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PORT OF SUAO

ENVIRONMENTAL REPORT

TAIWAN INTERNATIONAL PORTS CORPORATION, LTD.

TIPC

CONTENTS

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Taiwan International Ports Corporation Environmental Policy

Taiwan International Ports Corporation Environmental Policy

"Leverage innovation effectively to connect and communicate with global trade flows. Mature into a world-class port management group" is the vision of Taiwan International Ports Corporation(TIPC). TIPC manages and operates commercial ports in Taiwan and is engaged in maritime transport related services, free trade zones, and the development of relevant tourism and recreational projects.

While TIPC pursues business growth, we are well-aware of the importance of our social responsibility, which is to ensure both environmental and economic sustainability. With the goal to establish green and sustainable ports, we will proactively identify environmental risks that may be associated with our activities and manage the risks accordingly to minimize the environmental impacts.

We commit to:

1. Implement and follow through with the Green Port Policy to establish extraordinary world-class ports.
2. Comply with applicable environmental regulations to fulfill corporate environmental responsibility.
3. Execute pollution prevention, monitoring, and control mechanism to enhance environmental quality in and around port areas.
4. Reinforce environmental education to cultivate environmental awareness among employees.
5. Strengthen the communication with local communities,and pursue sustainable development for both the ports and the cities where we are operating.

Hsien-Yi Lee

Hsien-Yi Lee
Chairman of TIPC
Date: 2020 / 03 / 26

Shen Shao Liang

Shao-Liang Chen
President of TIPC
Date: 2020 / 03 / 26

Port of Keelung, TIPC
Environmental Policy

Environmental Policies
Port of Keelung
(Including Keelung Port, Taipei Port, Suao Port)

In charge of port operation and developments, Port of Keelung, Taiwan International Ports Corporation (hereinafter referred to as Port of Keelung) recognizes its obligations towards protecting the environment as its corporate social responsibility. Aiming at being an eco-friendly and sustainable port with continuous advancement, we consider environmental protection as a part of port operation and work proactively to prevent the pollution of the environmental impacts.

In order to minimize the potential and actual environmental impacts from port operations, Port of Keelung has identified the scope of its environment protection. With autonomous management, periodic inspection and evaluation, we will keep continuously improving our environment performance.

We commit to:

- **Regularly evaluate port environmental impacts and any pollution generated from port operation.**
- **Set environmental objectives to continuously lower environment impacts.**
- **Comply with all relevant environmental regulations and aim at pollution prevention.**
- **Promote environmental education to raise employee awareness and implement environmental policies.**
- **Actively communicate and collaborate with external parties to establish partnerships for achieving sustainable development of the port.**

The full understanding and mutual consent to this environmental policy have been reached by the relevant parties, including employees, suppliers and tenants of Port of Keelung.

President of Port of Keelung, TIPC Kao, Chwan-Lai

Date 2023 / 08 / 10

Port of Keelung, Taiwan International Ports Corporation, LTD. No. 1, Chung-Cheng Road, Keelung 20202, Taiwan, R.O.C.

Port of Suao
Environmental Objectives

Environmental Objectives
Port of Suao

To implement the commitments of Suao Port environmental policy, the following environmental objectives are set based on the ten major environmental issues from the port.

Port air quality maintenance
Implement air quality management in designated areas and regularly monitor air quality.

Suppress fugitive dust
Install dust suppression equipment and effectively control dust from incoming and outgoing vehicles.

Climate change response
Conduct greenhouse gas inventory, utilize various energy sources efficiently, and reduce waste.

Reduce ship air pollution
Continuously perform road washing and cleaning operations, strengthen air pollution prevention and control measures in the work area, and effectively control fugitive dust.

Port noise reduction
Promote noise reduction measures for ships and vehicles and continuously monitor noise levels within the port area.

Port waste management
Enforce waste sorting for all types of ships and implement a "no littering" policy.

Port hazardous materials management
Install oil booms during hazardous material loading and unloading and conduct daily environmental inspections.

Port water quality maintenance
Properly manage ship waste oil, conduct regular water quality monitoring, and confirm the status of surrounding coral reefs.

Strengthen community relations
Incorporate local culture, increase interaction with the community, and implement information disclosure measures.

Port land development
Cooperate with national policy plans, create new tourism landmarks, and enhance local employment opportunities.

The President, Port of Keelung, TIPC is responsible for the implementation, maintenance and communication of the environmental objectives. To fulfill commitments, the objectives and corresponding action plans are reviewed and adjusted to the condition of the Port.

President of Port of Keelung, TIPC Kao, Chwan-Lai

Date 2023 / 08 / 10

Suao Port Branch Office of Port of Keelung, Taiwan International Ports Corporation, Ltd No1, Gangcyu, Su-ao Township, Yilan County 27001l, Taiwan, R.O.C.

01

Message from Port of Suao, TIPC

In the context of global sustainability imperatives, we recognize that embracing "low-carbon" principles and espousing a "sustainable vision" have become the foundational tenets of our corporate ethos. Taiwan Ports Corporation is diligently formulating a comprehensive sustainable development strategy, with the intent to anchor our operations in sustainability, notwithstanding our finite corporate resources and human capital. We are steadfast in our commitment to addressing diverse environmental concerns, including the promotion of green ports, corporate environmental stewardship, and the pursuit of sustainable business practices, all geared towards engendering sustainable opportunities.

Our overarching objective is to elevate the environmental quality of our port facilities and catalyze the sustainable development of both the ports and the concomitant urban environs, with an aim to position ourselves as a preeminent exemplar among international sustainable port enterprises.

The development roadmap for Suao Port is unequivocally directed towards facilitating the efficient movement of general cargo imports and exports, as well as bolstering passenger tourism in the Lanyang region. In close alignment with the Yilan County government's agenda, particularly the Su-Nan Station initiative, we are orchestrating the consolidation of resources from the southern reaches and the port precinct. This entails the establishment of a versatile and integrated transportation hub, judiciously harnessing port lands for investment attraction, and fostering the development of a cutting-edge tourism terminal area. This endeavor serves as an invaluable opportunity for the metamorphosis of our commercial port into a thriving nexus of tourism and a waterfront economic hub.

In addition to advancing cargo and passenger tourism, we are steadfastly committed to ameliorating the environmental impact stemming from port operations. As an integral component of our green sustainable development strategy, we accord paramount importance to environmental resource management. This encompasses the creation of ecological reservoirs, aimed at optimizing water resource allocation, and active engagement with the burgeoning green energy sector. Our ultimate aspiration, facilitated through the ecological port certification process, is to galvanize international collaboration in the creation of an eco-friendly milieu.

Kao Chwan Kai

President *of Keelung Branch*
Taiwan International Ports Corporations, Ltd.

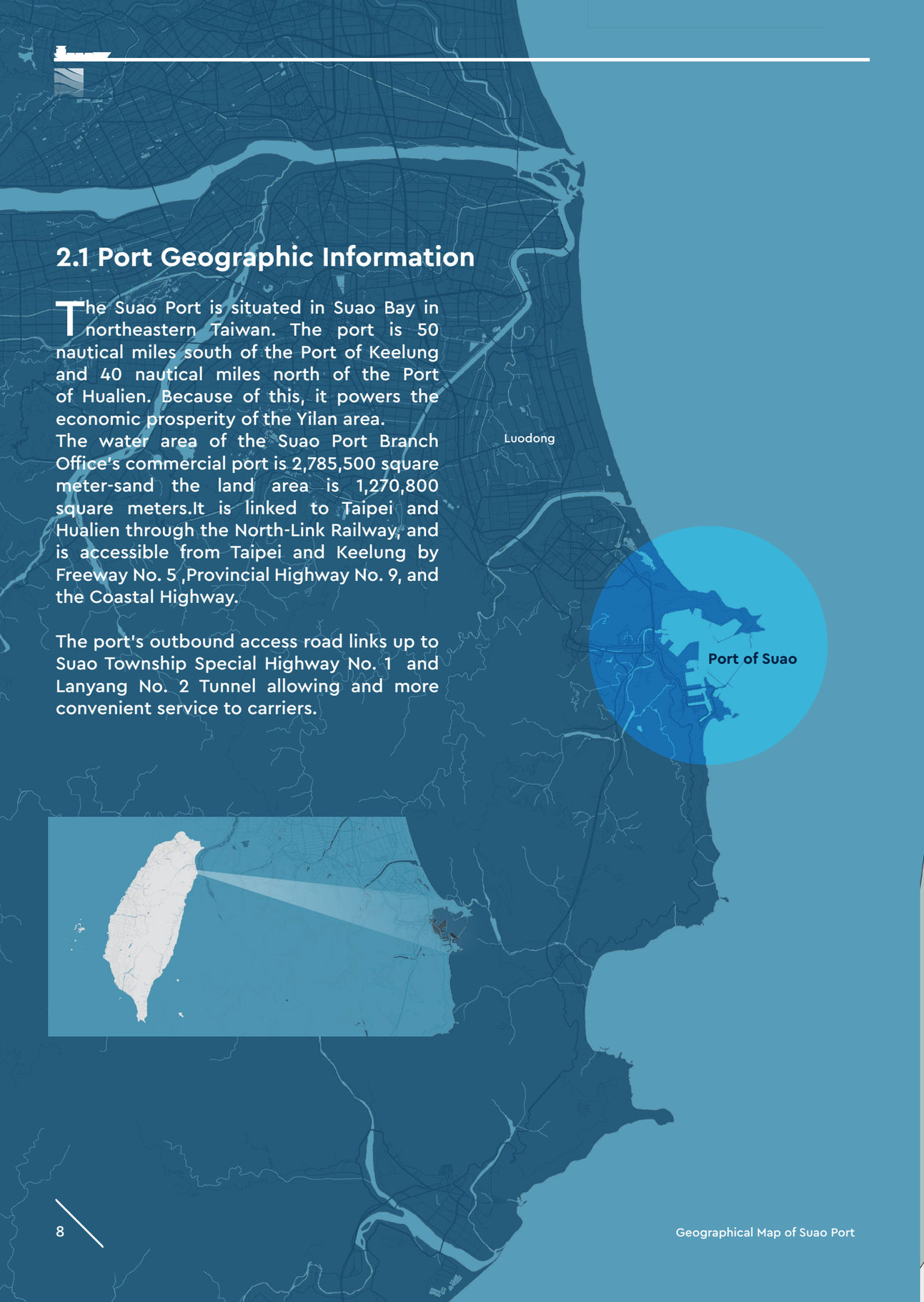
02

Port Profile

2.1 Port Geographic Information

The Suao Port is situated in Suao Bay in northeastern Taiwan. The port is 50 nautical miles south of the Port of Keelung and 40 nautical miles north of the Port of Hualien. Because of this, it powers the economic prosperity of the Yilan area.
The water area of the Suao Port Branch Office's commercial port is 2,785,500 square meter-sand the land area is 1,270,800 square meters.It is linked to Taipei and Hualien through the North-Link Railway, and is accessible from Taipei and Keelung by Freeway No. 5 ,Provincial Highway No. 9, and the Coastal Highway.

The port's outbound access road links up to Suao Township Special Highway No. 1 and Lanyang No. 2 Tunnel allowing and more convenient service to carriers.



Geographical Map of Suao Port

2.2 Legal Status and Port Operators

In order to promote the modernization of port management in Taiwan, the "National Ports Corporation Act" was promulgated on November 9, 2011. Following the amendment of the Port Law on December 28, 2011, the port administration system adopted the "separation of government and enterprise" approach starting from March 2012. This transition transformed the former public agencies, including Keelung port authority, Taichung port authority, Kaohsiung port authority, and Hualien port authority, into a single operating entity, Taiwan International Ports Corporation Ltd. This restructuring aimed to address the previous constraints imposed by laws and systems that hindered the adaptability of port operations to market demands, resulting in a decline in competitiveness.

Under the reformed structure, the operations of Suao Port, previously managed by Keelung Harbor Bureau, are now overseen by the Suao Port Operations Division of Keelung Harbor Bureau's subsidiary, Taiwan International Ports Corporation Ltd. Matters related to navigation and port administration within the port area, involving public authority, are handled by the North Region Maritime Affairs Center, Suao Harbor Section, of the Maritime and Port Bureau under the Ministry of Transportation and Communications.

Master plan of Suao port

2.3 Main Commercial Activities

Suao Port's commercial port area consists of a total of 13 piers, including 1 for port operations and 12 for specific purposes such as general cargo, coal, petroleum, cement, and chemicals. The main transportation focus of the port is bulk cargo. Within the port, various commercial activities take place, including cargo distribution, shipbuilding and maintenance, solar power/ energy storage generation, and general manufacturing.

Main Commercial Activities

Commercial Activities	
Aggregates (sand, gravel)	Repair
Marinas / Leisure	General manufacturing
Cargo Handling	
Dry bulk	Liquid bulk (non-oil)
Petroleum / Oil products	General cargo

2.4 Main Cargoes

The main import cargo at Suao Port for 2021 and 2022 was mineral products, coal, ortho-xylene, slag, and steel billets. The primary outbound cargoes were mainly cement pipes, followed by steel bars, pure ortho-xylene acid, and potassium sulfate. The operations primarily involved shipside delivery (or loading) of goods.

