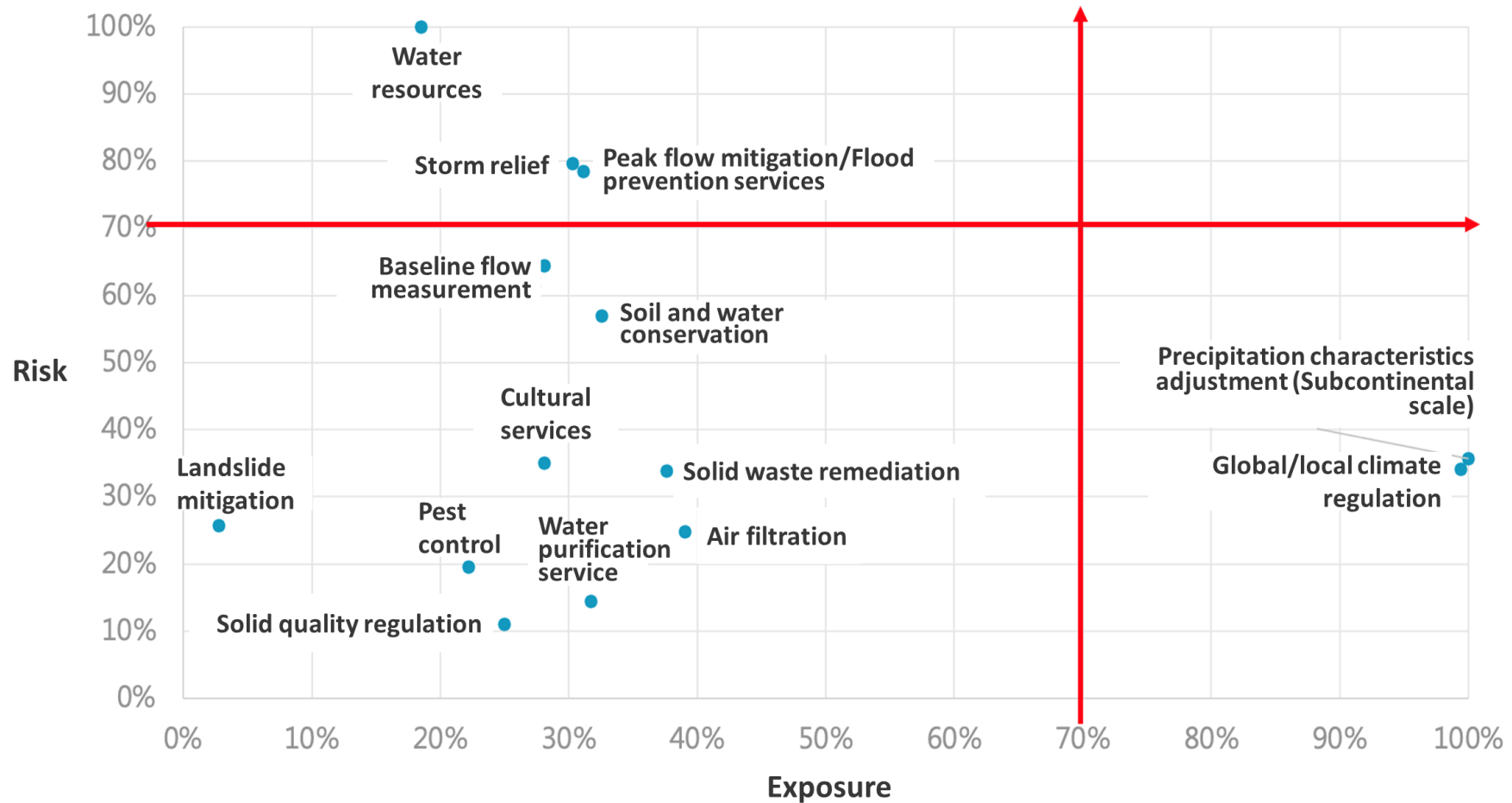


Based on the risk and exposure assessment of our suppliers, TWM's supply chain is more susceptible to global and local climate regulations and rainfall patterns on a sub-continental scale. As a result, a greater number of our suppliers are likely to be affected by hot temperatures, uneven rainfall, drought and other extreme weather events. In terms of risk level, water resources and storm mitigation pose a greater challenge, indicating the need for our supply chain to adapt to these disasters. Therefore, in response to the inherent interdependencies in the supply chain, TWM has implemented an early warning mechanism for suppliers. As part of routine supplier sustainability risk assessments, new investigation indicators and measurement units have been introduced to effectively manage and monitor potential risks.

Analysis Results for Natural Dependencies



TWM's Matrix of Supplier Dependencies

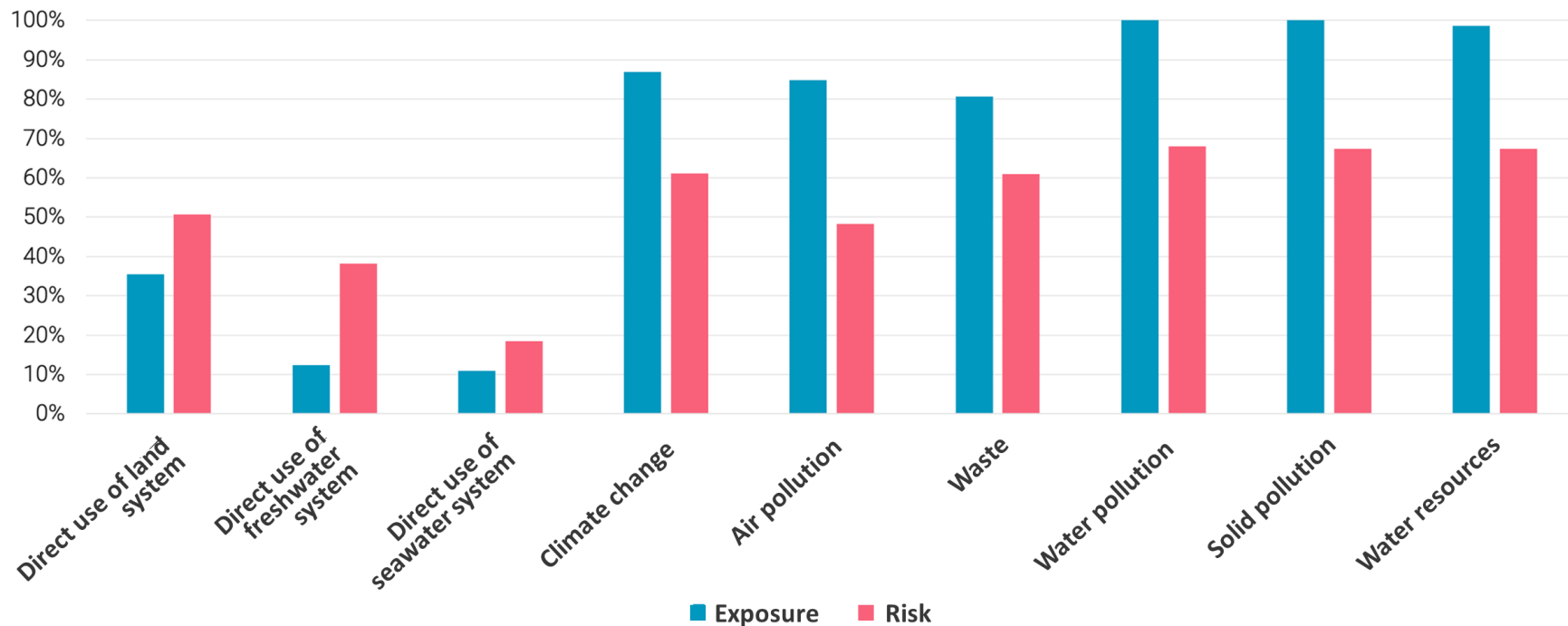


Dependency	Establishing a Supplier Alert Mechanism	Investigation Indicators	Metrics	Management Practices
Global/local climate regulation (extreme heat)	Temperature forecast (Meteorological Administration)	Due to high temperatures, the use of electricity has increased. Changes in production capacity due to high temperatures	The relationship between power consumption and temperature changes The relationship between production capacity and temperature changes	- Suppliers engaged in outdoor operations are advised to regularly monitor temperature data for temperature-sensitive operations. - The supplier should develop a contingency plan. - Alternative suppliers are available for all types of products, but suppliers who have not established related mechanisms will still receive relevant education and training.
Precipitation pattern adjustment (Uneven precipitation/rainfall disparity/drought)	Short-term and one-week rainfall forecast (Weather Administration) Water Situation Overview (Water Resources Agency)	The impact of supply chain disruptions due to water shortage and insufficient rainfall	The number of supplier delays caused by water shortage and insufficient rainfall	- Suppliers are advised to regularly monitor water supply information, including rainfall and water conditions. - The supplier should develop a contingency plan. - Alternative suppliers are available for all types of products, but suppliers who
Water resources (Water Shortage)	Short-term and one-week rainfall forecast (Weather Administration) Water situation overview	The impact of supply chain disruptions due to water shortage and insufficient rainfall	The number of supplier delays caused by water shortage and insufficient rainfall	

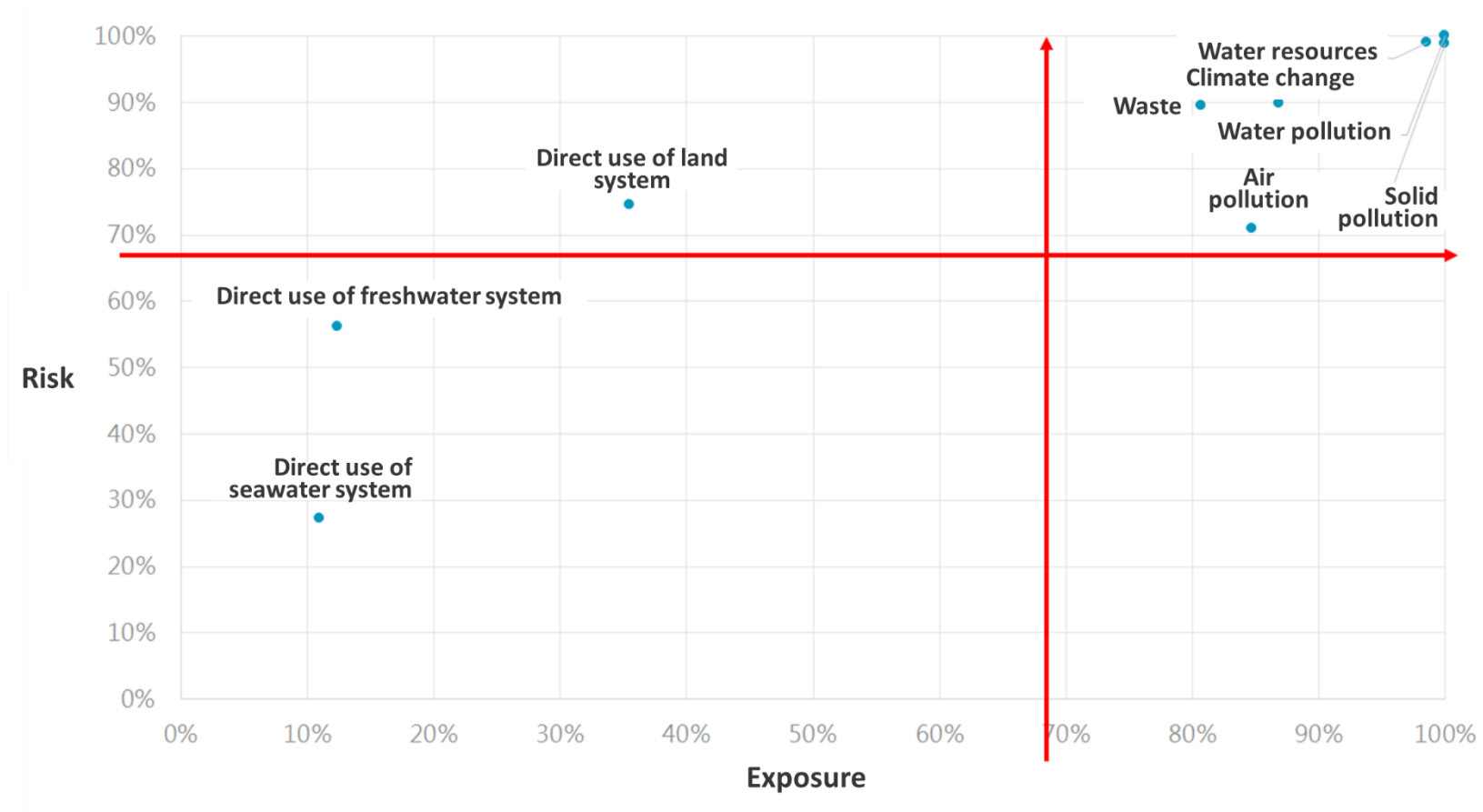
Dependency	Establishing a Supplier Alert Mechanism	Investigation Indicators	Metrics	Management Practices
	(Water Resources Agency)			have not established related mechanisms will still receive relevant education and training.
Storm mitigation (storm disaster)	Typhoon forecast (Weather Administration)	The impact of extreme weather events, such as typhoons, hurricanes, and blizzards, can cause disruptions in the supply chain	The number of times suppliers' factories and capital were affected by extreme weather such as typhoons, hurricanes, and blizzards	
Peak flow mitigation and flood control services (for floods, inundation etc.)	Short-term and one-week rainfall forecast (Weather Administration) Typhoon forecast (Weather Administration) River overview (Water Resources Agency)	The potential number of suppliers impacted by river flooding	The number of times suppliers' factories and capital were affected by disasters such as river flooding, inundation, etc.	

