Port of Suao
Environmental Report

Environmental Report Work Team

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This environmental report presents Suao Port’ s achievements in environmental protection from 2015 to 2016 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
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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 Programme 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; and
5. Strengthen the communication with local communities, and pursue sustainable development for both the ports and the cities where we are operating.

Men Feng Wu

Men-Feng Wu
Chairman of TIPC
Date: 2016 / 11 / 7

Tien Kuei Kuo

Tien-Kuei Kuo
President of TIPC
Date: 2016 / 11 / 1

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

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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.

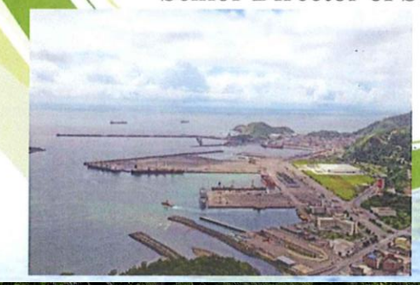
- **Improve air quality-Monitor air quality in the port area; conduct stricter environmental inspections of the port area and environmentally friendly strategies to implement on ships**
- **Avoid fugitive dust-Plan vehicle travel routes and install sprinklers to effectively reduce dust**
- **Reduce waste 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, as well as a biennial review thereof, so as to live up to the promises and improvements to achieve the environmental objectives.

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

Senior Director of Suao Port Branch Office : Chien-Ming Lin

Date : 2017.9.8.



Message from TIPC

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Message from the Chairman of Taiwan International Ports Corporation ,Ltd

The Taiwan International Ports Corporation, Ltd. (TIPC) is committed to advancing port infrastructure, improving facility and service, optimizing land use and preventing pollution. In recent years, we have been networking with global ports and active in international certification schemes of port environment management. The environmental performance of ports in Taiwan is thus recognized by the world. With our global presence, we are well positioned to achieve our goal as building Ecoport and Green Port.

Sustainable development has been the foundation on which the TIPC has been built. It is our strong belief that long-term operation and success are not possible without social, economic and environmental prosperity. We are dedicated to carrying out our mission of creating the best investment environment for the port business as well as the livable life for the neighboring communities.

At the TIPC, we will continue the collaboration and communication with shipping companies, port business, neighboring communities and local governments. Together with public authorities and citizens, we will seek ways to build ideal international green ports for all.

Men Feng Wu

Meng-Feng Wu
Chairman
Taiwan International Ports Corporation, Ltd.

Message from the President of Taiwan International Ports Corporation ,Ltd

Since the establishment of Taiwan International Ports Corporation in 2012, we have devoted ourselves to develop highly effective ports with friendly and safe working environments. In a world facing ever more severe environmental issues, we, as a global leader in port operations, are determined to uphold our environmental policies as the highest guiding principle to assess and manage port environments, promote energy conservation and carbon reductions, and optimize port environmental quality.

Starting in 2013, we have been assessing our port environmental management systems through the European EcoPort certification program and anticipate that our seven major commercial ports all obtain certification in 2017. Concrete pollution prevention strategies comprise hardware renewal, operational improvements, and port area resource management. Hardware renewal entails the replacement of outdated equipment such as trucks, marine vessels, and operational equipment. Operational improvements include vessel speed reduction in the port area, enclosed bulk cargo operations, and vehicle control protocols. As for resource management, we promote rainwater harvesting, utility savings, and reusing dredged soil for backfilling.

In response to global trends towards reducing carbon emissions as well as the Greenhouse Gas Reduction and Management Act recently enacted by the government, we conducted a greenhouse gas inventory with third party verification in 2016. In addition, we are taking advantage of the port environment to increase our competitiveness by installing solar panels and investing in offshore wind farms.

While committed to provide excellent port services, we also strive to protect the environment and maintain good living quality near the ports. We believe the development of green ports will bring soft power and competitiveness of the TIPC into full play and make the communities around us prosper. We are all partners in this endeavor, and our combined efforts to promote environmental protection and sustainable development will propel Taiwan to forge ahead to a better future!

Tien Kuei Kuo

President
Taiwan International Ports Corporation, Ltd.

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.

Shyy-tzong Liau

President
Keelung Branch of TIPC

Port Profile

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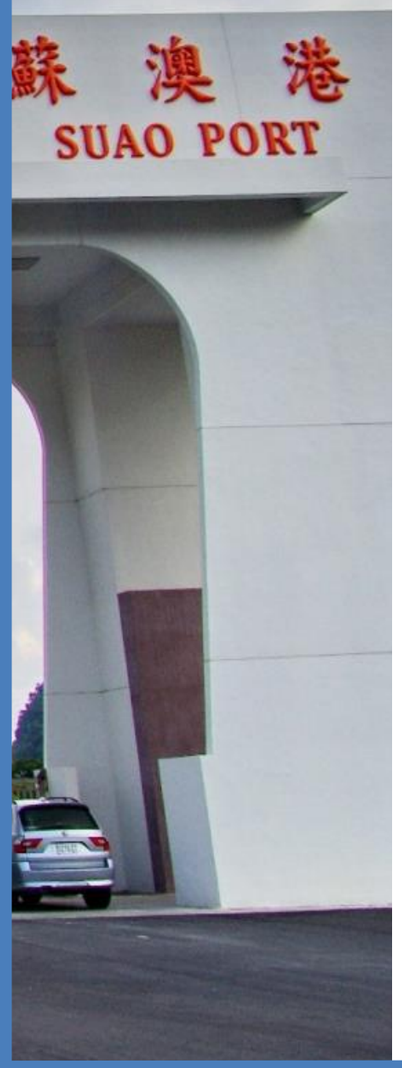
Port Profile

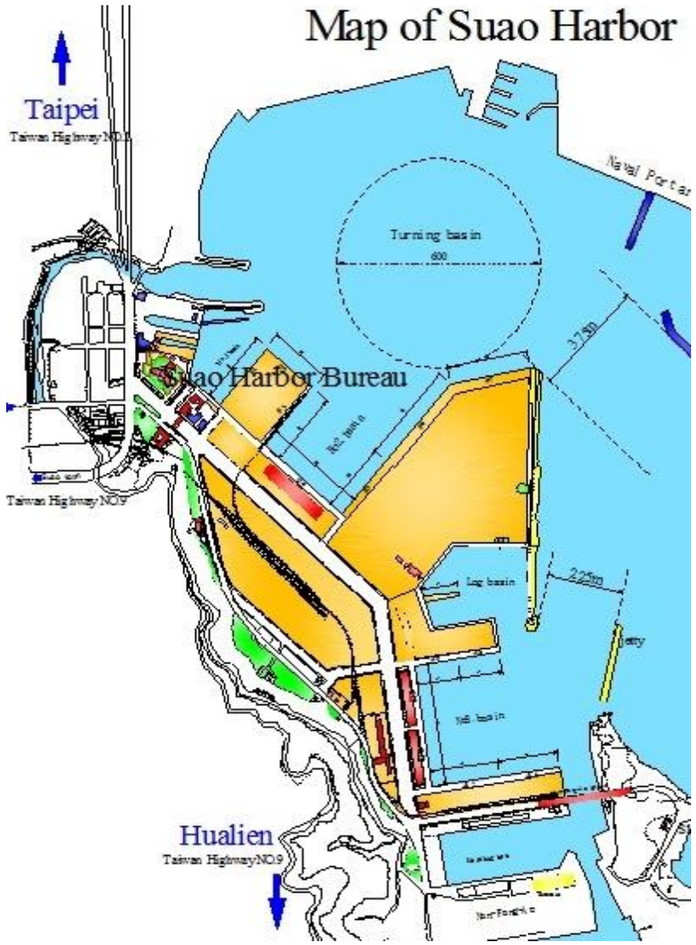


Commercial Activities

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.

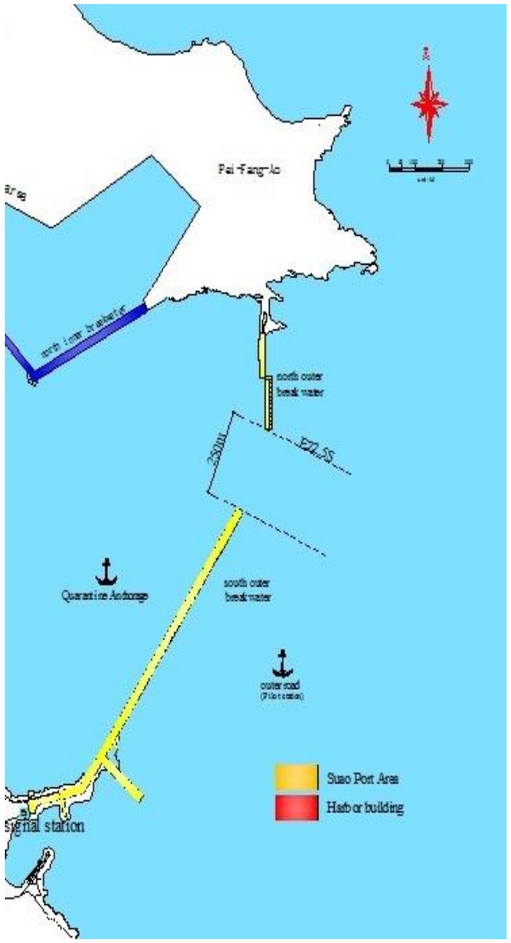
>>Map of Suao Harbor



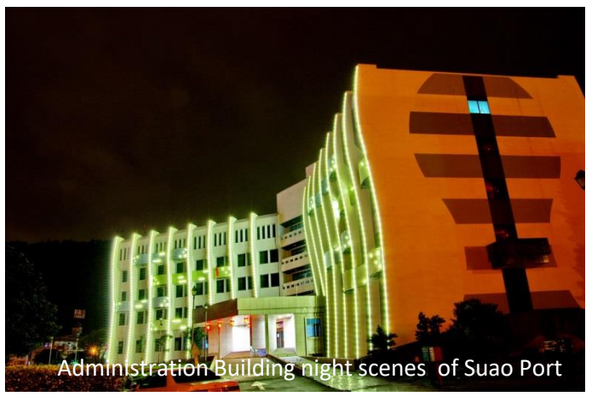
Legal Status and Port Operators

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 Suso 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.




Administration Building of Suao Port


Administration Building night scenes of Suao Port

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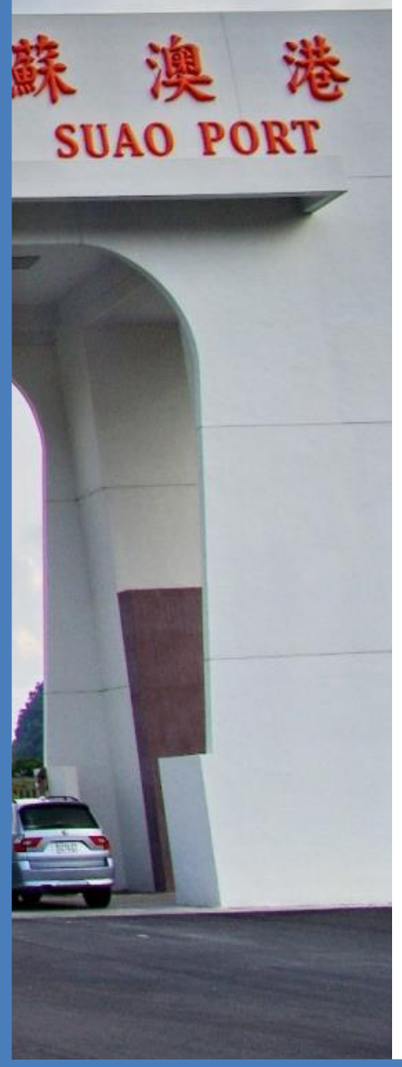
Port Profile



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 Handling of Port of Suao

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

>>Suao Port business statistics from 2015 - 2016

Business item		2015	2016	Comparison between 2015 and 2016	
				Actual number	%
Incoming and outgoing ships	Total number of ships (vessel)	1,205	1,146	-59	-5.15
	Total tonnage (ton)	14,105,063	14,399,618	294,555	2.05
Cargo throughput	Imported cargo (metric ton)	3,232,589	2,809, 469	-423,120	-15.06
	Exported cargo (metric ton)	114,448	273,028	158,580	58.08
	Domestic cargo (metric ton)	1,513,191	1,765,391	252,200	14.29
	Total (metric ton)	4,890,228	4,847,888	-42,340	-0.87
Number of travelers	Total number of travelers (number of people)	95,795	88,984	-6,811	-7.65

Main Cargoes

The main import cargo at Suao Port for 2015 and 2016 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 (Tables 3 and 4).