2021–2022 Main Import Cargoes of Port of Suao

Type	2021	2022	Comparison between 2021 and 2022	
			Actual Number	%
Coal	1,066,563	882,139	-184,424	-17.29
Para-Xylene	430,630	286,035	-144,595	-33.58
Slag	239,818	252,725	12,907	5.38
Steel Ingots	233,343	224,346	-8,997	-3.86

Unit:MT

2021–2022 Main Export Cargoes of Port of Suao

Type	2021	2022	Comparison between 2021 and 2022	
			Actual Number	%
Cement (via pipeline)	890,790	912,500	21,710	2.44%
Steel Reinforcing Bars	122,596	16,815	-105,781	-86.28%
Pure P-Xylene Acid	50,779	86,999	36,220	71.33%
Potassium Sulfate	37,795	63,162	25,367	67.12%

Unit:MT

Business statistics 2021–2022

Business item		2021	2022	Comparison of changes in 2021 & 2022	
				Difference	%
Incoming and outgoing ships	Total number of ships (vessel)	848	731	-117	-13.80
	Total tonnage (ton)	10,244,031	9,251,335	-992,696	-9.69
Cargo throughput	Imported cargo (metric ton)	2,260,222	2,034,208	-226,014	-10.00
	Exported cargo (metric ton)	282,809	218,438	-64,371	-22.76
	Domestic cargo (metric ton)	1,665,916	1,491,896	-174,020	-10.45
	Total (metric ton)	4,208,947	3,744,542	-464,405	-11.03
Number of travelers	Total number of travelers (number of people)	0	0	0	0

03

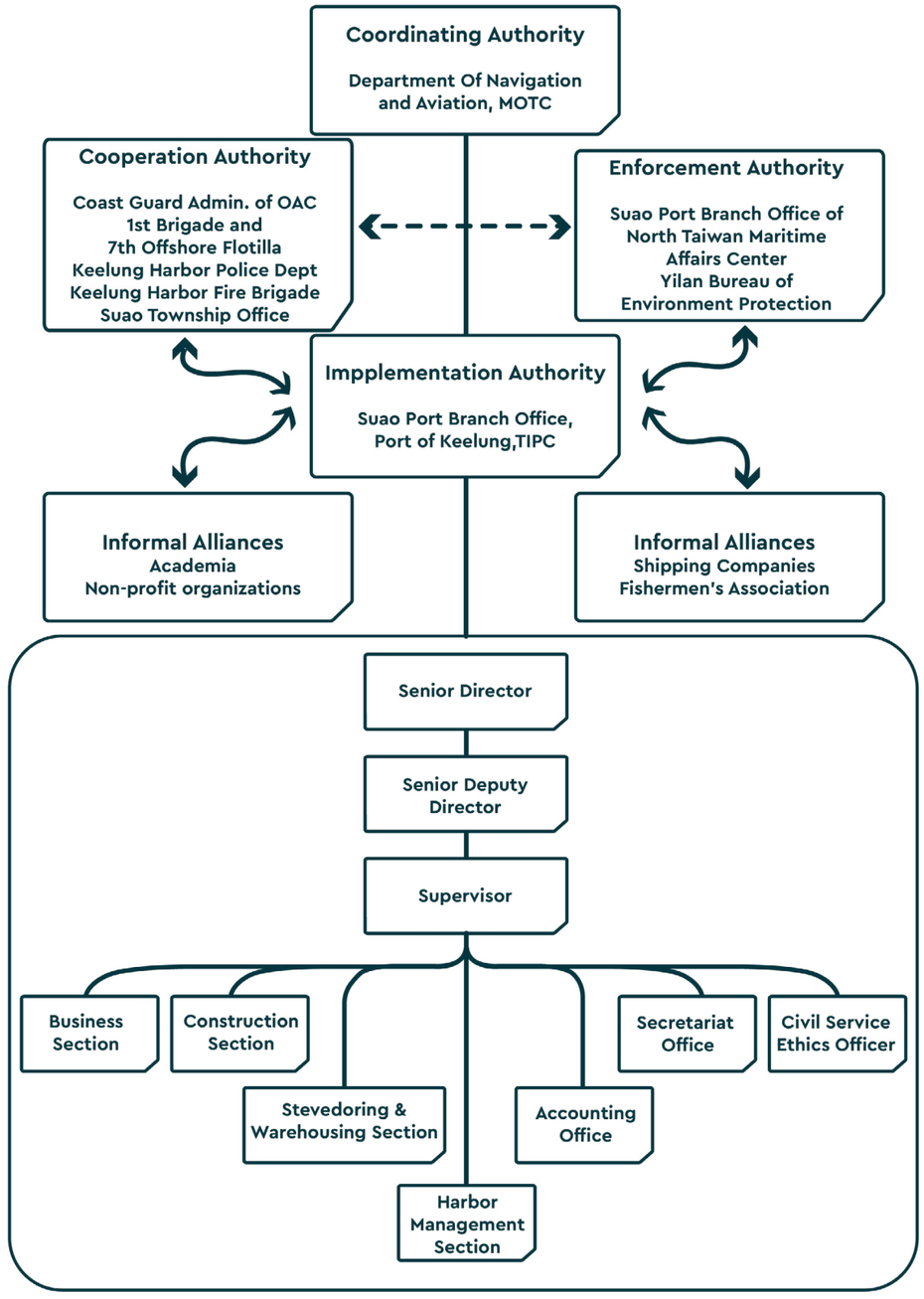
Environmental Management

3.1 Organization Structure

The Suao Port Branch Office is in charge of managing the environment of the Port of Suao. However, environmental aspects involve the division of responsibilities among differ-ent agencies. In addition to the Suao Port Branch Office, the Suao Port Branch Office of the Northern Maritime Affairs Center of Maritime and Port Bureau of MOTC, Environmental Protection Department of Yilan county Government, Environmental Protection Administration of Executive Yuan, Ocean Conservation Administration, Keelung Harbor Police Department Suao Unit of National Police Agency, Ministry of The Interior, Suao Harbor Subsection of Keelung Harbor Fire Brigade of National Fire Agency, Ministry of The Interior , Offshore Flotilla 7,Maritime Patrol Directorate General Of Coast Guard Administration, Executive Yuan.

The Suao Port Branch Office has 7 internal divisions, Duties of the sections/offices of Suao Port Branch Office are listed in the table below.

Department	Functions of the divisions at Taichung Port
Business Section	Customer service operation and management, investment attraction, and port service and profit development
Construction Section	Port construction planning, design, commission, procurement, and supervision, and commercial port service maintenance
Harbor Management Section	Berth allocation, in-port ship traffic management, environmental protection, contamination prevention, labor safety and health ,port operation and management, and disaster prevention and rescue
Stevedoring and Warehousing Section	Stevedoring and weighing, passenger liner service, labor safety and health, and port service maintenance and management
Accounting Office	Budget, income, and expenditure administration, income and expenditure auditing, and annual and monthly report examinations
Secretariat Office	Branch office human resources and property management, public relations, cashiers, personnel affairs, and employee benefits
Civil Service Ethics Office	Service ethics formulation and promotion, corruption prevention and investigation, service ethics examination and reward, confidential information protection, and security system maintenance



Authorization of environmental management units

3.2 Relevant International Regulations

Competent Authority		Laws Title		Central Competent Authority	Local Law Enforcement Agencies
Sectors in the Ministry of transportation and communications		The Commercial Port Law	2021/04/28	Ministry of Transporation and Communications	Suao Port Division of North Maritime Affairs Center, Maritime and Port Bureau, MOTC
		Shipping Act	2014/01/22		
		The Law Of Ships	2018/11/28		
		Act for the Establishment and Management of Free trade zones	2019/01/16		
Sectors related to agricultural		Wildlife Conservation Act	2013/01/23	Council of Agriculture	Yilan county Agriculatture Departmant
Sectors in the Ministry of the Interior		Fire Services Act	2022/05/11	Ministry of the Interior National Police Agency	Yilan county Fire Bureau
Sectors related to environmental protection		Marine Pollution Control Act	2014/06/04	Ocean Affairs Council	Ocean Conservation Administration
		Air Pollution Control Act	2018/08/01	Environmental Protection Administration	Environmental Protection Bureau, Yilan county Government
		Water Pollution Control Act	2018/06/13		
		Waste Disposal Act	2017/06/14		
		Environmental Impact Assessment Act	2003/01/08		
		Environmental Education Act	2017/11/29		
		Noise Control Act	2021/01/20		
		Indoor Air Quality Management Act	2011/11/23		
		Toxic and Concerned Chemical Substances Control Act	2019/01/16		
		Soil and Groundwater Pollution Remediation Act	2010/02/03		
		Climate Change Response Act	2023/02/15		
		Environmental Agents Control Act	2016/12/07		
		Public Nuisance Dispute Mediation Act	2009/06/17		Public nuisance in Yilan County Government Dispute Mediation Committee
Intersectoral		Disaster Prevention and Protection Act	2022/06/15	Ministry of Interior	Yilan county Government

3.2 Stakeholders

As an important enterprise in Suao Towhship, the Suao Branch Office of TIPC uses a variety of methods to communicate with stakeholders. Their needs and expectations are gathered and incorporated into the company's policy.

The Port of Suao believes that good communications with the stakeholders help identify key environmental issues and create value. Therefore, it collected surveys to help formulate the Port's Environmental Objectives.

Sector	Environmental Concerns	Relevant Environmental Objectives
Government	Port surroundings, Dust emissions, Noise, vehicle pollution, Collaboration with local government	Issue 1: Air Quality Issue 2: Dust Issue 3: Climate Change Response Issue 4: Vessel Emissions Issue 7: Hazardous Materials Management Issue 8: Port Water Quality
Employee	Living quality for local community, Resource management	Issue 1: Air Quality Issue 2: Dust Issue 3: Climate Change Response Issue 4: Ship Emissions Issue 5: Port Noise Issue 6: Port Waste Management
Clients	Air quality, Cargo handling, Dust emissions, Pollutions from vehicles and vessels	Issue 1: Air Quality Issue 2: Dust Issue 6: Port Waste Management Issue 7: Hazardous Materials Management Issue 8: Port Water Quality Issue 9: Relationship with the Local Community Issue 10: Port Development
Community	Air quality, vehicle pollution, Port surroundings	Issue 1: Air Quality Issue 4: Ship Emissions Issue 6: Port Waste Management Issue 7:Hazardous Materials Management

Port of Suao

Environmental Issues

Top 10

1. Air Quality

Indicator

- Air quality compliance rate($PM_{2.5}$,PM_{10}, SO_2, NO_2)
- Implementation of automated gate control system to reduce vehicle waiting time, minimize truck exhaust emissions, and decrease paper usage.
- Install air quality sensors to continuously monitor the environmental temperature, humidity, $PM_{2.5}$, SO_2, and NOx levels in the port area.

2. Dust

Indicator

- Install air quality sensors to continuously monitor the environmental temperature, humidity, $PM_{2.5}$, SO_2, and NOx levels in the port area.
- Require trucks to pass through a truck wash station on designated routes.
- Cover the truck bed with a dustproof net before departure.

3. Climate Change Response

Indicator

- Greenhouse gas inventory data disclosure
- The total consumption of fuel, electricity, water, and paper for the administrative building and the port.
- Rainwater harvesting in the port area.

4. Ship Emissions

Indicator

- Proportion of harbor vessels using low-sulfur fuel or biodiesel
- The proportion of harbor service boats using shore power
- Ship Speed Reduction Program

5. Port Noise

Indicator

- The ratio of using low-sulfur fuel or biodiesel and the consumption of low-sulfur fuel among harbor crafts

6. Port waste management

Indicator

- Resource (iron, paper, glass, metal, plastic) recycling rate.

7. Hazardous Materials Management

Indicator

- Fuel, electricity, Water and paper consumption
- The handling of hazardous materials in the port area.
- Inspection and Joint Supervision of Hazardous Goods

8. Port Water Quality

Indicator

- Execution Status of Entrusting Qualified Contractors for Cleaning Ship's Waste Oil and Bilge Water
- The compliance rate for water quality and runoff wastewater quality in the harbor.

9. Relationship with Local Communities

Indicator

- Provide venues such as parking lots to rent for public parades
- Number of participants and events
- Environmental public grievances