Based on the investigation of supplier risk and exposure, the major natural impacts on TWM's supply chain include waste, water resource use, water pollution, climate change, soil pollution, and air pollution. These risks are also reflected in the level of risk. Therefore, in response to the inherent interdependencies in the supply chain, TWM has implemented an early warning mechanism for suppliers. As part of routine supplier sustainability risk assessments, new investigation indicators and measurement units have been introduced to effectively manage and monitor potential risks.

Analysis results of natural impacts



TWM's Supplier Impact Category Matrix



Category of Impact	Indicator	Metrics	New Investigation Items	Management Practices
Waste and Soil Pollution	Waste Generation	1. Volume of industrial waste generated 2. Volume of household waste generated	1. Volume of waste disposal 2. Mechanism for waste disposal and related data	The supplier shall develop a waste management policy and accurately document the amount of waste generated.
Air Pollution	Regulations on Air Pollution	According to different industries, there will be different statutory air pollutants (emission levels)	1. Establishing violation indicators for air pollution law 2. Establishing air pollution indicators for specific industry suppliers (in compliance with regulations)	Specific industry suppliers must develop air pollution management measures in compliance with the Air Pollution Control Act. They should accurately record exhaust emission test data and emissions and propose emission standards that exceed the requirements of the air pollution law.
Water Pollution / Solid Pollution	Regulations on Water Pollution	According to different industries, there will be different statutory water pollutants (emission levels)	Establishing mechanisms for managing water pollution in specific industries (with a focus on manufacturing)	Certain industrial suppliers must develop water and soil pollution management measures in accordance with the Water Pollution Control Act and the Soil and Groundwater Pollution Remediation Act. They should accurately document the amount of wastewater discharged and test data, as well as test data for

Category of Impact	Indicator	Metrics	New Investigation Items	Management Practices
				soil contaminants in the vicinity of their operations. It is advisable to set emission standards that exceed the requirements of the Water Pollution Control Act and the Soil and Groundwater Pollution Remediation Act.
Climate Change	Greenhouse Gas Emissions	GHG emissions	Conduct investigations into the main regulated industries (with a focus on manufacturing)	Currently, key suppliers and industries with high carbon emissions are under continuous review. In the future, guidelines will be issued for the implementation of greenhouse gas management measures and carbon emissions will be monitored on an annual basis.
Water resource usage	Water Resource Utilization, Extraction, and Consumption	1. Water resource usage 2. Water resource extraction volume 3. Water resource consumption volume.	Establishing water resource usage indicators for specific industry suppliers, particularly in water-scarce areas (such as central and southern Taiwan during the winter)	Require specific industries and suppliers in water-scarce areas to develop water resource management measures and accurately record water usage

Category of Impact	Indicator	Metrics	New Investigation Items	Management Practices
Direct Use of Land System	Total Space Footprint (sum): The supplier controls and manages the total surface area, which refers to the area that the organization has control over; total interfered area; and total restoration/conservation area.	1. Total area of operation 2. Total area affected by the operations 3. Total area undergoing restoration/conservation	Confirmation of overlapping areas between suppliers in specific industries and regulatory protected areas	Require specific suppliers to measure the overlap area of their property with protected areas

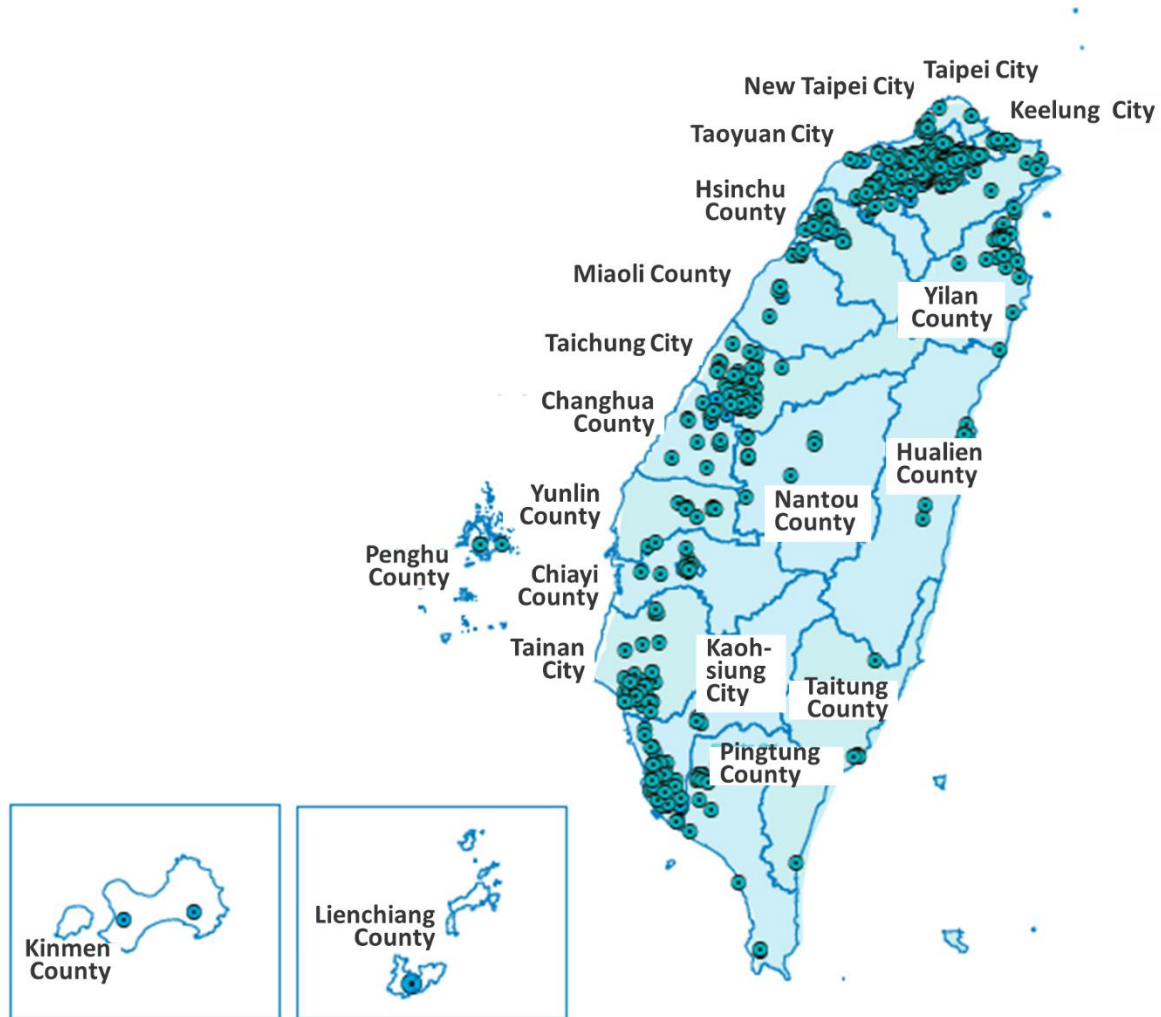
3.5 Scenario Analysis

TNFD scenarios – physical disaster analysis

Climate risk is composed of Hazard, Exposure, and Vulnerability. According to the definitions of the United Nations Intergovernmental Panel on Climate Change (IPCC), Hazard is the driver of climate-related events that may cause damage and loss to assets; Exposure is the location where the object may be adversely affected and the degree of damage suffered; Vulnerability includes adaptability and sensitivity and is defined as the propensity or degree of vulnerability to disaster of an asset. According to the above definitions, the risk can be estimated by quantifying the hazard, exposure, and vulnerability levels. In other words, the risk level can be calculated by classifying the hazard, exposure, and vulnerability, which is an important basis for determining the adaptation sequence and measures.

TWM analyzes the physical risk value of each premise according to the hazard of extreme rainfall under climate change, the vulnerability of inundation, landslide, and debris flow caused by the extreme rainfall, and the exposure of premise location. The hazard is evaluated by simulating the climate risks under RCP2.6, RCP4.5, RCP6.0, and RCP8.5 scenarios using multiple climate models (GCM/ESM) in order to avoid extreme simulation results; the vulnerability is analyzed based on government published maps, including scope and degree of disaster; the exposure is analyzed based on the location of 1,104 premises of TWM's own assets and suppliers. Finally, the risk scores of each premise are classified into three risk levels: no risk, low risk, medium risk, and high risk according to the risk ranking matrix. The total risk is represented by the level with the highest risk value of the three vulnerabilities.

Distribution of TWM's premises



Analysis Results of Physical Disaster Risks to Owned Assets

RCP2.6

Under the RCP2.6 scenario, 466 of TWM's properties have no flooding, debris flow, or landslide potential; of the remaining 200 properties, 197 have flooding potential, 1 has debris flow potential, and 2 have landslide potential, where disasters could occur in the event of extreme rainfall. Under the RCP2.6 scenario, 466 premises are classified as no risk because they do not have disaster vulnerability; the number of low-risk premises ranges from 91 to 134 in the short term to long term, all of which are at risk of inundation. The number of medium-risk premises ranges from 58 to 101 in the short term to long term, including one premise with landslide risk, which is a machine room located in Keelung City and may be affected by landslides during extreme rainfall events; the rest are with inundation risk and are located in Taipei City, New Taipei City, Taoyuan City, Hsinchu County/City, Taichung City, Nantou County, Yunlin County, Tainan City, Kaohsiung City, Pingtung County, and Yilan County, etc. The number of high-risk premises ranges from 4 to 8 in the short term to long term, including 1 premise with debris flow risk and 1 premise with landslide risk, and the rest are with inundation risk. The premise with debris flow risk is a machine room located in the mountainous area of Yilan County, the premise with landslide risk is a machine room located in the mountainous area of New Taipei City, and the premises with high inundation risk are mainly located in Taipei City, New Taipei City, Hsinchu City, Nantou County, and Yilan County, etc.

RCP4.5

Under the RCP4.5 scenario, there are 466 premises without inundation, debris flow or landslide potential; among the remaining 200 premises, 197 with inundation potential, 1 with debris flow, and 2 with landslide potential, where disasters may be triggered in the event of extreme rainfall. Under the RCP4.5 scenario, 466 premises are classified as no risk because they do not have disaster vulnerability; the number of low-risk premises ranges from 83 to 129 in the short term to long term, all of which are at risk of inundation. The number of medium-risk premises ranges from 62 to 104 in the short term to long term, including one premise with landslide risk, which is a machine room located in Keelung City and may be affected by landslides during extreme rainfall events; the rest are with inundation risk and are located in Taipei City, New Taipei City, Taoyuan City, Hsinchu County/City, Taichung City, Nantou County, Yunlin County, Tainan City, Kaohsiung City, Pingtung County, Yilan County, and Hualien County, etc. The number of high-risk premises ranges from 9 to 13 in the short term to long term, including 1 premise with debris flow

risk and 1 premise with landslide risk, and the rest are with inundation risk. The premise with debris flow risk is a machine room located in the mountainous area of Yilan County, the premise with landslide risk is a machine room located in the mountainous area of New Taipei City, and the premises with high inundation risk are mainly located in Taipei City, New Taipei City, Nantou County, and Yilan County, etc.

RCP6.0

Under the RCP6.0 scenario, there are 466 premises without inundation, debris flow or landslide potential; among the remaining 200 premises, 197 with inundation potential, 1 with debris flow, and 2 with landslide potential, where disasters may be triggered in the event of extreme rainfall. Under the RCP6.0 scenario, 466 premises are classified as no risk because they do not have disaster vulnerability; the number of low-risk premises ranges from 106 to 164 in the short term to long term, all of which are at risk of inundation. The number of medium-risk premises ranges from 29 to 81 in the short term to long term, including one premise with landslide risk, which is a machine room located in Keelung City and may be affected by landslides during extreme rainfall events; the rest are with inundation risk and are located in Taipei City, New Taipei City, Taoyuan City, Hsinchu County/City, Taichung City, Nantou County, Yunlin County, Tainan City, Kaohsiung City, Pingtung County, Yilan County, and Hualien County, etc. The number of high-risk premises ranges from 7 to 13 in the short term to long term, including 1 premise with debris flow risk and 1 premise with landslide risk, and the rest are with inundation risk. The premise with debris flow risk is a machine room located in the mountainous area of Yilan County, the premise with landslide risk is a machine room located in the mountainous area of New Taipei City, and the premises with high inundation risk are mainly located in Taipei City, New Taipei City, Nantou County, and Yilan County, etc.

