Port of Suao
Environmental Report

Environmental Report Work Team

Suao Port Branch Office of Keelung Port, TIPC., Ltd: Chief Secretary Chienming Lin, Senior Director Kuotung Chen, Manager Imin Lin, Assisstant Engineer Sincheng Chian

Advised by Taiwan International Port Corporation, Ltd: Executive Vice President Yingfeng Chung, Senior of Occupational and Safety Dept. Director Weichien Chang, Manager Zonxun Tsai, Assistant Technician Changjin Feng

Chief Editor: Chienming Lin
Executive Editor: Imin Lin
Layout Design: SinCheng Chian,
Aerial Photography: Minming Chen, Wenquan Lin
Examine & Revise: Rueytsair Lin, Kuotung Chen, Imin Lin, Sincheng Chian

Publishers: Taiwan International Ports Corporation, Ltd.
Address: No.10, Penglai Rd., Gushan Dist., Kaohsiung City 804, Taiwan (R.O.C.)
Tel : +886-7-5219000

This environmental report presents Suao Port' s achievements in environmental protection from 2017 to 2018 as well as the environmental policy, commitments and action plans of the Keelung Branch, Taiwan International Ports Corporation, Ltd.

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

Suao Port Branch Office of Keelung Port, TIPC
3F., No.1, Gangqu, Su' ao Township, Yilan County 270, Taiwan (R.O.C.)

CONTENTS

臺灣港務股份有限公司
基隆港務分公司
Port of Keelung, Taiwan International Ports Corporation, Ltd.
TIPC

Port of Keelung, Taiwan International Ports Corporation Environmental Policy

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 environmental performance.

We commit to:

- Regularly evaluate port environmental impacts and any pollution generated from port operation.
- Set environmental objectives to continuously lower environmental impacts.
- Comply with all relevant environmental regulations and aim at pollution prevention.
- Provide environmental education to build environmental awareness in all staff to completely implement our environmental policy.

The full understanding and mutual consent to this environmental policy have been reached by all the relevant parties, including employees, suppliers and tenants of Port of Keelung. This policy is open to the public on our website.

Shy-tzong Liou

President of Port of Keelung, TIPC

Date: Feb. 13, 2017

No.1, Chung-Cheng Road, Keelung 20202, Taiwan, R.O.C.
Tel:(02)24206100 Website: http://kl.twport.com.tw/

臺灣港務股份有限公司
基隆港務分公司
PORT OF KEELUNG TAIWAN INTERNATIONAL PORTS CORPORATION, LTD
TIPC

Port of Suao Environmental Objectives

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.

- **Improve air quality-Monitor air quality in the port area; conduct stricter environmental inspections of the port area and environmentally friendly strategies to implement on ships**
- **Avoid fugitive dust-Plan vehicle travel routes and install sprinklers to effectively reduce dust**
- **Reduce waste in the port area-Appropriate waste disposal and the recycling and reuse of resources to prevent unnecessary wastage of resources**
- **Reduction of noise within the port area-Monitor noise in the port area and increase control over transportation noise**
- **Increase development in the port land area-Develop value-added logistics port in green energy industries and promote transshipment and water recreation areas for tourism**
- **Strengthen the relationship with the community-Disclose information, encourage public participation, and create more opportunities for interaction with local communities**
- **Reduce cargo spillage-Improve operational control and autonomous management at docking areas and reduce cargo spillage**
- **Reduce vehicle pollution in the port area-Implement regulations to manage emission sources in the port area and control pollution from vehicle emissions**
- **Improve Energy Efficiency-Appropriate use of energy and resources in the port to increase energy efficiency**
- **Prevent waste oil and sewage discharge from ships-Establish a mechanism for waste oil recovery for ships to prevent ships from spilling waste oil and sewage**

The Senior Director of Suao Port Branch Office is responsible for the implementation, maintenance and communication of the environmental objectives. To fulfil commitments, the objectives and corresponding action plans are reviewed and adjusted to the condition of the Port.

President of Port of Keelung,TIPC : Shy-tzong Liou

Senior Director of Suao Port Branch Office : Kuotung Chan

Date : 2017. 12. 31

Suao Port Branch Office of Keelung Port, TIPC Website: http://kl.twport.com.tw/su/
Address: 27046No1, Gangcyu, Su-ao Township, Yilan County 270, Taiwan, R.O.C. Tel:886-3-9965121

Message

01/

Message from the President of Port of Keelung Taiwan International Ports Corporation ,Ltd

In keeping with concepts of global sustainable development, enterprises have adopted low carbon emissions and a vision of a sustainable future as core values. Taiwan International Ports Corporation leads the way in developing strategies that foster sustainable development. It is our hope that, even with limited corporate and manpower resources, we can use the concept of sustainable development as a basis for developing a heightened awareness of environmental issues such as green ports, corporate environmental responsibility, and sustainable development. We hope to create sustainable opportunities, enhance the quality of the port environment, provide impetus for the goal of sustainable port development, and ultimately become a benchmark enterprise against which other international sustainable ports can be measured.

The blueprint for the development of Suao Port comprised the dual goals of dredging to increase bulk cargo imports and exports in the Yilan area and the development of a passenger transportation hub and tourism/recreation port area. We collaborated with the Yilan County Government to launch the Su Nan Station Plan, integrated the resources of Nanfang' ao and the port, established multifunctional transit stations, and made effective use of the land in the port area by opening up investment opportunities and establishing a modern tourist port terminal. Besides developing freight and passenger transportation, we also strove to mitigate environmental impacts caused by port operations. The management of environmental resources is a vital link in the chain of sustainable green development. We set up ecological ponds to make more efficient use of water resources and engaged in cooperative development with green industries. We anticipate achieving our goal of being an eco-friendly port and participating in global sustainable construction efforts through the green port certification process.

Shy-tzong Liau

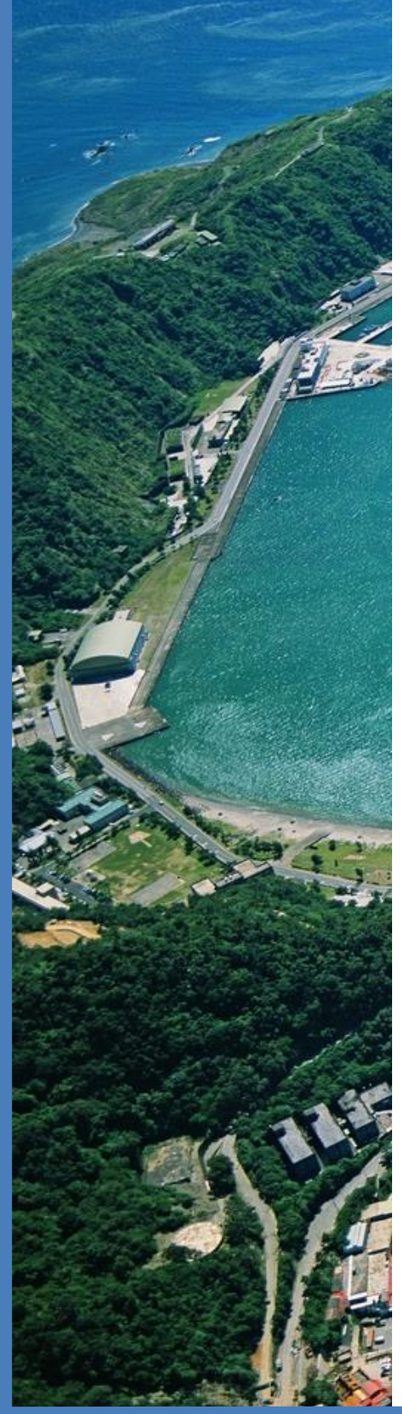
President
Keelung Branch of TIPC

Port Profile

02/

02/

Port Profile

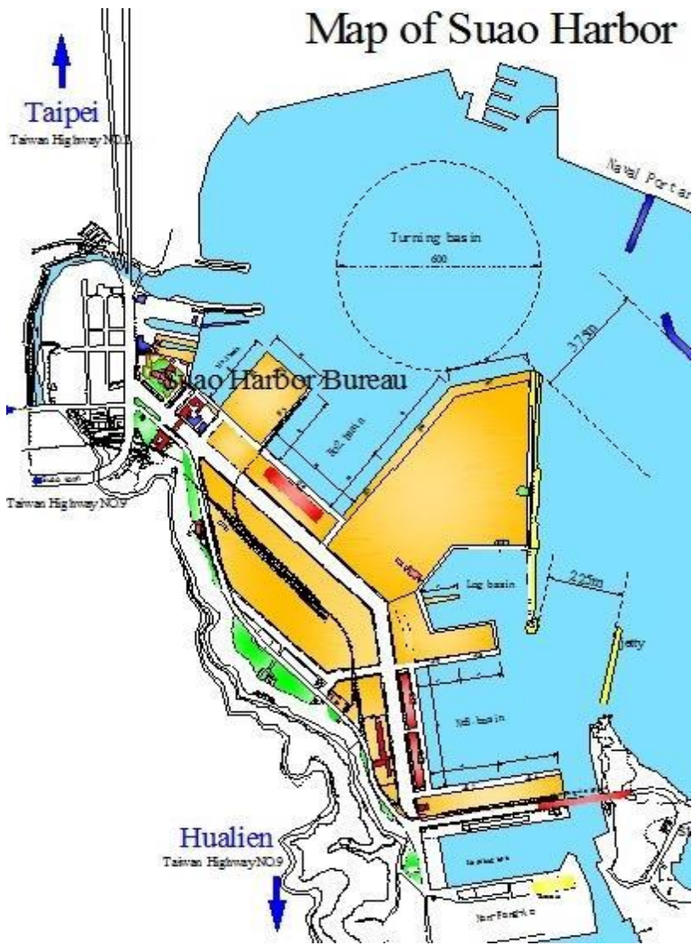


Commercial Activities

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.

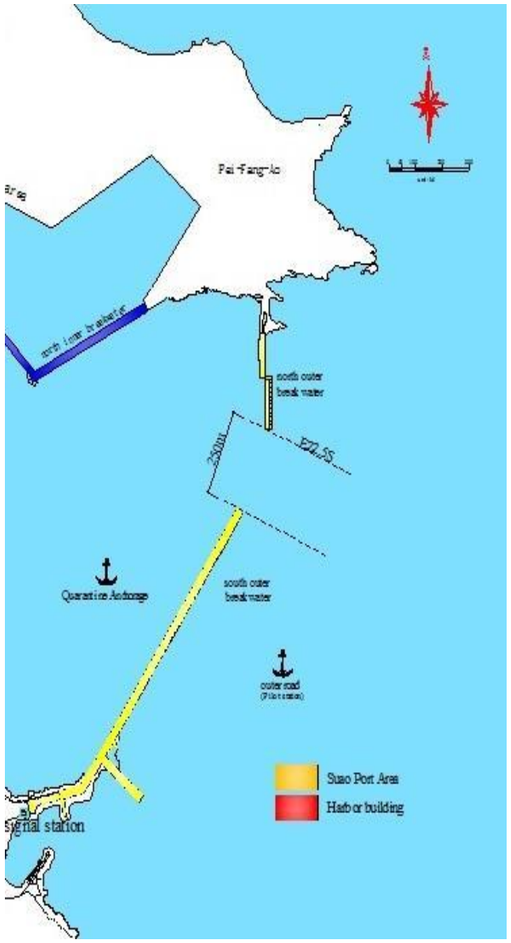
>>Map of Suao Harbor



Legal Status and Port Operators

The Taiwan International Ports Corporation, Ltd. Establishment Act was promulgated on November 9, 2011, Taiwan amended the Commercial Port Law on December 28, 2011. In March 2012 the maritime system changed to a "separation of government and corporation" method. Previously publicly managed organization was transformed into state enterprise organizations, which combined port operation originally under Keelung Port Bureau, Taichung Harbor Bureau, Kaohsiung Harbor Bureau, and Keelung Harbor Bureau into a company managed system.

This solved previous problem of commercial ports being limited by legal and system restrictions, which caused an inability to respond to market changes and decreased competitive strength. After restructuring of the Keelung Port Bureau, stevedore operation business is now the responsibility of the Suao Port Branch Office. and the port administration and management of Suao Port was governed by the Suao Branch of the North Taiwan Maritime Affairs Center of the Maritime and Port Bureau under the Ministry of Transportation and Communications.

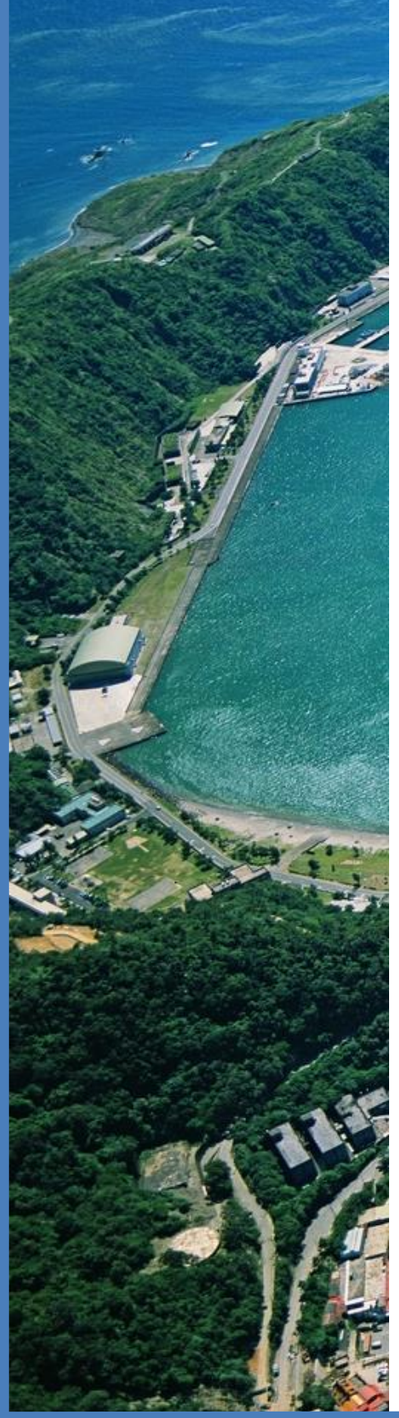



South Gate

New North Gate

02/

Port Profile



Commercial Activities

The Suao port has 13 docks with a total length of 2,610 meters, including 1 port service vessel dock and 12 operations docks (6 bulk cargo docks, 1 coal dock, 1 oil cargo dock, 2 cement docks, and 2 chemical cargo docks).