10. Port Development

Indicator

- Maintaining green space in the port area

04

State of the Environment

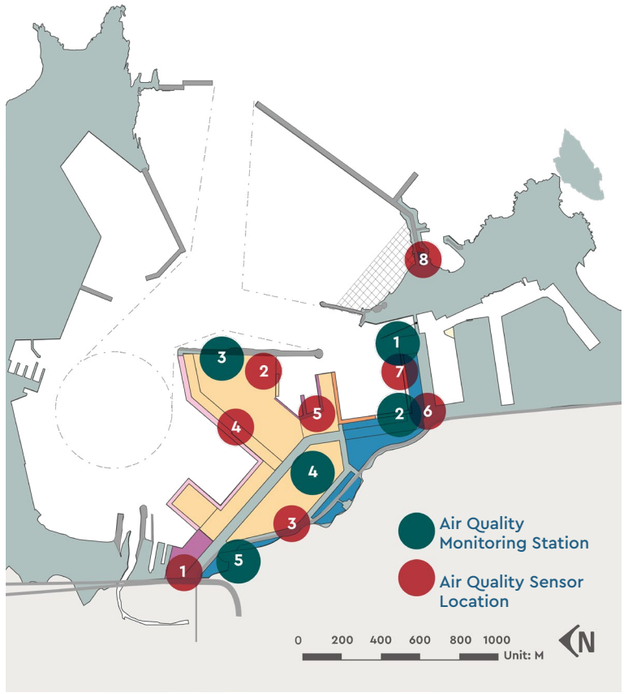
4.1 Air quality

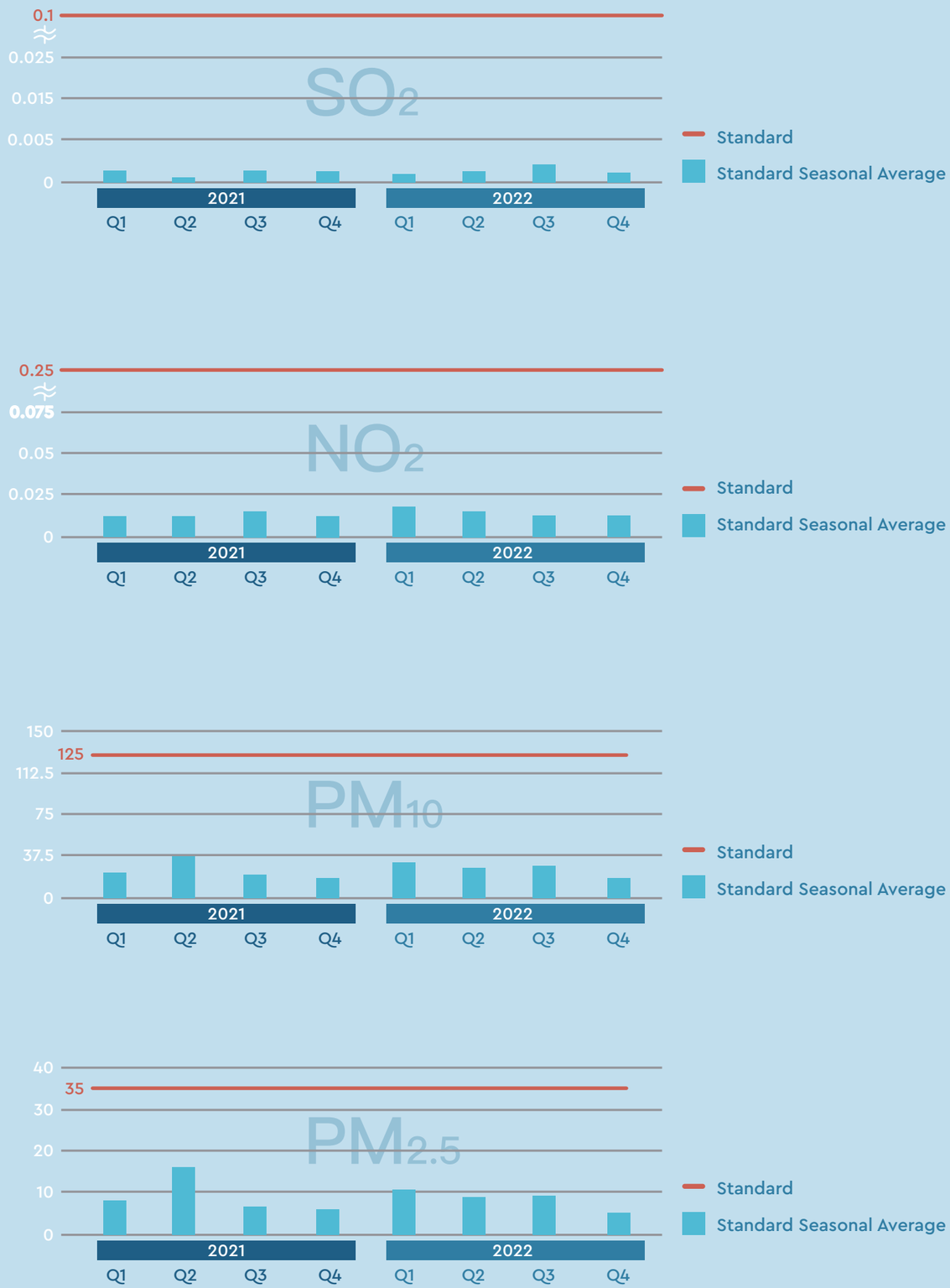
Suao Port's main sources of air pollution include exhaust emissions from vessels' fuel combustion within the port, gases generated by vehicle movement, and suspended particles during cargo handling processes. Therefore, maintaining air quality in the port has been a significant concern for Suao Port Operations and the surrounding community.

Since 2022, in collaboration with the Yilan County Government's Environmental Protection Bureau, several campaigns have been conducted to encourage diesel vehicle operators entering and exiting Suao Port to voluntarily undergo inspections at the Diesel Vehicle Smoke Inspection Station of the Environmental Protection Bureau. In 2023, Suao Port was designated as the first "Air Quality Protection Zone" in Yilan, prohibiting diesel vehicles that do not meet the Environmental Protection Bureau's standards from entering the port area. This measure aims to reduce health risks and improve air quality. Additionally, in 2022, Suao Port installed eight air quality sensors to monitor environmental temperature, humidity, $PM_{2.5}$, SO_2, and NOx levels in the port area.

Regular Air Quality Monitoring

Suao Port has set up 5 monitoring stations to conduct regular monitoring. The monitored parameters include suspended particles ($PM_{2.5}$, PM_{10}), SO_2, NO_2 and other pollutants in compliance with the air quality monitoring regulations of the Environmental Protection Administration. This is done to ensure the health of port employees and the surrounding community. The air quality compliance rate was 100% in 2021–2022.

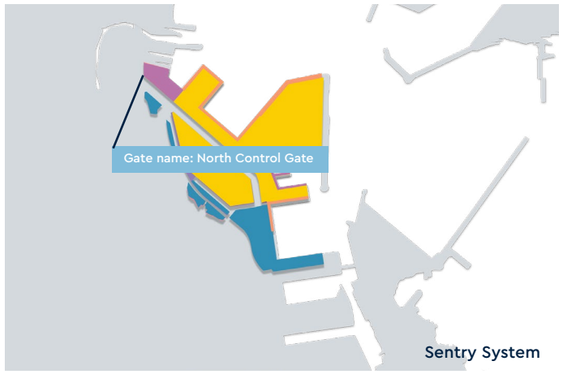




Sentry System

Sentry System is used in the automated baggage system for cargo (container) trucks and bulk cargo transportation. It can automatically obtain license plates, container numbers and RFID personnel passes, and instantly compare the information sheet data to assist the port police in the verification of people and cabinets. Provide the customs to grasp container dynamics and handle inspection work, speed up the clearance of drivers in and out of the area, and fatally improve the efficiency of port and port operations.

Since its establishment in 2013, the Suao Port aSentry System has achieved air pollution reduction benefits, including shortening vehicle parking time, greatly reducing exhaust emissions while waiting, and improving air quality; electronic forms make paper resources energy-saving Benefits have increased substantially.



Sentry System

Sentry System

Sentry System energy saving efficiency

item	Actual energy saving efficiency
Reduce vehicle pollution	• Originally it took 4 minutes (approximately 240 seconds) to deliver the order to the port police by manual paper delivery. However, after actual measurement and statistics on the spot and using the gate guard system, the induction travel time is only 20 seconds, which is reduced by about 220 seconds in total, effectively reducing truck waiting Hourly exhaust gas emissions 91.6%
Improve energy efficiency	• Electronic forms are used for trucks entering and leaving the port to carry goods • Automatic identification of license plates, human IDs, and vehicle IDs for trucks entering and leaving the port • Use electronic kanban to confirm the type and quantity of goods transported by truck • In 2021, the total number of vehicle passages through the automated gate system was 172,245, resulting in a reduction of paper usage by 172,245 million sheets. • In 2022, the total number of vehicle passages through the automated gate system was 180,052, leading to a reduction of paper usage by 180,052 million sheets.

4.2 Fugitive Dust Emission Control

The main operations of Suao Port include the handling and transportation of coal, fuel, slag, steel billets, cement, and other goods and raw materials. The loading and unloading of loose cargo such as sand and gravel can generate dust, making dust control at the port an important environmental concern and one of the top ten environmental issues. To prevent dust emissions and reduce air pollution while maintaining a good working environment and quality of life in the port and surrounding areas, Suao Port implements the following dust control measures:

Suao Port Fugitive Dust Control Measures

Aspects	Dust Control Measures	
Cargo Handling	• Use of automatic coal unloading machines. • Guidance to loading and unloading operators to install fixed and mobile dust prevention nets. • Installation of mobile sprinkler systems. • Use of underground conveyor pipes for direct transportation of raw materials to industrial plants/centers.	Dust suppression facilities at Suao Port include: • 15 sets of water mist machines • 24 dust prevention nets • 3 automatic coal unloading machines
Vehicle Control	• Consolidate weighing scales and vehicle wash stations to improve vehicle traffic efficiency. • Install electric lift gates to enhance the cleaning effectiveness of the vehicle wash stations. • Establish regulations and monitoring for lowering the dust prevention net under the truck hopper by 15 centimeters and ensuring cleanliness of the vehicle body. • Clean the internal and adjacent roads in the port area to maintain the cleanliness of the port streets. • Achieve 99.9% coverage of dust prevention nets on the tops of vehicles in 2021 and 2022.	


Port of Suao uses automatic coal unloading machine to reduce one of its main air pollution sources.


Port of Suao combines vehicle scales with car washing stations to make pollution control more efficient and effective.

4.3 Climate Change Response

In response to climate change and sustainability issues, Suao Port has implemented various measures to address greenhouse gas emissions and energy usage management both within and outside the port area. This is particularly important considering the recent findings of the Intergovernmental Panel on Climate Change (IPCC) in its 6th Assessment Report, which indicates a projected global temperature rise of 1.5 degrees Celsius within the next 20 years. This temperature increase could lead to severe climate disasters and biodiversity loss.

The specific measures implemented by Suao Port include greenhouse gas inventories, energy-saving projects, and emission reduction measures for ships and vehicles. These actions aim to mitigate the impact of climate change and promote sustainable operations at the port. By monitoring and managing greenhouse gas emissions and energy usage, Suao Port Operations strives to contribute to global efforts in addressing climate change and reducing environmental impact

Emission sources	2021	2022
Category 1	4.18	3.78
Category 2	229.52	245.45

Unit: Metric Tons of CO_2 Equivalent


SGS

聲明書編號: TW22/00506GG

溫室氣體查驗聲明書

2021 年溫室氣體排放查驗

臺灣港務股份有限公司
基隆港務分公司蘇澳港營運處

ISO 14064-1:2018

4.1825 公噸二氧化碳當量
11,408.1485 公噸二氧化碳當量
11,412.331 公噸二氧化碳當量

SGS

溫室氣體查驗聲明書

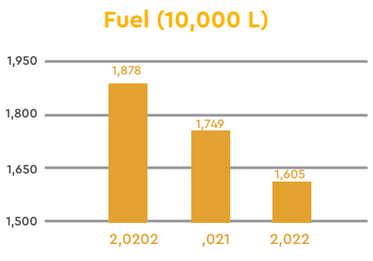

500-ton Mountain Spring Water Ecological Pond

Resource Usage Status

Suoao Port Operations implements the Four Savings Project (Energy, Fuel, Water, Paper) to manage resource usage. Quarterly reviews are conducted to assess its effectiveness. Since 2016, water resource management has been a focus, including the construction of a 500-ton ecological pond for improved water efficiency.

To achieve sustainable development and reduce resource consumption, Suoao Port employs an environmental accounting system to track water, electricity, fuel, and paper consumption. Efforts to promote carbon reduction in office operations are also underway. Usage statistics for 2021–2022 are as follows:

Item	2021	2022
Oil Consumption (liters)	1,749	1,605
Electricity Consumption in the Port (kWh)	828,773	803,615
Water Consumption in the Port (cubic meters)	6,216	4,445
Paper Usage (500 sheets/pack)	119.3	119



Renewable Energy

Since 2016, the Su'ao Port Operations has been conducting solar power leasing operations. As of 2021, there are three solar power generation systems in place: the Bi-Xiang Electric Vehicle Factory Roof (1996.4 kW), Warehouse No. 4 Roof (500 kW), and Warehouse No. 15 Roof (332 kW). The total power generation capacity exceeds 2800 kWp.


Location:Suao, Yilan
Capacity:500 kW
Completion Date:2017/12/29

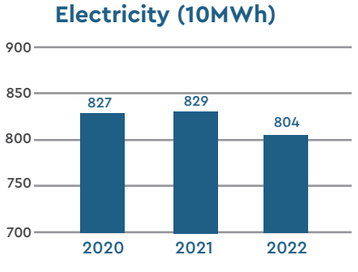

Location: Suao, Yilan
Capacity: 1,996.4 kW
Completion Date: December 30, 2016

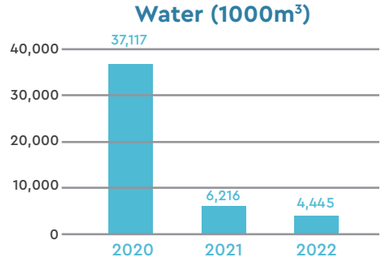
Photovoltaic System on the Roof of Pihsiang Machinery

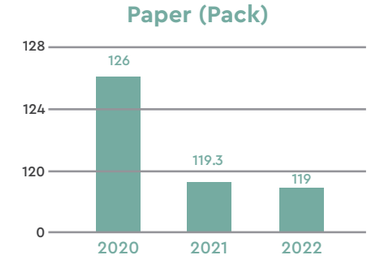

Location: Suao, Yilan
Capacity: 332 kW
Completion Date: 2020/6/30

Warehouse No. 15

	2,254,323	2,003,458	1,147	992
	579,383	514,049	295	255
	119,902	200,716	61	99
	2,953,608	2,718,268	1,503	1,346







4.4 Reduce Ship Emissions

Environmentally friendly vessels

To effectively reduce emissions from ships and improve air quality in the port, the Suao Port Authority has implemented an environmentally friendly vessel policy. This policy aims to mitigate the emissions generated by ship fuel combustion, which is one of the major sources of pollution in the port. The measures taken include vessel speed reduction and shore power systems to lower greenhouse gas emissions. These actions not only safeguard the health of employees and surrounding communities but also address the challenges of climate change.