>>2015-2016 Main Import Cargoes of Port of Suao

Type	2015	2016	Comparison of changes in 2015 & 2016	
			Difference	%
Ores products	12,149,311	13,412,453	1,263,142	10%
Chemical or Industrial products	801,621	960,755	159,134	20%
base metal products	355,412	588,130	232,718	65%

>>2015-2016 Main Export Cargoes of Port of Suao

Type	2015	2016	Comparison of changes in 2015 & 2016	
			Difference	%
Ores products	74,957	90,385	15,428	21%
Chemical or Industrial products	56,360	78,587	22,227	39%
base metal products	12,515	97,836	85,321	682%

Environmental Management

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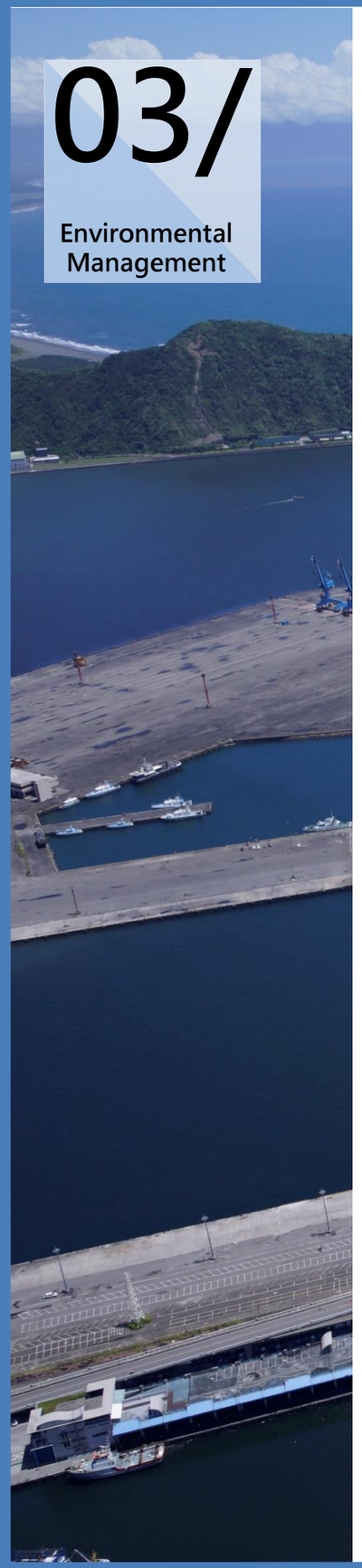

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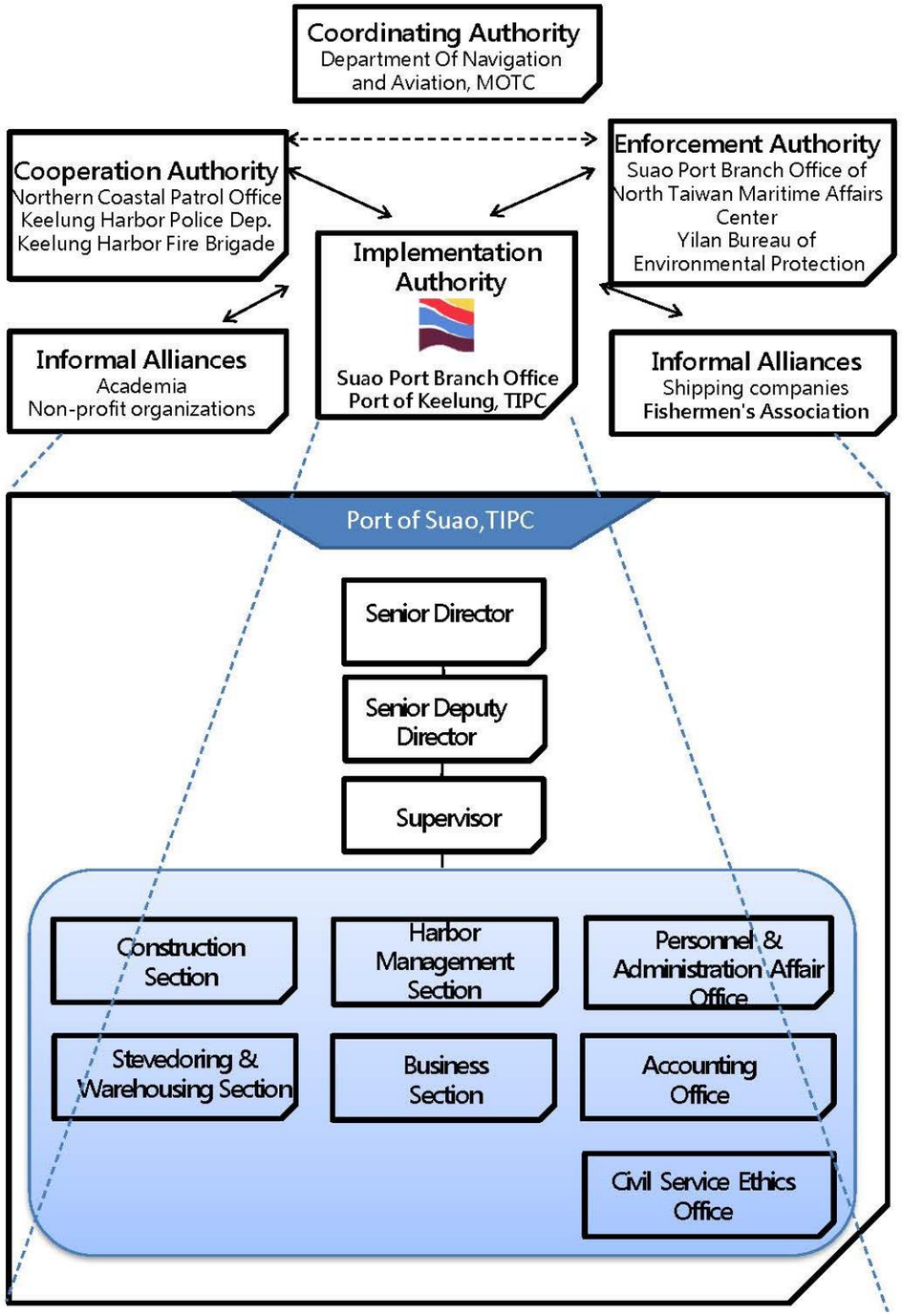
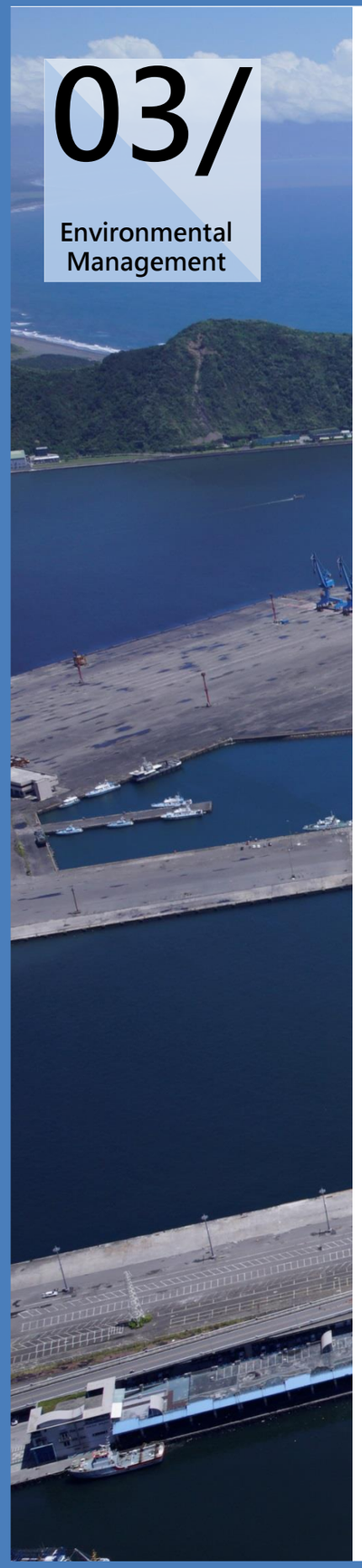
Environmental Management

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 different 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, 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
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
Construction Section	Port construction planning, design, commission, procurement, and supervision, and commercial port service maintenance
Personnel and Administration 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, confiden- tial information protection, and security system maintenance
Accounting Office	Budget, income, and expenditure administration, income and expenditure auditing, and annual and monthly report examinations





03/ Environmental Management

Relevant International Regulations

The Suao Port Branch Office follows relevant international pecifications, 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 Suaoi 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	Basic Environment Act	2002/12/11	Environmental Protection Administration	Environmental Protection Bureau, Yilan County Government
	Marine Pollution Control Act	2014/06/04		
	Air Pollution Control Act	2012/12/19		
	Toxic Chemical Substances Control Act	2013/12/11		
	Indoor Air Quality	2011/11/23		
	Water Pollution Control Act	2016/12/07		
	Waste Disposal Act	2017/06/14		
	Soil and Groundwater Pollution Remediation Act	2010/02/03		
	Noise Control Act	2008/12/03		
	Environmental Impact Assessment Act	2003/01/08		
	Resource Recycling Act	2009/01/21		
	Greenhouse Gas Reduction and Management Act	2015/07/01		
	Environmental Education Act	2010/06/05		
	Public Nuisance Dispute Mediation Act	2009/06/17		Public Nuisance Disputes Mediation Committee, Yilan County Government
Intersectoral	Disaster Prevention and Protection Act	2016/04/13	Ministry of the Interior	Yilan County Government

State of the Environment

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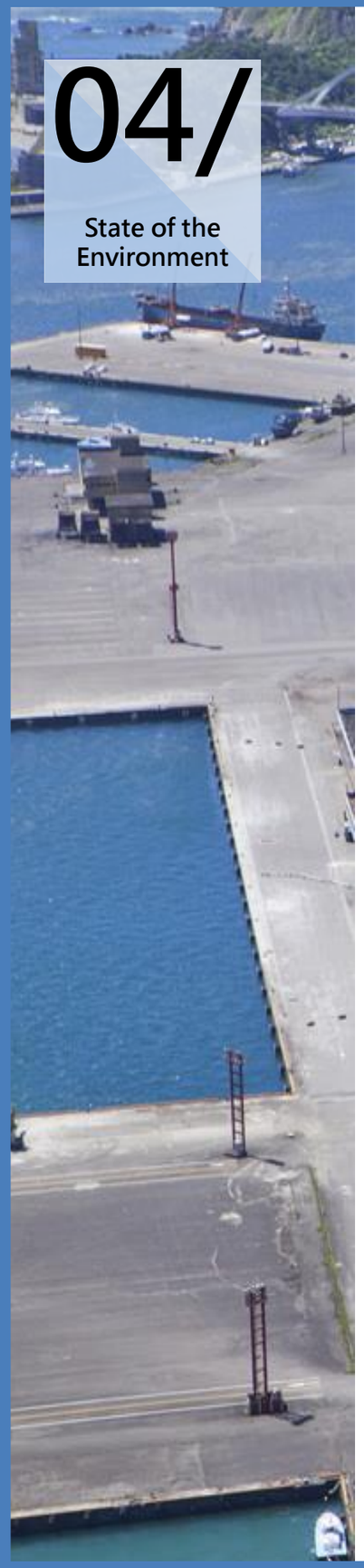

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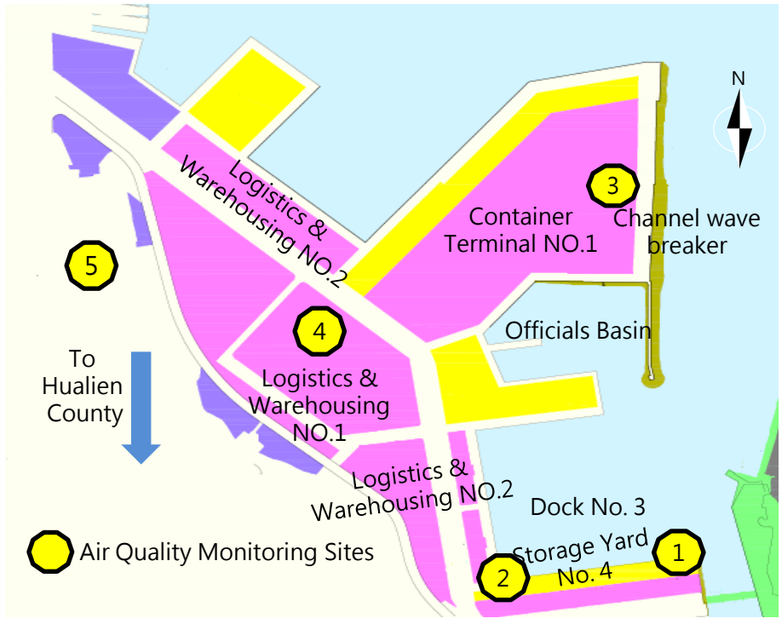
State of the Environment