Suao Port providing cargo consisting of oil products, cement, coal and chemicals bulk cargo services. Bulk and general cargo is the main service target, consisting of dry bulk and liquid bulk cargo, petroleum and general cargo.

>>Main Commercial Activities and Cargo

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

Main Cargoes

The main import cargo at Suao Port for 2017 and 2018 was mineral products, followed by base metal products and chemical or industrial products. Main export cargo was chemical or industrial products, followed by mineral products, and base metal products.

>> 2017-2018 Main Import Cargoes

Type	2017	2018	Comparison of changes in 2017 & 2018	
			Difference	%
Ores products	1,791,122	1,939,778	148,656	8.30
Chemical or Industrial products	500,712	307,296	-193,416	-38.63
Base metal products	221,619	274,067	52,448	23.67

>>2017-2018 Main Export Cargoes

Type	2017	2018	Comparison of changes in 2017 & 2018	
			Difference	%
Ores products	80,430	90,215	9,785	12.17
Chemical or Industrial products	37,905	50,900	12,995	34.28
Base metal products	191,644	89,050	-102,594	-53.53

>> Business statistics 2017-2018

Business item		2017	2018	Comparison of changes in 2017 & 2018	
				Difference	%
Incoming and outgoing ships	Total number of ships (vessel)	526	530	4	0.76
	Total tonnage (ton)	6,679,601	6,753,440	73,839	4.86
Cargo throughput	Imported cargo (metric ton)	2,520,391	2,524,611	4,220	0.17
	Exported cargo (metric ton)	314,864	230,416	-84,448	-26.82
	Domestic cargo (metric ton)	1,356,661	1,735,078	378,417	27.89
	Total (metric ton)	4,191,916	4,490,105	298,189	7.11
Number of travelers	Total number of travelers (number of people)	55,648	30,994	-24,654	-44.30

Environmental Management

03/

03/

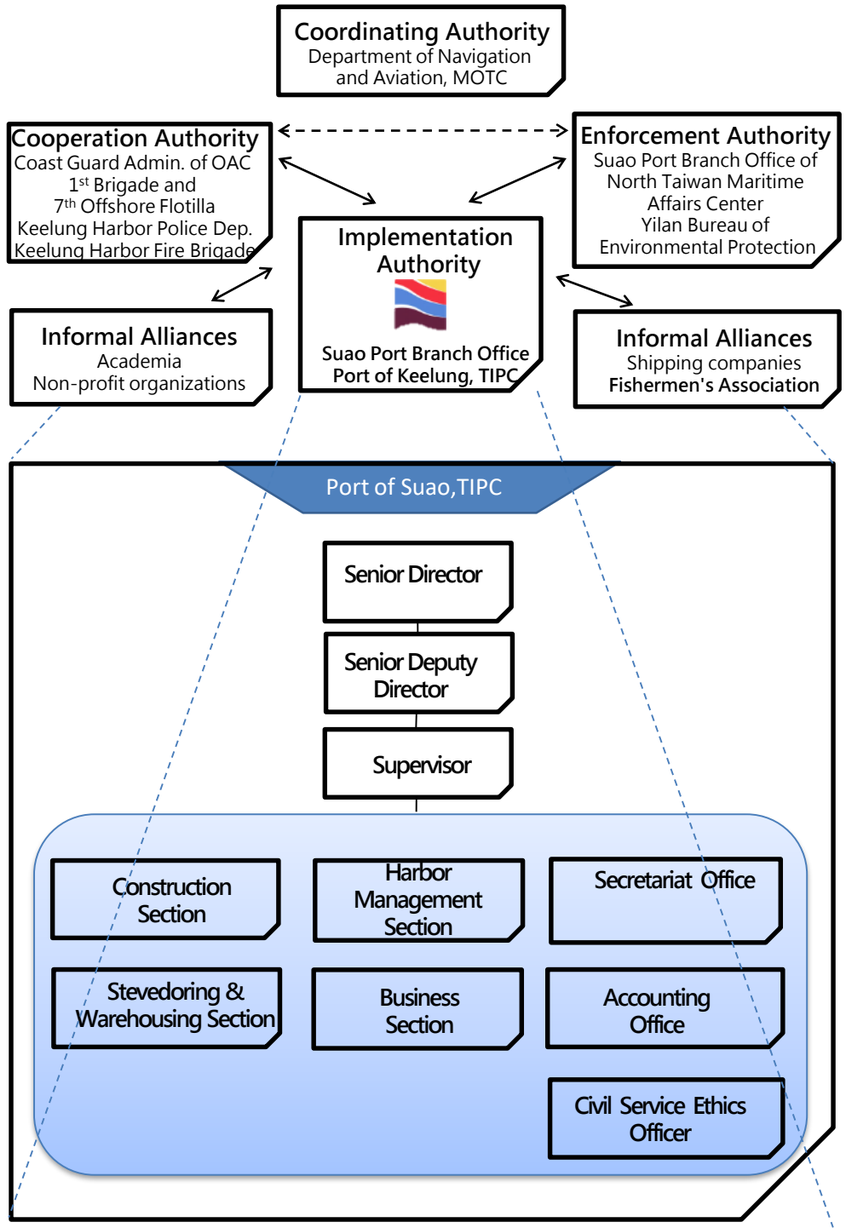
Environmental Management

Port Location and Port Area

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, Environ-mental Protection Department of Yilan county Government, Environmental Protection Administration of Executive Yuan, 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.

Section/Office	Description
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



Relevant International Regulations

The Suao Port Branch Office follows relevant international specifications, such as International Convention for the Prevention of Pollution From (MARPOL73/78), London Dumping Convention, International Convention on the Control of Harmful Anti-fouling Systems on Ships etc.

In addition to the international environmental specifications and conventions, the Suao Port Branch Office collaborates with local authorities to manage the environment in the Port in compliance with relevant environmental laws and regulations in Taiwan. The follow table lists the relevant environmental laws and regulations related to ports in Taiwan.

Laws Title			Central Competent Authority	Local Law Enforcement Agencies
Sectors in the Ministry of transportation and communications	The Commercial Port Law	2011/12/28	Ministry of Transportation and Communications	North Maritime Affairs Center, Maritime and Port Bureau, MOTC
	The Law Of Ships	2010/12/08		
	Shipping Act	2014/01/22		
	Act for the Establishment and Management of Free trade zones	2012/12/28		
Sectors related to agricultural	Wildlife Conservation Act	2013/01/23	Council of Agriculture	Department of Economic Affairs, Yilan County Government
Sectors in the Ministry of the Interior	Fire Services Act	2017/01/18	Ministry of the Interior	Yilan County Fire Department
				Yilan county Fire Bureau
Sectors related to environmental protection	Marine Pollution Control Act	2014/06/04	Environmental Protection Administration	Environmental Protection Bureau, Yilan County Government
	Basic Environment Act	2002/12/11		
	Air Pollution Control Act	2018/08/01		
	Water Pollution Control Act	2018/06/13		
	Waste Disposal Act	2017/06/14		
	Environmental Impact Assessment Act	2003/01/08		
	Noise Control Act	2008/12/03		
	Environmental Education Act	2017/11/29		
	Indoor Air Quality	2011/11/23		
	Toxic and Concerned Chemical Substances Control Act	2019/01/16		
	Soil and Groundwater Pollution Remediation Act	2010/02/03		
	Environmental Agents Control Act	2016/12/07		
	Greenhouse Gas Reduction and Management Act	2015/07/01		
	Public Nuisance Dispute Mediation Act	2009/06/17		Public Nuisance Disputes Mediation Committee, Yilan County Government
Intersectoral	Disaster Prevention and Protection Act	2019/05/22	Ministry of the Interior	Yilan County Government

03/

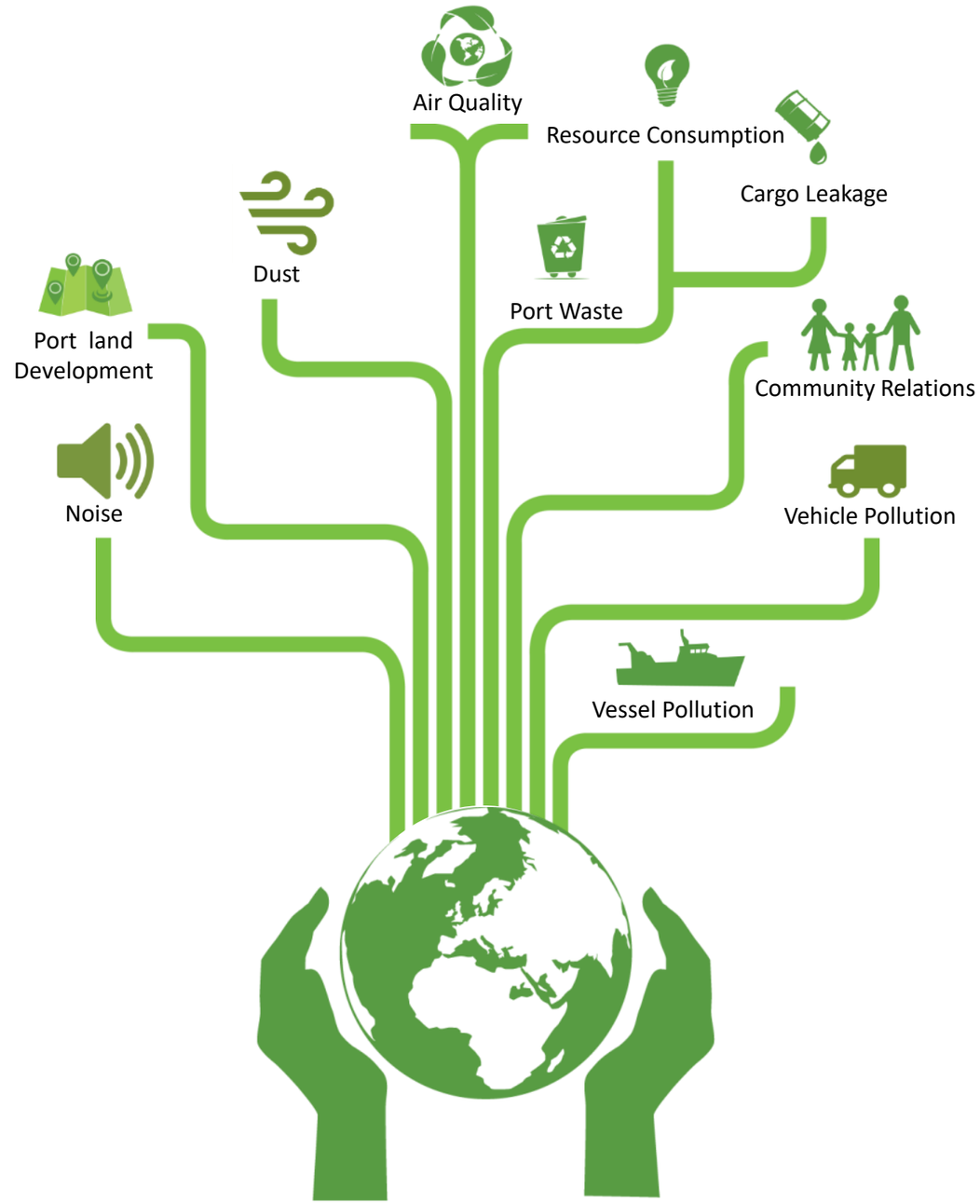
Stakeholders

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.

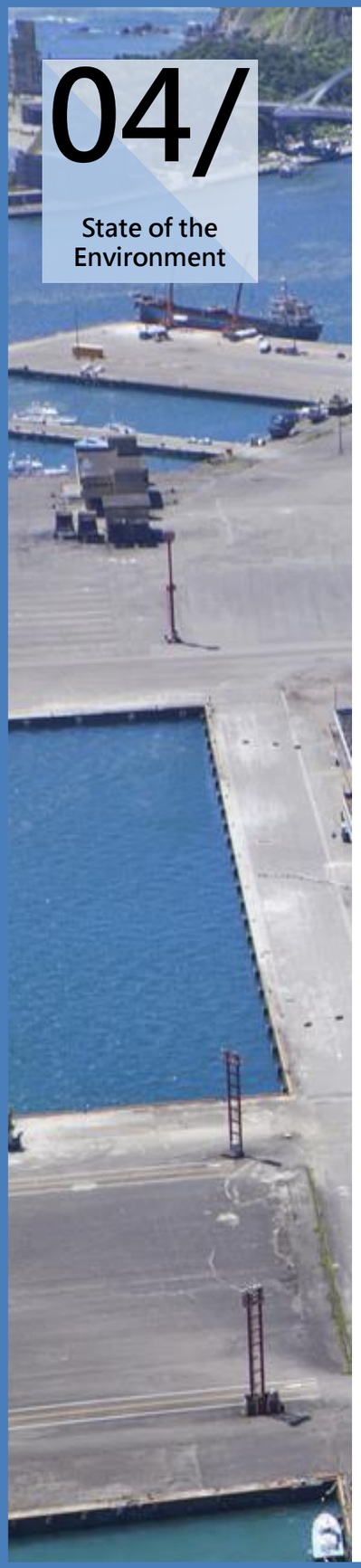
Sector	Environmental Concerns	Relevant Environmental Objectives
Government	Port surroundings, Dust emissions, Noise, vehicle pollution, Collaboration with local government	I. Air quality II. Dust emissions IV. Noise V. Port land development VI. Community relations VIII. Vehicle pollution
Employee	Living quality for local community, Resource management	III. Port waste V. Port land development VI. Community relationships XI. Resource consumption
Clients	Air quality, Cargo handling, Dust emissions, Pollutions from vehicles and vessels	I. Air quality II. Dust emissions V. Port land development VII. Cargo leakage VIII. Vehicle pollution X. Vessel pollution
Community	Air quality, vehicle pollution, Port surroundings	I. Air quality II. Dust emissions III. Port waste IV. Noise V. Port land development VI. Community relationships VIII. Vehicle pollution