RCP8.5

Under the RCP8.5 scenario, there are 466 premises without inundation, debris flow or landslide potential; among the remaining 200 premises, 197 with inundation potential, 1 with debris flow, and 2 with landslide potential, where disasters may be triggered in the event of extreme rainfall. Under the RCP8.5 scenario, 466 premises are classified as no risk because they do not have disaster vulnerability; the number of low-risk premises ranges from 93 to 129 in the short term to long term, all of which are at risk of inundation. The number of medium-risk premises ranges from 62 to 92 in the short term to long term, including one premise with landslide risk, which is a machine room located in Keelung City and may be affected by landslides during extreme rainfall events; the rest are with inundation risk and are located in Taipei City, New Taipei City, Taoyuan

City, Hsinchu County/City, Taichung City, Nantou County, Yunlin County, Tainan City, Kaohsiung City, Pingtung County, Yilan County, and Hualien County, etc. The number of high-risk premises ranges from 9 to 15 in the short term to long term, including 1 premise with debris flow risk and 1 premise with landslide risk, and the rest are with inundation risk. The premise with debris flow risk is a machine room located in the mountainous area of Yilan County, the premise with landslide risk is a machine room located in the mountainous area of New Taipei City, and the premises with high inundation risk are mainly located in Taipei City, New Taipei City, Nantou County, Kaohsiung City, and Yilan County, etc.

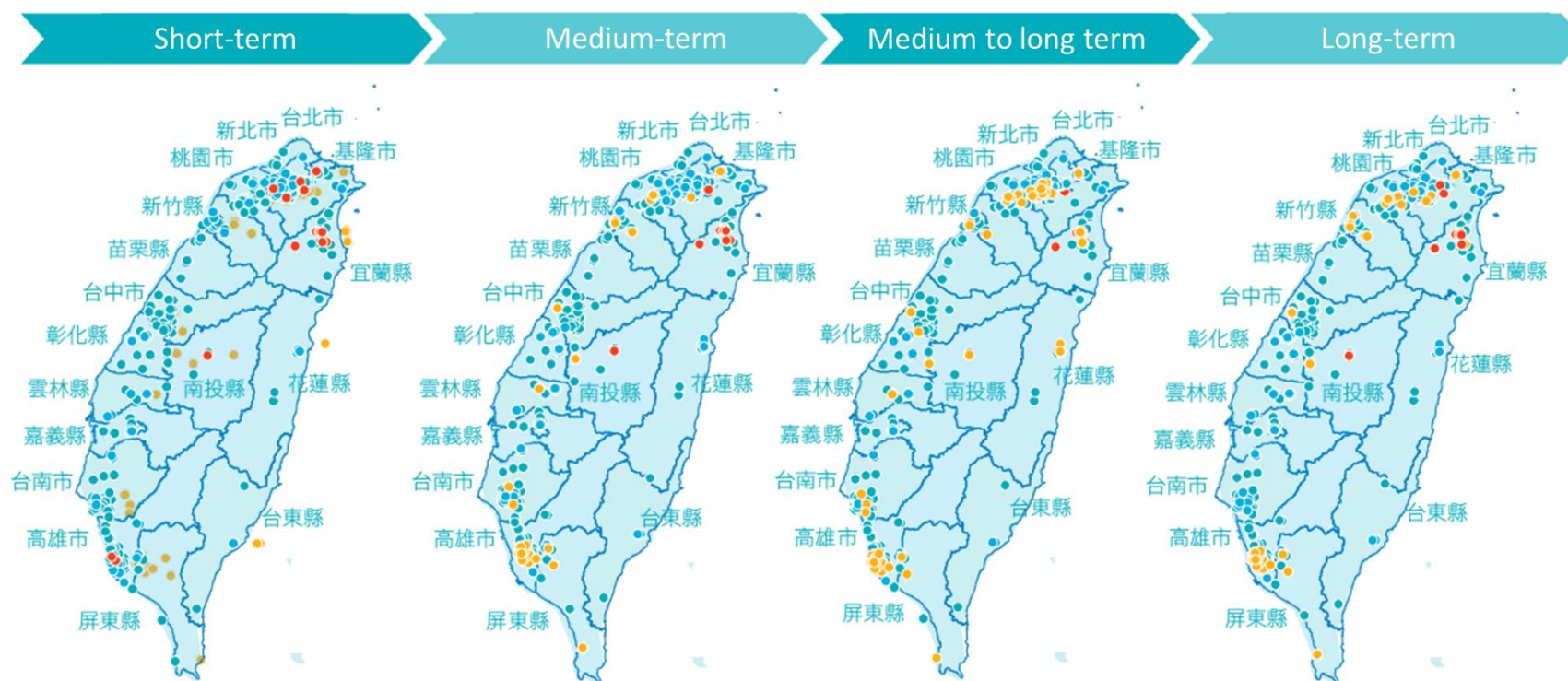
Risk Level	Countermeasures	Owned assets															
		RCP2.6				RCP4.5				RCP6.0				RCP8.5			
		Short-term	Medium-term	Medium to long term	Long-term	Short-term	Medium-term	Medium to long term	Long-term	Short-term	Medium-term	Medium to long term	Long-term	Short-term	Medium-term	Medium to long term	Long-term
 No risk	Maintain the premise	466	466	466	466	466	466	466	466	466	466	466	466	466	466	466	466
 Low risk	Maintain the premise	123	91	115	134	129	120	83	106	121	164	106	107	124	129	93	100%
 Medium risk	Maintain the premise and pay more attention to changes in disaster potential	73	101	78	58	62	71	104	82	69	29	81	80	67	62	92	85
 High risk	Avoid setting up any premise and relocate the operating premise to a place with medium risk or below	4	8	7	8	9	9	13	12	10%	7	13	13	9	9	15	15
Total		666				666				666				666			

Note: Short term, medium term, medium to long term, and long term represent 2021-2040, 2041-2060, 2061-2080, and 2081-2100, respectively.



Owned Assets

Risk value distribution map under the RCP8.5 scenario



Analysis Results of Physical Disaster Risks to Suppliers

RCP2.6

Under the RCP2.6 scenario, there are 131 premises with inundation potential for the suppliers of TWM; among them, the number of low-risk premises ranges from 73 to 121, which are mainly located in Taipei City, New Taipei City, Taoyuan City, Hsinchu County, Taichung City, Changhua County, and Tainan City, etc. The number of medium-risk premises is smaller and ranges from 9 to 55, which are mainly located in Taipei City, New Taipei City, Taichung City, Kaohsiung City, and Yilan County, etc.

RCP4.5

Under the RCP4.5 scenario, there are 131 supplier premises with inundation potential; among them, the number of low-risk premises ranges from 60 to 114, which are mainly located in Taipei City, New Taipei City, Taoyuan City, Hsinchu County, Changhua County, and Tainan City, etc. The number of medium-risk premises is smaller and ranges from 21 to 62, which are mainly located in Taipei City, New Taipei City, Taoyuan City, Taichung City, and Kaohsiung City, etc. The number of high-risk premises is smaller and ranges from 1 to 9, which are suppliers located in Taipei City, New Taipei City, Taoyuan City, Taichung City, and Yilan County.

RCP6.0

Under the RCP6.0 scenario, there are 131 supplier premises with inundation potential; among them, the number of low-risk premises ranges from 102 to 125, which are mainly located in Taipei City, New Taipei City, Taoyuan City, Hsinchu County, Taichung City, Changhua County, and Tainan City, etc. The number of medium-risk premises is smaller and ranges from 21 to 62, which are mainly located in Taipei City, New Taipei City, Taoyuan City, Hsinchu County, Taichung City, Changhua County, Kaohsiung City, and Yilan County. The number of high-risk premises is smaller and ranges from 1 to 4, which are located in New Taipei City, Taoyuan City, Taichung City, and Yilan County.

RC8.5

Under the RCP8.5 scenario, there are 131 supplier premises with inundation potential; among them, the number of low-risk premises ranges from 91 to 122, which are mainly located in Taipei City, New Taipei City, Taoyuan City, Hsinchu County, Taichung City, Changhua County, and Tainan City, etc. The number of medium-risk premises is smaller and ranges from 8 to 35, which are mainly located in Taipei City, New Taipei City, Taichung City, Kaohsiung City, and Yilan County. The number of high-risk premises is smaller and ranges from 1 to 5, which are suppliers located in New Taipei City, Taoyuan City, Taichung City, and Yilan County.

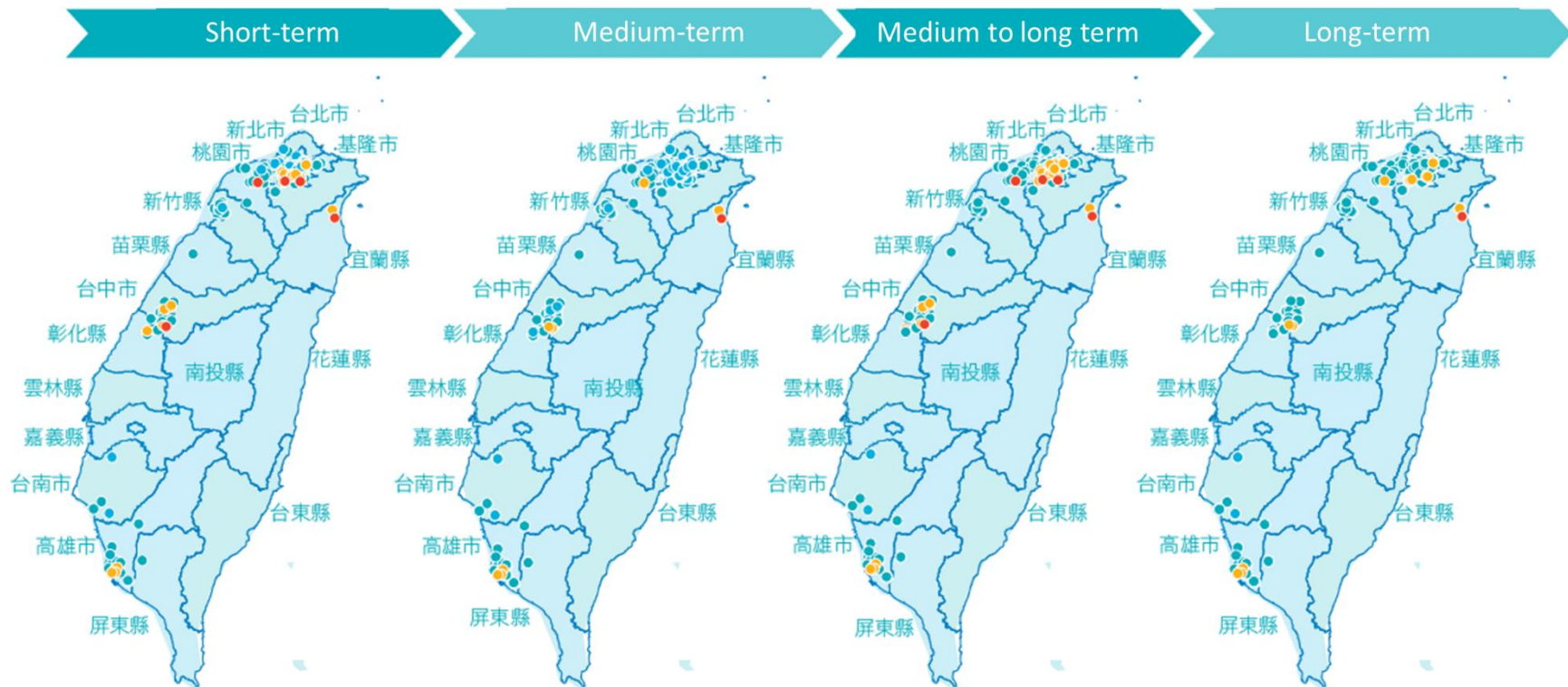
Risk Level	Countermeasures	Suppliers															
		RCP2.6				RCP4.5				RCP6.0				RCP8.5			
		Short-term	Medium-term	Medium to long term	Long-term	Short-term	Medium-term	Medium to long term	Long-term	Short-term	Medium-term	Medium to long term	Long-term	Short-term	Medium-term	Medium to long term	Long-term
 No risk	Normal cooperation	307	307	307	307	307	307	307	307	307	307	307	307	307	307	307	307
 Low risk	Normal cooperation	116	73	104	121	114	107	60	103	108	125	105	102	115	122	91	100
 Medium risk	Normal cooperation, pay more attention to the potential and hazard of the disaster	15	55	27	9	16	21	62	25	21	5	22	26	15	8	35	26
 High risk	Depending on the industry nature, disaster risk-related supporting measures and liquidated damages are included in the contract, and long-term cooperation is carefully evaluated	0	3	0	1	1	3	9	3	2	1	4	3	1	1	5	5
Total		438				438				438				438			

Note: Short term, medium term, medium to long term, and long term represent 2021-2040, 2041-2060, 2061-2080, and 2081-2100, respectively.