100% use low-sulfur diesel fuel

Use of Low-Sulfur Diesel

All harbor tugboats operating in Suao Port now use ultra-low sulfur diesel fuel with a sulfur content of 10 ppm or less, ensuring a significant reduction in sulfur dioxide emissions during sailing and minimizing air pollution. This initiative has effectively improved the environmental air quality within the port. In both 2021 and 2022, an average of approximately 130 metric tons of this low-sulfur fuel was consumed annually. It is estimated that this has resulted in a reduction of approximately 35.24 metric tons of CO_2 emissions compared to the 2019–2020 period.

Outbound tanker vessels reducing speed upon departure

Vessel Speed Reduction Controll

Encouraging vessels entering and exiting the port to reduce speed, advocating for vessels to reduce their speed to 12 knots or below within a 20-nautical-mile (nm) radius. The port authority has implemented a vessel speed reduction program since 2015, and achieved speed reduction rates of 81% and 80% in 2021 and 2022, respectively. By reducing air pollution generated by vessels, the air quality at Suao Port is gradually improving.

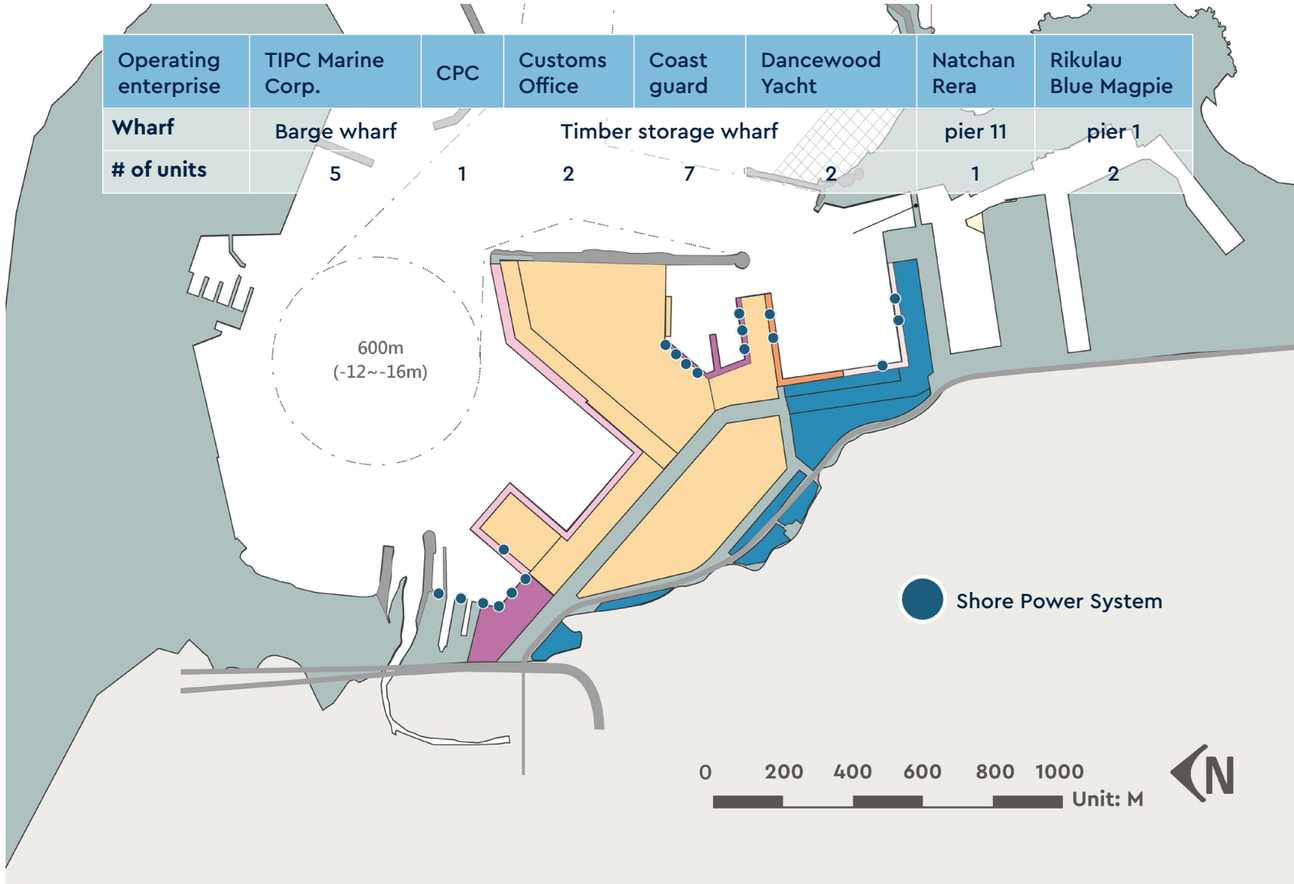
Shore power system

Suao Port promotes the use of shore power supply to provide power to berthed vessels, aiming to reduce carbon dioxide emissions, noise generation, and vibration caused by boiler operations. Currently, all public berths are equipped with shore power systems, allowing vessels to use shore power while docked at Suao Port, thereby reducing emissions from ship engines. A total of 19 sets of low-voltage shore power systems have been installed.

Shore Power Equipment

The shore power consumption for the years 2021 and 2022 was 125,102 kWh and 136,572 kWh, respectively.

Operating enterprise	TIPC Marine Corp.	CPC	Customs Office	Coast guard	Dancewood Yacht	Natchan Rera	Rikulau Blue Magpie
Wharf	Barge wharf		Timber storage wharf			pier 11	pier 1
# of units	5	1	2	7	2	1	2

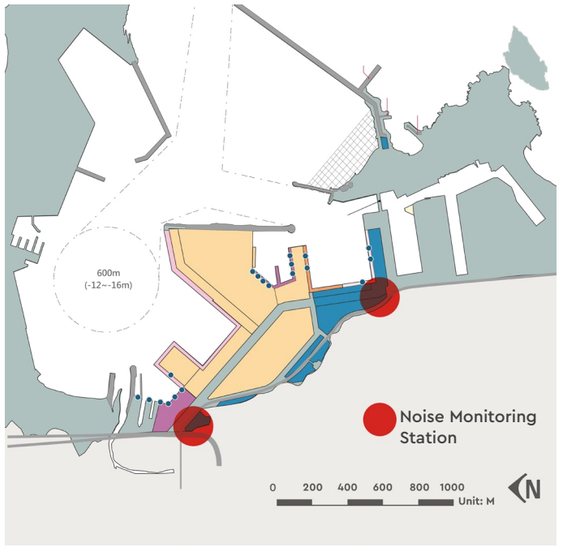


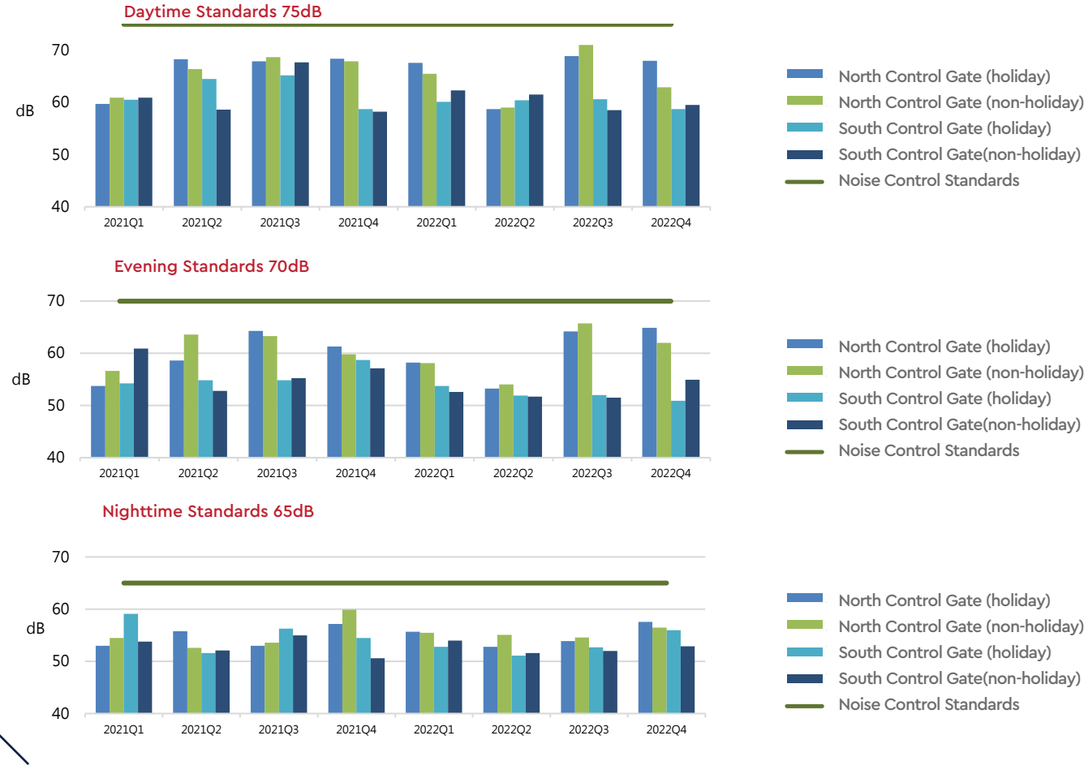
4.5 Reducing Port Noise

The noise pollution issue is a major concern for nearby residents due to the continuous cargo handling and transportation activities at Suao Port. In order to maintain a high quality of environmental life in the port, Su'ao Port Operations requires all port operators and vessels to comply with noise control standards during their operations.

Port operators have also taken measures to reduce noise, such as promoting low-speed driving for transport vehicles entering and exiting the port to minimize noise. Buffer zones have been set up to reduce the overlap between port and residential traffic routes, specifically targeting vehicle noise.

According to the environmental quality monitoring results for the years 2021–2022, the compliance rate with noise control standards at Suao Port reached 100%.



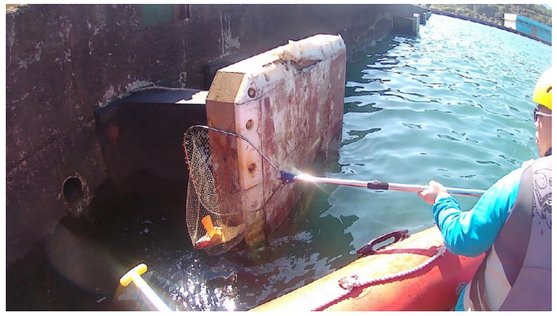


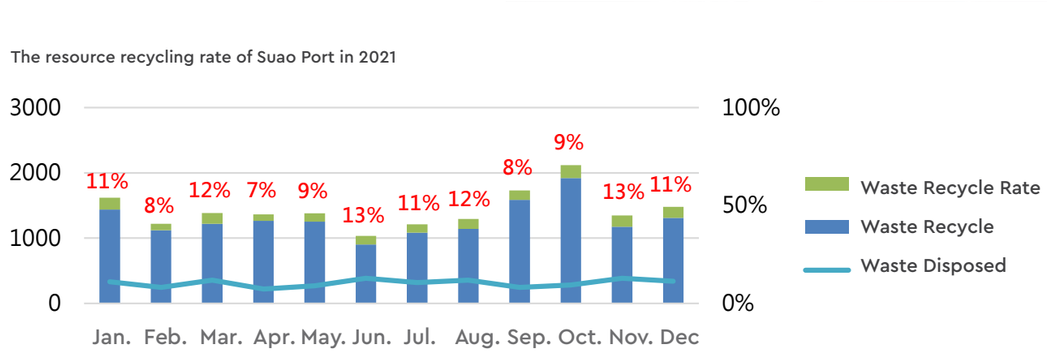
4.6 Port Waste Management

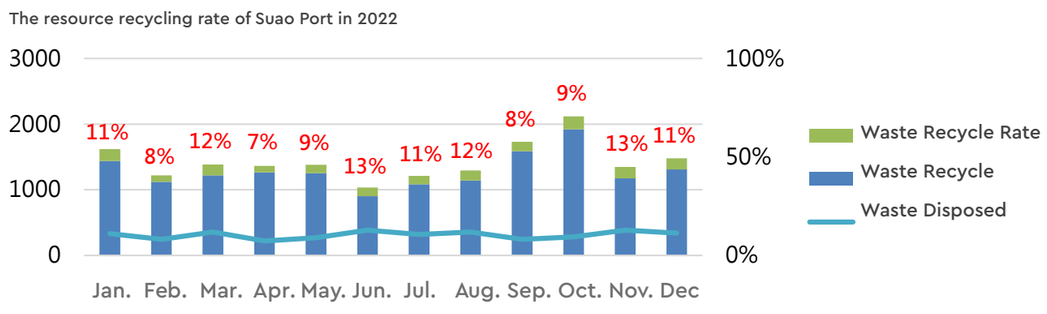
Suao Port is committed to the management of port waste, implementing source control and waste reduction measures, promoting resource sorting and recycling, strengthening the removal and cleaning of land-based and marine-based waste, and reducing the generation and impact of marine waste. These efforts aim to achieve SDG 14 (Conserve and sustainably use the oceans, seas, and marine resources) and SDG 15 (Protect, restore, and promote sustainable use of terrestrial ecosystems), thereby safeguarding the terrestrial and marine ecosystems within the port area.

Statistics indicate that there has been a reduction of 10,733 kilograms (approximately 23%) in port waste from 2019–2020 to 2021–2022. The major items targeted for resource recycling include paper waste, plastic products, and glass containers.

Additionally, Suao Port conducts annual clean-up activities, inviting port stakeholders and relevant government agencies to participate, in order to raise awareness and encourage participation from all stakeholders, fulfilling the responsibility of being a guardian of the Earth community.