Port of Suao Environmental Issues



State of the Environment

04/



04/

State of the Environment

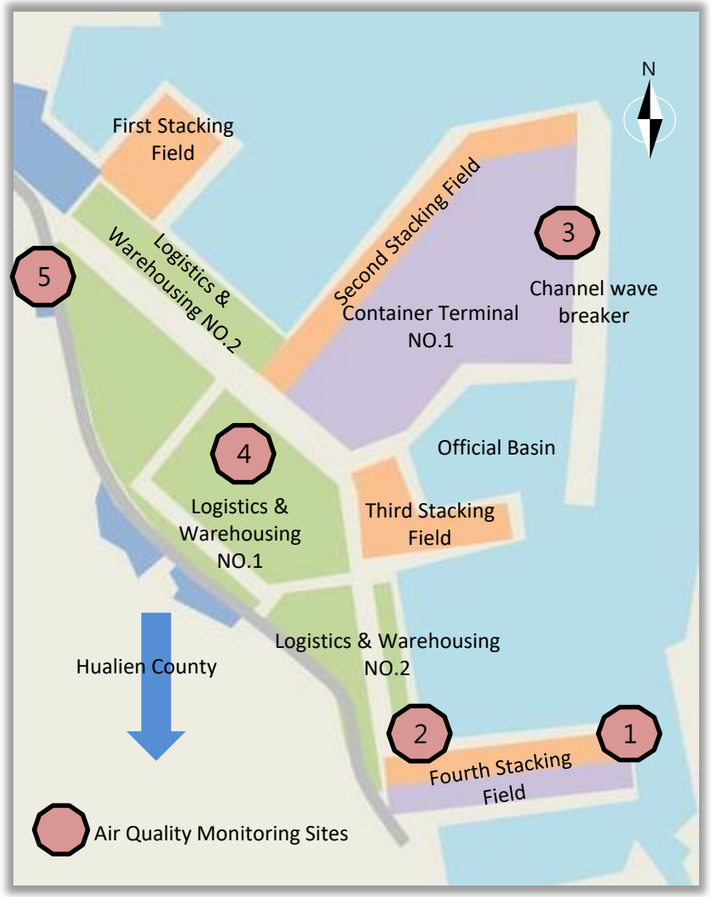
Air Quality

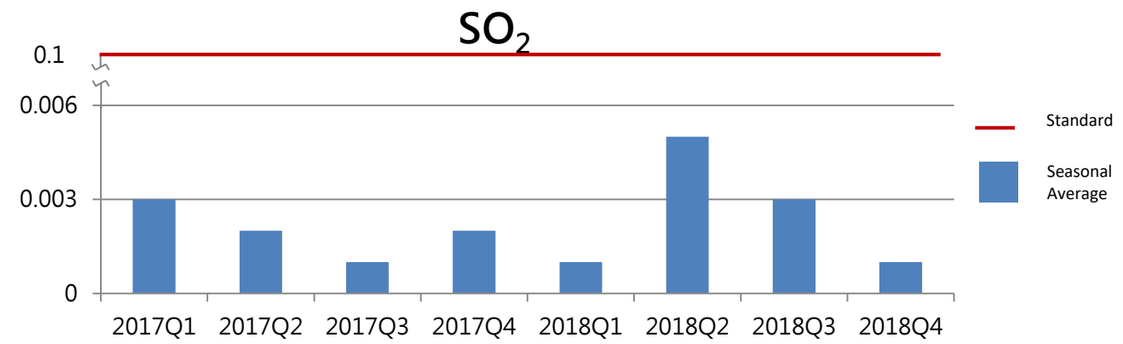
The main air pollution sources of Suao Port include particulates resulting from stevedoring, smog caused by vessel fuel, and dust emitted by construction sites.

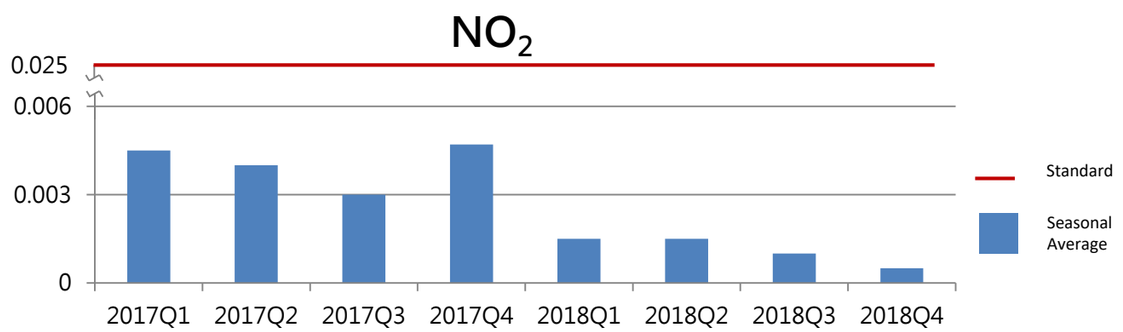
Suao Port has designated pre-venting dust emission and reducing vehicular pollution in port areas as independent environmental issues, and environ-mental friendly vessel policies and shore power systems to achieve the goal of improving air quality in port areas.

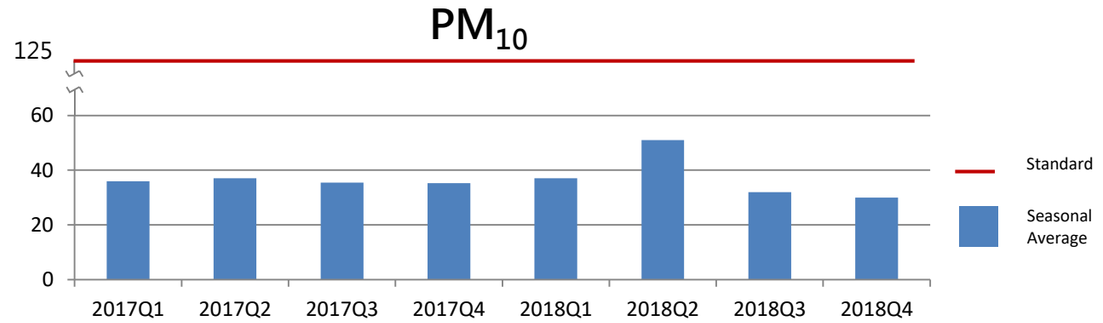
The Suao Port conducts air quality monitoring in 5 location. The monitoring items include fine suspended particles ($PM_{2.5}$ & PM_{10}), sulfur dioxides (SO_2), nitrogen dioxide (NO_2), etc. In 2017 and 2018, all monitored items meet the air quality monitoring requirements announced by the Environmental Protection Administration.

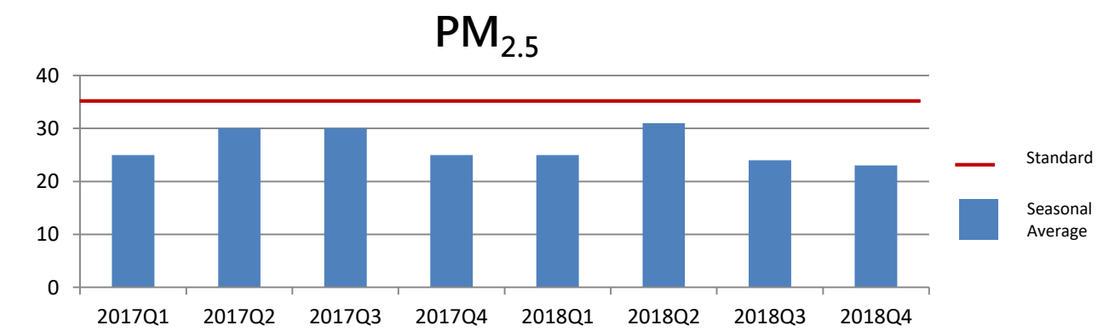
>>Air Quality Monitoring Sites

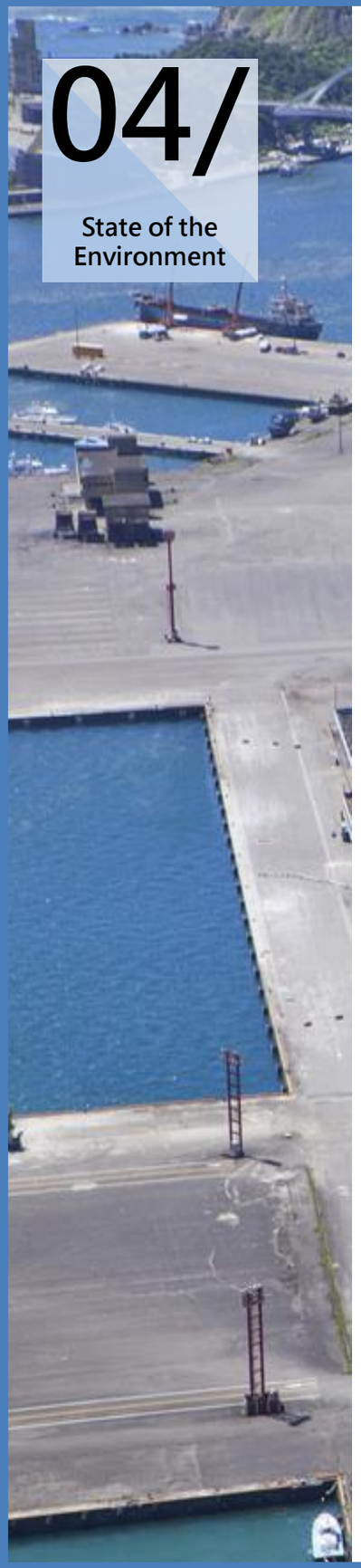












04/

State of the Environment

Greenhouse Gas Emissions

In order to achieve carbon reduction, sources of green house gases (GHGs) emissions must be identified first.

Suao Port uses the Taiwan Air Pollution Emission Line Source Manual to calculate port GHG emissions from vessels and resources consumption.

Carbon Emissions from Ships

The Taiwan air pollution emission [TEDS 8.1] line source manual calculation formula was adopted to estimate carbon emissions by ocean-going vessels:

Ocean-going ship carbon emissions($kgCO_{2e}$) =
Fuel consumption (L)× Emissions factor ($KgCO_{2e}$/L)× Control factor

Note:
Fuel consumption (L) = Cargo throughput (ton)× Energy density (L/ton-km)× Harbor travel distance (km)×1000 (kg/ton)

A ship entering the harbor may switch to marine diesel oil, the properties of which are similar to those of regular diesel fuel. Therefore, the 2015 diesel fuel carbon emission factor in the EPA carbon factor database is used as a reference for the emissions factor.

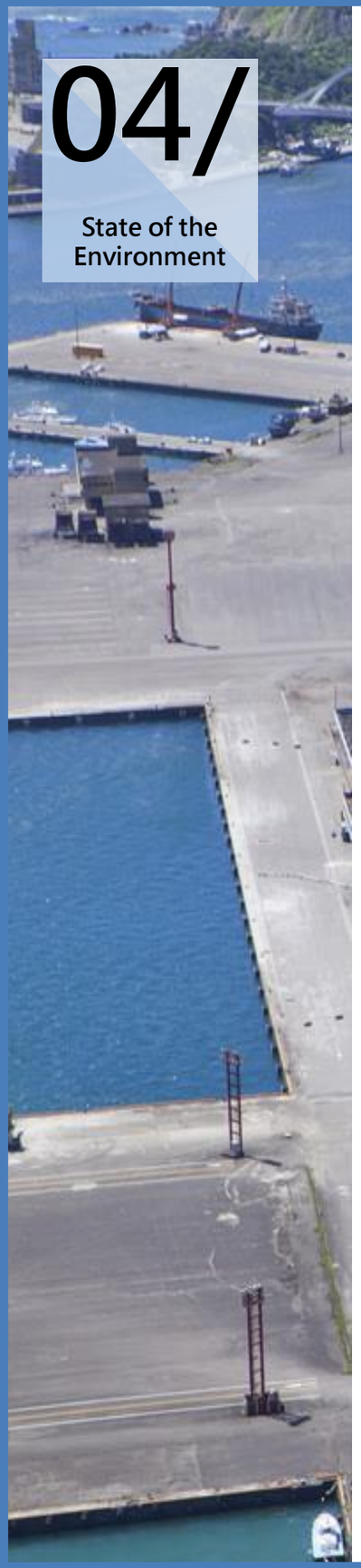
>>2017-2018 Ocean-Going Ship Carbon Emissions

Year	Total Cargo Throughput (ton)	Energy Density (L/ton-km)	Harbor Travel Distance (km)	Fuel Consumption (L)	Emissions Factor ($kgCO_{2e}$/L)	Carbon Emissions (ton)
2017	4,191,916	0.003	12	150,909	2.65	399.91
2018	4,490,105	0.003	12	161,644	2.65	428.36

Carbon Emissions from Resource Consumption

>>Carbon Footprint of Resource Consumption at Suao Port

Resource	Emission Coefficient $kgCO_{2e}$		2017		2018	
	2017	2018	Amount of Resource Consumed	Carbon Emissions (ton)	Amount of Resource Consumed	Carbon Emissions (ton)
Water (m3)	0.152	0.162	1,629	0.25	1,771	0.29
	Tai-Water Company					
Electricity (kWh)	0.554	0.533	366,192	202.87	357,048	190.31
	National Ave Emission					
Fuel (L)	2.263		152,831	345.86	154,160	348.86
	EPA 2019					
Paper (Pack)	2.8		152	0.43	137	0.38
	Pack A4,70 pounds					
Total				549.40		539.84



04/ State of the Environment

Air Quality Improvement Strategies

Environmental Friendly Vessels

The main pollution sources of Suao Port include particulates resulting from stevedoring, smog caused by vessel fuel, and dust emitted by construction sites. Moreover, Suao Port has designated “preventing dust emission in port areas” and “reducing vehicular pollution in port areas” as independent environmental issues, and environmental friendly vessel policies, and shore power systems to achieve the goal of improving air quality in port areas.