Suppliers

Risk value distribution map under the RCP8.5 scenario



Transition scenario impact analysis

Transition Risk, Scenario Setting, and Scope of Applicability

As different risk items may cause different financial impacts, the transition risks are divided into regulation, market, and technology. TWM estimates the financial impact by using the BAU scenario and calculates the cost of implementing existing strategies to reduce this impact. This allows them to understand the difference in transition strategies when faced with external scenario pressures.

Item		Type of impact
Regulatory risk affects the operating costs and capital expenditures of a company		Financial Impact
Market risk mainly affects the loss of expected revenue of a company		Financial Impact
Technology cost estimates for transition strategy a. Additional strategies: strategies expected to be implemented but not yet implemented b. RE strategy: renewable energy costs for future RE targets to be achieved		Management costs
Description of the financial impact assessment		
Type	Subtype	Explanation
Financial Impact	Regulatory Risk	Obligatory capacity/Existing strategic operating costs
		Carbon tax
		Carbon penalty (for government net zero only)
	Market Risk	Loss of revenue due to shortage of low-carbon products
Management costs	Additional Strategies	Future transition strategy expected to be implemented (with definite purchase quantity and installation capacity)
	RE Strategy	RE100 path planned by the Company
	Making up for the gap	The RE purchase quantity that needs to be made up under the mandatory transition scenario
	Carbon removal expenses	Cost for removing Scope 1 emissions

The different scenarios and scopes of applications of TWM's analysis are described as follows:

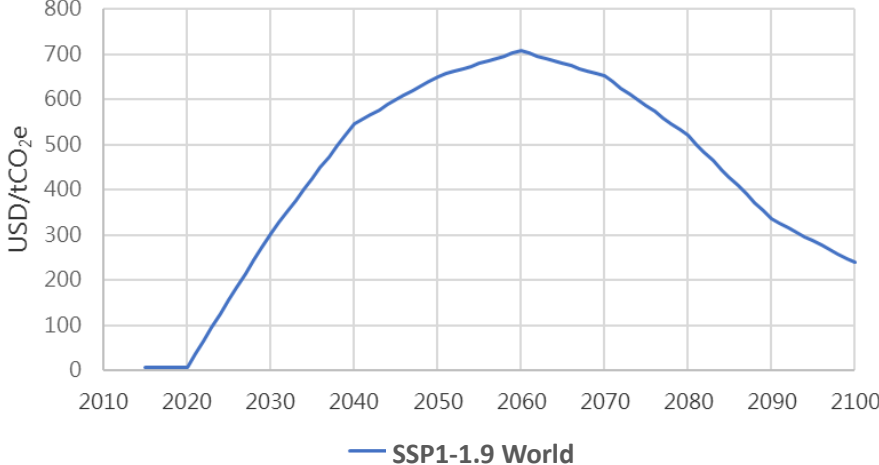
Scenario simulations are performed using TWM's baseline data to estimate potential future emissions and explore potential risks that may arise. Based on the current operational status of TWM, this analysis examines the financial impact of three external transition scenarios, taking into account two strategic aspects. The objective is to determine the potential management costs associated with the current operational status and two reduction strategies in these three scenarios.

- BAU status: Maintain the status quo without implementing any improvement management activities, according to the financial impact of three external transition scenarios.
- RE Strategy: TWM's current carbon reduction strategy aims to achieve a 30% renewable energy (RE30) target by 2030 and a 100% renewable energy (RE100) target by 2040, taking into account the financial impact and management costs of three potential transition scenarios.
- Corporate mandatory achievement strategy: Achieve management costs under three external transformative scenario goals

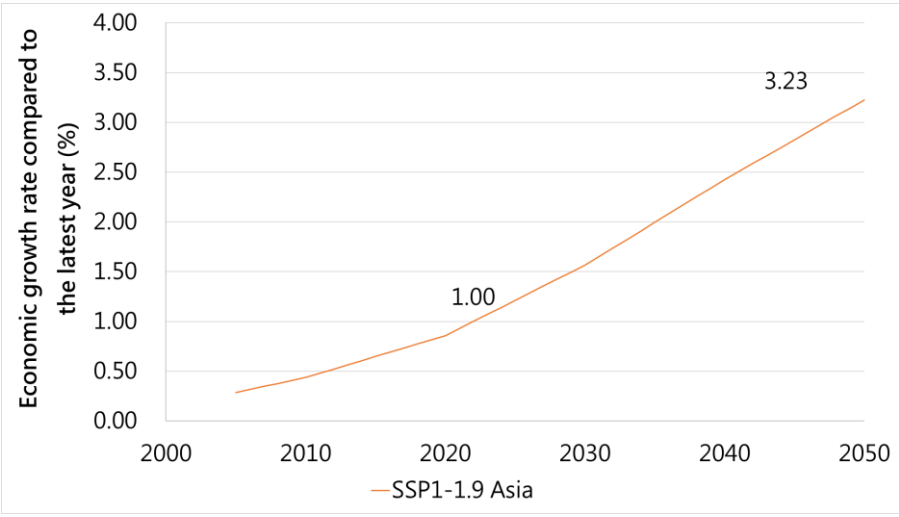
External Context of TWM's Three Major Transition Risks

External Transition Scenarios	Impact	Scope of application	Risk evaluation	Emission source
Government net zero path	Based on the current net zero targets proposed by Taiwan	TWM	Regulatory Risk Market Risk Technology Risk	Scope 1 + Scope 2
SSP1-1.9	Based on the SSP1-1.9 path in IPCC AR6			Scope 1 + Scope 2
SBT-NZ	Based on the scenario estimate of achieving the net-zero criteria set by SBT (Science-Based Targets), which requires a 42% reduction in emissions by 2030 and net-zero by 2050.			Scope 1 + Scope 2

The scenario simulation parameters of TWM's transition are as follows:

Risks		Explanation	Cost Category																			
Regulatory	Carbon tax	Taxes are levied according to the unit carbon emissions of a company under different scenarios. This part is highly uncertain due to the large difference in the taxation system. This evaluation mainly considers three levels of carbon taxes: 1. Government Net Zero Path: the carbon tax is 300 NTD/tCO₂e (approximately 10 USD/tCO₂e) 2. SSP1-1.9 and SBT-NZ: Carbon price of SSP1-1.9 (reaching 650 USD/tCO₂e in 2050)	Operating costs																			
		Carbon Tax / Carbon Price <table border="1"><caption>Carbon Tax / Carbon Price (USD/tCO₂e)</caption><thead><tr><th>Year</th><th>Carbon Price (USD/tCO₂e)</th></tr></thead><tbody><tr><td>2010</td><td>0</td></tr><tr><td>2020</td><td>0</td></tr><tr><td>2030</td><td>300</td></tr><tr><td>2040</td><td>550</td></tr><tr><td>2050</td><td>650</td></tr><tr><td>2060</td><td>700</td></tr><tr><td>2070</td><td>650</td></tr><tr><td>2080</td><td>500</td></tr><tr><td>2090</td><td>350</td></tr><tr><td>2100</td><td>250</td></tr></tbody></table>		Year	Carbon Price (USD/tCO ₂ e)	2010	0	2020	0	2030	300	2040	550	2050	650	2060	700	2070	650	2080	500	2090
Year	Carbon Price (USD/tCO ₂ e)																					
2010	0																					
2020	0																					
2030	300																					
2040	550																					
2050	650																					
2060	700																					
2070	650																					
2080	500																					
2090	350																					
2100	250																					

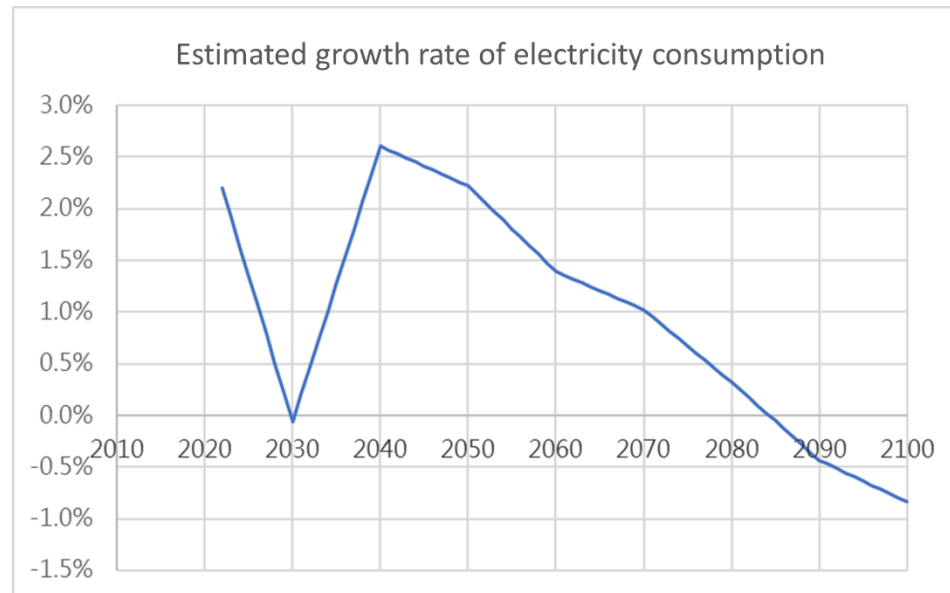
Risks		Explanation	Cost Category
	Cap and carbon penalty	According to current international regulations and trends, levying carbon taxes is common practice, rather than imposing carbon penalties or caps, so only government net zero path will consider carbon penalties additionally (regulations not exceeding 1500 NTD/tCO _{2e}).	Operating costs
Technology	Renewable Energy installation cost	The installation cost of the renewable energy power generating sets by the Company is fully recognized as capital expenditure for the current year, which can be obtained from the IRENA Renewable Energy Report 2022.	Capital expenditure
	Renewable Energy Operating Cost	The renewable energy operating cost can be obtained from the IRENA Renewable Energy Report 2022.	Operating costs
	Cost of the Procurement of Renewable Energy	Taiwan's renewable energy procurement cost is calculated from the current mean wholesale price of renewable energy sold to TPC plus the public power expense (from TPC).	Operating costs
	Procurement cost from TPC	The cost and benefit of procurement from TPC is calculated based on the mean price of 3.785 NTD/kWh (commercial electricity)	Operating costs
	Carbon Removal Cost	According to the data of IEA, the cost of CCUS varies from case to case. Since TWM uses carbon removal as the ultimate means to achieve net zero, the most expensive direct air capture technology is used, and its cost is about 85-345 USD/tCO _{2e} . Therefore, the assumption is based on three scenarios: Immature technology: 340 USD/tCO _{2e}	-

Risks		Explanation	Cost Category
		Mean price: 235 USD/tCO _{2e} Mature technology: 130 USD/tCO _e	
Market	Risk of decreasing market share of low carbon products	Assuming TWM's revenue growth is consistent with the SSP1-1.9 (Asia) scenario (as shown in the figure below. Assuming it is 1 in 2022, the figure shows the growth multiplier for each year compared to 2022, and it will increase by 2.22 times in 2050 compared to 2022).  Assuming that 4% of revenue is generated from low carbon products, this 4% of revenue will suffer different losses in different external transition scenarios. ● When the scenario is government net zero, the revenue loss for low-carbon products is 50% (equivalent to 2% of overall revenue); ● When the scenario is SSP1 and SBT-NZ, the revenue loss of low-carbon products is 100% (equivalent to 4% of total revenue)	Expected revenue

Estimation of Emissions in the Business-As-Usual Scenario in TWM

1. Estimated emission parameters for the BAU status:

- The growth rate of Scope 1 carbon emissions is estimated to decrease linearly by 1% annually. Electricity Growth Rate: The growth rate of electricity is estimated based on the growth rate of Asia in IPCC AR6 SSP1-1.9. The carbon emission coefficient for Taiwan's electricity is calculated according to government energy policies for the period 2019-2050, taking into account different scenarios. We will achieve the current government forecast targets (30% coal-fired, 50% gas-fired, 20% renewable energy) by 2030, and continue to increase the ratio of renewable energy to 50% and replace coal-fired power generation (50% gas-fired, 50% renewable energy) until 2050.
- Parameters for the future growth of electricity for future carbon emissions in TWM (growth rate of SSP1-1.9 Asia)