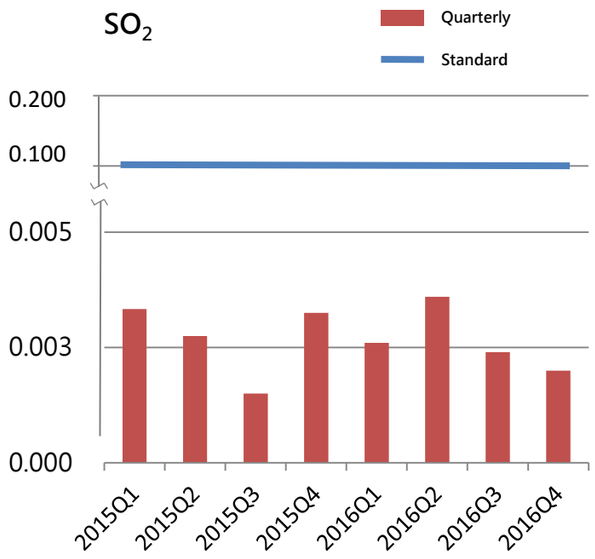
Air Quality

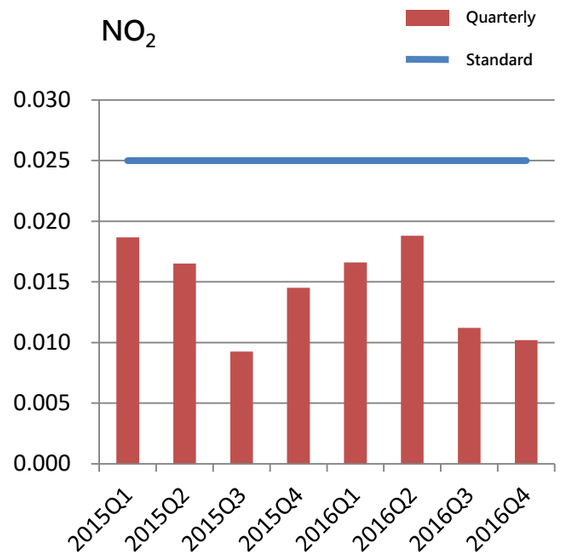
The main pollution sources of Suao Port include particulates resulting from stevedoring, smog caused by vessel fuel, and dust emitted by construction sites.
Suao Port has designated preventing dust emission and reducing vehicular pollution in port areas as independent environmental issues, and environmental friendly vessel policies and shore power systems to achieve the goal of improving air quality in port areas.
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 2015 and 2016, all monitored items meet the air quality monitoring requirements announced by the Environmental Protection Administration.

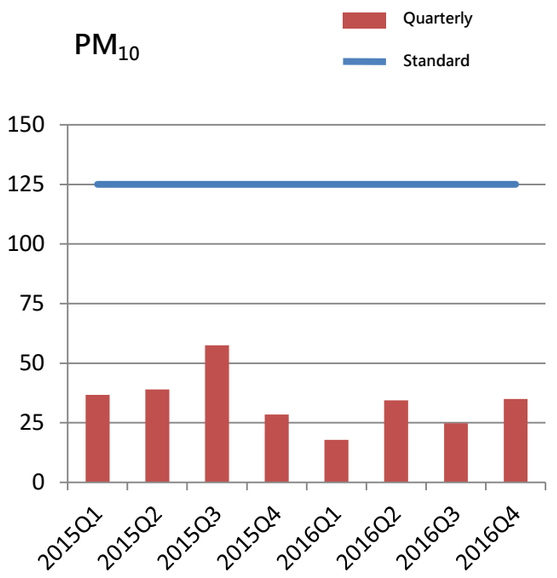
>>Air Quality Monitoring Sites

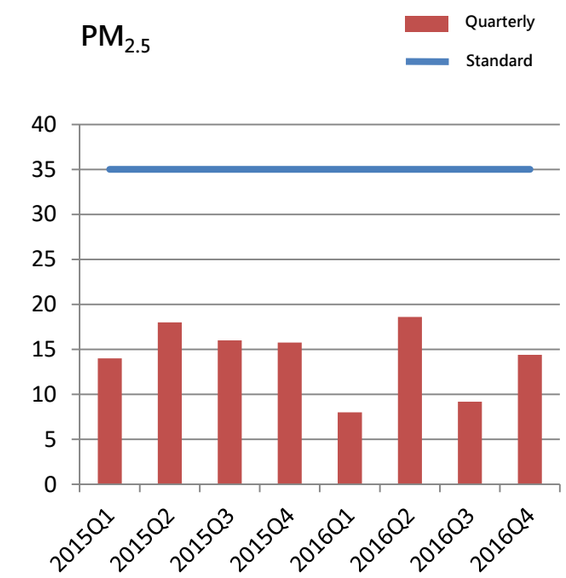


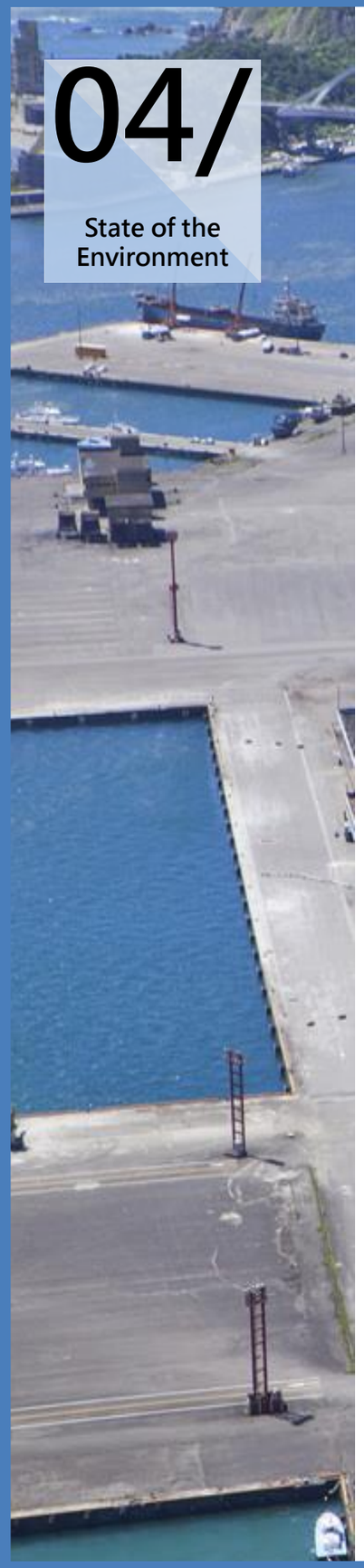
>>Noise Monitoring Sites











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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

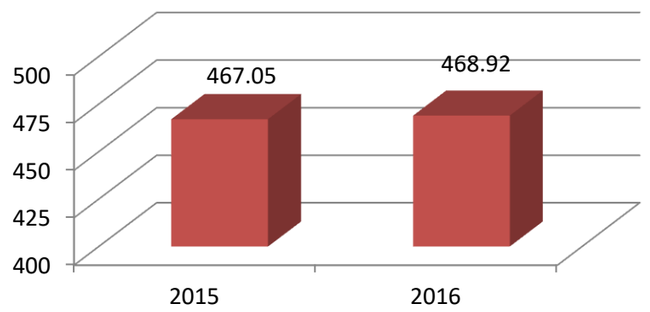
Note:
Fuel consumption (L) = Cargo throughput (ton)× Energy density (L/ton-km)× Harbor travel distance (km)×1000 (kg/ton)

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.

>>2015-2016 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)
2015	4,890,228	0.003	12	176,048	2.65	466.53
2016	4,847,888	0.003	12	174,524	2.65	462.49

Ocean-Going Ship Carbon Emissions in Suao Port (ton)

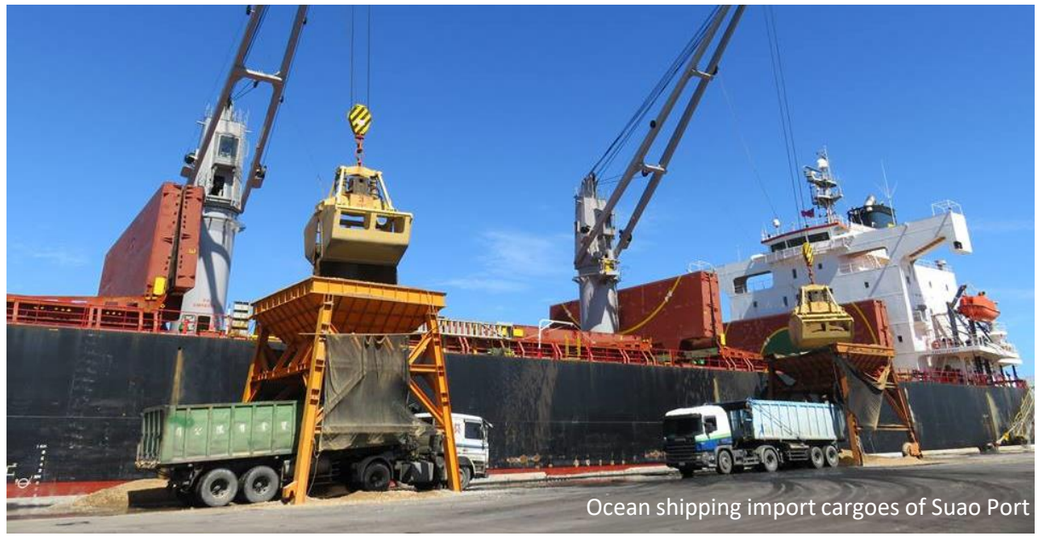


Carbon Emissions from Resource Consumption

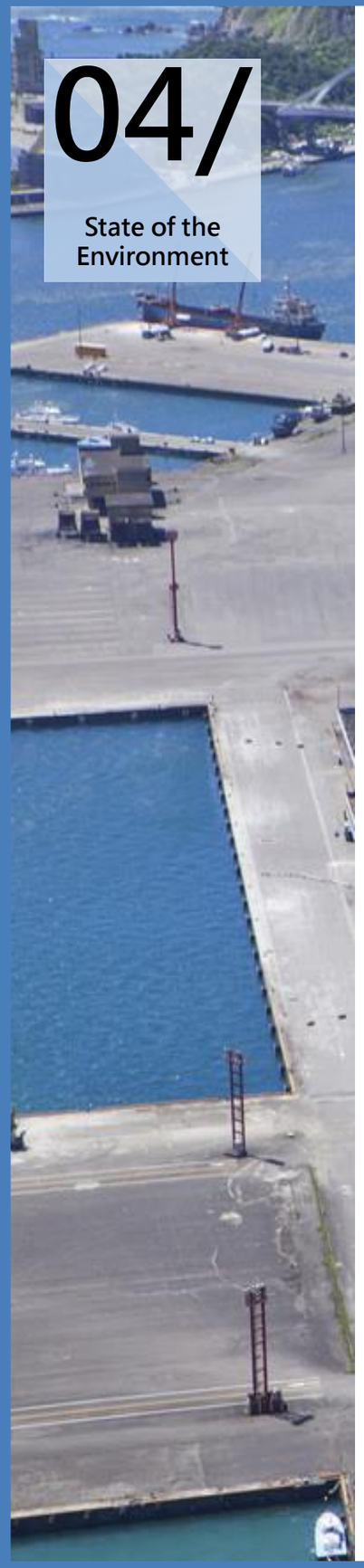
>>Carbon Footprint of Resource Consumption at Suao Port

Resource	2015		2016	
	Amount of Resource Consumed	Carbon Emissions (ton)	Amount of Resource Consumed	Carbon Emissions (ton)
Water	1,741	0.27	2,091	0.32
Electricity	204,077	107.96	147,196	77.87
Fuel	160,156	377.97	159,699	376.89
Paper	159	0.22	137	0.19
Total		486.42		455.27

Note: CO_2 emissions factors of resources
Water: 0.155 $KgCO_2e$ /CMD (2014);
Power: 0.528 $KgCO_2e$ /kwh(2015);
Fuel: 2.36 $KgCO_2e$ /litre;
Paper: 2.8$KgCO_2e$ / sheets(A4,70 pounds)



Ocean shipping import cargoes of Suao Port



04/ State of the Environment

Air Quality Improvement Strategies

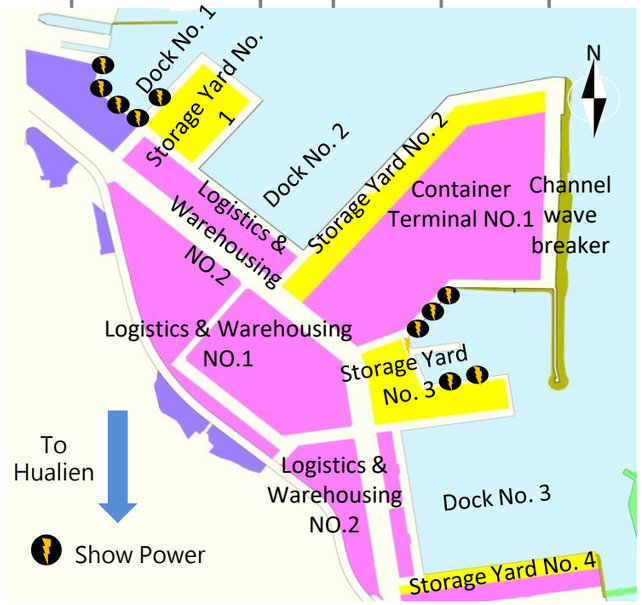
Environmental Friendly Vessels

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	1	1	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.