One example is the use of onshore power systems when port service vessels are berthed at the government terminal. The barge dock and the old lumber basin dock have a total of 10 sets of onshore power systems installed to reduce vessel engine exhaust emissions
in berthed vessels. In addition, the Suao Port encourages vessel speed reduction (VSR), which is to reduce speed of vessels within 20 nmi to the port to under 12 knots to abate air pollution.

>>Shore Power Services at Suao Port

Operating enterprise	TIPC Marine Corp.	CPC	Customs Office	Coast guard	Dancewood Yacht
Wharf	Barge wharf	Timber storage wharf			
# of units	5	1	2	7	2

Fugitive Dust Emission Control

Suao Port’s main business is cargo importing and exporting in Taiwan. The primary cargoes are raw materials such as coal, fuel oil, slag, steel billets, and cement, as well as gravel and other bulk cargo stevedoring operations that generate large amounts of dust.

A dust management strategy was adopted to reduce dust pollution and maintain a good working environment and quality of life in the port and downtown area.

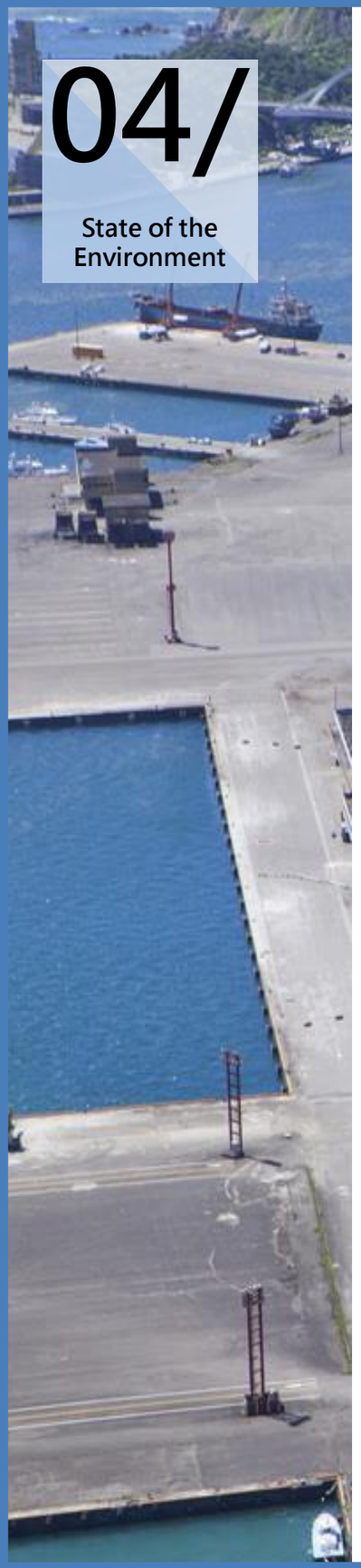
The port took measures to improve its dust-proofing facilities, including creating additional locations for weigh stations and vehicle washing stations, shortening vehicle driving distances, improving the efficiency of the spray jets at vehicle washing stations, and achieve the goal of reducing dust levels outside of the
port.

>>Suao Port Fugitive Dust Control Measures

Aspects	Dust Control Measures	
Cargo Handling	• No dust emissions, no landing, and tight sealing • Utilize automated coal unloading machines to increase operational efficiency and reduces emissions. • Encourage cargo handling industries to implement dust-control meshes • Deploy mobile sprinkling system	Dust Suppressing Devices: • Water Spray: 15 units • Dust-control meshes: 24 units • Automatic Coal Cargo Handler
Vehicle Control	• Create additional weigh stations and vehicle washing stations • Install automated gates to enhance car wash station effectiveness • Sweep inner and neighboring roads on a daily basis	

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.



04/ State of the Environment

Water Quality

The Suao Port Branch Office proposed the Port Area Pollution Prevention and Reduction Measures plan to monitor port water quality; control domestic sewage, wastewater from port operations, and runoff waste-water; monitor water temperature, pH, DO, BOD5, mineral oil, and E. coli levels.

Suao Port carry out quarterly sample testing for Type B ocean environment quality standards. The compliance rate for 2017 and 2018 was 100% for all categories.

Suao Port water quality

Indicators	Standards	Measurements	Pass rate(%)
water temperature(℃)	-	20.5~29.4	-
pH	7.5~8.5	6.8~8.1	100
DO(mg/L)	≧5.0	5.1~7.5	100
BOD_5(mg/L)	<3	<1.0~2.4	100
Mineral oil (mg/L)	<2	N.D.~1.67	100
Coliform Group (CFU/100mL)	-	0~1900	-

Note: Environmental quality standards for class II marine water bodies are referenced when examining the port's water quality

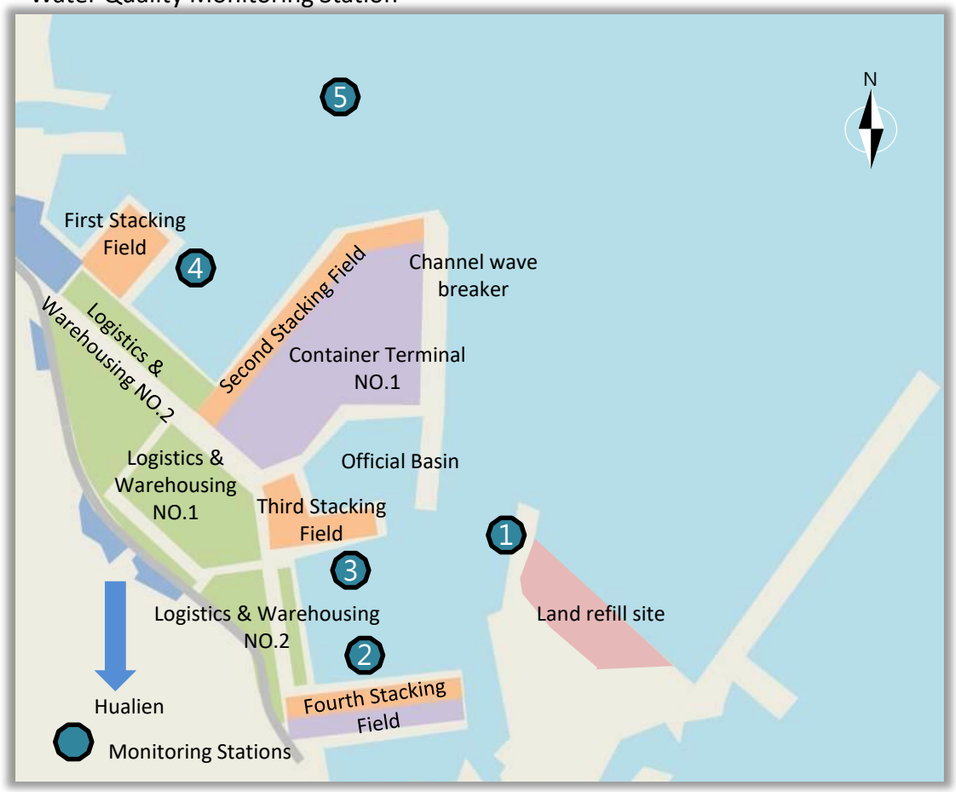

Taking Water Sample

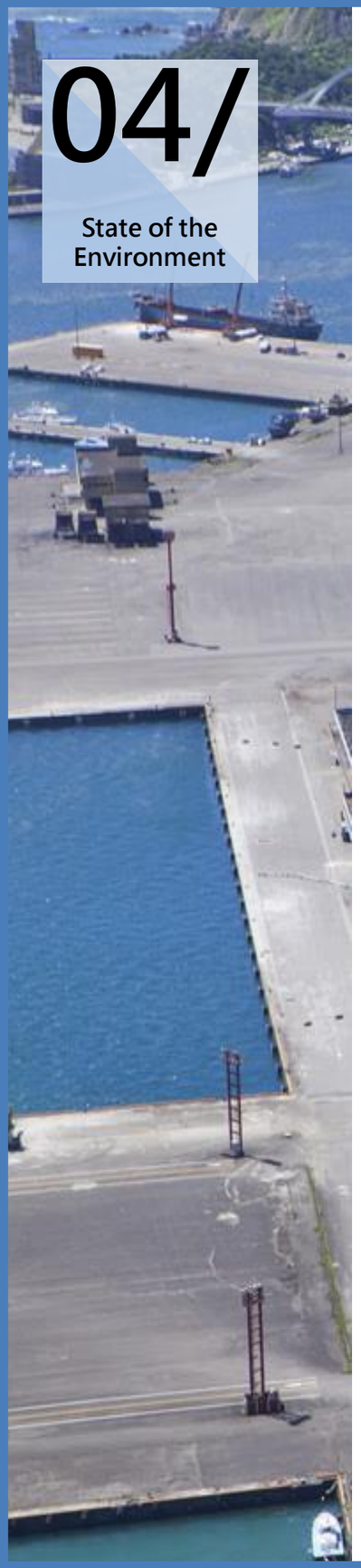
Water Quality Improvement Strategies

The Suao Port water quality improvement strategies

Type	Area	Improvement Strategies
Domestic wastewater	Port office building	• A certified cleaning service was hired to clean and dispose of septic tank sewage. • The sewage system was integrated with the Yilan County Sewer System.
Wastewater from port operations	General Cargo Wharf	• A grit chamber is used to recycle and reuse wastewater from vehicle washing stations. • Port traffic routes were reformulated to reduce emissions of pollutants. • The purchase of 24 dust proof containers and 15 sprayers to reduce stevedoring pollution is planned.
Runoff wastewater	Container Yard	• A dedicated runoff wastewater drainage system has been installed in the wharf area.
	Pass and space	• Drainage ditches have been installed at the roadsides. • Regular cleaning of road surfaces is conducted. • Construction improvements to runoff wastewater collection from 3 port sewers were completed.

>>Water Quality Monitoring Station





04/ State of the Environment

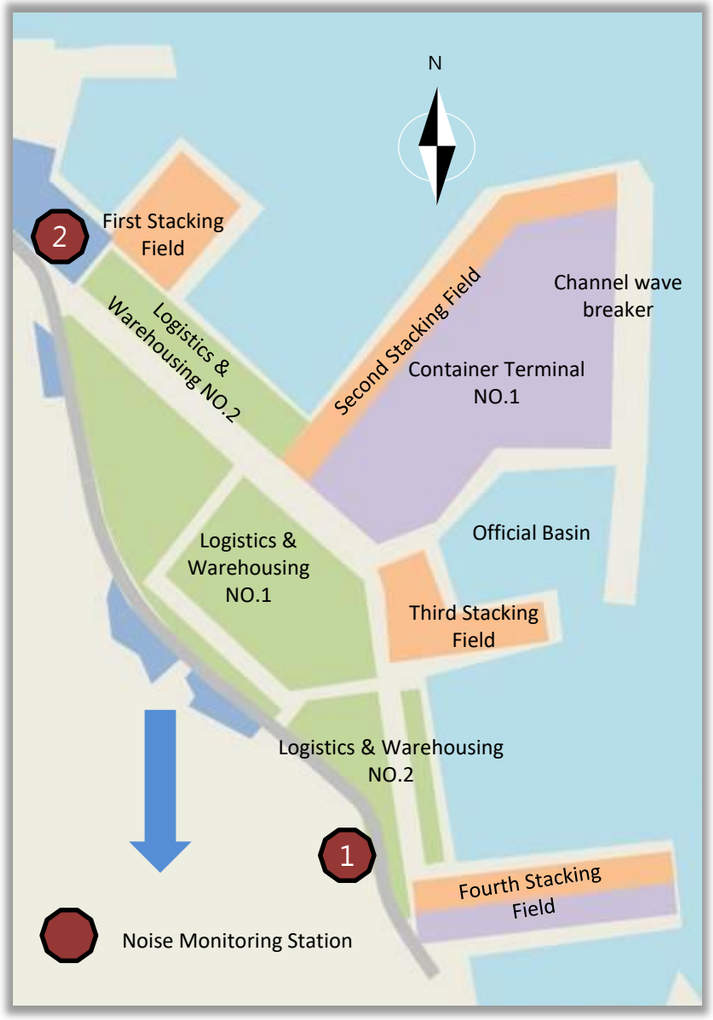
Noise

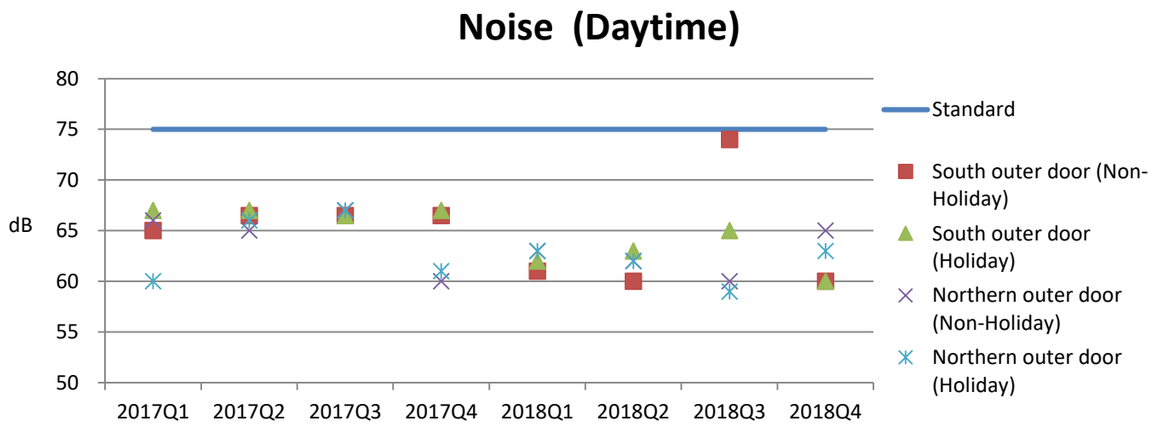
Since stevedoring and dispatching work at the Suao Port Branch Office is continuous and truck traffic volume is enormous, the noise pollution problem is one of the top environmental topics of concern among neigh-boring residents.