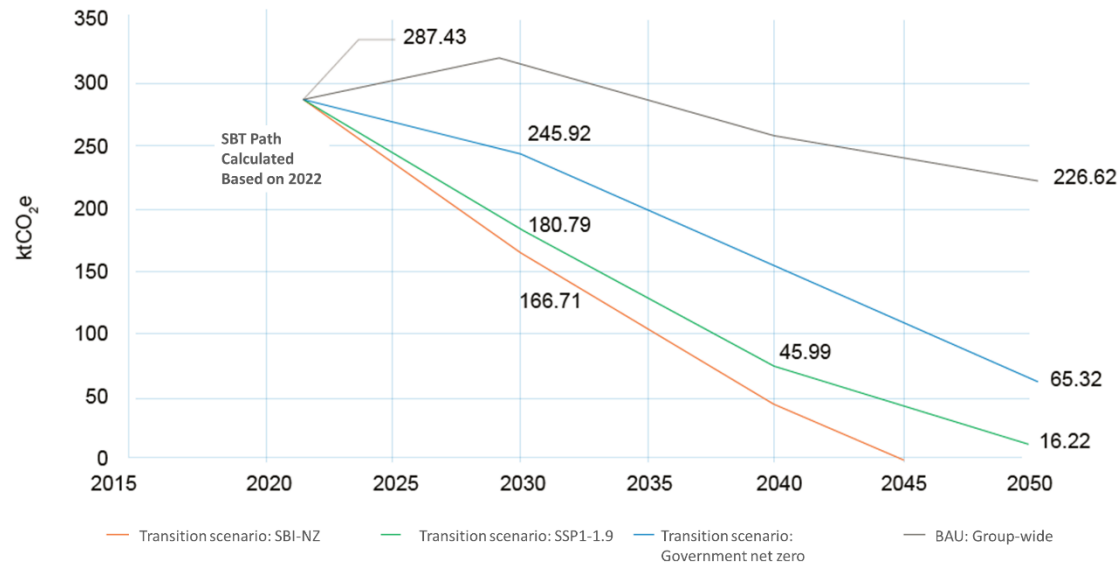


2. Estimated Results of Business as Usual (BAU) Status

- TWM's government net zero and low carbon transition scenario

We expect to achieve the emission allowances and estimated original emissions (following the existing strategy and not considering the RE strategy) at three different ambition levels of government net zero, SSP1-1.9, and SBT-NZ. In the context of TWM's large-scale battery technology (SBT), the base year used is 2022. The growth in electricity consumption follows the SSP1-1.9 Asian scenario parameter growth. Scope 1 emissions are estimated to decrease by 1% annually, based on historical data. According to the BAU scenario, it is projected that TWM's emissions will reach 226,600 metric tons of carbon dioxide equivalent by 2050. The emission allowances under government net zero, SSP1-1.9, and SBT-NZ transition scenarios are 65,300 tons, 12,200 tons, and net zero, respectively.

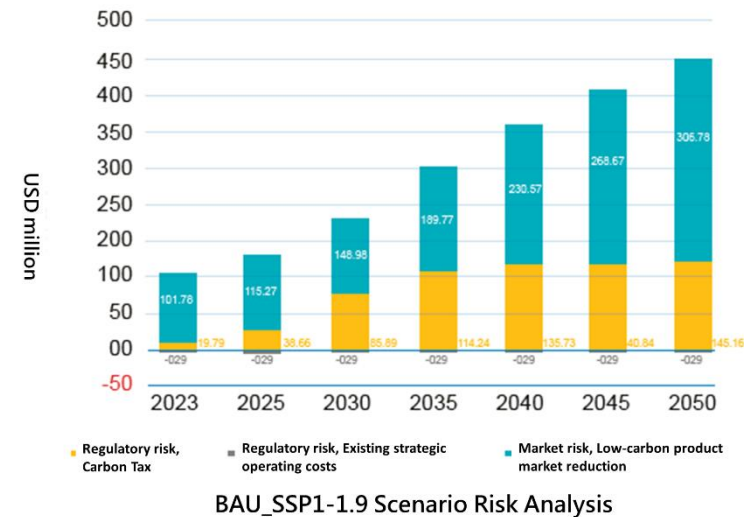
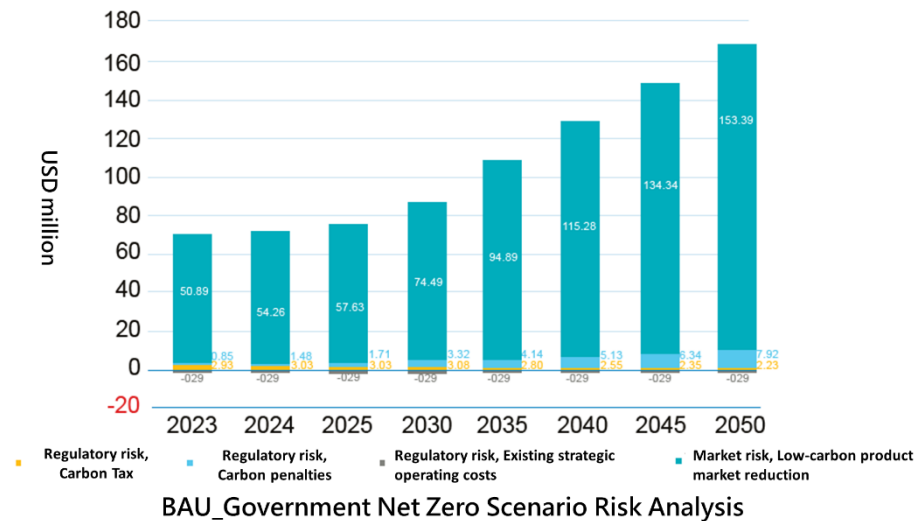
Estimation of greenhouse gas emissions under business-as-usual conditions and attainment of carbon emission targets in different external transition scenarios.



- Financial impact under BAU (without considering RE100 strategy)

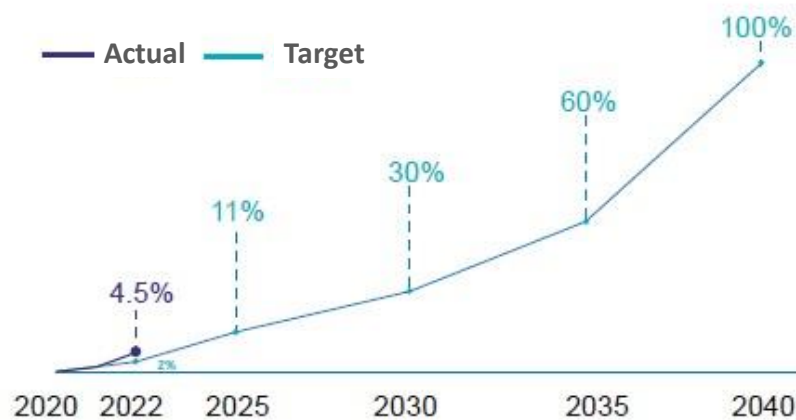
TWM conducts a comprehensive assessment of the financial implications of its internal business-as-usual (BAU) status and projected emissions under various external transition scenarios. As of now, Taiwan Da does not have any facilities that surpass the mandated ratio for renewable energy usage. Therefore, there is no need to calculate the cost of obligated capacity.

When the external scenario is assumed to be the government net zero, the carbon tax will gradually decrease around 2050 due to the gradual reduction of carbon emissions, while the financial impact of the carbon penalty will be higher after 2045 due to the expansion of the difference in allowance of the transition scenario under the current situation; overall, under TWM's BAU strategy, the financial impact in government net zero scenario will be approximately USD 160 million by 2050, with market risk as the dominant factor; if the market risk is excluded, the carbon tax and carbon penalty will only be about USD 10 million. If the external scenario is assumed to be SSP1-1.9, under the business-as-usual condition, the market risk will reach 300 million US dollars by 2050, and the carbon tax will amount to USD 145 million.

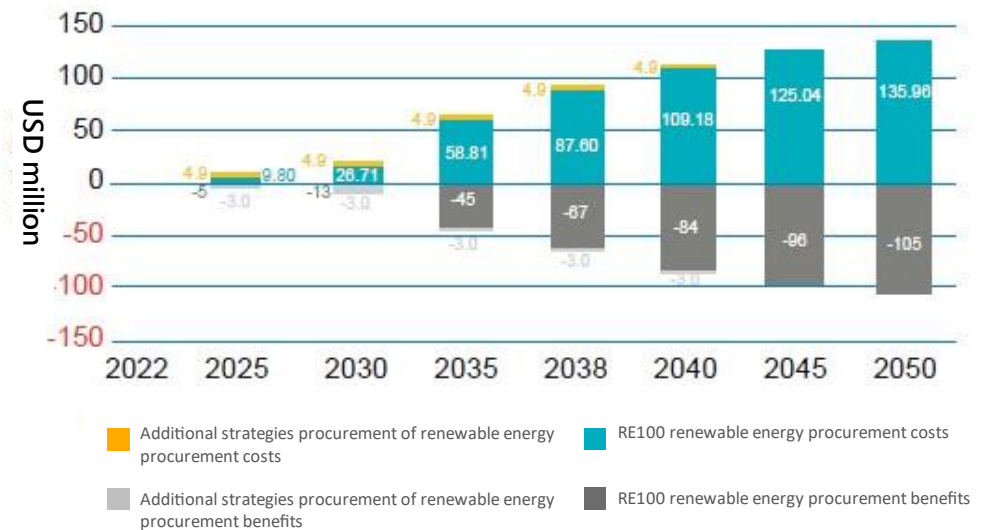


3. RE Strategy and Cost Management

TWM's RE strategy is to achieve 30% renewable energy by 2030 and achieve the RE100 target by 2040. This includes a 20-year contract for procurement of renewable energy expected to begin in 2023 (classified under Additional Strategy Renewable Energy Procurement). According to this trend, without considering the increase/decrease of TPC's electricity price, the total cost will be about USD 30 million by 2050 (USD 136 million of expenses and USD 105 million of benefits from avoiding the cost of procurement from TPC).



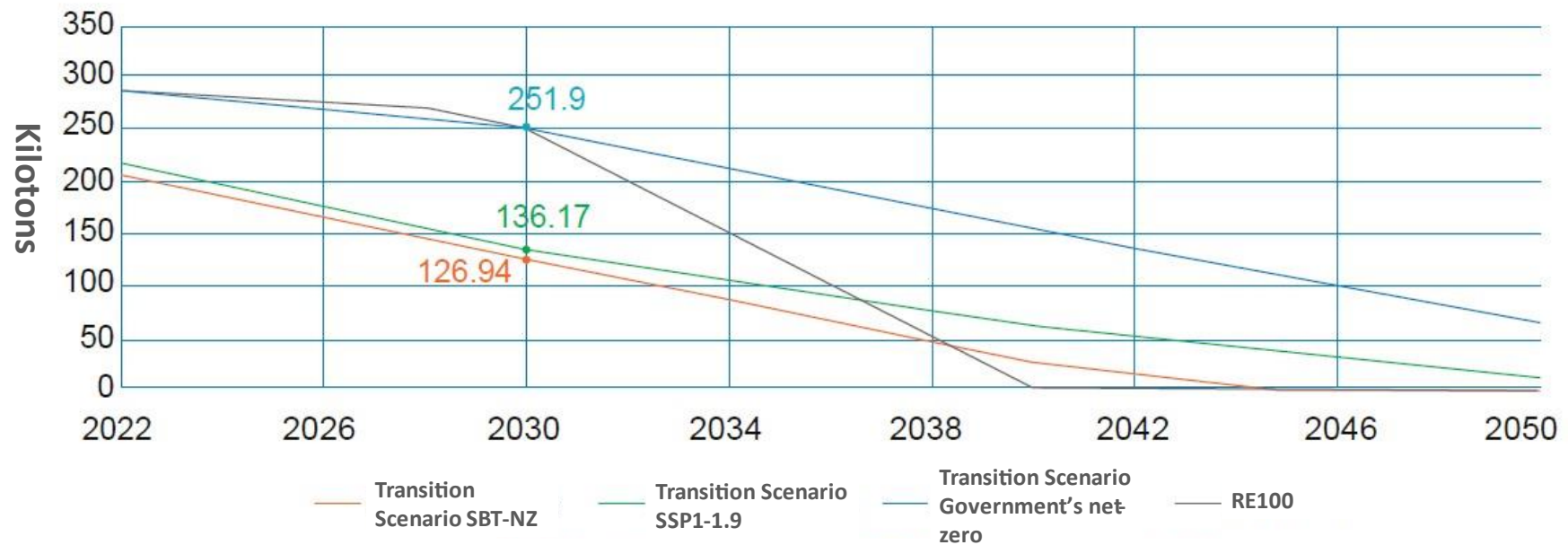
Planned quantity of renewable energy under TWM's RE100