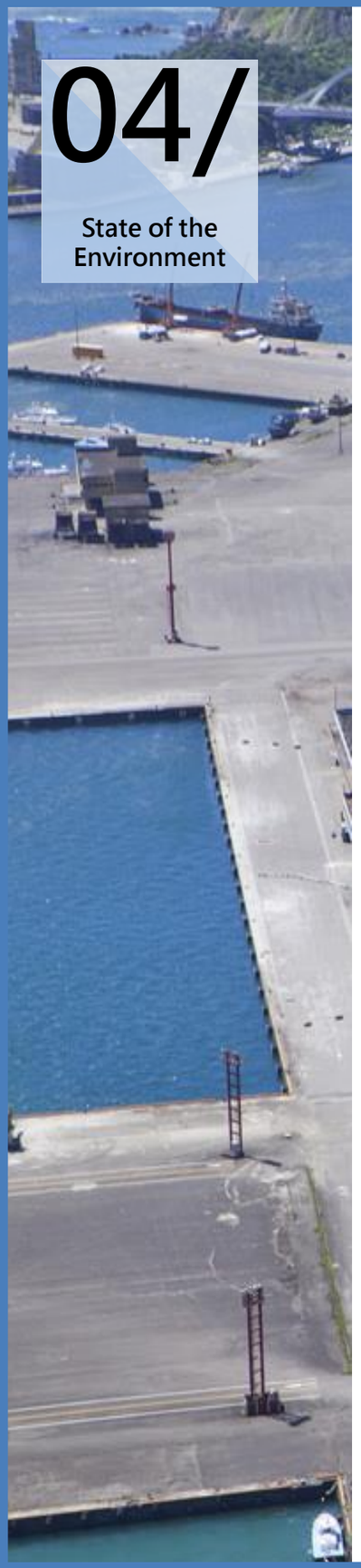
Port of Suao dust control machineries
- Cargo handling pollution prevention device : 23 units
- Enclosed stevedoring warehouse : 1 unit
- Carwash facilities : 3 units

>>Suao Port Fugitive Dust Control Measures

Aspects	Dust Control Measures
Cargo Handling	• 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
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

Suao Port integrated the car wash system with the weigh station to lessen fugitive dust emissions.

Suao Port utilizes automated coal unloading machines to increase operational efficiency and reduces emissions



04/ State of the Environment

Water Quality

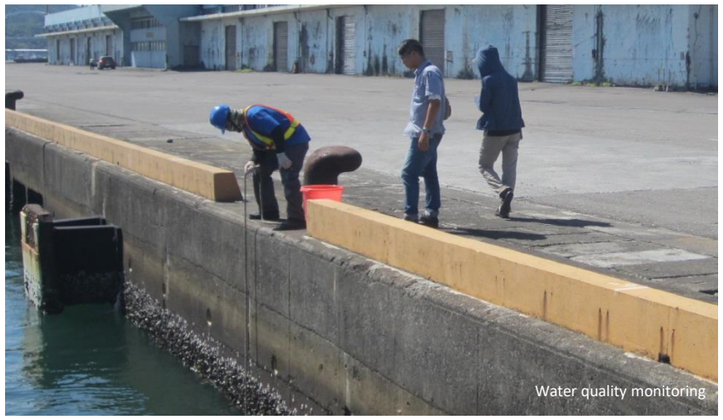
The Suao Port Branch Office proposed the Port Area Pollution Prevention and Reduction Measures plan to monitor port water quality; control domestic sewage, wastewater from port operations, and runoff wastewater; monitor water temperature, pH, DO, BOD5, mineral oil, and E. coli levels.

Suao Port carry out quarterly sample testing for Type B ocean environment quality standards.
The compliance rate for 2015 and 2016 was 97.5% for pH value and 100% in all other categories.

>> Records of 2015, 2016 Suao Port Water Quality

Indicators	Standards	Measurements	Pass rate(%)
water temperature(℃)	-	20.5~29.4	-
pH	7.5~8.5	6.8~8.1	97.5
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



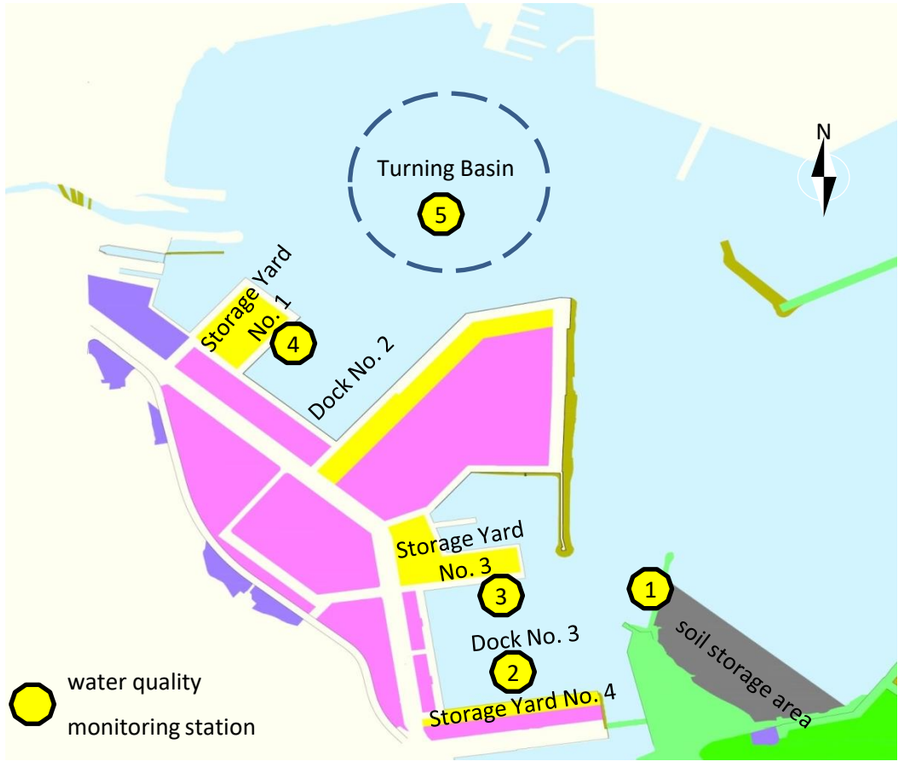
Water quality monitoring

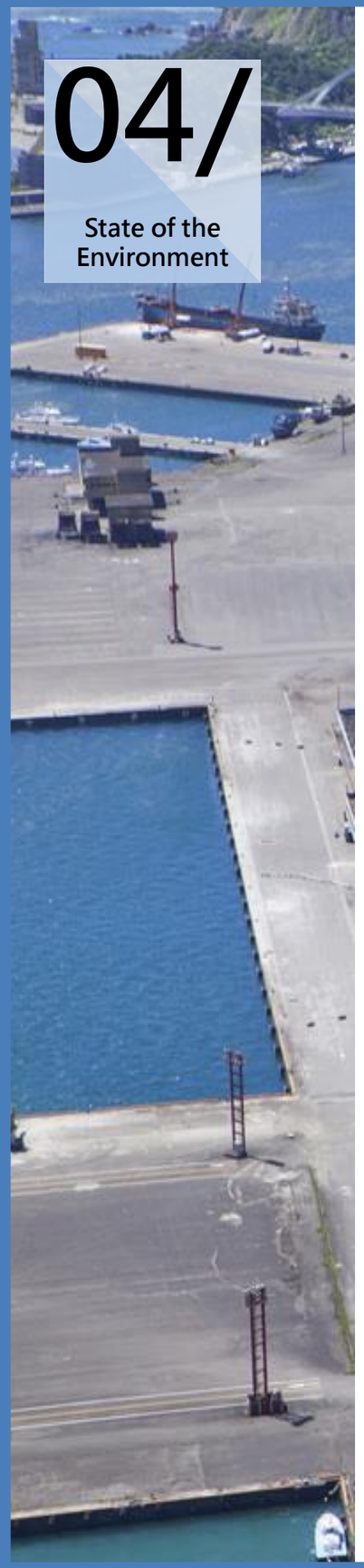
Water Quality Improvement Strategies

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 location





04/ State of the Environment

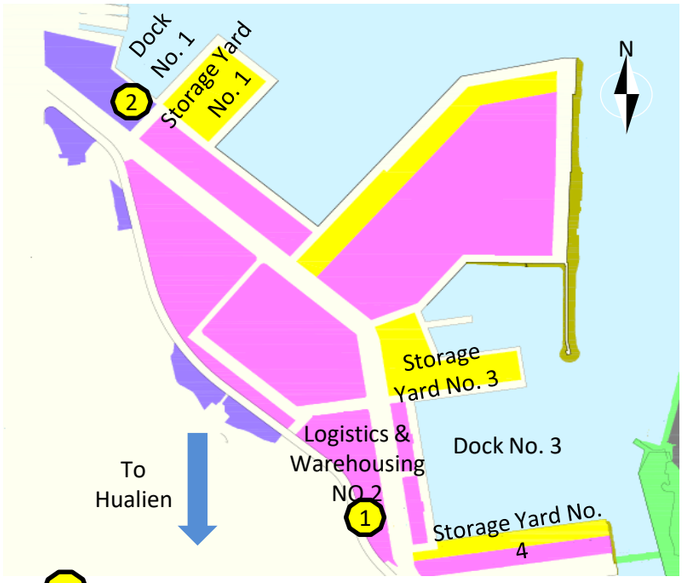
Noise

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 neighboring residents.

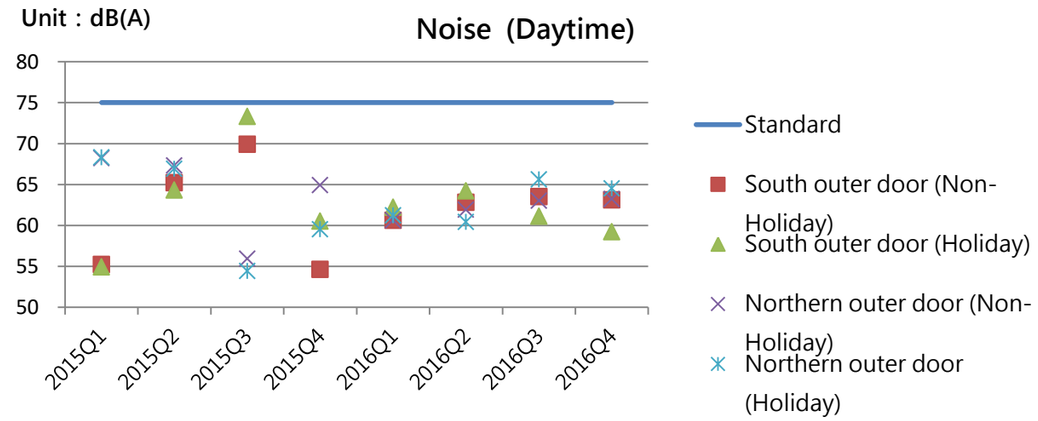
The Suao Port Branch Office requires that all commercial operations, vessels, and vehicles must comply with noise control standards.

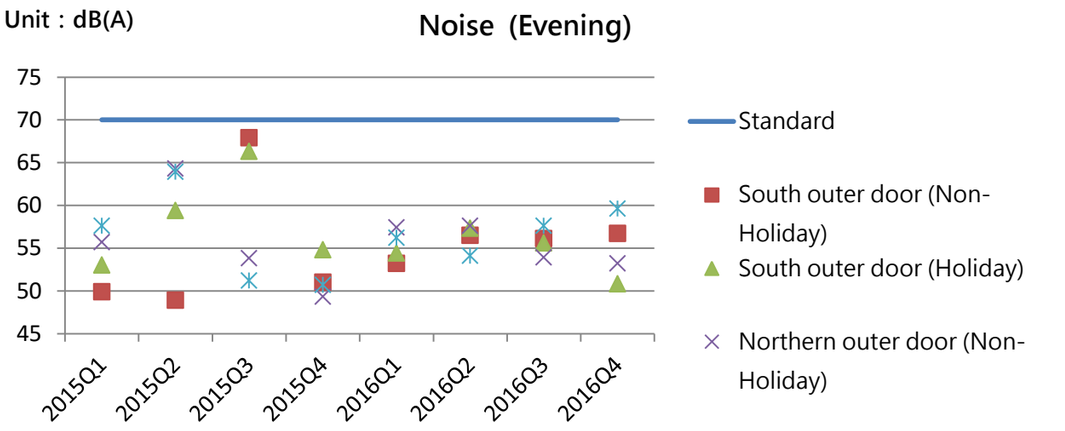
The Suao Port Branch Office created an access road buffer zone to reduce crossover between port district and residential traffic, reduce vehicle noise, and ensure safe traffic and a peaceful community.