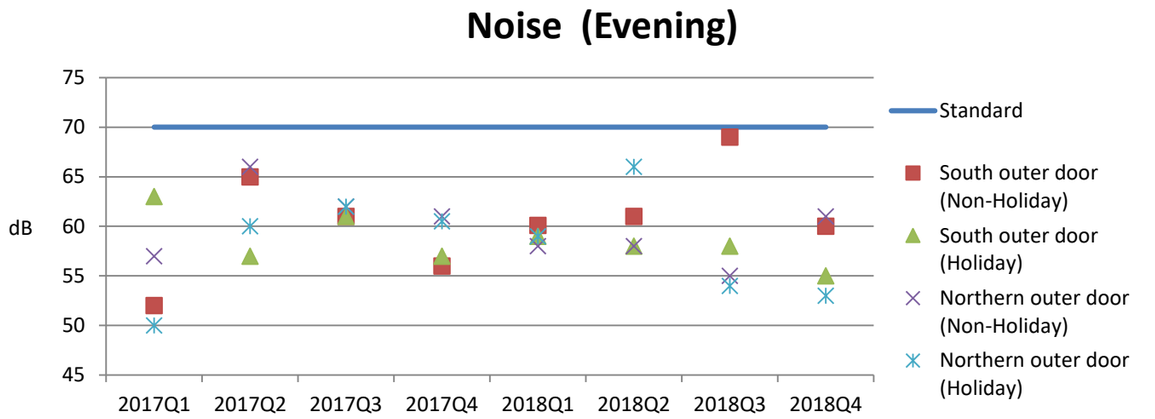
The Suao Port Branch Office requires that all commercial operations, vessels, and vehicles must comply with noise control standards.

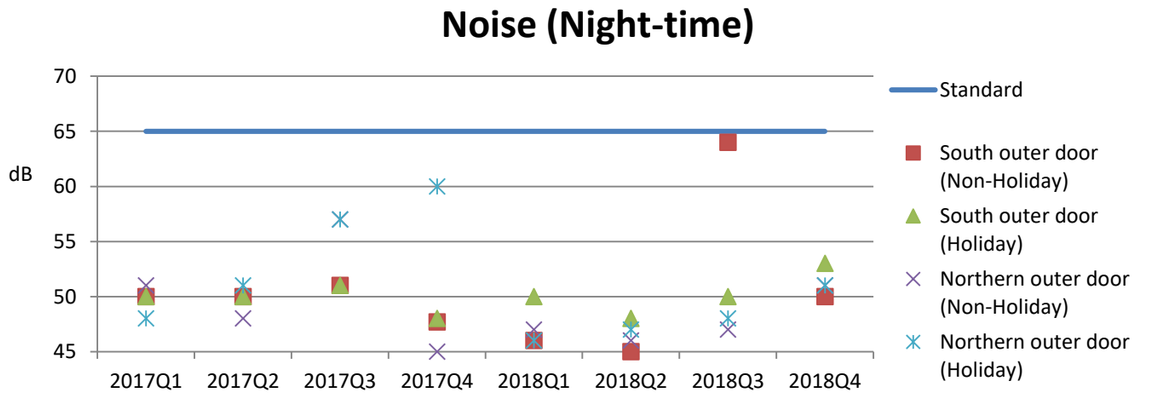
The Suao Port Branch Office created an access road buffer zone to reduce crossover be-tween port district and residential traffic, reduce vehicle noise, and ensure safe traffic and a peaceful community.

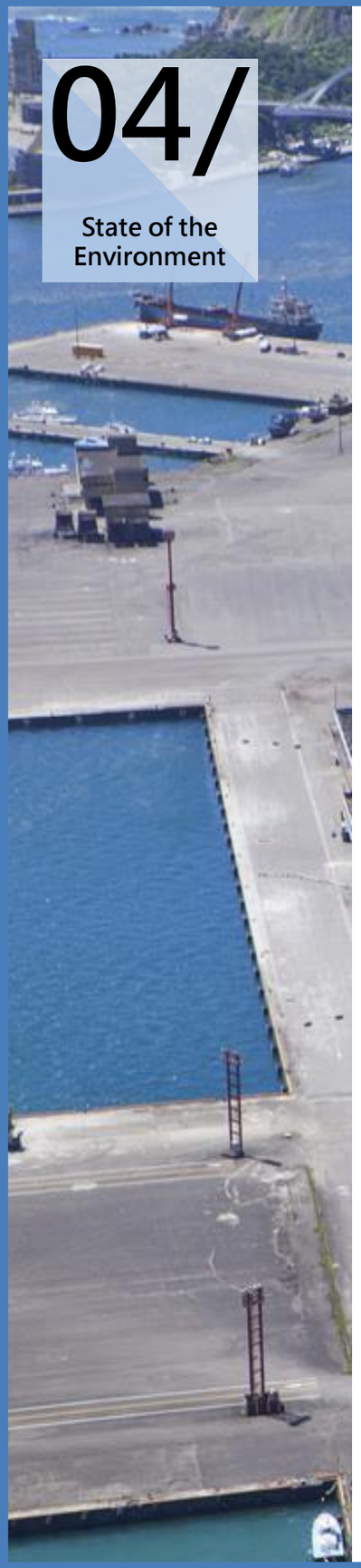
According to port environmental quality monitoring results, the rate of compliance with noise control standards stood at 100% for both 2017 and 2018.











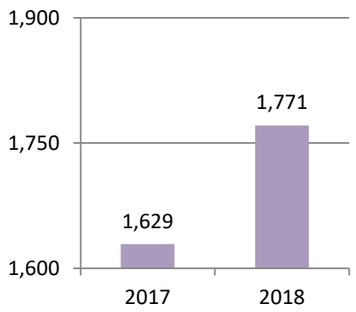
04/ State of the Environment

Reduce Port-generated Waste

The port monitors its consumption of energy and re-sources in accordance with the “Energy and Resources Saving Project”. While there was an increase in water consumption in 2017 and 2018, the consumption of electricity, oil, and paper decreased, indicating that Suao Port’s energy and resources improvements were effective to a degree.

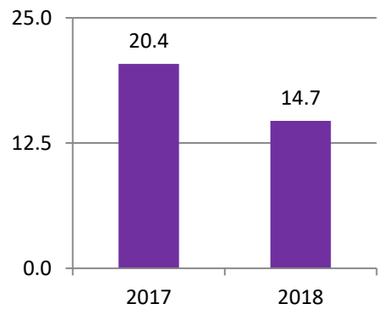
Suao Port conducted water, electric, oil, and paper savings management, and formulated strategies for improvements in water resources utilization in 2016. The port plans to build a 500-ton ecological pond to improve water usage efficiency.

Water (1000m³)



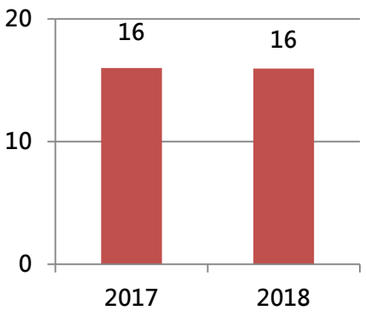
The main factor in increase of water consumption was due to increase of water usage

Electricity (10MWh)



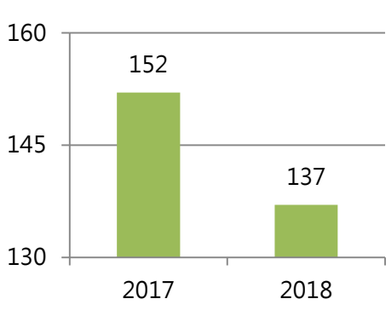
The Suao Port Branch Office encourages turning off lights when leaving, turning off lighting in public spaces during break time, staggering hallway lighting, and replacing all lights with energy saving LED bulbs.

Fuel (10,000 L)



The port encourages ride sharing in government vehicles, regular inspections of gas consumption, and improved management of government vehicle usage.

Paper (Pack)



The Suao Port Branch Office is dedicated to encouraging on-line use of administrative and service procedures, increasing the likelihood of online document signing.

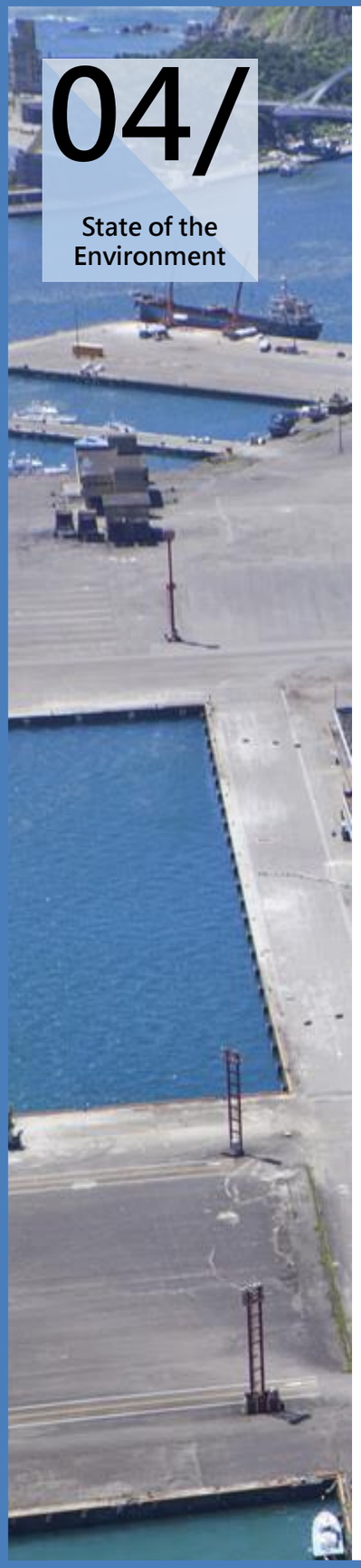
Strategies for Reducing Resource Consumption

In order to reduce resource consumption, Suao Port has been keeping records of water, electricity, fuel, and paper usage to actualize green accounting.

>> Resource Savings Strategies of Suao Port

Category	Strategies
Water	• A 500-ton ecological pond to draw water to the port’s three 200-ton reservoirs was established
Electricity	• Turn off unnecessary lights in hall ways • Gradually replace traditional lightings to energy saving once • Do not use AC under 28℃, and keep office above 26℃ • Turn off office lightings during lunch break • The three elevators in the administrative building are utilized in rotation to conserve energy.
Fuel	• Promote ride sharing • Limited idle speed duration to less than 3 min • Regularly recorded the fuel consumption of official vehicles
Paper	• Encouraging online administrative service and online document signing • Print documents on both sides and reuse used paper

Use rain harvest water for dust suppression



04/ State of the Environment

Strengthen the relationship with the community

The Suao Port Branch Office issues regular news releases regarding operations on the TIPC website. It creates public awareness of the port's operational status and makes an effort to elicit the opinions of local residents regarding the Suao Port , and strives to address their concerns.

The Office also works with local businesses, cooperates with local stevedoring, mooring, and ballast control operators to promote the economic of the local community.

In order to promote environmentally friendly and development objectives.

The Suao Port Environmental Cleanup Day as a form of environmental education ,and the public to join in the cleanup activities, thus maintaining the surrounding environment, increasing exchange between the port and the local community, and promoting a harmonious relationship between the local community and the Suao Port.

>> Environmental public grievances in 2017-2018

Item	2017	2018
Total no. of public grievances	13	4
Number of handling environmental public grievances	1	0

Participate in community clean up


Port cleaning day

Reduce Port-generated Waste

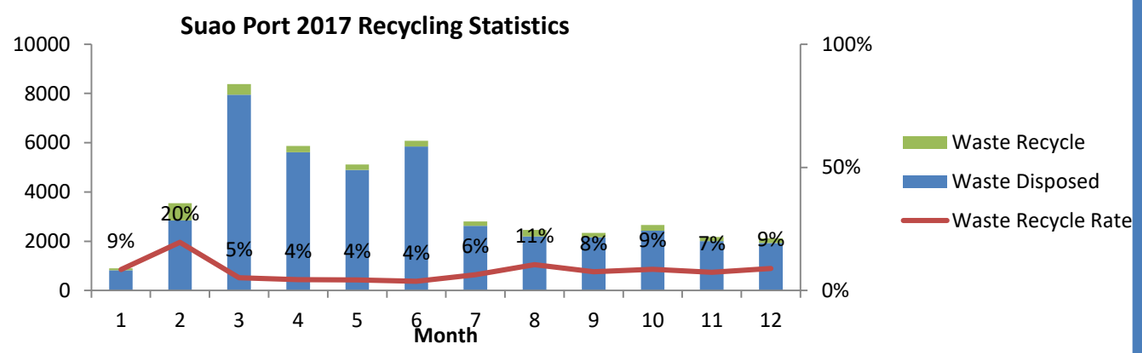
To reduce port waste, the Branch Office has promoted waste reduction, implemented recycling and reuse, promoted the 4-in-1 recycling program initiated by the EPA in 1997 (to recycle and reduce waste), and in 2005 promoted the concept of mandatory garbage recycling to recycle items mainly consisting of paper, glass containers, and plastic products.

To reduce port waste, the Branch Office has promoted waste reduction, implemented recycling and reuse, promoted the 4-in-1 recycling program initiated by the EPA in 1997 (to recycle and reduce waste), and in 2005 promoted the concept of mandatory garbage recycling to recycle items mainly consisting of paper, glass containers, and plastic products.