Cost details of TWM's RE strategy

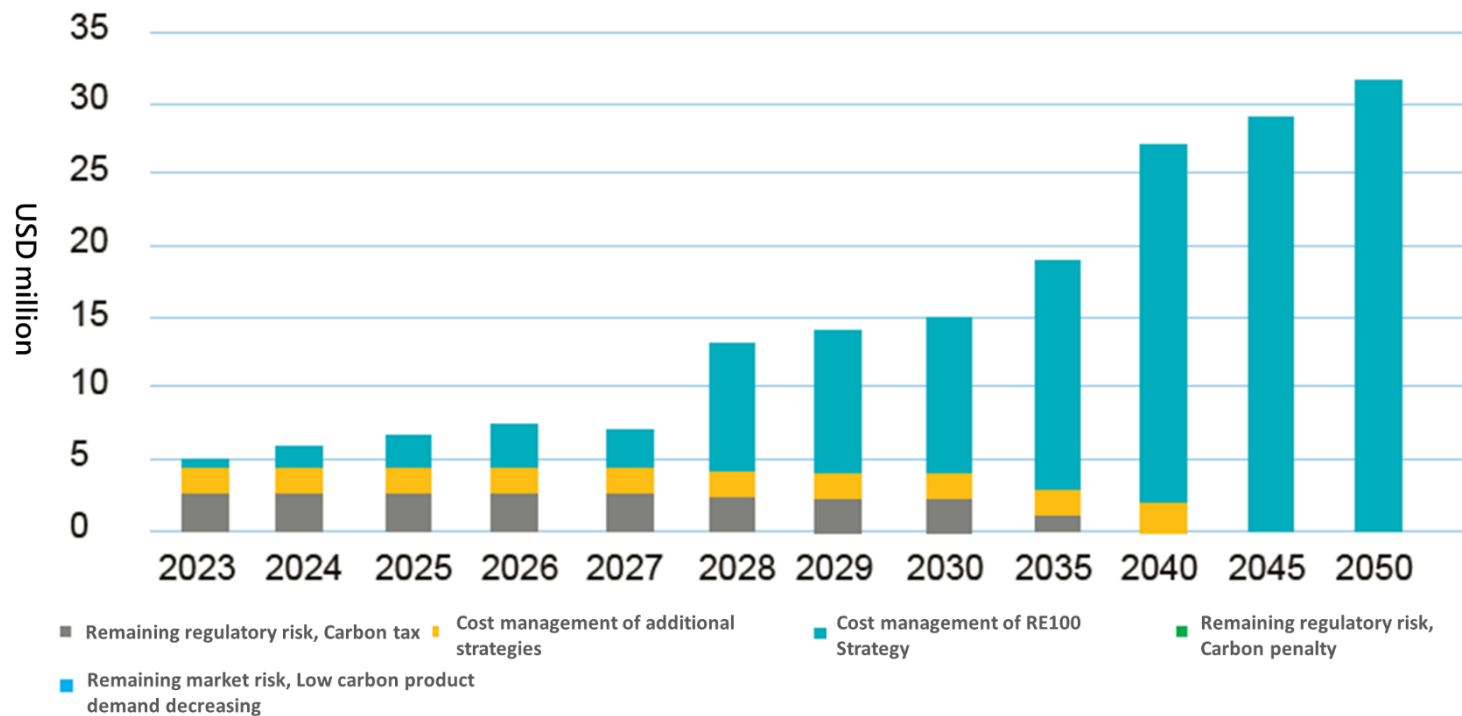
Analysis of financial impact under the RE strategy

The reducing speed of TWM's emissions under the RE strategy will be slow before 2030, if we want to achieve RE100 within 10 years after 2030, we should accelerate the reduction of carbon emissions and expect to exceed the SSP1-1.9 and SBT-NZ targets in 2036 and 2038.



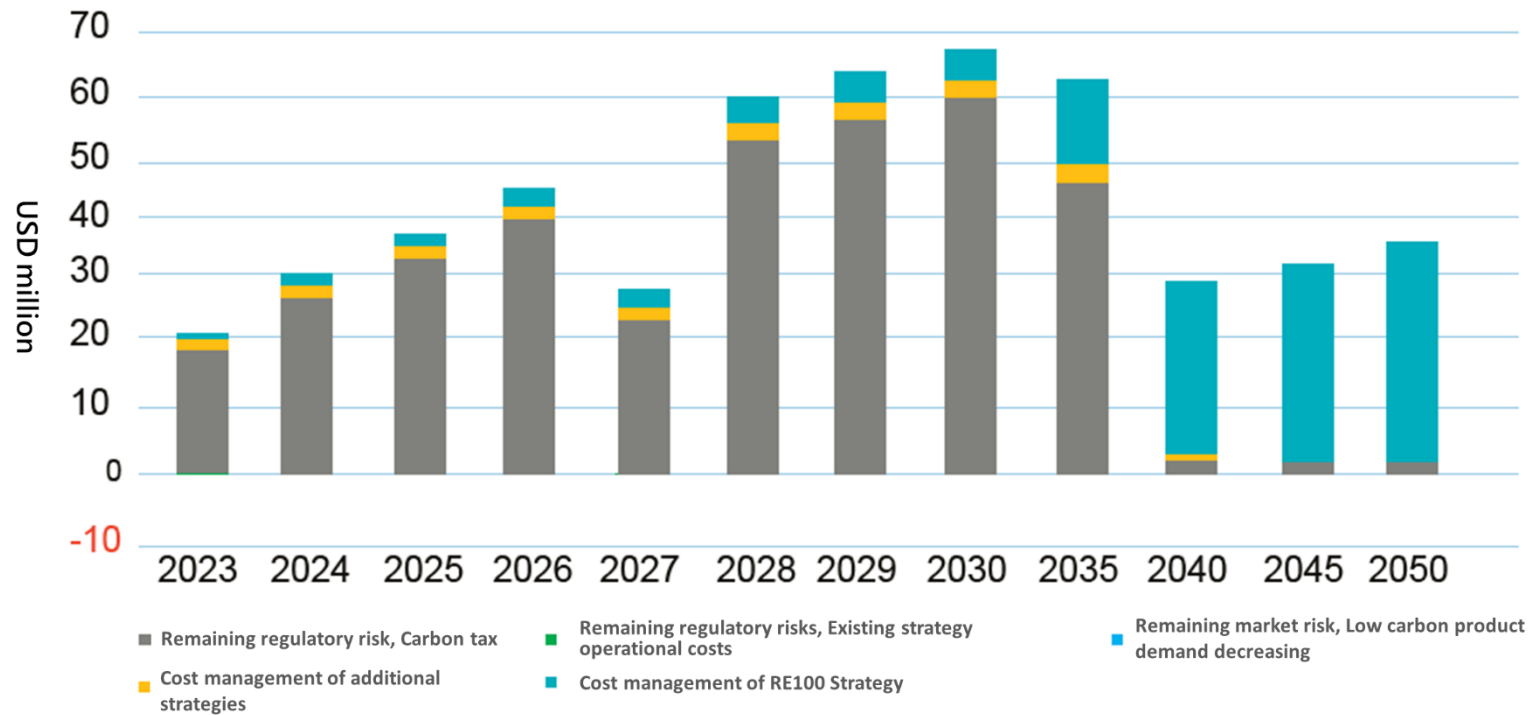
Emission trends of TWM under the government's net-zero scenario with the RE strategy

Assessing the focus on the RE100 strategy under three external transition scenarios (government net zero, SSP1-1.9, SBT-NZ), and examining the changes in transition risks encountered under different external circumstances. As the Renewable Energy Procurement gradually increases and approaches the government's net zero path, the market risk begins to change. This means that after 2030, carbon emissions will be reduced to below the government's net zero quota due to the RE100 Strategy. As a result, the market risk and carbon penalties will gradually disappear, leaving only the management cost of procuring renewable energy.



Risk Analysis of RE100 under Government's Net-Zero Strategy

The difference in emissions between the SSP1-1.9 and SBT-NZ transition scenarios under the RE strategy. After the implementation of RE, there is still a certain gap with SSP1-1.9 and SBT-NZ, which is mainly due to RE30 is insufficient to meet the target of the scenario. Therefore, if RE100 is to be achieved under SSP1-1.9 and SBT-NZ, emission reductions in Scopes 1 & 2 will be particularly critical after 2040.

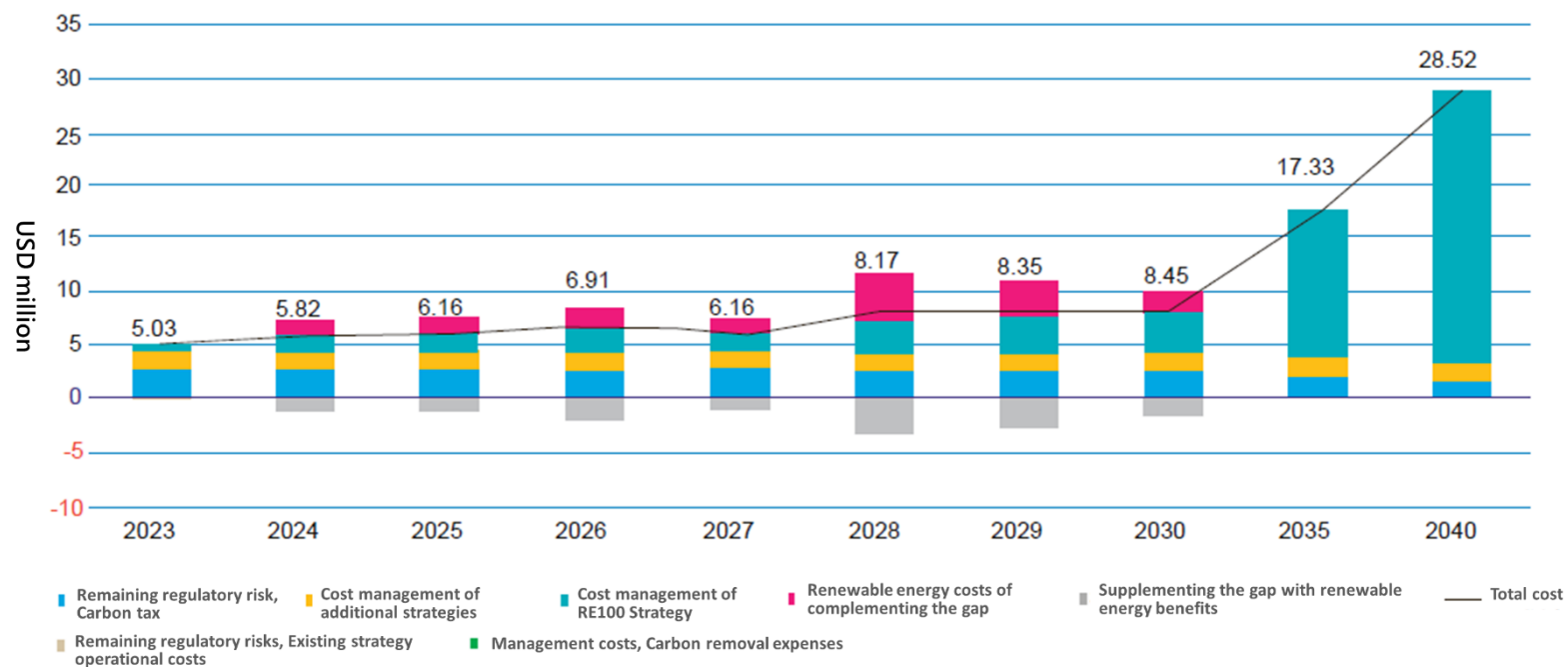


TWM's RE100 strategy on the financial impact of SSP1-1.9 note

Note: TWM's major RE100 strategy aligns its financial impacts with the SBT-NZ scenario and SSP1-1.9