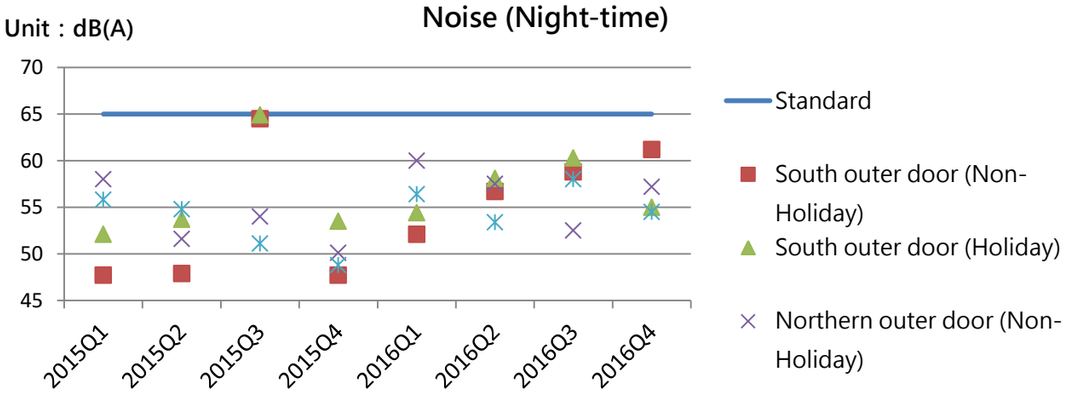
According to port environmental quality monitoring results, in 2015, the rate of compliance with noise control standards stood at 100%.

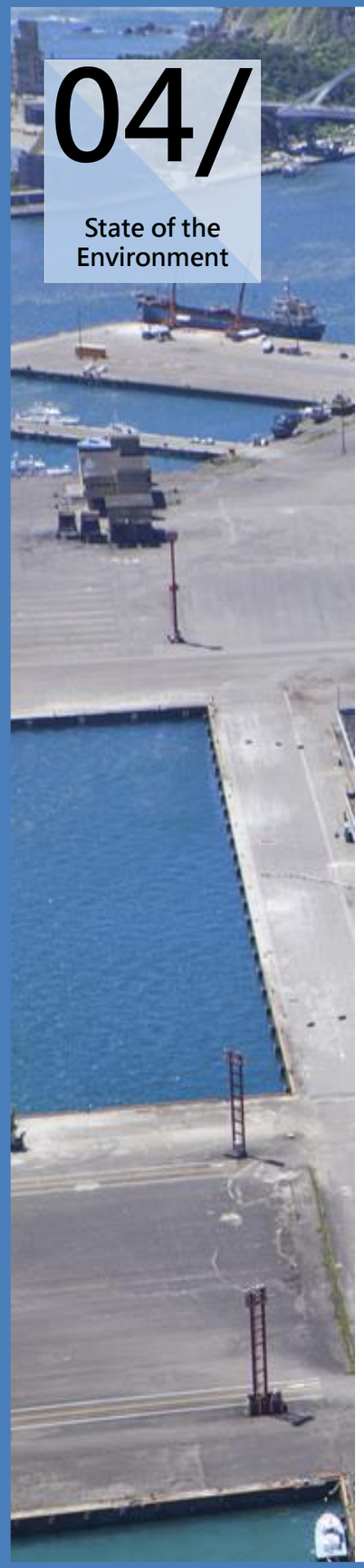


>>Noise Monitoring Sites









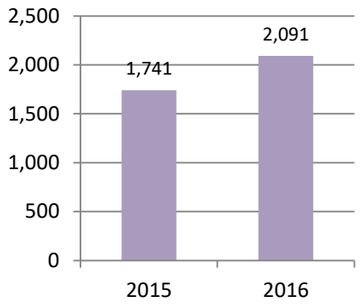
04/ State of the Environment

Reduce Port-generated Waste

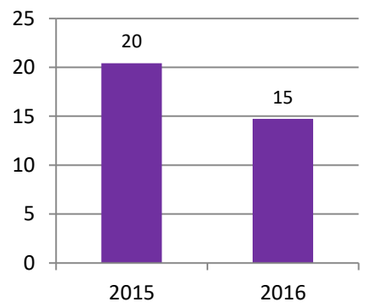
The port monitors its consumption of energy and re-sources in accordance with the "Energy and Resources Saving Project". While there was an increase in water consumption in 2015 and 2016, the consumption of electricity, oil, and paper decreased, indicating that Suao Port's energy and resources improvements 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 Usage (1000m^3)



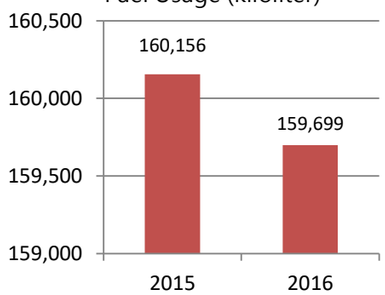
Electricity Usage (10 MWh)



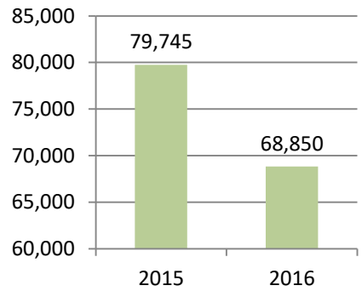
The original water supply for the vehicle washing station at Suao Port in 2015 was groundwater. This was changed to a mixture of tap water and a small amount of groundwater in 2016, which was the main factor in increased water consumption.

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 Usage (kiloliter)



Paper Usage (Package)



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

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.

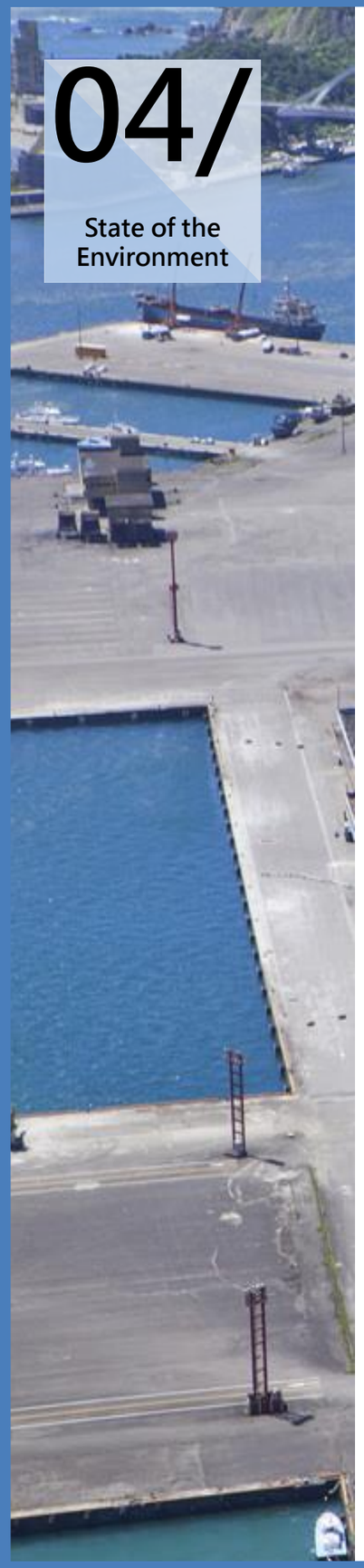

Intake area of recycled water

>> 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


Inspecting port water utilities


Inspecting port electricity Utilities



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.

Port Market Economic Co-Prosperity Industrial, Government, and Academic Forum.

Maintain the community environment

>> Environmental public grievances in 2015-2016

Item	2015	2016
Number of handling environmental public grievances	0	0

Reduce Port-generated Waste

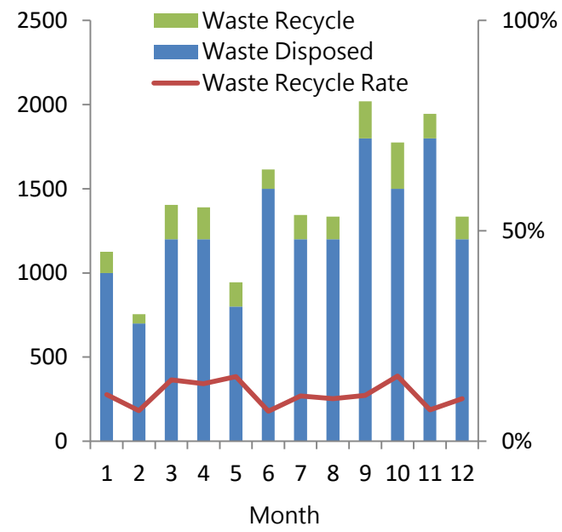
To reduce port waste, the Branch Office has promoted waste reduction, implemented recycling and reuse, promoted the 4-in-1 recycling program initiated by the EPA in 1997 (to recycle and reduce waste), and in 2005 promoted the concept of mandatory garbage recycling to recycle items mainly consisting of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

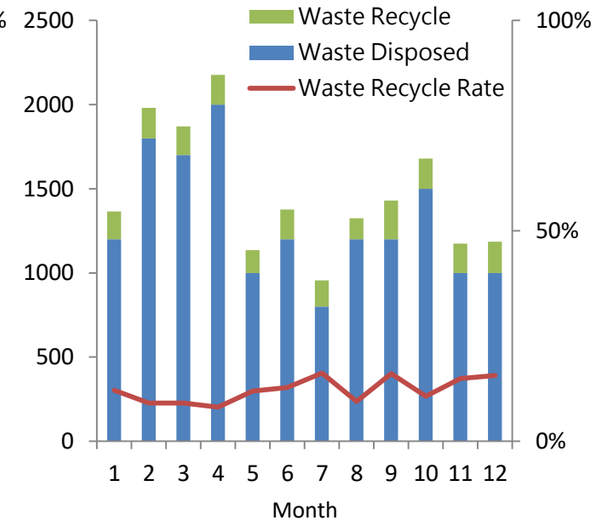
>> Amount of waste recycle & disposal at the Port of Suao

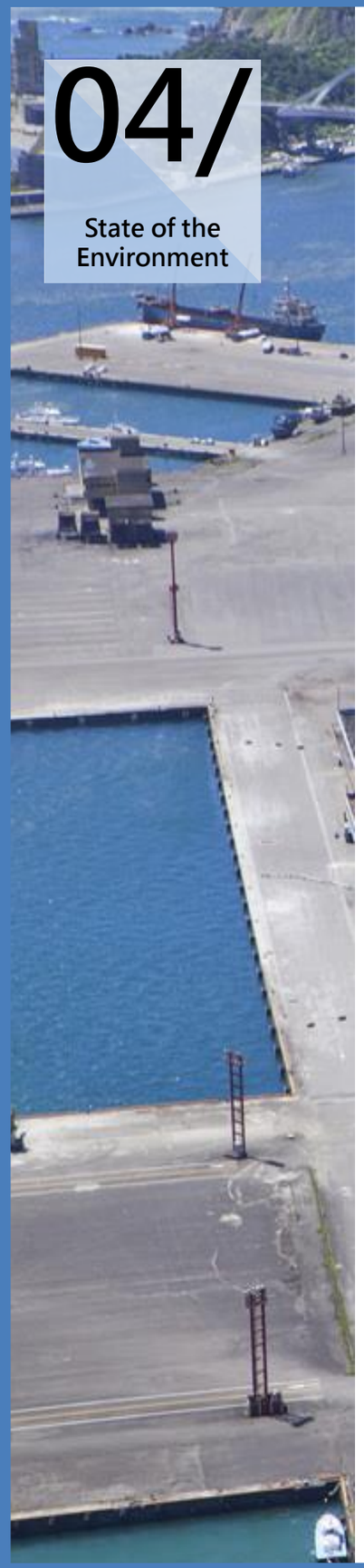
Item	2015	2016
Total waste generated (ton)	16,990	17,652
Disposal (ton)	15,100	15,600
Recycle (ton)	1,890	2052
Recycle Rate (%)	11.12	11.62

Unit : kg



Unit : 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 environmental 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 2015-2016

Year	2015	2016
Inspections	267	275
Drills	1	1
Cross Agency Inspections	18	12

Deployment of oil boom

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.

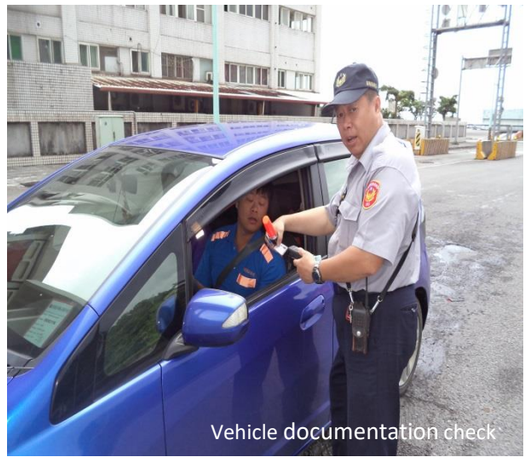
The Branch Office inspects stevedoring in the port more than spot checks of discharge pipes and manages dangerous cargo in the port.

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.