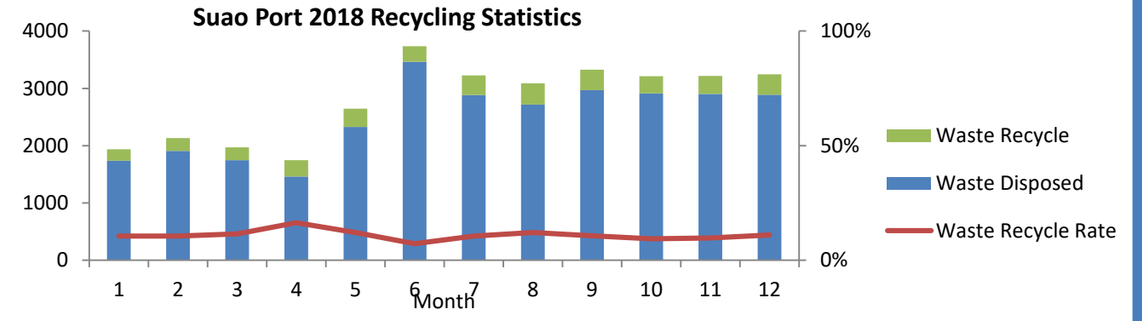
>> Amount of waste recycle & disposal at the Port of Suao

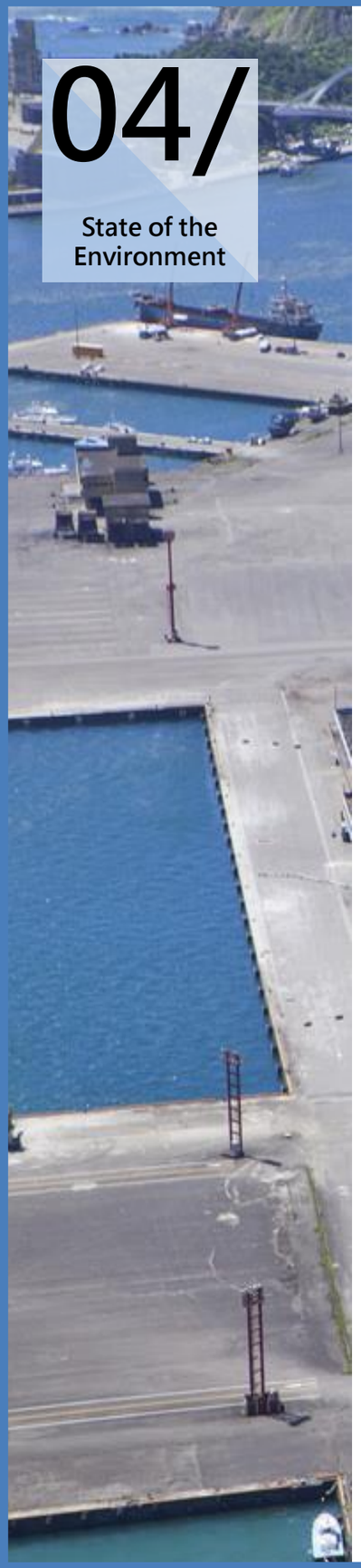
Item	2017	2018
Total waste generated (ton)	41,341	29,913
Disposal (ton)	38,230	26,369
Recycle (ton)	3,111	3,554
Recycle Rate (%)	7.53	11.88

KG



KG





04/ State of the Environment

Strengthen Hazardous Cargo Management

Suao Port's dangerous goods storage and transportation businesses could potentially be the source of a large number of environmental hazards. Leakages would pose grave dangers, both to the ecosystem and to neighboring residents. Therefore, the strengthening of port district safety has been one of the important environ-mental issues of Suao Port.

Therefore, improving cargo management and port security has become a crucial task for Suao Port. Companies operating in the port shall devise corresponding emergency response plans and organize joint disaster drills to increase their capability of addressing emergency events.

>>Inspections and Drills Conducted in 2017-2018

Year	2017	2018
Inspections	275	270
Drills	1	1
Cross Agency Inspections	12	12

Spot check cargo transfer pipes

In accordance to current regulations, the Suao Port Branch Office stipulates a set of operating procedures for a variety of dangerous cargo. For instance, radio-active stevedoring requires import and export permits from the Atomic Energy Commission under the Executive Yuan, and explosive stevedoring requires import and export permits from the Bureau of Foreign Trade and transportation certificates from the Bureau of Mines under the Ministry of Economic Affairs.

The Branch Office inspects stevedoring in the port more than spot checks of discharge pipes and manages dangerous cargo in the port.

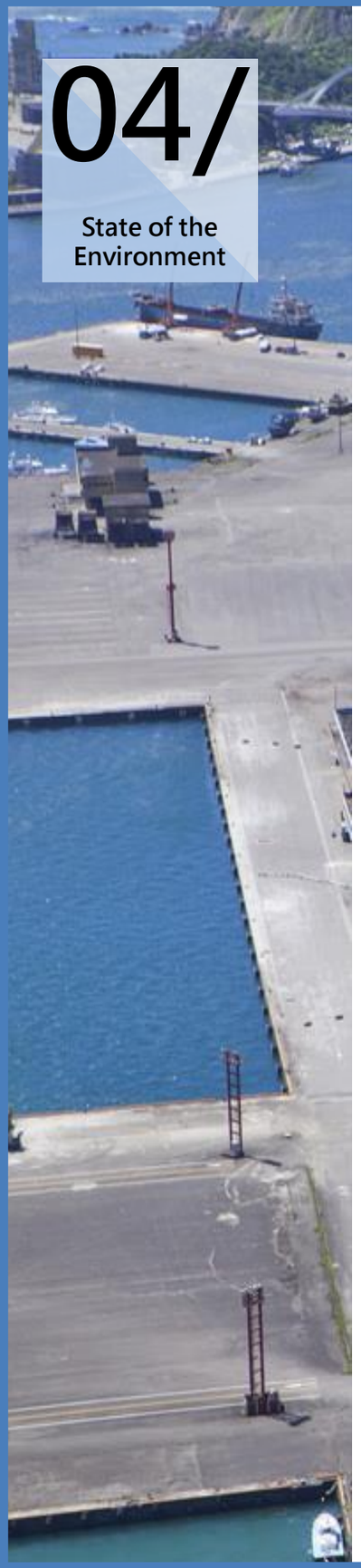
In addition, the Branch Office contacts each port unit on a regular basis to develop emergency response plans for cargo leakage and improve the response capacity for responding to such events.

The Branch Office stipulated that emergency response drills shall be organized at least once per year and a joint safety promotion at least once per year.

Spot check port environment


Disaster rescue drill


Disaster rescue drill



04/

State of the Environment

Land Use Optimization

According to researches done by the local government and scholars, the environment surrounding Nanfangao and Port of Suao is filled with rich biodiversity, which there are corals, birds and abundant intertidal species.

Subsequently, Suao Port's overall comprehensive plan was carried out to protect the environment and follows the national development plan.

In the long run, Suao Port should further diversify its development, create a low pollution environment, and become the driver of regional prosperity, promoting a good quality of life.

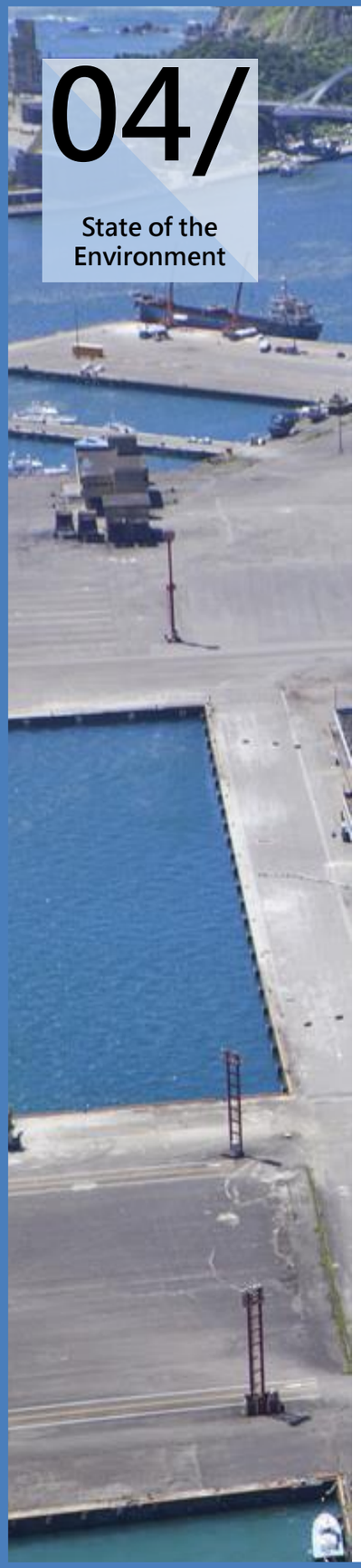
Therefore, in addition to port expansion and improvements in commercial performance, Suao Port values greenspace and development of recreational areas in the port, diversifying it business goal.

Suao Port development strategy is to utilize the port's two main sections for different purposes: the south section is designated a tourist/recreation area while the north section is dedicated to cargo operations. The Office opened up 4.5 hectares of land in the south section at transit sheds 10 and 11 and docks 12 and 13 to investors and established this area as the Suao Port Branch Office Tourism and Transit Zone, coordinating it with the Yilan County Government's Su Nan Station plan and integrating the tourism resources of the nearby village of Nanfangao.

>>Illustration of Suao Port Tourism and Transit Zone

Expected benefits	Description
Enhance industrial development	The construction of four major modern tourist areas, including the sea gate, the fishing village core living area, and the Peninsula seascape scenic area, will provide local businesses with a blueprint for hotels, recreation areas for children, and a shopping area to promote the development of tourism and create local employment opportunities.
Improve traffic	Multifunctional transit stations have been established to integrate food and beverage services, recreation facilities, highway transit, green shuttles, and cruise ship and cargo ship docking functions to effectively improve holiday traffic congestion.
Enhance asset efficiency	The lease and development method was employed and a portion of the signal station was leased out to revitalize the old building and develop tourism.