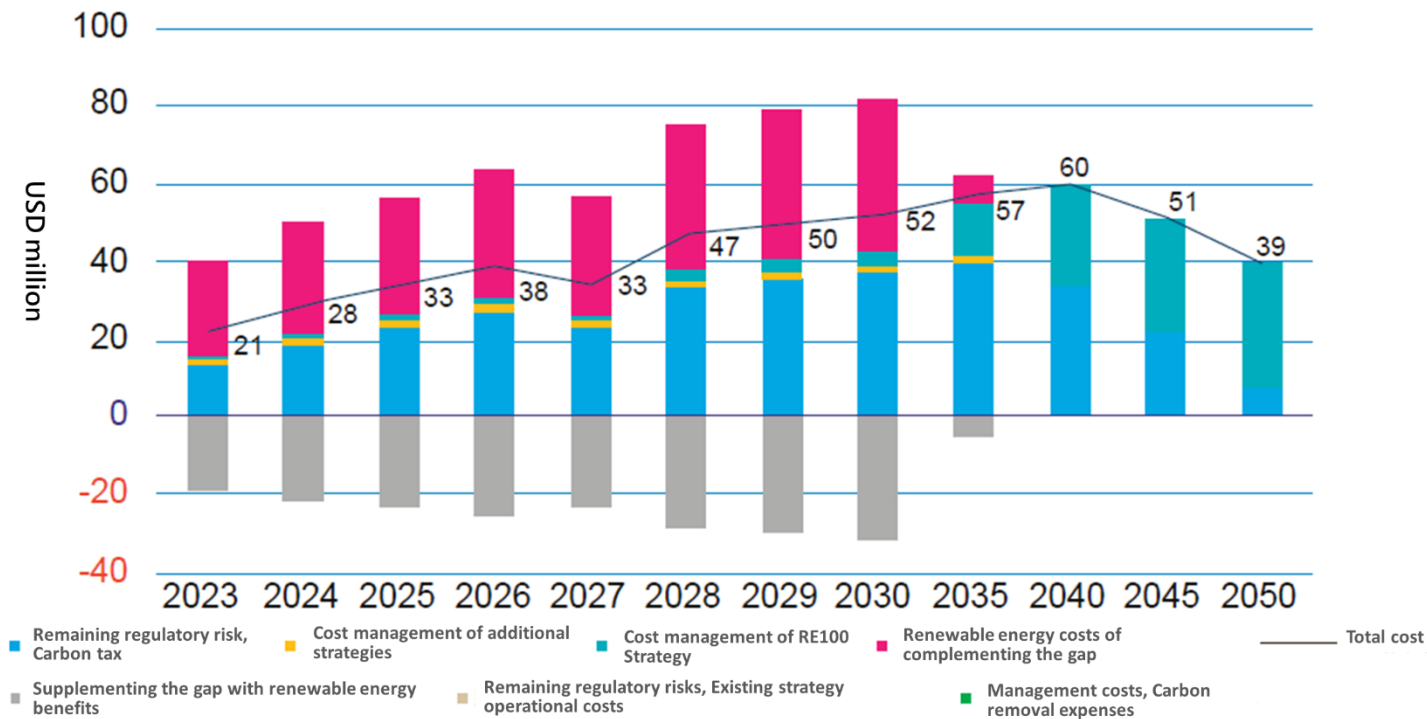
Analysis of management cost for climate changes to achieve RE100 strategy

To meet the carbon allowances under the government net zero target, additional renewable energy needs to be purchased to meet the net zero target due to the lack of renewable energy before 2030. We will spend USD 1.21-4.4 million per year to purchase additional renewable energy to make up for the gap, which will also generate corresponding benefits of avoiding the procurement from TPC. Since the government net zero target is met, there is no carbon penalty and only carbon fee needs to be paid; in addition, there will be no market risk.



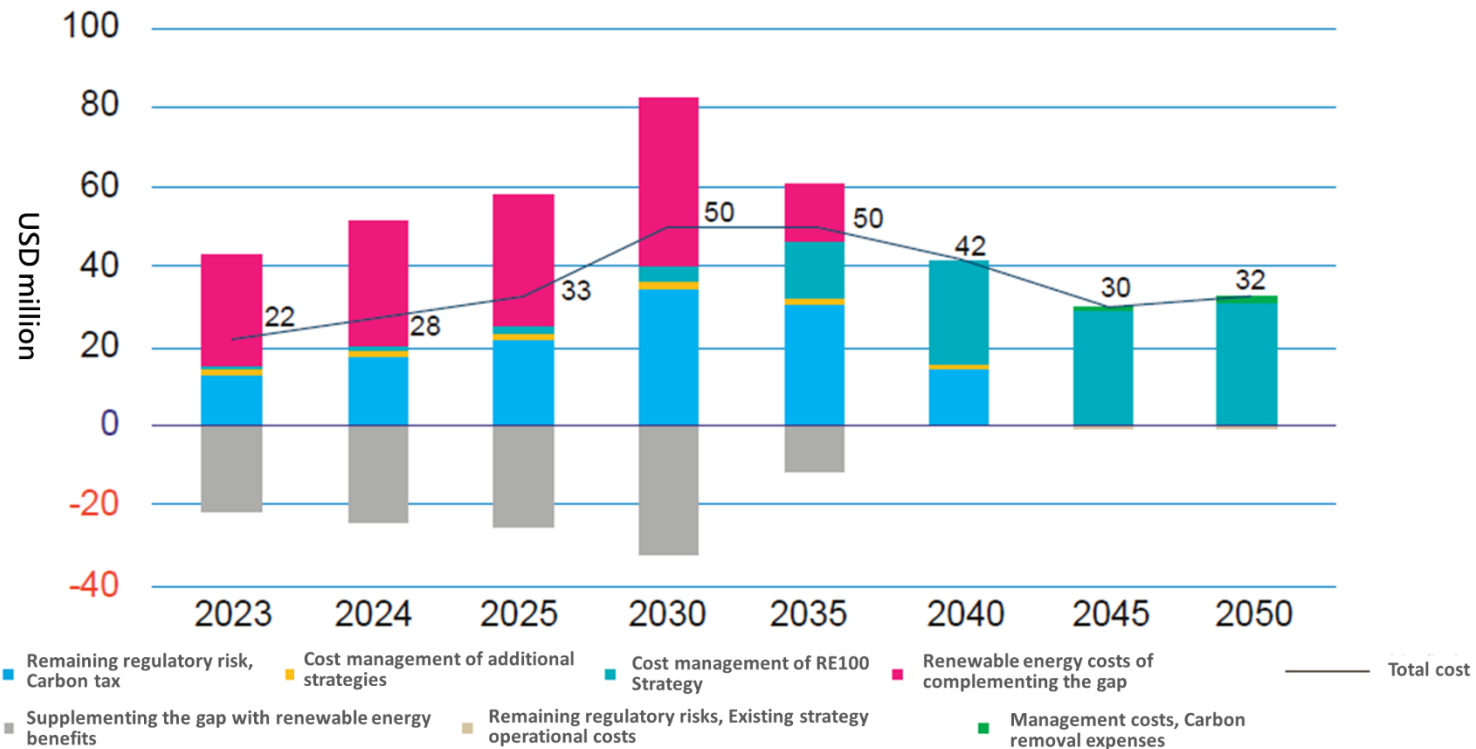
Analysis of management cost for meeting the government net zero targets

To achieve the SSP1-1.9 target, in addition to purchasing renewable energy to achieve the SSP1-1.9 allowance, the Company needs to purchase more renewable energy to achieve the target, so the additional cost for purchasing renewable energy is still the highest. Because carbon emissions occur, the main cost structure includes carbon taxes and procurement of renewable energy. After 2040, since the RE100 and SSP1-1.9 targets have already been achieved, there will be no need to purchase additional renewable energy to compulsively achieve the targets; and SSP1-1.9 does not require carbon removal.



Analysis of management cost for achieving SSP1-1.9

The most significant difference in the financial cost for achieving the SBT-NZ target is that the SBT-NZ will need to achieve the net zero target around 2040, so carbon removal will be required after 2045. At that time, there will be no regulatory costs such as carbon taxes around 2045, only the additional procurement cost of renewable energy and carbon removal costs will remain, and the final total cost is USD 32.3 million.



Analysis of management cost for achieving SBT-NZ

4 Targets and Performance

4.1 Emissions

GHG Inventory (Scope 1/ Scope2)

Since 2012 when TWM adopted the ISO14064-1 standard, GHG inventories have undergone third-party verification annually to ensure the quality of the data. The main source of emissions is electricity (98%); the remaining sources include company vehicles, generators, refrigerants, fire extinguishers, and septic tanks.

Item	2020	2021	2022	2023 ^{Note3}
Scope1(Direct GHG Emission)(Ton-CO ₂ e)	5,558.37	6,177.80	5,331.63	6,098.4759
Scope2(Indirect GHG Emission)(Ton-CO ₂ e)-Location-Based ^{Note4}	235,146.95	269,124.54	282,140.61	285,603.6986
Scope2(Indirect GHG Emission)(Ton-CO ₂ e)-Market-Based ^{Note4}	235,146.95	269,124.54	282,096.83	285,523.5086
Total Carbon Emission (Scope1+2)(Ton-CO ₂ e)-Location-Based ^{Note4}	240,705.32	275,302.34	287,472.24	291,702.1745
Total Carbon Emission (Scope1+2) (Ton-CO ₂ e)-Market-Based ^{Note4}	240,705.32	275,302.34	287,428.46	291,621.9845
Emission Intensity= Total Carbon Emission Location-Based/ Consolidated Operating Revenue (Ton-CO ₂ e/ NTD Million) ^{Note5}	3.55	3.92	3.99	3.94

Note 1 : The 2023 Greenhouse Gas Inventory (scope 1) data does not include Taiwan Star

Note 2 : The 2023 Greenhouse Gas Inventory (scope 2) data does not include Taiwan Star

Note 3 : Calculate the Scope 2 carbon emissions in 2023 based on the 2022 Electricity Carbon Emission Factor announced by the Bureau of Energy, Ministry of Economic Affairs.

Note 4 : Starting from 2018, when purchasing National Renewable Energy Certification (T-REC), according to the Scope 2 calculation guideline of the GHG Protocol Scope2 Guidance, Scope 2 needs to be divided into "Location-Based" and "Market- Based" when disclosed, but environmentally related carbon reduction performance is calculated using " Market-Based" data.

Note 5 : Consolidated operating revenue in 2023 excluding Momo's revenue.

Non-renewable energy source (kWh)

Item		Unit	2020	2021	2022	2023
Direct energy consumption	Gasoline	Liter	799,110.18	902,299.26	632,244.84	608,340.39
	Diesel oil	Liter	46,629.76	43,474.67	52,555.50	30,086.67
	Natural gas ^{note3}	Volume	-	-	52	175
Indirect energy consumption	Electricity	Degree	461,978,292.09	536,104,661.12	554,303,746.41	564,036,732.41
Total energy consumption ^{note1}		Million joules*	1,690,937,772.65	1,961,046,460.98	2,018,079,899.11	2,051,514,205.59
		MWh	469,705.55	544,735.82	560,567.98	569,865.52
Total energy consumption expenses ^{note2}		NT\$	1,544,403,991	1,796,339,900	2,016,727,531	2,050,370,503
Energy intensity	Energy consumption / consolidated revenue ^{note3}	Million joules / NT\$ million	24,967.34	27,915.65	28,019.16	27,683.92

Note 1: Reference source for total energy consumption: Greenhouse Gas Emission Coefficient Management Table 6.0.4.

Note 2: Source of total amount of energy consumption expenses: Oil Price Analysis and Management System from the Energy Bureau, Ministry of Economic Affairs and The Great Taipei Gas Corporation.

Note 3: 2020 consolidated revenue does not include revenue of momo.

Use of renewable energy

Item	Unit	2020	2021	2022	2022
Generating electricity for self-use	Million joules	1,382,130.00	1,313,298.00	1,749,600.00	1,317,600.00
Green electricity directly transmitted to TWM	Million oules	738,025.20	26,112,920.40	92,033,736.84	129,609,478.80

Water Resources

Water saving measures for the office: Information regarding water consumption in the office is sent to management to promote water saving

Water saving measures for directly-operated stores: monthly report inquiry and review, notifying of any abnormality

Server room base station (including TNF Media/cloud/information computer room):

1. Reduce the amount of water spilling from the cooling tower
2. Maximize water chiller efficiency
3. Recycled PET bottles placed in toilets to reduce the amount of water for flushing

Water Resources (kWh/m3)	Covering bases	2021	2022	2023
Tap water	Office	67,850	65,793	73,974
	Directly operated stores	44,349	45,969	44,671
	Server room base station (including Taiwan Media/ IDC/ IT server rooms)	166,628	183,028	184,234
Rainwater	IDC	49	31	28
Total water withdrawal		278,876	294,821	302,907
Total water displacement		26,966	42,911	50,997
Total water consumption		251,910	251,910	251,910
Waste water recycled from drinking fountains		336	579	887

Waste

To enhance and implement waste reduction measures, resources are being directed towards a more circular approach, with the goal of achieving zero waste. In 2023, a total of 919 tons of non-recyclable waste, including industrial waste and household garbage, were generated, representing a 23.7% decrease compared to the base year of 2017. Long-term reduction target: By 2035, the total amount of non-recyclable waste should be reduced by 40% compared to the baseline year of 2017.

Water Resources (kWh/m3)	Covering bases	2021	2022	2023
Tap water	Office	67,850	65,793	73,974
	Directly operated stores	44,349	45,969	44,671
	Server room base station (including Taiwan Media/ IDC/ IT server rooms)	166,628	183,028	184,234
Rainwater	IDC	49	31	28
Total water withdrawal		278,876	294,821	302,907
Total water displacement		26,966	42,911	50,997
Total water consumption		251,910	251,910	251,910
Waste water recycled from drinking fountains		336	579	887

Note 1: The general recycling rates of optical cables, copper cables, lead-acid batteries and telecommunications equipment are 45.1%, 81.1%, 45% and 95.76%

Note 2: All waste has been processed by qualified disposal organizations.