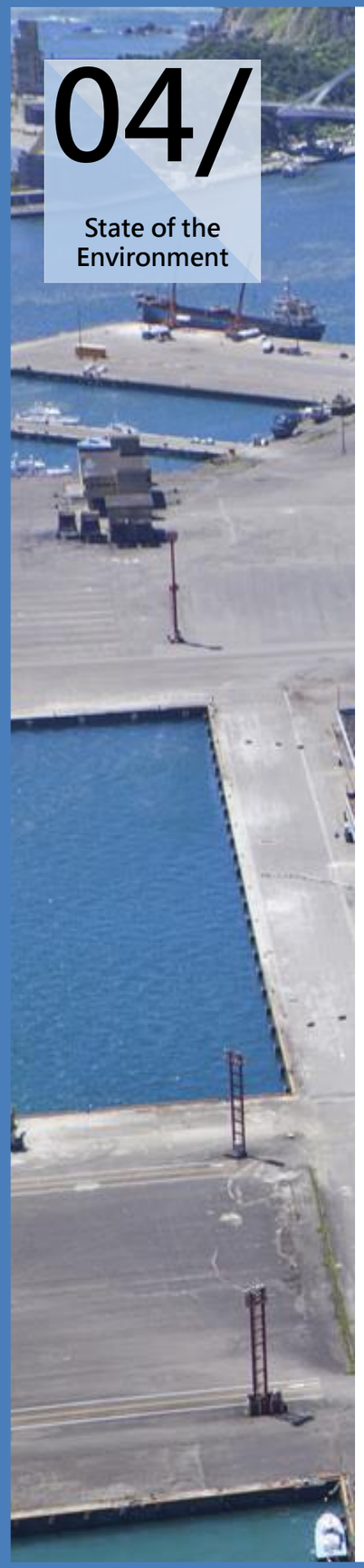
The Branch Office stipulated that emergency response drills shall be organized at least once per year and a joint safety promotion at least once per year.

Spot checks of discharge pipes


Dangerous goods emergency response drills


Vehicle documentation check


Safety check



04/ State of the Environment

Land Use Optimization

Suao Port' s overall comprehensive plan was carried out in accordance with 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 Ilan County Government' s Su Nan Station plan and integrating the tourism resources of the nearby village of Nanfangao.

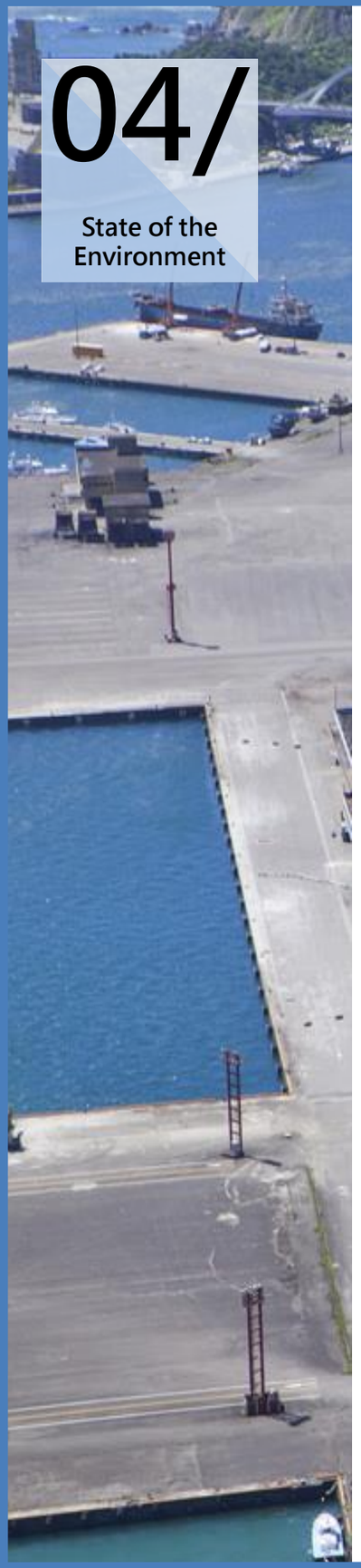
>>Illustration of Suao Port Tourism and Transit Zone

>>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.

Environmental Performance Indicators

Environmental Issues	Index Item	Calculation Method		Index Target	Description of Calculation	
					2015	2016
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: 158,782 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: 157,608 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%		Taiwan International Ports Corporation established and began promoting the Vessel Speed Reduction System in 2015. Suao Port implemented the guidelines and reached the annual target rate.	Taiwan International Ports Corporation established and began promoting the Vessel Speed Reduction System in 2015. The Suao Port Branch Office implemented the promotion. The target rate for Suao Port in 2015 was 66%. The target rate in 2016 was 69%.	
	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%	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 dust control facilities for cargo handling, enclosed stevedoring warehouse, dust collection equipment	Number of dust control facilities implemented annually		Increase/ update or maintain the number of dust control facilities	• Number of dust control facilities for cargo handling:21 • Number of enclosed stevedoring warehouse:1	• Number of dust control facilities for cargo handling:23 • Number of enclosed stevedoring warehouse:1
	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: 1,890 kg • Total generated: 16,990kg • 1,890 kg÷16,990kg×100%=11.12% • 2015 recycling rate: 11.12%	• Waste recycled: 2,052kg • Total generated: 17,652kg • 2,052kg÷17,652kg×100%=11.12% • 2016recycling rate: 11.62%



04/ State of the Environment

Environmental Performance Indicators

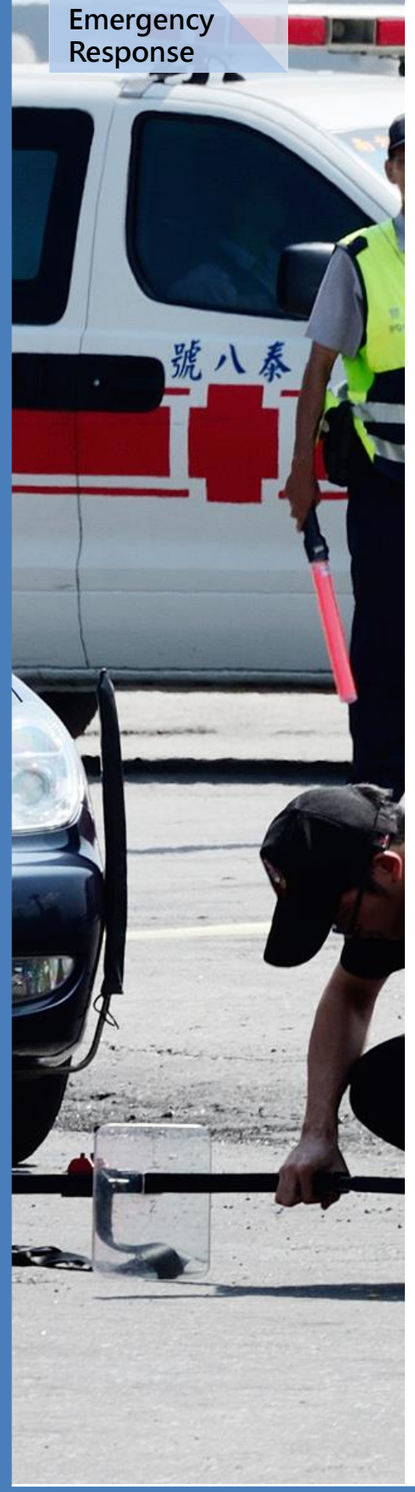
Environmental Issues	Index Item	Calculation Method		Index Target	Description of Calculation	
					2015	2016
Noise	Daily ratio of noise levels (measured at the noise monitoring station in the port) that satisfy related regulations	Category D Road Noise Control Criteria: Detailed regulations: 76 dB during 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%
Port development	Maintain or increase port green area	• Calculate annual port green area		• Maintain or increase port green area	Total port green area in 2015:11acre	Total port green area in 2016:11 acre
Relationship with Local Community	Quantity of Event and attendance	Actual occurrence quantity		Annual target 2 events 50 participants	Total number of participants：61 2 activities held Remarks： Environmental education training at Letzer incineration Plant	Total number **of** participants：50 2 activities held Remarks： Environmental education training at Luodong Forestry culture Garden
	Environmental public grievances	Number of environmental public grievances		Number of handling environmental public grievances <6	Number of handling environmental public grievances：0	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：95 Number of vessels carrying chemical- and oil- cargo equipped：95 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：90 Number of vessels carrying chemical- and oil- cargo equipped：90 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 de-ployed 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 ：20,710set • Total number of trucks ：20,908 et • 20,908set÷20,710set×100%=99.1% • Percentage of trucks with dust proof netting installed under containers ：99.1%	• Number of trucks with dust proof netting installed under containers ：15,428set • Total number of trucks ：15,669 set • 15,428set÷15,669set×100%=98.5% • Percentage of trucks with dust proof netting installed under containers ：98.5%
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	• Fuel Use：160,156 L • Electricity Use：204,077kWh • Water Use: 1,741m^3 • Paper Use：159packages	• Fuel Use：159,699 L • Electricity Use：147,196kWh • Water Use: 2,091m^3 • Paper Use：137packages
					• Water Use: +20.1% • Fuel Use: -0.3%	• Electricity Use: -27.9% • Paper Use: -13.7%
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	• 5÷5 × 100% = 100% • Cleanups conducted by relevant vessels (oily bilge water): 5 • Total oily bilge water collected: 52 t	• 2÷2× 100% = 100% • Cleanups conducted by relevant vessels (oily bilge water): 2 • Total oily bilge water collected: 55 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 2015 and 2016, major port accidents were construction site leakage and vessel collision (no spillage).

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 2015-2016 Accidental Incidents

Accident type/Year	2015	2016
Vessel collision, shipwreck, fire, oil and other chemical spillage	0	0
Ship machinery breakdown, tilt, strand	0	1
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.

>>2015-2016 Suao Port Inspection Statistics

Year	2015	2016
Port Environmental Inspection	267	275
Penalty from Legal Authority (MPB)	0	0
Pollution Prevention Spot Check	12	12

>> 2015-2016 Suao Port Drill Records

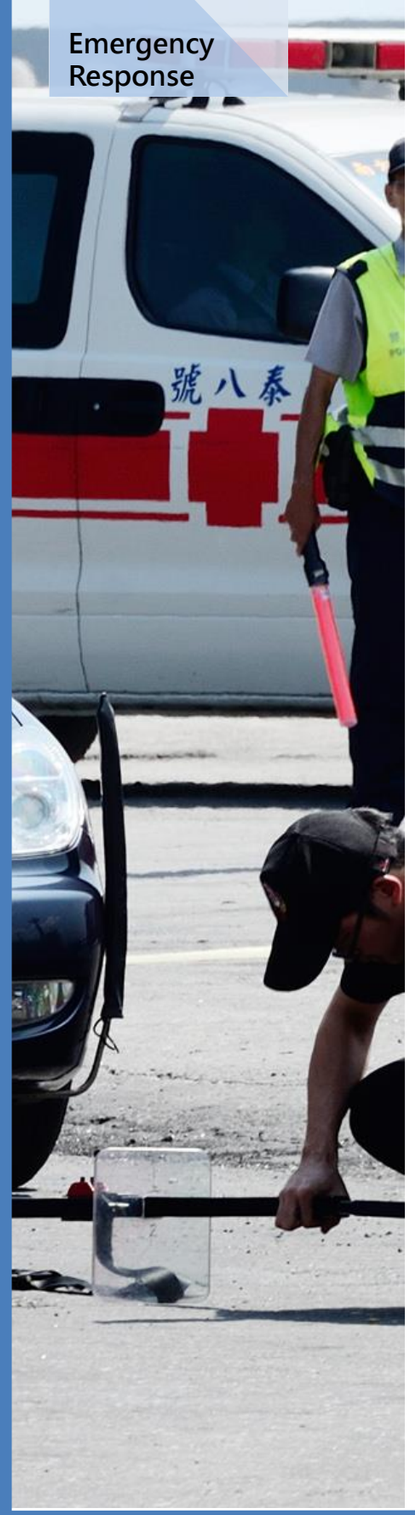
Year	Name of the Drill	Content	Dates
2015	Yilan County Marine and Riverine Pollution Emergency Response Drill	Suao Port conducted a marine and riverine pollution emergency response drill in 2015 to improve its response capabilities in handling marine oil pollution and allow relevant agencies to familiarize themselves with the marine pollution emergency incident reporting system, enhancing major marine pollution incident handling capabilities.	July 23
2016	Yilan County Underground Industrial Pipeline Disaster and Marine Pollution Incident Joint Response Drill	These drills increase the underground industrial pipeline disaster handling capabilities of commercial operators and related organizations that utilize industrial pipelines.	June 5