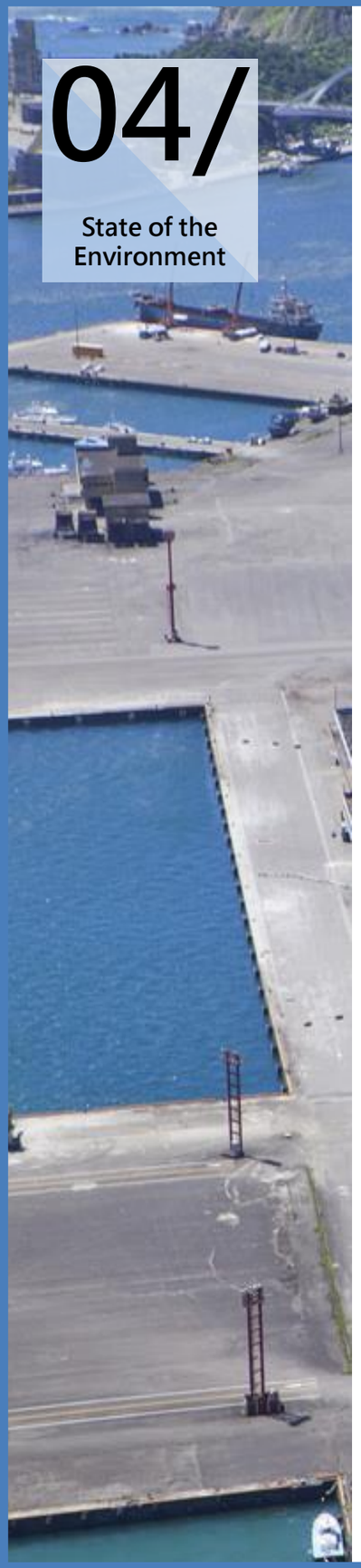
>>Suao Port Tourism and Transit Zone



04/ State of the Environment

Environmental Performance Indicators

Environmental Issues	Index Item	Calculation Method		Index Target	Description of Calculation	
					2017	2018
Air quality	The ratio of using low-sulfur fuel or biodiesel and the consumption of low-sulfur fuel among harbor crafts Low-sulfur fuel : Fuel with sulfur content less than 10ppm.	Number of harbor crafts using low-sulfur fuel (marine diesel oil or super diesel) ÷ Total number of harbor crafts × 100%		The ratio of using low-sulfur fuel or biodiesel reaches 100% among harbor crafts	• 4÷4×100%=100% • Number of harbor crafts:4 • Number of harbor crafts using low-sulfur fuel • Amount of low-sulfur fuel used by harbor crafts: 152,831 litre	• 4÷4×100%=100% • Number of harbor crafts:4 • Number of harbor crafts using low-sulfur fuel • Amount of low-sulfur fuel used by harbor crafts: 154,160 litre
	The ratio of harbor crafts using shore power	Number of harbor crafts using shore power ÷ Total number of harbor crafts × 100%		The ratio of harbor crafts using shore power reaches 100%	• Number of harbor crafts:4 • Number of harbor crafts using shore power:4 • 4÷4×100%=100%	• Number of harbor crafts:4 • Number of harbor crafts using shore power:4 • 4÷4×100%=100%
	Promotion of vessel speed reduction plan : The number of Inbound vessels reducing speed to under 12 knots within 20 nautical miles of the port ÷ the number of inbound vessels × 100%	The number of Inbound vessels reducing speed to under 12 knots within 20 nautical miles of the port ÷ the number of inbound vessels × 100%		VSR attainment goals 2016: 35% 2017: 50% 2018: 60%	VSR attainment rate: 69%	VSR attainment rate: 71%
	Air quality pass rate ($PM_{2.5}$,PM_{10}, SO_2, NO_2)	Ratio of the measurements in the air quality monitoring station of the port that meet the "Air Quality Standards		Percentage satisfy the standard • $PM_{2.5}$(<35μg / m^3):100% • PM_{10} (<125μg / m^3): 100% • SO_2 (<0.1 ppm): 100% • NO_2 (<0.25 ppm): 100%	Percentage satisfy the standard • $PM_{2.5}$(<35μg / m^3):100% • PM_{10} (<125μg / m^3): 100% • SO_2 (<0.1 ppm): 100% • NO_2 (<0.25 ppm): 100%	
Dust	Number of pollution prevention device for cargo handling and mobile indoor cargo handling and pollution control efficiency	• Number of dust prevention devices implemented annually • Pollution control efficiency		Increase/ update or maintain the number of dust control facilities	Coal: • Automatic conveyer: 3 — Effectiveness: 90% Cement: • Enclosed negative pressure pipeline — Effectiveness: 99% Cement clinker: • Each grabber must accompany with sprinklers and dust nets. There are currently 15 sprinklers and 24 dust nets — Effectiveness: 60%	
	Require cargo trucks routes to go through car wash stations	The ratio of cargo truck that goes through car wash stations		The ratio of cargo truck that goes through car wash stations reaches 100%	• Ratio of cargo truck that goes through car wash stations: 100%	• Ratio of cargo truck that goes through car wash stations: 100%
Garbage/port waste	Garbage/port waste	Recycling rate of steel, paper, glass, metal, plastic		10% recycling rate	• Waste recycled: 3,111 kg • Total genereated:41,341 kg • 3,111 kg÷41,341 kg=7.53%	• Waste recycled: 3,554 kg • Total genereated: 29,913 kg • 3,554 kg÷29,913 kg=11.88%
Noise	Daily ratio of noise levels (measured at the noise monitoring station in the port) that satisfy related regulations	Category D Road Noise Control Criteria: Detailed regulations: 76 dB during the day (7 am–7 pm); 75 dB during the evening (7–11 pm); 72 dB during the night (11 pm to 7 am of the following day)		• Daytime equivalent energy sound levels: quarterly achievement rate of 100% • Evening Leq: quarterly achievement rate of 100% • Nighttime Leq: quarterly achievement rate of 100%	• Daytime equivalent energy sound levels: quarterly achievement rate of 95% • Evening Leq: quarterly achievement rate of 100% • Nighttime Leq: quarterly achievement rate of 100%	• Daytime equivalent energy sound levels: quarterly achievement rate of 95% • Evening Leq: quarterly achievement rate of 100% • Nighttime Leq: quarterly achievement rate of 100%



04/ State of the Environment

Environmental Performance Indicators

Environmental Issues	Index Item	Calculation Method		Index Target	Description of Calculation	
					2017	2018
Port development	Maintain or increase port green area	• Calculate annual port green area		• Maintain or increase port green area	Total port green area:11acre	Total port green area:11 acre
Relationship with Local Community	Quantity of Event and attendance	Actual occurrence quantity		Annual target 2 events 50 participants	2 environmental training events Total number of participants: 52	2 environmental training events Total number of participants: 58
	Environmental public grievances	Number of environmental public grievances		Number of handling environmental public grievances <6	Number of handling environmental public grievances：1	Number of handling environmental public grievances ：0
Cargo spillage	Percentage of vessels carrying chemical- and oil- cargo equipped with oil containment booms	Number of vessels carrying chemical- and oil- cargo equipped with oil containment booms÷ Number of vessels carrying chemical- and oil- cargo equipped×100%		Percentage of vessels carrying chemical- and oil-cargo equipped with oil containment booms 100%	Number of vessels carrying chemical- and oil- cargo equipped with oil containment booms：192 Number of vessels carrying chemical- and oil- cargo equipped：192 The ratio of vessels carrying chemical- and oil- cargo equipped with oil containment booms：100	Number of vessels carrying chemical- and oil- cargo equipped with oil containment booms：202 Number of vessels carrying chemical- and oil- cargo equipped：202 The ratio of vessels carrying chemical- and oil- cargo equipped with oil containment booms：100
Vehicle exhaust gas emissions (including cargo handling)	Trucks with dust proof netting installed under containers before leaving port	Number of trucks deployed with dust proof netting before leaving the port÷ Total number of trucks leaving port × 100%		Percentage of trucks with dust proof netting installed under containers ：95%	Number of trucks with dust proof netting installed under containers before leaving port：10,543 Total number of trucks leaving port ：10,672 The ratio of trucks with dust proof netting installed under containers before leaving port：98.8%	Number of trucks with dust proof netting installed under containers before leaving port：14,842 Total number of trucks leaving port ：14,912 The ratio of trucks with dust proof netting installed under containers before leaving port：99.5%
Energy consumption	Water, fuel, electricity, and paper consumption	Difference of water, fuel, electricity, and paper consumption (the year before and the year after)		• Save 2% of water usage, 1% of fuel usage, 1% of electricity usage, and 3% of paper usage	The fuel was 1,365 liter; total electricity usage was 366,192kWh; total water usage was 1,629m3; total paper consumption was 152 packages. • Fuel Use: -6.3% • Electricity Use:-2.5 %	The fuel was 1,279 liter; total electricity usage was 357,048kWh; total water usage was 1,771 m3; total paper consumption was 137 packages. • Water Use: +8.7% • Paper Use: -9.9%
	Install energy efficient lightings	Install rate Number of docks using energy efficient lightings ÷ total numbers of docks		Install rate 2017: 50% 2018: 75%	7 docks ÷ 13 docks=53.8%	10 docks ÷ 13 docks=76.9%
	Water reuse system	Usage		Increase usage	Planning stage	• Water reuse system started in August • Total usage between Aug and Dec was 115,780 cubic meter
	Install renewable energy	Capacity and usage		Increasse capacity and usage	• Pihsiang Machinery MFG. Co. Ltd. Installed 1996.4 kWp roof-top solar voltaic. • Produced 2.11 MWh electricity	• Activated 499 kWp roof-top solar voltaic system at warehouse No. 4 in July • Generating 45,495 kWh electricity monthly
Vessel sewage discharge	Performance of commissioned qualified operators on cleaning oily bilge water	Number of cleanups conducted by relevant vessels÷ number of vessels that collected oily bilge water × 100%		100% oily bilge water cleanup	• 4÷4 × 100% = 100% • Cleanups conducted by relevant vessels (oily bilge water): 4 • Total oily bilge water collected: 38 t	• 4÷4× 100% = 100% • Cleanups conducted by relevant vessels (oily bilge water): 4 • Total oily bilge water collected: 45 t

Emergency Response

05/

05/

Emergency Response

Port Emergency Notification and Drill

In order to maintain port safety, the Suao Port Branch Office conducts daily land and marine environment inspection. When any suspicious behavior was identified, the inspection personnel will immediately notify for correction or inform competent legal authorities for legal enforcement. In 2017 and 2018, major port accidents were fishery boats and harbor craft related accidents.

For port pollution and disaster, Suao Port Branch Office, Yilan County Environmental Protection Department, and the Suao Port Branch Office of the Northern Mari-time Affairs Center of Maritime and Port Bureau of MOTC each accepts Public Nuisance Petitions. Regarding catastrophic events such as vessel or fire explosions, the Port triggers emergency response procedure to cope with disastrous incidence.

>>Suao Port 2017-2018 Accidental Incidents

Accident type/Year	2017	2018
Vessel collision, shipwreck, fire, oil and other chemical spillage	0	2
Ship machinery breakdown, tilt, strand	1	0
Major warehouse, storage tank explosion	0	0
Port minor pollution, fire, chemical spillage	0	0
Accident type/Year	0	0


Emergency response drill

Port environment Inspection

To ensure port safety, the Branch Office imposed regulations on bulk stevedoring, increased the management of stevedoring, prevented overloading or leaking, and improved emergency response plans and communication mechanisms.

>>2017-2018 Drill Events

Year	Event	Event Description	Dates
2017	Yilan County Policy Department Port Safety Drill	In order to ensure port safety and prevent terrorist attack, Port of Suao collaborate with Yilan County Police to conduct Port Safety Drill.	Sept 7th
2018	Port Safety and Yilan County Marine and Riverain Pollution (Chemical and heavy oil) Prevention Drill	In order to enhance port marine and riverain pollution prevention measures, Port of Suao conduct joint drill with Yilan County EPB.	May 31st


Port safety drill

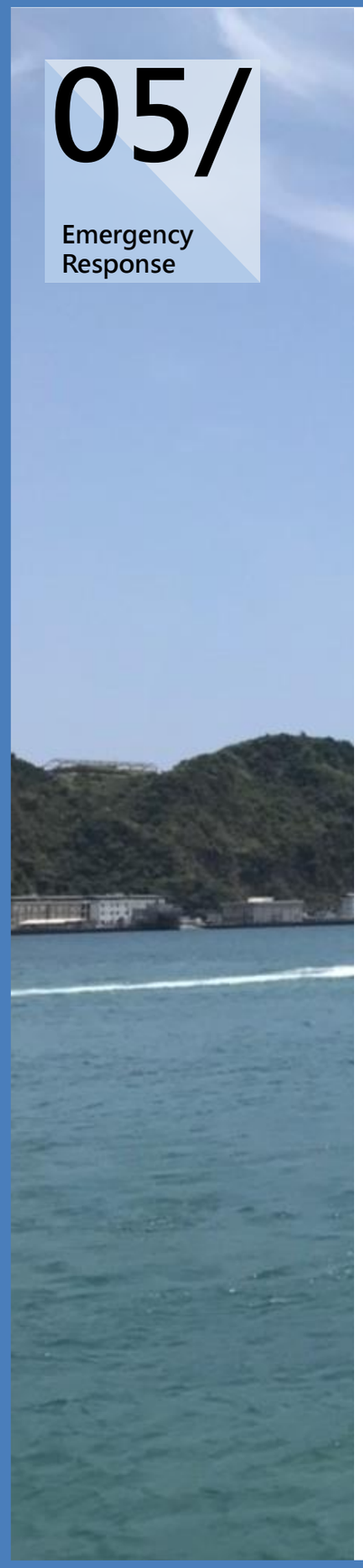

Port police safety drill


Oil boom retrival

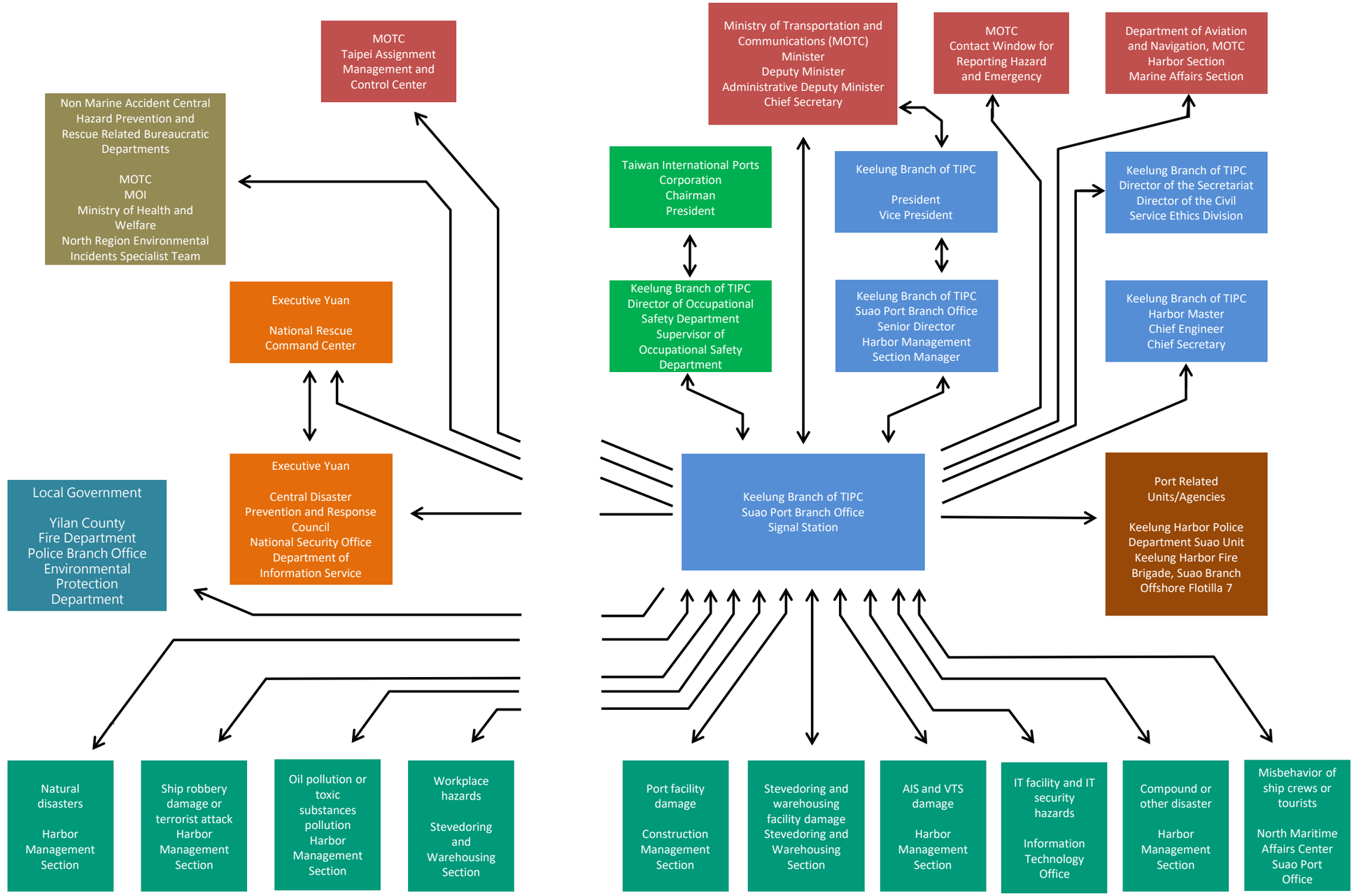

Oil boom deployment

05/

Emergency Response



Port of Suao Emergency Response



Involvement and Collaboration

06/

Innovation

Fugitive Dust Pollution Control Strategies

Concern/Motivation

Port of Suao's main cargo is mineral products, importing and exporting about 1.8 to 2 million tons annually. Since these cargos go through loading, stacking, and transporting activities, they become sources of fugitive dust pollution. According to studies from the EU and USEPA, for every ton of coal loaded, there will be 7.5 grams of particular matter generated. Based on estimate, Suao Port generates 15 tons particular matter annually.