4.7 Hazardous Materials Management

The management of dangerous goods in Su'ao Port is a priority environmental concern due to the potential hazards they pose. To ensure port safety and environmental protection, Su'ao Port Operations Office has implemented measures such as CCTV monitoring, regular environmental inspections, and enforcement of pollution prevention measures. The port follows an emergency response plan for chemical leaks and collaborates with relevant authorities. To prevent pollution, fuel vessels are required to deploy oil booms, and designated personnel oversee the storage and management of hazardous materials. These efforts aim to reduce the risks of pollution and protect the environment and human safety in the port area.

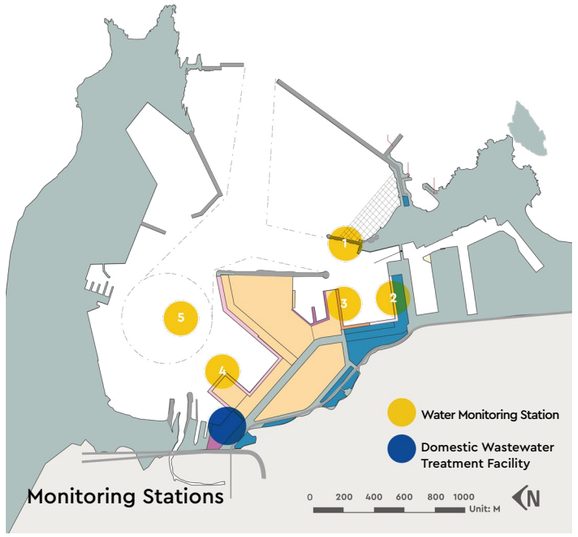
Number of Inspections and Joint Supervisions in Suao Port

Year	2021	2022
Inspections	693	663
Cross Agency Inspections	17	26

Status of Port Area Inspections

4.8 Water Quality

Suao Port Operations Office has implemented multiple measures to reduce the impact of port activities on surrounding water quality and ecosystems. These measures include adhering to the "Keelung Port Guidelines for the Removal of Ship Oil Waste" to ensure the proper collection and disposal of ship waste oil and wastewater, thus avoiding pollution of the water area. In 2021-2022, a total of 7 ships' waste oil and wastewater were treated, achieving a 100% recovery rate.



Port Water Quality Monitoring

Regular monitoring is conducted to ensure the water quality, runoff wastewater, and sediment within the port area are free from pollution. The monitoring results for 2021–2022 generally met the Class II marine environmental quality standards, with only a slight exceedance of total phenol in the runoff wastewater during the second quarter of 2022. The source of this pollution is believed to be related to factors such as Nanfang'ao Fishing Port or the bridge construction project. However, subsequent actions brought the results back within the standards. Monitoring of sediment quality in the port area will continue to track long-term trends, as there are currently no specific regulatory standards in place.

Coral Survey

In the waters of Tofu Cape located to the south of Su'ao Port, regular coral ecological surveys are commissioned by Su'ao Port Operations. The clean water quality and rocky terrain in the area are favorable for coral growth. According to the 2021 survey results, the coral coverage in this area reached up to 50%, indicating a wide extent of coral presence.


Commissioned Lanyang Diving Association for the survey.


Coral Ecological Survey

4.9 Relationship with Local Communities

Suao Port Operations Office regularly updates the performance of Suao Port on Keelung Port Company's website, ensuring transparency and public awareness. The official website of Suao Port also provides information and a complaint channel, promoting communication with the local community and addressing their concerns. No complaints have been reported regarding Suao Port in 2021 and 2022.

Collaboration with local businesses in the stevedoring and cable unwinding sectors contributes to the local economy. Suao Port organizes an annual environmental cleaning day, involving port operators, community associations, and the public to maintain a clean and friendly environment. The port actively engages with local authorities and organizations, fostering harmonious relationships.

Suao Port offers venue rental to government agencies and local groups, supporting various activities and promoting sustainability through partnerships.

Environmental public grievances in 2019–2020

Item	2021	2022
Total no. of public grievances	0	0
Number of handling environmental public grievances	0	0

Opening Ceremony for Nangangao Cross-Harbor Bridge

Usage of Rental Space for Events

Year	Event	Organizer	Time
Annually	• Parking Management during Lunar New Year at Nangangao • Promotion and Marketing Plan for Agricultural and Fishery Products at Nangangao (Mackerel Festival) • Suhua Highway Marathon Carnival • Lanyang Mazu Cultural Festival • Su'ao Ocean Carnival • Nangangao Seafood Carnival Fun Run • Dragon Boat Festival, Tomb Sweeping Festival, Mid-Autumn Festival Holidays • Salute to the Sea – Port Cleaning Activity • Tofu Cape Marine Area	• Suao Town Office • Yilan County Marine and Fisheries Development Institute • Suao Town Sports Association • Yilan County Government • Su'ao Town Office • Yilan County Government • Suao Town Office • Suao Port Operations Division • Yilan County Government	• 5 Days • 2 Days • 3 Days • 2 Days • 2 Days • 3 Days • 1–2 Days • All year
2021	• DIY Clothing Workshop	• World Vision Taiwan	2021/08/13
2022	• Ceremony of Nanfang'ao Cross-Harbor Bridge	• Highway Improvement Project Office, Directorate General of Highways	2022/12/18

"Parent-Child DIY Clothing" Activity

Suao Ocean Carnival


2022 Mackerel Festival


Tofu Cape


Tofu Cape Sailing Training Base

4.10 Port land development

Suao Port focuses on both environmental protection, such as water and air quality, and the development of the port's inland areas. They collaborate with local governments and communities to achieve sustainable operations that meet the needs of the people. The projects aim to align with national policies, enhance the port authority's image, increase green spaces, ensure and expand land utilization, improve local transportation, beautify intersections, revitalize old facilities, and promote business development within the port area.

Lease of Land by FOXWELL Power Co., Ltd.

In 2022, Suao Port welcomed FOXWELL Power Co., Ltd., a company dedicated to green energy, energy storage, and green energy trading. They have installed a 50MW energy storage system within the port to ensure the preservation of green energy. Suao Port Authority has also preserved the green spaces by relocating trees in the leased area of approximately 17 hectares.

World Earth Day Tree Planting

Objectives	Project
Reduce vehicle pollution.	Repair of Berths 10 and 11. Construction of the Su'ao Port Transportation Center.
Increase green spaces in the port area.	Tree planting activities and installation of flower beds.
Enhance the image of the port authority.	Renovation of the administrative building of Su'ao Port.
Ensure and expand land resources within the port area.	Reinforcement and repair of the southern breakwater and rock revetment. Land reclamation through dredging and sediment deposition.
Improve local transportation.	Construction of the Mountain Road Interchange.
Revitalize old facilities.	Su-dong Tunnel project (commissioned by the town office).
Beautify the surroundings of intersections.	Entrance imagery enhancement.
Promote business development within the port area.	Lease by FOXWELL Power Co., Ltd.

Exterior Renovation of Administrative Building

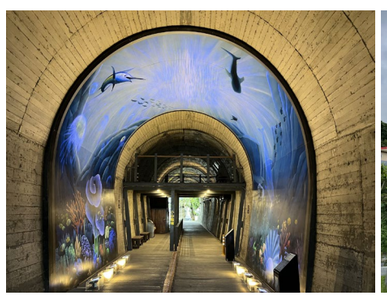
Repair and Construction of Terminal 11 Ground and Travel Center

Installation of Planting Flower Beds

Repair of Terminal 10 Ground

Reinforcement and Placement of Wave Breakers on South Breakwater

Yishan Rd. interchange Project



Interior Imagery of the Su Dong Tunnel

South Gate Entrance Imagery

FOXWELL Power

Environmental Performance Indicators

Significant environmental issues of Suao Port		Indicator	Calculation method		Target value	Indicator presentation (calculation details)	
						2021	2022
1	Air quality	Air quality compliance rate($PM_{2.5}$,PM_{10}, SO_2, NO_2) Note: Background values have been subtracted.	The compliance rate of air quality monitoring stations within the port with the "Air Quality Standards"		Compliance rate of daily averages with air quality standards in the port. • $PM_{2.5}$:100% • PM_{10}:100% • SO_2:100% • NO_2:100%	Compliance rate of daily averages with air quality standards in the port. • $PM_{2.5}$:100% • PM_{10}:100% • SO_2:100% • NO_2:100%	Compliance rate of daily averages with air quality standards in the port. • $PM_{2.5}$:100% • PM_{10}:100% • SO_2:100% • NO_2:100%
		Implementation of automated gate control system to reduce vehicle waiting time, minimize truck exhaust emissions, and decrease paper usage.	Differences in waiting time and emission reduction between manual clearance and automated gate control system, with vehicle trips representing paper usage.		• Reduce waiting time by 60%. • Decrease paper usage by 70%.	• Reduced manual delivery time from 4 minutes (240 seconds) to 20 seconds through the use of the automated gate control system, resulting in a total time reduction of approximately 220 seconds and a 91.6% reduction in exhaust emissions during truck waiting times. • In 2021, the automated gate control system facilitated a total of 172,245 vehicle passages, leading to a reduction of 172,245 million sheets of paper usage.	• Reduced manual delivery time from 4 minutes (240 seconds) to 20 seconds through the use of the automated gate control system, resulting in a total time reduction of approximately 220 seconds and a 91.6% reduction in exhaust emissions during truck waiting times. • In 2022, the automated gate control system facilitated a total of 181,207 vehicle passages, leading to a reduction of181,207 million sheets of paper usage.
		Install air quality sensors to continuously monitor the environmental temperature, humidity, $PM_{2.5}$, SO_2, and NOx levels in the port area.	The monitoring range includes high-pollution potential areas within the port area.		The monitoring range covers hotspots (such as general cargo handling operations and major transportation routes) as well as environmentally sensitive areas (such as passenger terminals and residential areas) with high pollution potential.	Site selection for the installation of air quality sensors within the Suao Port area.	A total of 8 air quality sensors have been installed in high-traffic areas, cement terminals, coal terminals, and general cargo terminals within the port area.
2	Dust	Loading and unloading pollution control measures and utilization of mobile enclosed equipment.	Annual installation and utilization rate of pollution control facilities in the port.		Maintenance or update of the quantity and utilization rate of pollution control facilities.	Coal :Automatic conveyer: 3 Effectiveness: 100%	Coal :Automatic conveyer: 3 Effectiveness: 100%
						Cement :Enclosed negative pressure pipeline Effectiveness: 100%	Cement :Enclosed negative pressure pipeline Effectiveness: 100%
						Cement clinker:Each grabber must accompany with sprinklers and dust nets. There are currently 15 sprinklers and 24 dust nets Effectiveness: 100%	Cement clinker:Each grabber must accompany with sprinklers and dust nets. There are currently 15 sprinklers and 24 dust nets Effectiveness: 100%
		Require trucks to pass through a truck wash station on designated routes.	Percentage of trucks undergoing truck wash when passing through designated routes.		100% of trucks undergoing truck wash when passing through designated routes.	Ratio of cargo truck that goes through car wash stations: 100%	Ratio of cargo truck that goes through car wash stations: 100%
		Cover the truck bed with a dustproof net before departure.	Percentage of trucks with dustproof nets placed in the truck bed before departure = (Number of trucks with dustproof nets placed in the truck bed / Total number of trucks departing) x 100% Note: Empty trucks are excluded.		95% of trucks have dustproof nets placed in the truck bed before departure.	• The total number of trucks for miscellaneous cargo is 172,245. • The percentage of trucks with dustproof nets is 99.9%.	• The total number of trucks for miscellaneous cargo is 172,245. • The percentage of trucks with dustproof nets is 99.9%.