Emergency Rescue Drill

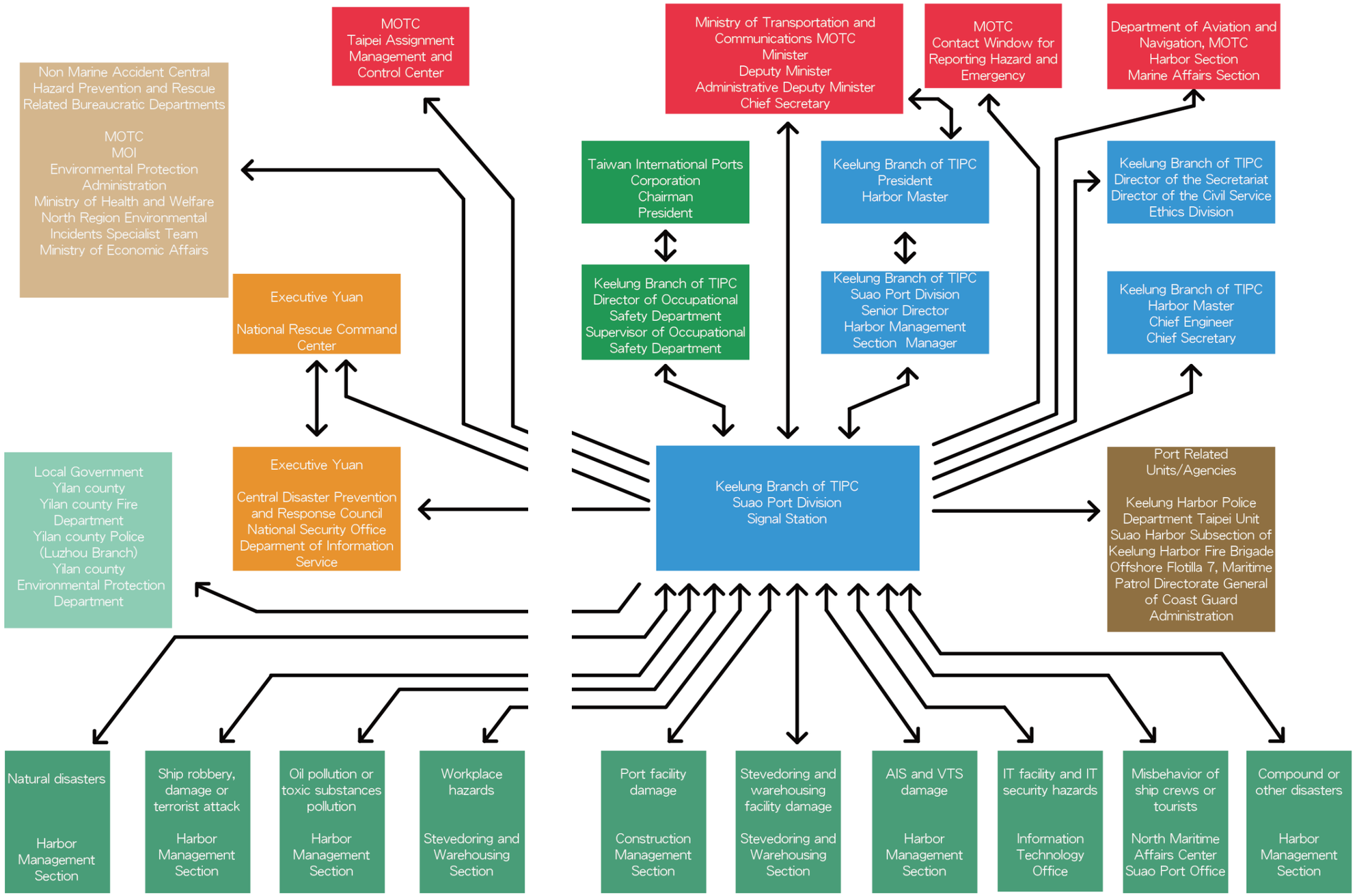
Fire Drill

05/

Emergency Response



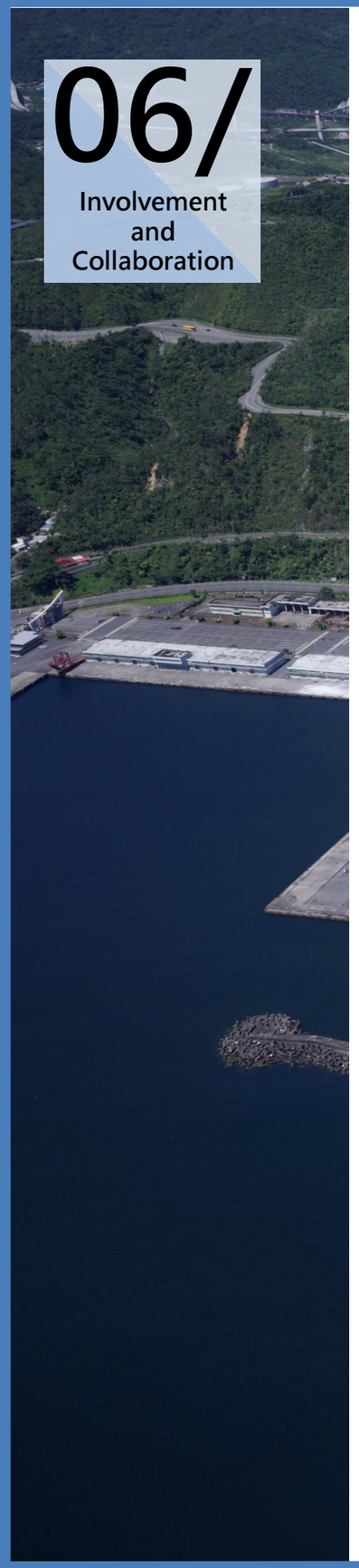
Port of Suao Emergency Response



Involvement and Collaboration

06/

Port of Suao has established best practices for issues concerning the port environment, which includes solar panel installation reusing water resource and Land reclamation project using soil from channel dredging



06/
Involvement and Collaboration

Innovation

Solar panel installation

Concern/Motivation

To achieve the goals of the Taiwan Green Ports Promotion Plan to improve the port environment and reduce adverse impacts on the port environment and the ecosystem, the Suao Port Branch Office hopes to build the largest thin film solar power plant in Asia due to its minimal pollution, high energy efficiency, and good development potential.

The office plans to install a solar power optoelectronics facility at Suao Port to efficiently transform sunlight into electricity and become a force for sustainable development that promotes the green port strategy.

Solution

High efficiency solar power modules can exert maximum effectiveness and mitigate the influence of the northern climate with its greater number of cloudy and rainy days and insufficient duration of sunlight. The electrical generating capacity will be 1,996.4kW, effectively increasing power output to 6-7%.

Effects/Benefits

Estimated annual electrical generating capacity is about 2.22 million kWh. Annual carbon reduction is about 1,200 tons, which is the equivalent of the total carbon absorption of 3 Daan Forest Parks.

Environmental Issues

Port development, energy consumption

Participants

Port leasing industry、Yilan county Environmental Protection Department、Environmental Protection Administration, Executive Yuan

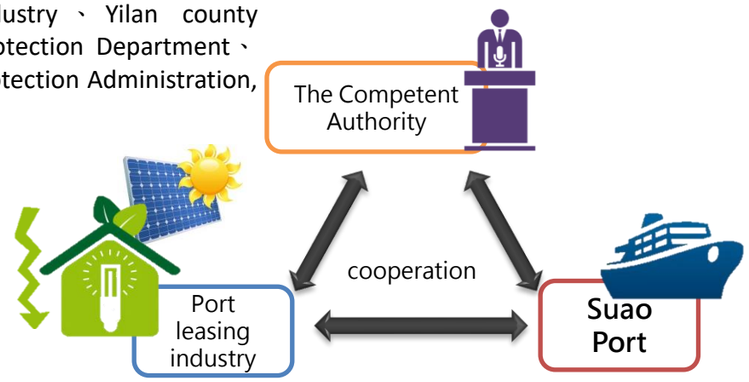
Implementation/TimelineInvestment

Oct 2016 Completed
Mar 2017 began operation

Totals 90 million NTD

Stakeholders

Port leasing industry、Yilan county Environmental Protection Department、Environmental Protection Administration, Executive Yuan



Roof solar power unfinished the eneration facilities

Roof solar power finish the eneration facilities

Strategies： Exemplifying、Enabling

Port of Suao

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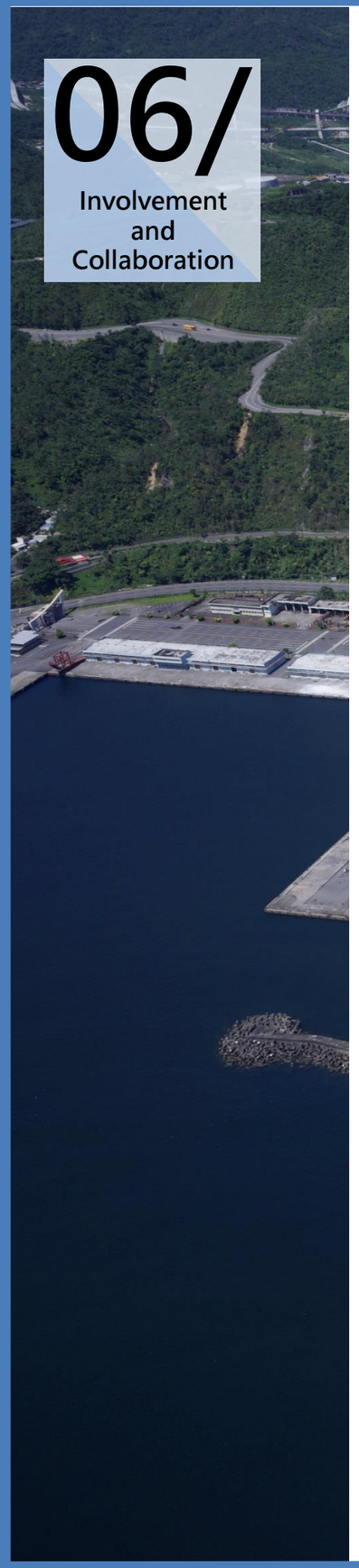
Phone：03-995-5865#5700
E-mail：sourcing_03@mail.phev.com.tw
Website：http://www.pihsiang.com.tw/



06/ Involvement and Collaboration

Reusing water resource

Concern/Motivation

The main import and export cargoes of Suao Port 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.

To effectively reduce operations generated dust, response and improvement measures must be taken, future developments must be considered, and local resources must be utilized to promote pollution prevention control measures.

Solution

To coordinate with national pollution prevention control policies, the office plans to access Central Mountain Range spring water, set up a 500-ton ecological pond, and draw water to the port' s 3 200-ton reservoirs The water resources should be enough to provide for 15 mobile airblast sprayers and truck washes, street sweepers, and the port' s planted areas. Twenty-four sets of dust nets will also be deployed to reduce dust pollution.

Implementation /Timeline

July 2016	began
Dec2017	finished

Investment

Est. 45million NTD

Effects/Benefits

The port will effectively manage water resources by setting up an ecological pond and reservoirs, reducing the water pipelines for mobile airblast sprayers and truck washes, and making use of dust nets to control dust pollution.

Stakeholders

Port operations unit、Yilan county Government, Environmental Protection、Environ-mental Protection Administration、The public