Furthermore, 1-13% of other bulk cargoes may become fugitive dust.

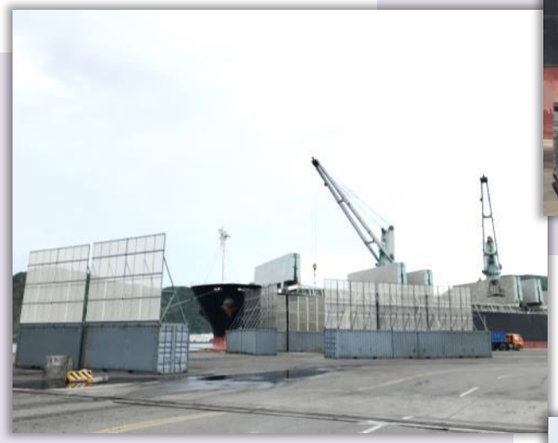
Due to this circumstances, the Port of Suao has been following the Air Pollution Control Act, its protocols, TIPC's stevedoring protocols, and other port related inspection procedures. As environmental awareness rises among the public, the port also realizes its responsibility to reduce dust emissions.

Solution

In order to reduce dust pollution at port, Suao Port held several air quality improvement stakeholder meetings. One of the conclusions is that coal products must be handled using enclosed automatic conveyors.

For other bulk products, cargo handlers must have preventive devices in place.
No operation may begin without the port authority's consent. Annual review meetings with relevant stakeholders will be held to ensure further improvements.

Device	Number	Spending	Investor
Water spray	15	16,714,840	Suao Port Branch Office
Dust net	24		
Water project	1	26,627,117	Suao Port Branch Office
Automatic coal conveyor	3	120 million	Tenant



For the details of current onsite pollution preventive actions, there must be at least one water spray for every grabber to minimize dust. Furthermore, grabber shall not release the cargo until it reaches the bottom of the truck.

Port of Suao will continue to ensure stevedoring companies apply pollution preventive devices properly (dust net, water spray, etc.)

Innovation

Fugitive Dust Pollution Control Strategies

Participants

Suao Port Branch Office, Marine Port Bureau MOTC, stevedoring companies

Stakeholders

Port leasing industry, port stevedoring operators, Yilan county Environmental Protection Bureau, Environmental Protection Administration

Effects/Benefits

Estimated annual coal throughput is about 1 million tons; other bulk cargo is about 4 million tons. Using the above reduction strategy, annual dust abatement is about 160 to 200 tons.

Cost and effectiveness of current control measures

Device	Effectiveness (%)	Cost(NTD/m2yr)	Reduction (ton)	
			2017	2018
Water spray	30-60	24.3	46.7	62.1
Dust net	50~60	60.5	58.4	77.6
Road sweeper	>50	43.7	5.8	7.8
Enclosed coal conveyor	100	N/A	50.3	53.3
Total			**162.1**	**203.3**

Implementation/Timeline

Port of Suao Improvement Schedule for Fugitive Prone Cargo

Sources			Stevedore measures for fugitive cargo	
			Coal	Other
Action and schedules	Short term	Current measures	1. Follow the TIPC protocol for stevedoring operations and dust prevention procedures.	1. All bulk cargo must apply dust net, and ground and air water sprays.
			2. All bulk cargo stevedoring operations must apply both air and ground water sprayers.	2. Release of bulk cargo must be perform gentlely and in clost proximity to abvoid dust.
			3. Cleaning must be completed within 4 hours after the operation is finished.	3. Conduct regular inspections to ensure port tidiness.
			4. Inspect and make regular inspection records. Report immediately for any misconduct.	
		Complete date	On-going	On-going
	Mid term	Planned measures	Initiate the “no dust emissions, no landing, and tight sealing” policy.	Use consealed air tight packages
				Use enclosed conveyors
		Complete date	Jan 1st 2019	On-going
	Long term	Planned measures	Collaborate with Yilan County EPB to implement ration policy to restrict the amount of coal allowable in the country.	
		Complete date	Dec 2020	

Strategies：Exemplifying、Enabling

Port of Suao
Contact Person: Sheng-Chang Yu Supervisor
Suao Port Branch Office
Stevedoring Section
Phone：03-996-5121
E-mail：dickyu@twport.com.tw
Website：http://kl.twport.com.tw/su/

Port of Suao
Contact Person: Imin Lin Manager
Suao Port Branch Office Harbor Management Section
Phone：03-997-2008
E-mail：micky@twport.com.tw
Website：http://kl.twport.com.tw/su/

Innovation

Installation of energy efficient street lights

Concern/Motivation

Lighting is one of the major source of energy consumption in the port area. Between 2011 and 2014, street light energy consumption (including traffic signals) amounts around 80 to 100 thousand, accounting one-fifth of the port's total consumption. Considering Taiwan imports 99% of its energy and the threat of climate change, Port of Suao formulated a plan to replace port lightings.

As lighting technology advanced greatly in recent year, the cost and return period of lighting investment has decreased substantially, achieving 30~50% energy savings and meets the goal for environmental protection.

Solution

Port of Suao replaces the original high-pressure sodium lightings to 300W LED light arrays. These lights have many merits such as high energy to lighting converting rate, high brightness, and long lifespan.

Stakeholders

Suao Port Branch Office, lighting company, port tenants, port fleets

Environmental Issues

Energy consumption

Effects/Benefits

As the port replaces its 600W and 400W high-pressure sodium lightings with 300W and 120W LEDs, the savings is as calculated below. (assume the lights operate 8 hrs a day and 365 days a year).

Assume 0.5 kg of CO_2 is produced for each kWh of electricity generated. Annual carbon reduction is about 10 metric tons per year.

(600W-300W)* 8hrs/day*365days*17 units +(400W-120W)* 8hrs/day*365days *6 units =19,797,600Whr =19,79.7kWh

Implementation/Timeline

Completion year	Location (Dock #)	Lighting improvement				Cost (NTU)
		Original wattage	Original amount	New Wattage	New amount	
2015	12, 13	400	8*8=64	300	8*8=64	5,200,653
				150	16	
2016	8, 9	400	4*8=32	300	4*8=32	2,796,000
				150	10	
2017	1, 2, 3	1000	50	350	80	4,947,458
		400	4	150	4	
2019	5, 6, 7	1000	80	560	80	51,179,79
		400	16	150	16	
Total					301	12,944,111

Strategies: Exemplifying、Enabling

Port of Suao
Contact Person: Chi-Chong Cheng
Manager
Suao Port Branch Office Construction Section
Phone：03-996-5121#275
E-mail：cccheng@twport.com.tw
Website：http://kl.twport.com.tw/su/

Port of Suao
Contact Person: Imin Lin Manager
Harbor Management Section
Phone：03-997-2008
E-mail：micky@twport.com.tw
Website：http://kl.twport.com.tw/su/

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.

Participation organizations

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(IAPH)

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.

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.

Academic Institution

National Taiwan Ocean Univ.

National Sun Yet-Sen Univ.

National Cheng Kung Univ.

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.

Government

Institute of Transportation, MOTC

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 net-work for industrial, governmental, and academic transportation organizations.

Environmental Protection Administration

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.

North Maritime Affairs Center, Maritime and Port Bureau, MOTC

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.

Training

07/

07/

Training

Employee Education

In compliance with its environmental policies, the Suao Port provides suitable environmental education and training programs to raise environ-mental awareness, and improve the competitiveness of the Port of Suao.

In 2017 and 2018, the Suao Port Branch Office organized in total 4 environmental education and occupational safety courses for its staff members, with approximately 50 participants each year. Course topics cover pollution prevention, natural disaster, contagious disease control, environmental impact assessment, etc.

>>2017-2018 Environmental Education Training

Year	Content	Number of participants
2017	Environmental education training at Sheng-Gou Water Resource Ecological Park	52
2018	Environmental education training at Dongshan River Eco Ark Forestry Park	58


Carbon accounting audit meeting

Communication and Publication

08/

Communication & Publication

Promotion activities, seminars, workshops, publication, websites, and exhibitions have been organized to align Suao Port with contractors and potential partners.

Therefore, publishing the port's relevant information is helpful to the public, port companies, academic institutions, and subsidiary units.

Websites

Port of Suao Front Page

Chinese and English web pages for TIPC Green Policy

To present the positive outcomes of creating green ports in Taiwan to international society, TIPC established a website, which features Chinese and English versions of content, to demonstrate its green policies and create an exchange and communication platform with foreign countries.

Annual environmental monitoring reports

Publications

Brochure

Cup and cap

Communication & Publication

Stakeholder visits


Maritime Port Bureau


Yilan County Environmental Protection Bureau


Yilan County Suao Township Office

Port tenants events

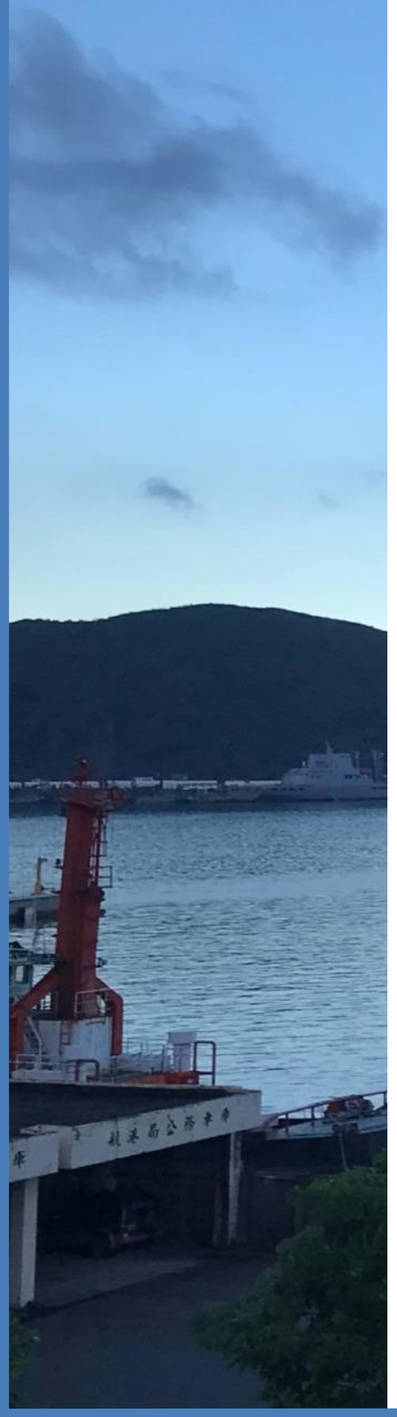
Lung Teh Shipbuilding Co No.6 ship yard. Opening Ceremony


Port safety consultation meeting


Port safety consultation meeting

Green Accounting

09/



Environmental costs

The costs that have been invested by the Suao Port Branch Office in the environmental aspects are mainly divided into the categories of staff, environmental maintenance and management, environmental monitoring. The purpose of these investments is to improve the environmental awareness among staff, environmental maintenance, environmental quality, emergency response abilities, and public understanding of the port.

The Summation of Costs invested by the Investments of the Suao Port Branch Office in the Environmental Aspects is 176,658 EUR in 2017 and 214,558 EUR in 2018. (Rate of exchange 36.2)

Environmental investments at the Suao Port

- Employees: Personnel costs of environmental control, and environmental educationand training
- Environmental maintenance and management: Port green landscaping, waste disposal and dredging
- Environmental Monitoring: Monitoring the air, noise, water, sediment, dredging as well as environmental patrol

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

Items of Expenses	2017	2018
Personnel	72,845	84,972
Environmental Maintenance & Management	88,343	111,354
Environmental Monitoring	15,470	35,331
Total	176,658	231,657

Environmental Assets

In addition to developing Suao Port into a bulk cargo importing and exporting port for the Yilan area, another goal was to develop it as a passenger transportation and tourism/recreation hub. Therefore, the Suao Port Branch Office formulated a succession of port development plans, which can be divided into procedural planning and general construction and facilities planning.

The Suao Port Branch Office invested in fixed assets for EUR €5,007,735 and EUR €1,517,403 in 2017 and 2018, respectively. (Rate of exchange 36.2)

>>Assets invested in Environmental Issues in 2017 (Unit: EUR)

Project		Cost
Continuing Project	2017 Channel and turning basin deepening (Suao Port)	426,851
	Port area road repair	117,873
	Port area road repair follow ups	50,276
	Nanfangao Bridge connection improvement	93,425
General building and equipment plan	Surface water collection system	710,304
	Dock lighting replacement project	130,166
	Water spray and dust nets	440,166
	Construction of Warehouse 15	3,038,674
Total		5,007,735

>>Assets invested in Environmental Issues in 2018 (Unit: EUR)

Project		Cost
General building and equipment plan	Port of Suao wastewater and runoff discharge project	207,099
	Construction of Warehouse 15	3,038,674
Total		1,517,403

Improvement Recommendations

10/

In line with global sustainable development trends, Suao Port will examine and improve its development strategies while meeting the needs of passenger ship tourism and the local economy. The port is keeping up with the latest trends by transitioning to port tourism and a commercial viable waterfront. We will carve out a green, sustainable port using corporate social responsibility as a blueprint.

Due to global economic development trends, the global energy landscape has changed in recent years. Suao Port has been at the forefront of that trend, building ecological ponds to recycle and reuse water resources, winning acclaim as a green energy value-added distribution port, carrying out backfilling engineering works with dredged soils and becoming an important link for promoting green port policies. Furthermore, Suao Port cooperates in the development of passenger transportation and tourism/recreation, and collaborates with the local government, businesses, and the community to provide an impetus for sustainable port development, and sets sustainability targets for an all-round win-win situation.