Note 3: According to data released by the Environmental Protection Agency's Environmental Data Open Platform on waste disposal in 2022, the proportions are as follows: incineration accounts for 93.38%, sanitary landfill accounts for 3.32%, and other methods account for 3.30%.

Office waste management

	2020		2021		2022		2023	
	Administration Department	(HBG Human Resources and Administration)	Administration Department	(HBG Human Resources and Administration)	Administration Department	(HBG Human Resources and Administration)	Administration Department	(HBG Human Resources and Administration)
Waste (tons)	130.1	70.458	87.4	53.640	82.1	47.665	100.1	51.515
Resource recovery (tons)	40.7	7.732	34.9	5.917	31.1	5.212	25.6	5.602
Number of sheets of paper	5,515,000	1,796,886	3,399,000	1,735,915	3,306,500	1,655,910	3,141,500	1,484,044

Potential Loss Rate of Biodiversity

The potential loss rate of biodiversity (PLR) refers to the probability of pollutants being released into the natural environment and causing the extinction of specific ecosystems. It signifies the impact that businesses have on a region, leading to changes in the diversity of local species compared to the original state. From the perspective of the rate of biodiversity loss, TWM's high electricity consumption has the most significant potential impact on biodiversity, excluding greenhouse gas emissions from electricity. Excluding the analysis of electricity, greenhouse gas emissions are the primary factor driving biodiversity loss in Taiwan Mobile. Therefore, in terms of mitigating biodiversity loss, the most significant environmental concerns are electricity consumption and greenhouse gas emissions, with waste management being a close second.

Natural Impact Category	Subtype	Result (PDF)	Proportion	Exclusion of Electricity Proportion
Greenhouse Gas	Regional classification	5.99X10 ⁻⁶	-	-
	Market category	5.99X10 ⁻⁶	3.567%	90.12%
Resource usage	Fuel usage	8.96X10 ⁻⁹	0.005%	0.13%
	Direct energy consumption	1.61X10 ⁻⁴	96.042%	
	Water resource usage	3.33X10 ⁻⁸	0.020%	0.50%
Waste	Recycled	2.88X10 ⁻⁷	0.172%	4.33%
	Incineration	2.97X10 ⁻⁷	0.177%	4.46%
	Landfilling	2.94X10 ⁻⁸	0.018%	0.44%
	Others	2.34X10 ⁻¹¹	0.000%	0.00%
Total Impact (Greenhouse Gas by Market Category)		1.68X10 ⁻⁴	100.000%	
Total Impact (Excluding Power Calculation)		6.65X10 ⁻⁶		100.00%

4.2 Short, Medium, and Long-Term Targets

To address the alarming decline in global biodiversity and ecosystem degradation, and to safeguard the health of the natural environment and the stability of ecosystems, the Global Biodiversity Framework (GBF) was introduced at the 15th Conference of the Parties to the United Nations Convention on Biological Diversity (CBD COP15) in 2021. The GBF outlines four Goals (2050 Vision) and 27 Targets (2030 Goals). As a leader in sustainable business, TWM takes pride in its role as a long-term steward in the sustainable management of nature and biodiversity. Therefore, we have formulated core strategies and future plans to conserve nature and biodiversity in alignment with the global framework of the 2050 Vision for Biodiversity. At the same time, TWM is actively promoting the “2035 Heart Great Vision Plan 2.0 (Zetta Connected 2.0),” with the goal of becoming the central hub for connectivity by 2035. This plan goes beyond connecting people, objects, and time and space; it also emphasizes the importance of connecting hearts and addressing the United Nations Sustainable Development Goals (SDGs) to create lasting value. Covering two major dimensions of “responsible business” as the starting point, leading suppliers to “creating stakeholder synergy,” achieving three future achievements of “elevating future experience,” “realizing social potential,” and “nature coexistence,” setting mid-term goals for 2030 and long-term goals for 2035, closely aligning with the creation of outstanding brand value, and rolling forward towards an unimaginable future with eight major stakeholders.

Vision for the Global Biodiversity Framework 2050	Main Strategy for Taiwan	Planning for the Future
A: Effectively reducing the rate of species extinction and preserving genetic diversity. D: Funding and Technical Support for Biodiversity Conservation	Collaborating with Professor Chu Yu-Tien and his team from the Department of Animal Science and Technology at National Taiwan University, we conducted a study on the phylogeography, habitat preference, and life history of five species of Taiwanese pepper fish.	To deepen the research results, TWM helped strengthen the experimental equipment for captive breeding in the habitat and conducted early life history research on two species of Taiwan hynobius, hoping to increase the hatching rate of hynobius in the captive tanks of Hsüeh-Pa National Park to 95% and the survival rate to 30% by 2025; maintain the hatching rate of Taiwan hynobius in the captive tanks of Yushan National Park at 100% and increase the survival rate to 60%.

Vision for the Global Biodiversity Framework 2050	Main Strategy for Taiwan	Planning for the Future
C: Fair Benefit Sharing of Genetic Resources	Collaborating with the “BlueTrend” to develop the “AI Ocean Data Ocean” marine biological database, inviting the public to become marine citizen scientists, assisting in photographing and recording marine species, and utilizing AI technology for identification.	The objective for 2024 is to collect 10,000 pieces of marine biodiversity data.

TWM Green For Good Targets

SDGs	Dimension of strategies	Strategic goal for 2023	2023 Performance	Achievement Status	2025 Goals	2030 Goals	2035 Goals	Corresponding material topic
SDG 7	Renewable energy	Renewable energy accounts for at least 5% of total electricity use	5.96%	Target achieved	10%	20%	60%	Mitigation and Adaptation of Climate Change: Green Applications and Operations
SDG 7	Renewable energy	Increase cloud IDC' renewable energy consumption to 30%.	97.5%	Target achieved	50%	100%	100%	

SDGs	Dimension of strategies	Strategic goal for 2023	2023 Performance	Achievement Status	2025 Goals	2030 Goals	2035 Goals	Corresponding material topic
SDG 7	Energy efficiency	Reduction of energy intensity by 69% compared with 2016	To mitigate the growth of total electricity consumption, it is recommended to reduce it by 67.5% and continue implementing various energy-saving measures.	Did not meet the standard	82.3%	86%	90%	
SDG 7	Energy efficiency	Decrease electricity consumption of information equipment rooms by 22% compared with 2016	29.7% reduction	Target achieved	23%	25%	30%	
SDG 7	Energy efficiency	Improve cloud IDC's average annual power usage effectiveness (PUE) to 1.65 or below	1.63	Target achieved	1.64	1.5	1.5	

SDGs	Dimension of strategies	Strategic goal for 2023	2023 Performance	Achievement Status	2025 Goals	2030 Goals	2035 Goals	Corresponding material topic
SDG12	Sustainable usage of natural resources	Decrease total tap water consumption by 6% compared with 2017	7.5% reduction	Target achieved	23%	25%	30%	Climate change mitigation and adaptation, green operations, green applications, and the circular economy
SDG12	Sustainable usage of natural resources	Annual reduction of total paper consumption for customer service and stores reaches 2.1 million sheets	2.24 million sheets	Target achieved	2.21 million sheets	2.31 million sheets	2.36 million sheets	
SDG12	Sustainable recycling	Reduction of total non-recyclable waste by 19% compared to 2017	23.7% reduction	Target achieved	25%	40%	45%	
SDG12	Sustainable recycling	Recycle at least 59,000 discarded/used phones from 2020 to 2030	133,962 units	Target achieved	10.2	22.2	35.4	Green applications and operational circular economy
SDG13	Low carbon footprint	The target for carbon emissions in 2023 is a 3% reduction	Increase by 1.46 percent. We will continue to increase	Did not meet the standard	15.75%	42%	66%	Climate change mitigation and adaptation, green

SDGs	Dimension of strategies	Strategic goal for 2023	2023 Performance	Achievement Status	2025 Goals	2030 Goals	2035 Goals	Corresponding material topic
		compared to the projected carbon emissions for that year.	the utilization of renewable energy, enhance energy efficiency, and implement intelligent energy-saving strategies.					operations, green applications, and the circular economy
SDG13	Low carbon footprint	The carbon emissions from outsourced logistics and warehousing have decreased by 24% compared to 2016.	A reduction of more than 24%	Target achieved	28%	50%	70%	
SDG13	Resilience and adaptation	Promote at least one material climate issue or policy proposal and action every year	In 2023, we became the first telecommunications company in Asia to achieve the '1.5°C temperature control' scenario and successfully pass the SBTi2050 net-zero carbon emissions target.	Target achieved	At least once a year	At least once a year	At least once a year	Climate change mitigation and adaptation

SDGs	Dimension of strategies	Strategic goal for 2023	2023 Performance	Achievement Status	2025 Goals	2030 Goals	2035 Goals	Corresponding material topic
SDG13	Resilience and adaptation	Add 40 loops of base station loop double backup	New Circle 119	Target achieved	Addition of 40 loops	100% of key infrastructure have cross-district backup equipment	Enhancing Resilience of Dual Main Stations by 50%	
SDG13	Resilience and adaptation	100% of TWM service rooms are resilient infrastructure	100%	Target achieved	100%	100%	100%	

5 “Vision for 2050”

TWM recognizes the significance of biodiversity and firmly believes that the technology and communication industries have a responsibility to actively contribute to mitigating the continuous loss of biodiversity. This includes promoting environmental protection, ecological restoration, and maintaining the Earth’s ecological balance. Therefore, in response to the goals proposed by the GBF, our vision includes aiming to achieve Net Positive Impact and No Gross Deforestation by 2050.

TWM continues to invest more in biodiversity conservation projects, such as collaborating with Professor Chu-Yu-Tien’s team from the Department of Animal Science and Technology at National Taiwan University to conduct interdisciplinary phylogeography, habitat preference and life history research on five species of Taiwan hynobius. To deepen the research results, TWM helped strengthen the experimental equipment for captive breeding in the habitat and conducted early life history research on two species of Taiwan hynobius, hoping to increase the hatching rate of hynobius in the captive tanks of Hsüeh-Pa National Park to 95% and the survival rate to 30% by 2025; maintain the hatching rate of Taiwan hynobius in the captive tanks of Yushan National Park at 100% and increase the survival rate to 60%. In addition, the Blue Pulse team is collaborating on the development of the AI Ocean Data Ocean marine biological database, which aims to enhance oceanic cultural literacy and supplement scientific research capabilities. The goal for 2024 is to add 10,000 new entries of marine biological data.

Appendix

TNFD's recommended disclosures

Category	Disclosure	Chapter
Governance	(A) Describe the board's oversight of nature-related dependencies, impacts, risks and opportunities.	1.1
	(B) Describe management's role in assessing and managing nature-related dependencies, impacts, risks and opportunities.	1.2
	(C) 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.	1.4
Strategies	(A) Describe the nature-related dependencies, impacts, risks and opportunities the organization has identified over the short, medium and long term.	2.3 2.4
	(B) Describe the effect nature-related dependencies, impacts, risks and opportunities have had on the organizations' business model, value chain, strategy and financial planning, as well as any transition plans or analysis in place.	3.1
	(C) Describe the resilience of the organization's strategy to nature-related risks and opportunities, taking into consideration different scenarios.	3.5
	(D) Disclose the locations of assets and/or activities in the organizations' direct operations and, where possible, upstream and downstream value chain(s) that meet the criteria for priority locations.	2.2

Category	Disclosure	Chapter
Risk & impact management	(A) A(i) Describe the organizations' processes for identifying, assessing and prioritizing nature-related dependencies, impacts, risks and opportunities in its direct operations. A(ii) Describe the organizations' processes for identifying, assessing and prioritizing nature-related dependencies, impacts, risks and opportunities in its upstream and downstream value chain(s)	2.3 2.4 3.4
	(B) Describe the organizations' processes for managing nature-related dependencies, impacts, risks and opportunities.	3.2
	(C) Describe how processes for identifying, assessing, prioritizing and monitoring nature-related risks are integrated into and inform the organizations' overall risk management processes.	1.1
Metrics & Targets	(A) 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.	3.1
	(B) Disclose the metrics used by the organization to assess and manage dependencies and impacts on nature.	3.1
	(C) Describe the targets and goals used by the organization to manage nature-related dependencies, impacts, risks and opportunities and its performance against these.	4.2

Reference Materials

1. Nature-related Financial Disclosure Recommendations: <https://tnfd.global/>
2. Natural Capital Opportunities, Risks, and Exposure: <https://encorenature.org/en>
3. Global Protected Area Database: <https://www.protectedplanet.net/en/thematic-areas/wdpa?tab=WDPA>
4. Government Open Data Platform: <https://data.gov.tw/dataset/7450>
5. Agricultural Open Data Platform: https://data.coa.gov.tw/open_detail.aspx?id=156
6. Agricultural Green Energy Development Information Network: <https://age.triwra.org.tw/Page/MapLayerDataList>



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