Environmental Performance Indicators

Significant environmental issues of Suao Port		Indicator	Calculation method		Target value	Indicator presentation (calculation details)	
						2021	2022
3	Climate Change Response	Greenhouse gas inventory data disclosure	Using ISO 14064 methodology, greenhouse gas emissions are inventoried based on different sources, and emissions data for Category 1 and Category 2 are calculated using emission factors.		• Greenhouse Gas Emissions Disclosure Category 1 Category 2	• Category 1: 4.1825 metric tons of carbon dioxide equivalent • Category 2: 229.5157 metric tons of carbon dioxide equivalent	• Category 1: 3.7768 metric tons of carbon dioxide equivalent • Category 2: 245.4535 metric tons of carbon dioxide equivalent
		The total consumption of fuel, electricity, water, and paper for the administrative building and the port	The difference in fuel, electricity, water, and paper consumption between 2021 and 2022. [(Difference in consumption from the previous year – Current year's consumption) / Difference in consumption from the previous year) × 100]		• Fuel consumption: 5% decrease • Electricity consumption: 1% decrease • Water consumption reduction: 10% • Paper consumption: 1% decrease	The resource consumption for the administrative building is as follows: • Oil: 1,605 liters • Electricity: 482,227 kilowatt-hours • Water: 2,110 cubic meters • Paper: 119 packs (500 sheets per pack) Based on the port's consolidated usage calculation: • Fuel consumption ratio: 6.87% (due to the nearing completion of the reconstruction of Nanfang'ao Bridge, there has been a decrease in the number of official vehicle trips) • Electricity consumption ratio: -0.22% (compared to 2020, there has been a slight decrease in electricity consumption as the COVID-19 situation gradually improves and offices resume regular operations) • Water consumption ratio: 83% (improvements in water leak reduction in the port area, implementation of water conservation policies, and increased utilization of spring water) • Paper consumption ratio: 5.32% (due to the nearing completion of the reconstruction of Nanfang'ao Bridge, there has been a decrease in document-related activities)	The resource consumption for the administrative building is as follows: • Oil: 1,749 liters • Electricity: 450,915 kilowatt-hours • Water: 1,758 cubic meters • Paper: 119.3 packs (500 sheets per pack) Based on the port's consolidated usage calculation: • Fuel consumption ratio: 8.23% (due to a decrease in the number of official vehicle trips with the nearing completion of the Nanfang'ao Bridge reconstruction) • • Electricity consumption ratio: -3.03% ncreased electricity usage due to the construction of the Su'ao Port Passenger Terminal and the renovation of the Port Authority Administration Building) • Water consumption ratio: 28% (improved water leakages in the port's pipelines, water conservation policies, and higher utilization of spring water) • Paper consumption ratio: 0.25% (reduction in paperwork operations due to the nearing completion of the Nanfang'ao Bridge reconstruction)
		Rainwater harvesting in the port area.	Statistics of rainwater harvesting in the port area.		Water intake reached 2 million cubic meters.	Total water intake for the period of January to December was 264,348 cubic meters.	Total water intake for the period of January to December was 278,924.8 cubic meters.
4	Reduce Ship Emissions	Proportion of harbor vessels using low-sulfur fuel or biodiesel. Note: Low-sulfur fuel refers to fuel with sulfur content below 10 ppm.	The formula to calculate the proportion of harbor vessels using low-sulfur fuel (marine heavy fuel oil or marine gas oil) is as follows: (Number of harbor vessels using low-sulfur fuel / Total number of harbor vessels) * 100%		• All harbor vessels using low-sulfur fuel or biodiesel reach 100%.	• 4 vessels use low-sulfur fuel, achieving a 100% compliance rate. The usage of low-pollution fuel by harbor vessels is 130,558 liters, estimated to reduce approximately 36.09 metric tons of CO_2 emissions compared to 2020.	• 4 vessels use low-sulfur fuel, achieving a 100% compliance rate. The usage of low-pollution fuel by harbor vessels is 130,883 liters, estimated to increase approximately 0.85 metric tons of CO_2 emissions compared to 2021.
		The proportion of harbor service boats using shore power is as follows: • Number of harbor service boats: 4 • Number of harbor service boats utilizing shore power: 4 • Proportion of harbor service boats using shore power: 100%	The proportion of harbor service boats using shore power can be calculated as: (Number of harbor service boats using shore power / Total number of harbor service boats) × 100%		• The proportion of harbor service boats using shore power is 100%.	• All 4 harbor service boats utilize shore power when berthed, resulting in a 100% usage rate. The total electricity consumption of harbor service boats using shore power is 125,102 kWh.	• All 4 harbor service boats use shore power when berthed, resulting in a 100% utilization rate. The total electricity consumption of harbor service boats using shore power is 136,572 kWh.

Environmental Performance Indicators

Significant environmental issues of Suao Port		Indicator	Calculation method		Target value	Indicator presentation (calculation details)	
						2021	2022
4	Reduce Ship Emissions	Ship Speed Reduction Program: The percentage of vessel transits within 20 nautical miles of the port with a speed reduced to 12 knots or below.	(Number of vessel transits within 20 nautical miles of the port with a speed reduced to 12 knots or below ÷ Total number of vessel transits in and out of the port) × 100%		• Vessel speed reduction achievement rate: 2021: 70% 2022: 75%	• Vessel speed reduction achievement rate: 81%	• Vessel speed reduction achievement rate: 80%
5	Noise	Daily pass rate of port noise quality	Number of noise detection passes (times) ÷ total number of noise detection × 100%		• Daytime Leq: 76dB • Evening Leq: 75dB • Nighttime Leq: 72dB	• Daytime Leq 100% • Evening Leq 100% • Nighttime Leq 100%	• Daytime Leq 100% • Evening Leq 100% • Nighttime Leq 100%
6	Port Waste Management	Resource (iron, paper, glass, metal, plastic) recycling rate.	Port land-based general waste resource recycling rate = (Weight of recycled materials / Total generated quantity × 100%)		• Annual recycling rate reaches 10%.	• Resource recycling amount: 1,763.5 kilograms • Total generation amount: 17,180.5 kilograms • Annual recycling rate: 1,763.5 kilograms / 17,180.5 kilograms × 100% = 10.26%	• Resource recycling amount: 1,750.9 kilograms • Total generation amount: 17,929.8 kilograms • Annual recycling rate: 1,750.9 kilograms / 17,929.8 kilograms × 100% = 9.77%
7	Port hazardous materials management	Fuel, electricity, Water and paper consumption	Oil containment booms deployed by chemical and oil tankers ÷ Total chemical and oil tankers × 100%		• The deployment of oil containment booms by chemical and oil tankers has reached a 100% ratio.	• The number of oil containment boom deployments by chemical and oil tankers is 118 times. The ratio of oil containment boom deployments by chemical and oil tankers to the total number of such vessels is 100%. • The proportion of oil containment boom deployments by chemical and oil tankers is 100%.	• The number of oil containment boom deployments by chemical and oil tankers is 87 times. • The ratio of oil containment boom deployments by chemical and oil tankers to the total number of such vessels is 100%. • The proportion of oil containment boom deployments by chemical and oil tankers is 100%.
		The handling of hazardous materials in the port area.	The percentage is calculated by taking the number of times hazardous materials are loaded or unloaded in the port area and dividing it by the number of inspections for stored items, then multiplying the result by 100%		The proportion of designated personnel responsible for hazardous materials storage and management reaches 100%.	There were a total of 118 chemical and oil vessels, and there were 118 inspections for stored items, achieving 100%.	There were a total of 87 chemical and oil vessels, and there were 87 inspections for stored items, achieving 100%.
		Inspection and Joint Supervision of Hazardous Goods	Number of Inspections and Joint Supervisions of Hazardous Goods		1 Inspection of Hazardous Goods per day	• Number of Inspections: 693 • Number of Joint Supervisions: 17	• Number of Inspections: 663 • Number of Joint Supervisions: 26
8	Port water quality maintenance	Execution Status of Entrusting Qualified Contractors for Cleaning Ship's Waste Oil and Bilge Water	Actual Execution Rate by Qualified Contractors for Waste Oil and Bilge Water Collection		Execution Rate by Qualified Contractors for Vessel Waste Oil and Bilge Water Cleanup Reached 100%.	• Execution: 3 occurrences, 3/3 × 100% = 100% • Total collected waste oil and bilge water: 30.9 metric tons.	• Execution: 4 occurrences, 4/4 × 100% = 100% • Total collected waste oil and bilge water: 66.0 metric tons.

Environmental Performance Indicators

Significant environmental issues of Suao Port		Indicator	Calculation method		Target value	Indicator presentation (calculation details)	
						2021	2022
8	Port water quality maintenance	The compliance rate for water quality and runoff wastewater quality in the harbor. COD (Chemical Oxygen Demand) pH value,BOD (Biochemical Oxygen Demand),SS (Suspended Solids),E. coli (Escherichia coli) count,NH3-N (Ammonia Nitrogen),TP (Total Phosphorus),DO (Dissolved Oxygen),Cyanide,Phenols,Mineral Oil,Total Oil and Grease	The percentage of port water quality that meets the "Class II Marine Environment Quality Standards"		Water quality testing compliance rate : • Port water quality: 90% • Stormwater runoff: 90%	Water quality testing compliance rate: • Port water quality: 100% • Stormwater runoff: 100%	Water quality testing compliance rate: • Port water quality: 100% • Stormwater runoff: 91.7% (Due to the interconnection between commercial port and fishing port, it is inferred that the water quality may be influenced by factors such as fishing port water quality or engineering activities.)
9	Strengthen community relations	Provide venues such as parking lots to rent for public parades	Renting venues and organizing events		Annual target handling activities and renting venues 5 times	• A total of 10 events and venue rentals were held in 2021. • The Doufu Cape waters were open throughout the year.	• Total of 11 events and venue rentals were held in 2022. • The Doufu Cape waters were open throughout the year. • The sailing training base was operational starting from September 29th.
		Number of participants and events	Count of participants and event		Annual target 2 events 50 participants	• Total number of participants:140 • 2 activities held	• Total number of participants:178 • 3 activities held
		Environmental public grievances	Number of environmental public grievances		Number of handling environmental public grievances <3	• Number of handling environmental public grievances:0	• Number of handling environmental public grievances:0
10	Port development	Maintaining green space in the port area	Statistics of the port's green space area over the years		Expanding and maintaining the green space area of the port	• In 2021, the green space area of the port was approximately 8 hectares.	• In 2022, the port's green space area expanded to around 9 hectares. • 813 flower beds with 2,700 pine trees, transplantation of trees, and a tree planting event with 100 buddhist pine trees on World Earth Day

05

Emergency Response

Port of Suao Emergency Response

To maintain a safe operating environment at Suao Port, regular inspections of the port area are conducted by assigned personnel. Any suspected pollution activities are promptly addressed through counseling, emergency response measures, or reporting to the appropriate law enforcement authorities. There were no relevant accidents reported at Su'ao Port during the period from 2021 to 2022.

Emergency response drills are regularly conducted to enhance personnel's ability to handle accidents, familiarize them with interagency and industry support channels, and strengthen overall disaster response capabilities. This helps minimize the hazards caused by hazardous chemicals, air and water pollution, soil contamination, and other forms of pollution, in line with Sustainable Development Goal 3 – Ensuring healthy lives and promoting well-being for all ages.

Suao Port, the Yilan County Environmental Protection Bureau, and the Northern Maritime Affairs Center of the Ministry of Transportation and Communications have established channels for reporting and communication regarding port pollution and disaster incidents. These channels facilitate timely notification and coordination among relevant entities. Su'ao Port also has emergency response procedures in place for major incidents such as vessel accidents, fires, and explosions to effectively manage crisis situations.

Suao Port 2021–2022 Accidental Incidents

Accident type/Year	2021	2022
Vessel collision, shipwreck, fire, oil and other chemical spillage	0	0
Ship machinery breakdown, tilt, strand	0	0
Major warehouse, storage tank explosion	0	0
Port minor pollution, fire, chemical spillage	0	0
Man overboard, occupational accident, flotsam	0	0

Emergency Drill for Marine Pollution Response

Port of Suao Conducted Drills in 2021–2022

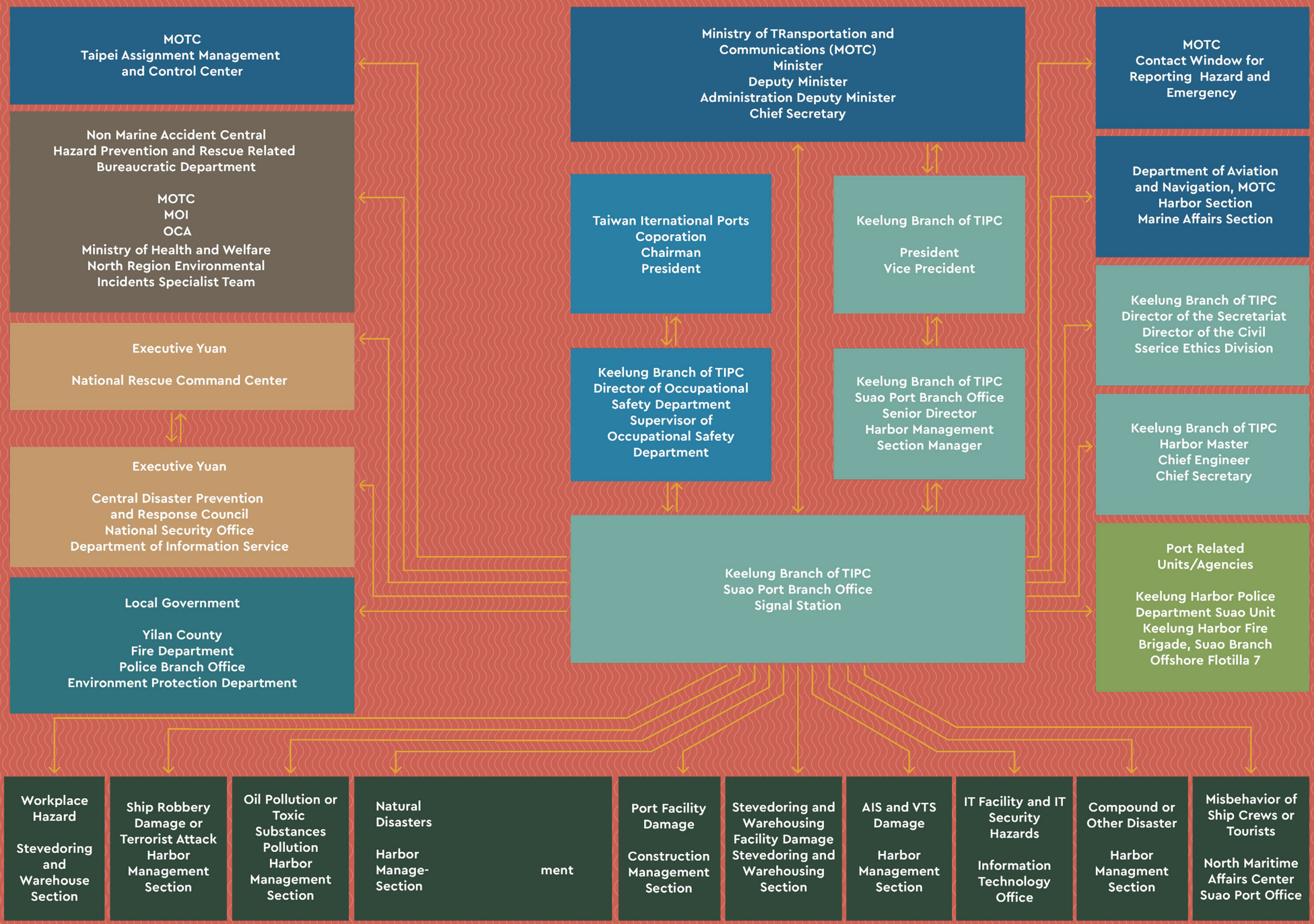
Year	Drill name	Content	Date
2021	Emergency Drill for Marine Pollution Response in Yilan County	In order to strengthen familiarity with the notification process and the division of responsibilities when an incident occurs, and to strengthen the ability to respond quickly, Suao Port and the Environmental Protection Bureau jointly organized a marine pollution emergency response drill.	8/23
2022	Port Security Exercise and Port Safety Drill in Suao Port Area	In order to strengthen the prevention and control measures of disaster pollution in business districts and fishing ports, Suao Port and the Fisheries Association jointly organized fire and heavy oil pollution prevention exercises	6/30


Fog mist installation


Fog mist installation


Oil boom deployment

Emergency Response



06

Involvement and Cooperation

Construction of Suao Port Tourism and Transfer Center (Tourism Transfer Zone).

Attention/Motives

Based on the comprehensive review of Suao Port's overall development approved by the Executive Yuan and in line with national development priorities, the long-term goal of Suao Port is to diversify its direction and create a high-value, low-pollution operating environment to drive regional prosperity and enhance the quality of living environment.

In addition to expanding the port to improve operational efficiency, Su'ao Port also places emphasis on the development of green spaces and waterfront recreational areas in the port area, aiming for diversified operations. The development strategy of Su'ao Port Operations Division is to attract southern passengers and northern cargo. Approximately 4.5 hectares of land behind the 10th and 11th piers and the back line of the 12th and 13th piers will be open for investment, in conjunction with the Su'nan Station project by Yilan County Government, leveraging the tourism resources in Nangang'ao to establish Su'ao Port as a tourism and transfer hub.

Implementation/Timeline

2022.06.20–2023.06

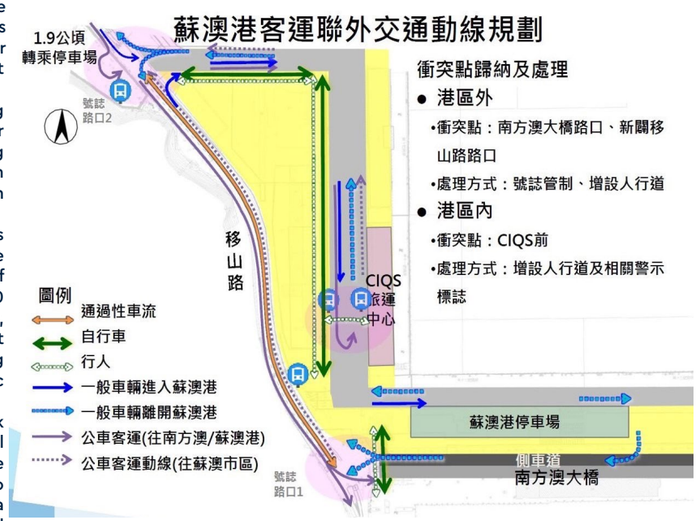
Structure/Investment

This project, in conjunction with surrounding works, involves a total investment of over NT$150 million. It is planned to increase the land area by approximately 826.45m² (250 ping) and construct a single-story building. The facility will provide the necessary space for Customs, Immigration, Quarantine, and Security (CIQS) inspections for international cruise ships. Additionally, it will serve as a recreational area for international tourists, offering opportunities for maritime tourism, a mixed-use commercial area, outdoor parking, and cultural performances.The planned facilities include:

1. International Cruise CIQS Facility: A 100-ping space will be designated for international passengers to undergo customs inspections. This will enhance both passenger comfort and efficiency of the clearance process.
2. Mobile Boarding Corridor: An adjustable corridor will be provided to shuttle passengers between the Passenger Service Center and the cruise ship, facilitating convenient transportation.
3. Mixed-Use Commercial Area (including dining): A 150-ping area will be designated for shopping, dining, and exhibitions, attracting both local residents and tourists to engage in commercial activities and activate the tourism facilities.
4. Outdoor Parking Space: Parking areas will be established on the east side of the new Passenger Service Center, capable of accommodating 10 large tour buses, 200 small cars, and 100 motorcycles. Additionally, a parking lot and a shuttle station will be set up near the Movers' Road to meet the parking needs of visitors and alleviate local traffic congestion.
5. Intersection Park and Landscaping: A park will be constructed near the southern control gate of the port, increasing green space and incorporating local characteristics to create an entrance image. It will serve as a free recreational area for local residents and tourists to enjoy and appreciate.

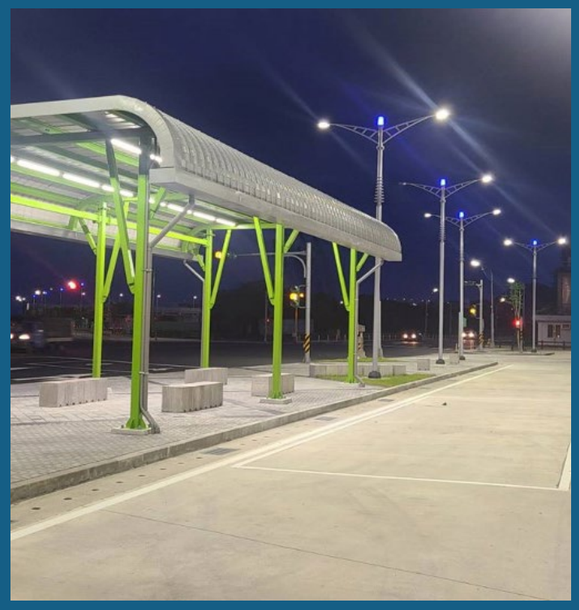
Stakeholders

- Port of Suao
- Maritime and Port Bureau, Ministry of Transportation



Suao Port Tourism and Transfer Zone


Conceptual Image of Suao Port Cruise Terminal


Yishan Road Connection Station Project


South Gate Entrance Imagery and Park

Effects/Benefits

By enhancing passenger comfort and streamlining customs clearance efficiency, it is expected to generate approximately 21.6 million NTD in annual revenue.

Expected Benefits	Explanation of Benefits
Enhancing Industrial Development	Creating a modern tourist pier, maritime gateway, core village living circle, and connected island marine landscape to accommodate local hotel planning, children's recreational areas, shopping malls, and multifunctional transportation hubs. It integrates functions such as dining, leisure, national highway transportation, green transportation, and cruise shipping to promote tourism development and create local employment opportunities.
Developing Maritime Tourism	Suao Port and Hualien Port already have blue highways, as part of the Ministry of Transportation's 10-year Blue Highway Development Plan. This plan aims to contribute to the goal of the Pacific Left Bank Economic Zone and serve as a jumping-off point for island-hopping tourism on Taiwan's east coast. It can also complement the Kuo-Kuang Bus Transfer Station and the walking area of Nanfang'ao Fishing Village to attract tourists.
Improving Local Transportation	By integrating with the Yilan County Government's Transportation Planning Committee, the traffic routes and parking facilities at the South Control Gate can be re-planned, along with the addition of the Yishan Road parking lot and shuttle station. This aims to alleviate the congestion caused by holiday traffic in the local area.
Activating Port Assets	By offering vacant land through leasing, we can attract investment and select businesses for the development of tourism and recreation. This will enhance public benefits and optimize land utilization, revitalizing old buildings and generating revenue.
Ensuring National Border Security	The CIQS (Customs, Immigration, Quarantine, and Security) facilities have been set up for entry and exit procedures. These include C for Customs, I for Immigration, Q for Quarantine, and S for Security. The Port of Suao, along with the Port Operations Office and the customs clearance team, work together to ensure border security.
Enhancing Port Image	The southern gateway of the port incorporates artistic elements inspired by mountains, sea, waves, and ship forms. It combines local elements such as the fishing industry and military port to create an entrance symbol that embodies the unity of Su'ao Port, the military port, and the South An'ao Fishing Port. This design aims to enhance the image of Su'ao Port among the local community and visitors.

Stakeholders

- Suao Port Branch Office
- Maritime Port Bureau. MOTC
- Port Lessees,
- Local Businesses
- Residents

Passenger Terminal Construction Project Audit

Comprehensive Management Strategy for Climate Change Response

Attention/Motives

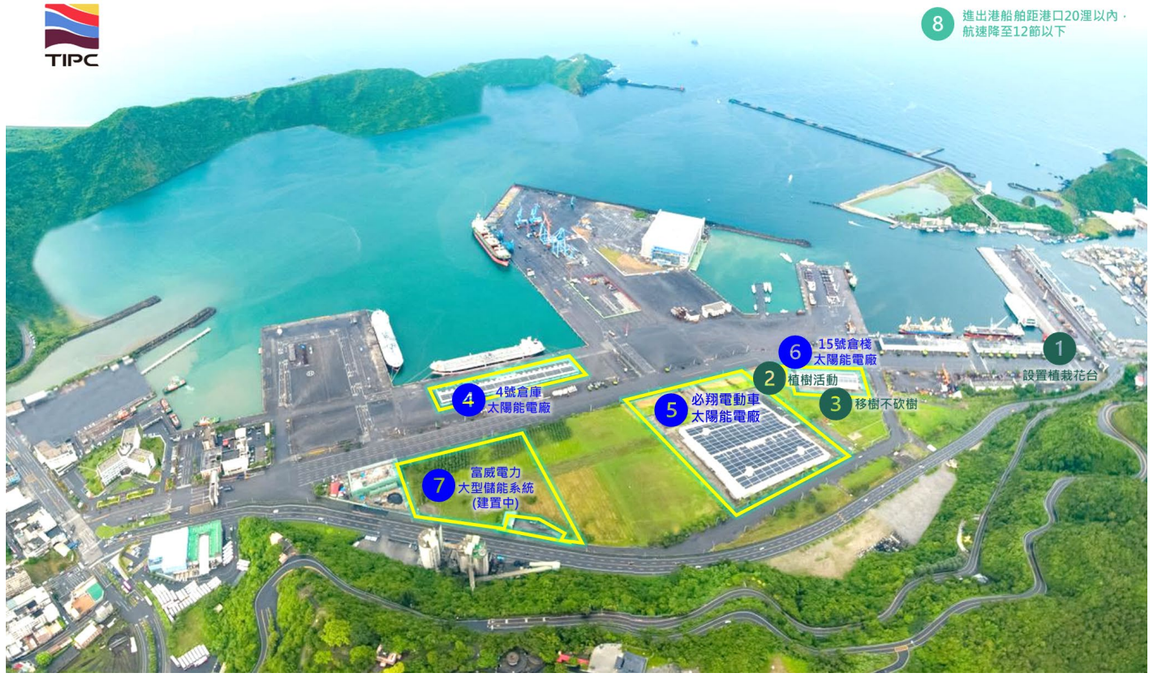
In response to climate change and sustainability issues, in accordance with the "Environmental Policy of Keelung Port Branch – Taiwan Port Group Afforestation Project," the existing green areas within the port area will be maintained, and efforts will be made to continuously increase the green space and number of plantings. By 2022, the original 8 hectares of green space will be expanded to 9 hectares. In addition to enhancing the environment, this initiative aims to increase the natural carbon sink capacity within the port area, reduce carbon dioxide levels, and actively develop solar power generation. Measures such as installing large-scale energy storage systems and promoting energy-efficient and carbon-reducing practices for ships will be implemented to align with the "2050 Net Zero Emission Pathway and Strategic Overview – 12 Key Strategies" published by the National Development Council of the Executive Yuan.

Environmental Management Strategy

Green Environment: Conservation and Sustainable Use of Terrestrial Ecosystems, Ensuring Biodiversity and Preventing Land Degradation.
Green Energy and Carbon Reduction: Ensuring affordable, reliable, sustainable, and modern energy for all.

(1) Installation of Planting Flower Platforms

In 2022, the Suao Harbor Operations Office carried out the "Procurement and Maintenance of Flower Platforms around the Nanfang'ao Cross-Sea Bridge" project to align with the completion of the bridge and the ongoing construction of the passenger terminal. A total of 813 flower platforms of various sizes were installed in the area, with approximately 2,700 bonsai trees planted. The project had a total cost of approximately 1 million New Taiwan Dollars and was completed and accepted in December 2022. Some of the flower platforms were placed at the boundary of the port area, aiming to enhance the greening image of the harbor and demonstrate Suao port's commitment to sustainable environmental development.



(2) Installation of Flower Platforms

In 2022, the Suao Harbor Operations Office carried out the "Flower Platform Procurement and Maintenance Project in the Surroundings of the Nanfang'ao Bridge" to complement the completion of the Nanfang'ao Bridge and the ongoing construction of the Tourism Center. A total of 813 flower platforms, including large, medium, and small sizes, were installed in the area. Approximately 2,700 Chinese fir trees were planted on these platforms. The project, which cost approximately 1 million NTD, was successfully completed and accepted in December 2022. By placing some of the flower platforms at the boundaries of the port area, it is expected to enhance the greenery and contribute to the sustainable development of the Su'ao Harbor environment.

(3) "Transplantation instead of Tree Cutting" Strategy

As a new tenant in the port area in 2022, Fwei Power will occupy an area of approximately 1.7 hectares to install large-scale energy storage batteries for their operations. During the land preparation phase, the Su'ao Harbor Operations Office implemented the "Transplantation instead of Tree Cutting" strategy for the existing trees in the area. Several Sweet Osmanthus and Waterhorn trees were transplanted to the surroundings of Warehouse 15 to preserve the existing greenery within the port area. This initiative aligns with the goal of promoting business development while ensuring the environmental conservation and sustainability of the port area.

(4) Roof-mounted Solar Photovoltaic System for Warehouse 4

In 2018, Suao Port signed a contract with Yunbao Energy Technology Co., Ltd., a wholly-owned subsidiary of Jingcheng Energy, to lease the roof of Warehouse 4, with a total area of approximately 6,000 square meters, for the installation of a solar photovoltaic system. The total installed capacity of the system reached 500 kWp. The subsequent management of the solar photovoltaic system was entrusted to Yongxin Energy Management. From 2021 to 2022, the average annual electricity generation was estimated at 546,716 kWh, resulting in an estimated average annual carbon reduction of 270 metric tons of CO_2 emissions.

(5) Roof-mounted Solar Photovoltaic System for Pihsiang Machinery Factory

In 2016, the leasing company Mustek Electric Vehicle in the Suao Port area also commissioned Pihsiang Machinery Co., Ltd. to install a thin-film solar power generation system on the roof of the Mustek Electric Vehicle facility. The total installed capacity of the power generation system reached an impressive 1996.4 kWp, making it the largest thin-film solar power plant in Asia at that time. From 2021 to 2022, the average annual electricity generation was estimated at 2,128,891 kWh, resulting in an estimated average annual carbon reduction of 1,054 metric tons of CO_2 emissions.

(6) Solar Photovoltaic System on the Roof of Warehouse No. 15

In 2020, Warehouse No. 15 within the port area underwent a complete renovation, which included improvements to the building's exterior, installation of an air conditioning system, waste reduction measures, and water conservation efforts. As a result of these initiatives, it was awarded the Green Building Certification by the Ministry of the Interior. In 2021, Yu Ding Energy Technology Development Co., Ltd. leased the roof of Warehouse No. 15 and installed a solar photovoltaic system with a total installed capacity of approximately 332 kWp. The average annual electricity generation from 2021 to 2022 was 160,309 kilowatt-hours, with an estimated average annual carbon reduction of 79 metric tons of CO_2 emissions.

(7) Installation of Large-scale Energy Storage System

In response to the increasing green energy generation and the need for stable power supply in the port area, Su'ao Port Operations Office leased three plots of land, namely Lot 89-1, 89-2, and 89-3, located adjacent to Taiwan Power Company's Sudong Substation, to Fuhwei Power Co., Ltd. Fuhwei Power Co., Ltd. specializes in the development of green energy, storage facilities, and green energy trading. With an investment of 2.7 billion NTD, Fuhwei Power Co., Ltd. plans to setup with a total storage capacity of 150MW, capable of providing a maximum supply of 50MW per hour large-scale energy storage project in a Taiwanese port. The system will store the increasing amount of green energy generated and is expected to participate in Taiwan Power Company's ancillary services starting from the end of 2023, enhancing the stability of the regional power grid.

Environmental Issue

- Natural Carbon Sink, Greening the Port Area,Greening the Port Area,Energy Conservation and Carbon Reduction

Stakeholders

- Port leasing industry, port operators, Community

(8) Vessel Speed Reduction Program

In order to effectively reduce greenhouse gas emissions from fossil fuel combustion during vessel operations, Su'ao Port Operations implemented a Vessel Speed Reduction Program in 2015. The program focused on educating various types of vessels entering and leaving the port to reduce their speed to 12 knots or below within a distance of 20 nautical miles from the port. Starting from 2016, monitoring of vessel speed reduction compliance has been conducted using the Automatic Identification System (AIS) installed on the rooftop of a hotel near Tofu Cape.

The goal of the program, known as Vessel Speed Reduction (VSR), is to regulate vessel speed and achieve significant reduction in greenhouse gas emissions. In both 2021 and 2022, the achieved vessel speed reduction rates were 81% and 80% respectively, meeting the expected targets. This initiative has been instrumental in minimizing the environmental impact of vessel operations and contributing to the reduction of greenhouse gas emissions in the area.

Participating Units

- Suao Port Branch Office

Involvement and Collaboration

The Suao Port Branch Office actively collaborates with both domestic and international organizations, including governmental agencies, academics, and industries. Besides sustainable development related exchanges, there are also joint collaboration on technological research, investment, inspection, and academic seminar etc.

Association

Association of Pacific Ports (APP)

The APP aims to gather port authorities along the Pacific coast to discuss Pacific marine transportation development, seeking solutions for problems.

The International Association of Ports and Harbors

The IAPH is a NGO with tremendous influence on global port authorities, IAPH also provide the advisory to the main bodies of UN (eg. ECOSOC, IMO , UNCTAD , UNEP , ILO, WCO). The IAPH holds biennial conferences alternately in America, Asian Pacific, and European and African regions.

Port unit

LUNG TEH Shipbuilding CO.,LTD.

The Lung Teh Shipbuilding Co., Ltd.,The office has established an environmental policy to reach its goal of being a sustainable port through energy conservation and carbon reductions; pollution control and prevention; optimum utilization of materials and equipment.

FOXWELL Power Co., Ltd.

Suao Port facilitates the construction of a 50MW energy storage facility by Fuhwei Power Company. It provides AFC services to Taiwan Power Company, strengthening the stability of domestic power supply. The goal is to achieve "innovation, energy conservation, energy storage, and green energy trading" for the sustainable well-being of the planet.

Suao Port collaborates with Yongxin Company to create Taiwan's first port with a thin-film solar power generation system. The port has installed solar power systems on the rooftops of Warehouse No. 4 and Suao Pihsiang Machinery Electric Vehicle, making it the largest thin-film rooftop project in Taiwan.

Chii Lih Coral

Suao Port leased its old dormitory building to the Chii Lih Coral Company for development. The company opened a museum for tourists, a shopping mall, and a restaurant to create a new tourist venue in Yilan.

Pihsiang Machinery MFG. Co. Ltd.

Pihsiang Electric Vehicle MFG. Co., Ltd. The company introduced fully automated production facilities and adopted a zero-pollution electric vehicle production process that generates no industrial exhaust emissions or wastewater while providing a green traffic development opportunity.

National Taiwan Ocean University

National Sun Yat-sen University

National Cheng Kung University

In order to enhance international competitiveness and transportation quality, create a sound educational and academic research environment, and allow the port and educational institutions to prosper together, Taiwan International Ports Corporation signed a memorandum of cooperation with three public universities in 2012. In the future, the parties to the memorandum will be involved in academic exchanges, research and development, cooperative undertakings between companies and educational institutions, education and training, student internships, and port operation seminars. In addition to enhancing training quality, the educational institutions involved can also provide intelligence to port affairs companies, and thus play an active role in assisting practical port management and operations, which will achieve a win-win outcome.

Environment Protection Bureau

The Institute of Transportation at the MOTC has served as a think tank that assists the ministry with formulating policies, integrating and coordinating transportation related decisions, and establishing a communication network for industrial, governmental, and academic transportation organizations.

Ocean Affairs Council

To promote multilateral negotiation between Central and Local Governments, Ocean Affairs Council was inaugurated in 2018 and , serving as the official governing body in charge of the planning("Smart Monitoring System in Harbor Establishment Project"), coordination and implementation of marine-related policies.

The EPA, Executive Yuan collaborates with the US EPA in accordance with the "Agreement between the American Institute in Taiwan and the Taipei Economic and Cultural Representative Office in the United States for Technical Cooperation in the Field of Environmental Protection (1993)," and this partnership has led to development of a series of strategies relating to port environmental issues.

Central Maritime Affairs Center, Maritime and Port Bureau

North Maritime Affairs Center, Maritime and Port Bureau, MOTC is in charge of Port safety, disaster rescue, pollution prevention services , responsible of decree execution, evidence collection, conducts joint spot check and pollution prevention drills.

Yilan county Environmental Protection Department

Suao Port cooperated with the Yilan County Environmental Protection Bureau to conduct periodic port district joint inspections and drills, and assisted the Environmental Protection Bureau in implementing related meetings and plans.

Suao Township Office

Suao Port regularly collaborates with the Su'ao Township Office to organize harbor cleaning activities and assists in the daily disposal of waste generated in the port, ensuring a clean and well-maintained port environment.

07

Training

Employee Education

Suao Port conducts regular environmental education and occupational health and safety training to enhance employees' environmental awareness and promote lifelong learning. In compliance with the "Environmental Education Act," the port develops an annual environmental education plan, requiring each employee to participate in at least four hours of environmental education. In 2021 and 2022, several environmental education courses were organized, covering topics such as pollution prevention, natural disaster education, environmental monitoring, energy and environmental studies, and ecological education visits. These efforts aim to foster environmental stewardship and provide quality education for sustainable development.

Suao Port's 2021–2022 Environmental Education Courses

year	name	Sessions	Number of participants
2021	Luodong Nature Education Center Environmental Education Training	2	55
	"Salute to the Sea – Clean Home" Su'ao Port Clean Port Activity	1	100
2022	Dongshan River Ecological Oasis Environmental Education Center Environmental Education Training	2	54
	"Salute to the Sea – Together for a Better Port" Su'ao Port Clean Port Activity	2	78
Total		6	287

Respect the Sea – Clean Home

Salute to the Sea

Environmental Education Training

Environmental Education Training

Environmental Education Training

Environmental Education Training

08

Communication and Publication

Communication & Publication

In order to maintain ongoing communication with stakeholders and the public, Su'ao Port regularly conducts interviews with stakeholders and collaborates on various activities, discussions or seminars, workshops, public events, websites, publications, promotional materials, and exhibition spaces. These initiatives aim to provide accessible and transparent information about Su'ao Port to the general public, port stakeholders, academic institutions, and other relevant business units within the company.

Stakeholder Interviews

Maritime and Port Bureau of the Ministry of Transportation (left) and Yilan County Environmental Protection Bureau (right)

Suao Township Office

Suao Port Cargo Handling Contractor

Suao Port Shipbuilder

Exchange/Symposium

Environmental Education Course of the Ministry of Transportation Staff Association Visits Suao Port for Exchange

Suao Port Area Operators, Shipping Companies, and Cargo Owners Symposium

Activities involving port operators

Activities related to port operators

Communication & Publication

Websites

Taiwan International Ports Corporation (TIPC) has established a "TIPC Green Policy" webpage in both Chinese and English to showcase the achievements of green port initiatives and facilitate communication and exchange with other countries on the international stage.

Publications

Publications

Port of Suao publications in 2021-2022

09

Green Accounting

Environmental Investment and Cost

The costs incurred by Suao Port Branch Office related to environmental issues can be mainly categorized into three aspects: employee training, environmental maintenance and management, and environmental monitoring. The objectives of these investments are to enhance employee environmental awareness, improve the environmental quality and maintenance of the port, strengthen emergency response capabilities, and increase public understanding of the port. The costs for these aspects are as follows:

In 2021 and 2022, Suao Port invested a total of EUR €170,824 and EUR €314,324 respectively in environmental-related costs(Rate of exchange 34.0).

- **Employees:** Personnel expenses for those involved in environmental operations education, employee education.
- **Environmental maintenance and management:** Port area landscaping, removing wastes, dredging port berths.
- **Environmental monitoring:** aspects such as air, nose, water quality, sediment and environmental inspections

Costs related to Environmental Issues at Suao Port (Unit: EUR)

Items	2021	2022
Employees	33,412	53,176
Environmental Maintenance and Management	131,500	243,588
Environmental Monitoring	5,912	17,559
Total	170,824	314,324

Environmental Assets

Suao Port aims to develop as a port for the import and export of miscellaneous goods in the Lanyang area, while also transitioning into a port with passenger and tourism functions. To achieve this goal, Suao Port Branch Office has developed a series of port development plans, which can be categorized into land improvement and building and infrastructure plans. These plans include the construction of Suo-Ao Port Travel Center, cleaning of abandoned fishing nets, repair of seawalls and dredging of water areas, improvement of port roads, and beautification and renovation of port public facilities.

In 2021 and 2022, Suao Port invested a total of EUR €130,912 and EUR €1,529,853 respectively in fixed assets related to environmental issues(Rate of exchange 34.0).

Assets invested in Environmental Issues in 2021 (Unit: EUR)

Project		Cost
Land Improvement	Association in relation to the Nanfang'ao Bridge incident	117,441
General building and Construction	Construction of the Suao Port Travel Center	13,471
Total		130,912

Assets invested in Environmental Issues in 2022 (Unit: EUR)

Project		Cost
General building and Construction	Construction of the Suao Port Travel Center	1,014,206
Land Improvement	Improvement of public road pavement in Suao Port in 2022	257,176
	Planting of flower beds around the Nanfang'ao Bridge in Suao Port in 2022	27,441
	Repairs and dredging of the temporary breakwater at Suao Port	122,118
	Renovation of the administrative building at Suao Port	108,912
Total		1,529,853

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Improvement Recommendations

In the face of global trends towards green and sustainable development, Suao Port embraces its vision and devises strategic plans that align with the demands of cruise tourism and local economic growth. With its finger on the pulse of the times, Suao Port is undergoing a transformative journey towards becoming a thriving port that integrates tourism and economic activities. This ambitious undertaking is guided by a blueprint of corporate social responsibility and a commitment to building a green and sustainable port.

As the global energy landscape undergoes significant changes, Suao Port is at the forefront, establishing ecological ponds for water resource recycling, embracing value-added green logistics, and executing dredging and soil backfilling projects. These initiatives not only promote green port policies but also enable Suao Port to provide exceptional services that support passenger transportation, cargo operations, tourism, and related industries. By collaborating closely with local governments, businesses, and communities, Suao Port becomes a catalyst for local economic development while upholding the principles of economic, environmental, and social sustainability. This holistic approach aims to create mutually beneficial outcomes.

Suao Port takes pride in its green port policies and ecological port certifications, and now, it looks forward to the next phase of aligning its commitments with the United Nations' sustainable goals. Beyond fulfilling its corporate responsibilities, Suao Port acknowledges the challenges posed by global climate issues and proactively enhances its environmental competitiveness. By doing so, it strives to become a resilient and sustainable port, leading the way towards a greener and more resilient future.

If you have any inquiries regarding this report, please contact us.

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