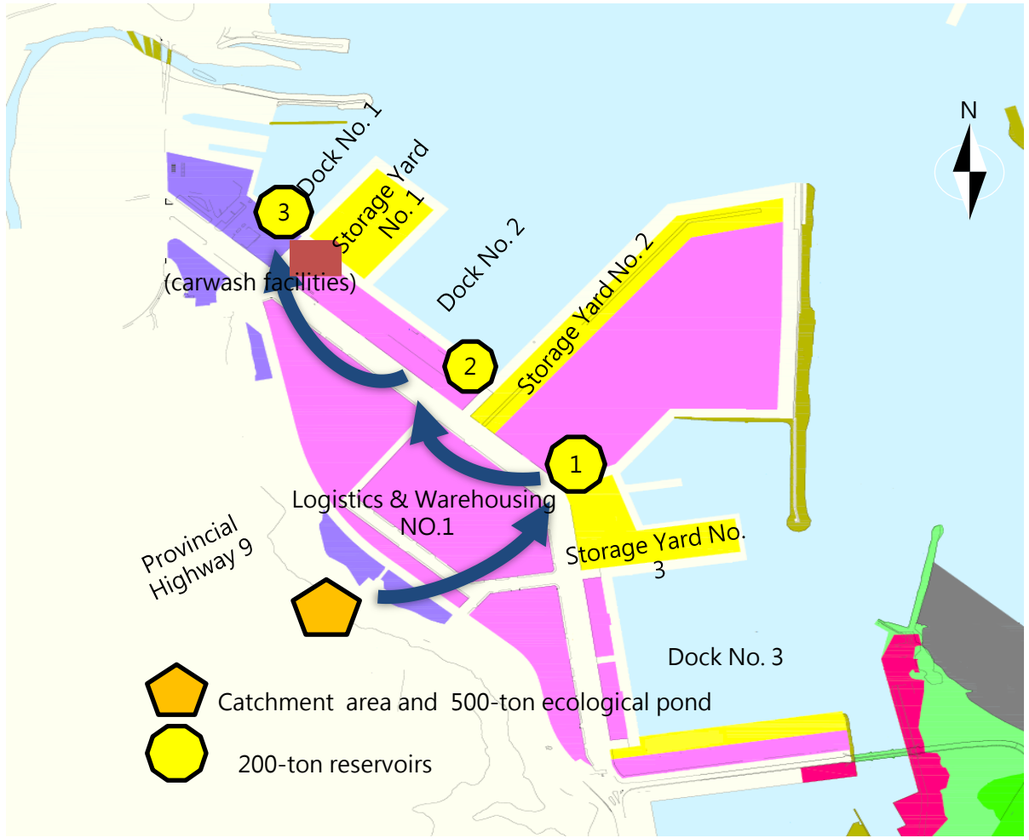
Environmental Issues

Improve air quality、noise、dust、The public

Participants

Suao Port Branch Office

>>Illustration of dust control facilities



Strategies: Exemplifying、Enabling

Suao Port Branch Office
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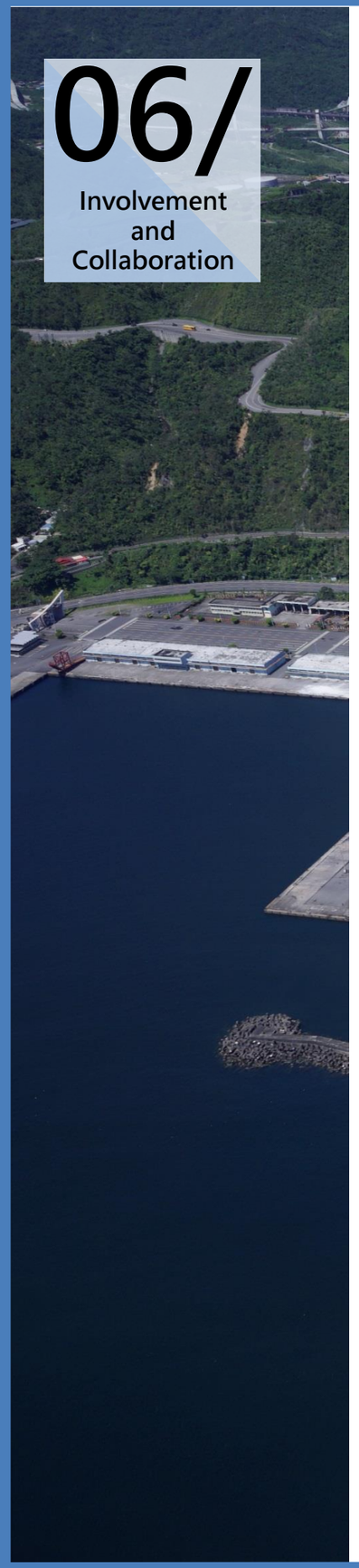


06/ Involvement and Collaboration

Land reclamation project using soil from channel dredging

Concern/Motivation

In the past, Suao Port processed soils from maintenance-related dredging of the channel and turning basin by marine dumping. However, with increasingly strict national environmental regulations, it is uncertain that marine dumping can be employed in the future.

Solution

The Suao port backfills dredging soils by the seawall between the south side of the wharf at dock 4 and the land area. The area is about 9.6 hectares and the water depth is about EL.-7~-3m. The estimated capacity is about 1 million cubic meters. The annual volume of soil dredged from the port basin is estimated to be about 100,000 m³. Therefore, the area has a ten-year dredging capacity.

Solution

According to May 2008 price estimates, the cost of marine dumping is about 400 NT dollars per cubic meter. The estimated dredging backfill cost is about 200 NT dollars per cubic meter, leading to a total cost savings of about 200 million NT dollars.

About 9.6 hectares of land has been reclaimed through backfilling. the Suao Port Branch Office has created a real estate asset valued at 490 million NT dollars.

the plan also provides a local investment and operations platform and helping to balance economic development in Suao and the Yilan area.

Environmental Issues

Port development、and community relations, marine pollution

Participants

Suao Port Branch Office

Implementation / Timeline

Jan 2009 Began

Dec 2021 Finish

There has been 630 thousand m3 of soil been dedged as of 2016.

Stakeholders

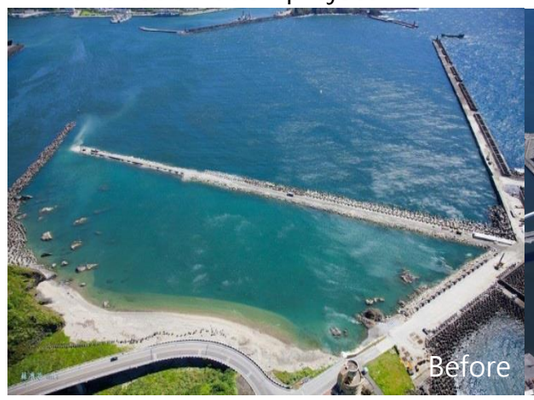
Port operations unit, The public

Investment

Item	Design	Supervision	Construction	Total
expenditures	Est. 6.4 million	Est. 8.1 million	Est. 218.35 million	Est. 238.37 million

>> Illustration of dreging area

>>Land reclamation project



Strategies: Exemplifying

Suao Port Branch Office
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06/ Involvement and Collaboration

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 Environ-mental 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 2015 and 2016, 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.

>>Port of 2015-2016 Environmental Education Training

Year	Content	batch	Number of person
2015	Environmental education training at Letzer incineration Plant	1	35
		2	26
2016	Environmental education training at Luodong Forestry culture Garden	1	30
		2	20


GHG accounting education training

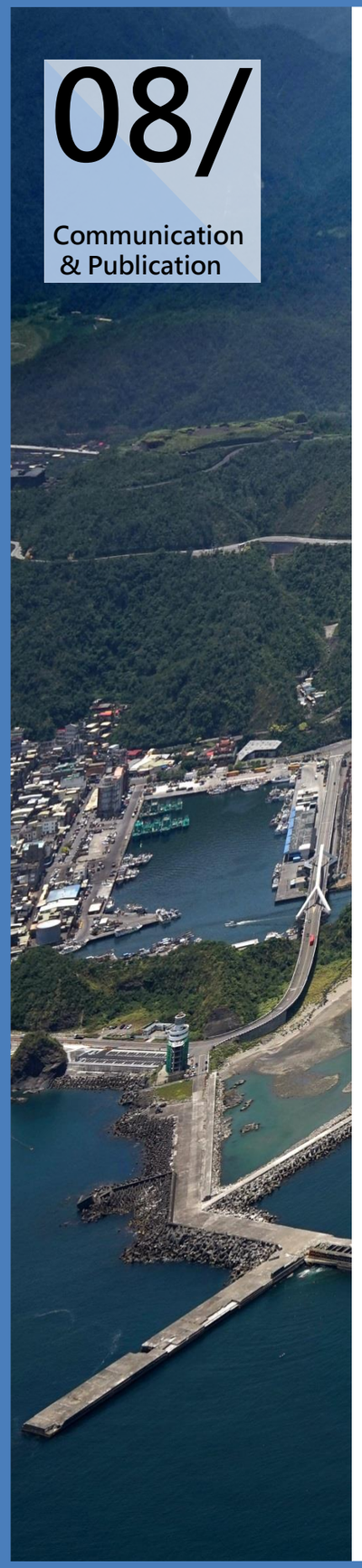
Green transport visit


Letzer incineration Plant visit

Luodong Forestry culture Garden visit

Communication and Publication

08/



08/

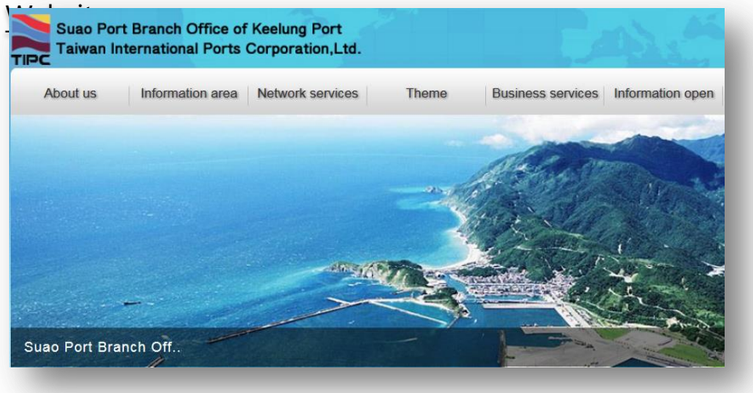
Communication & Publication

Communication & Publication

Promotion activities, seminars, workshops, publication, web-sites, 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.

Website



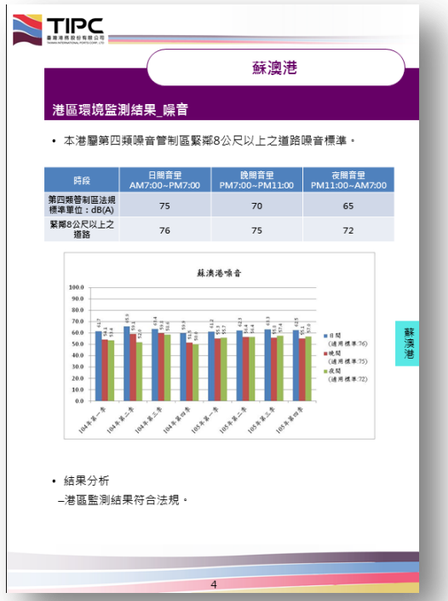
Front Page of Suao Port Website

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.

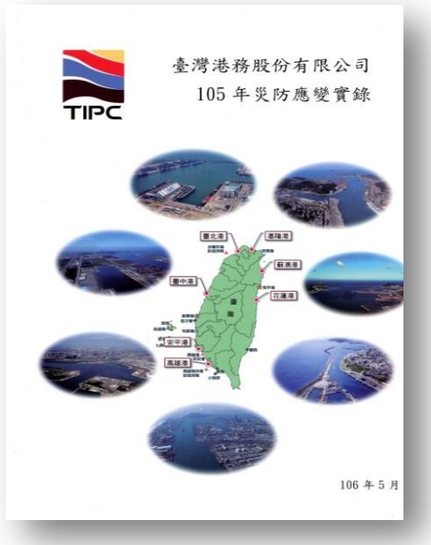
Publication

Suao Port Brochure

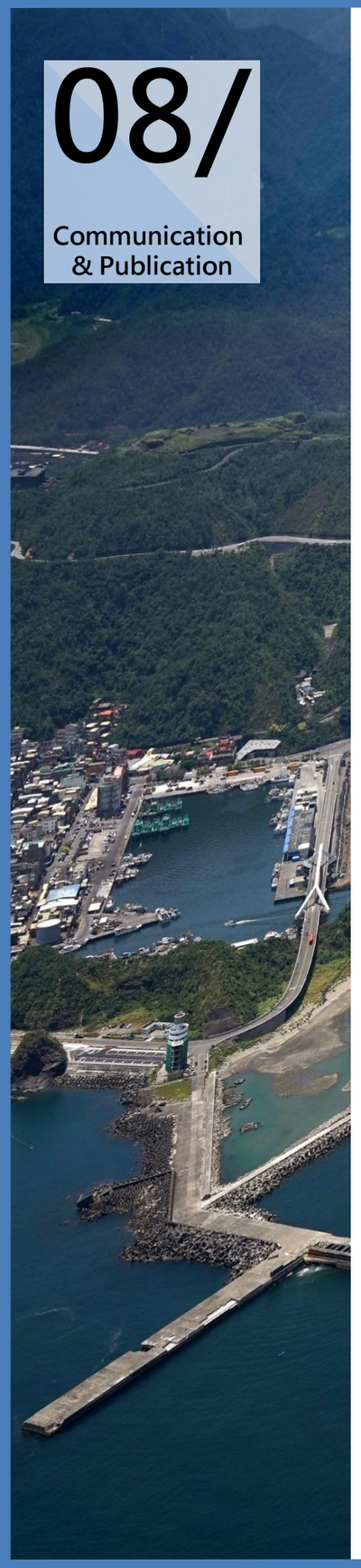


Environmental Monitoring Report of Taiwan International Commercial Ports

Suao Port Publication

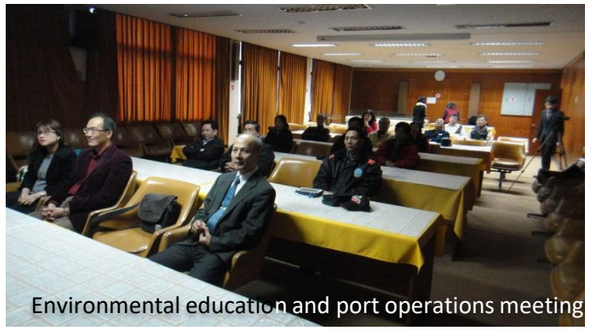


2016 Disaster Response Records



Communication & Publication

Seminars


Environmental education and port operations meeting


Meeting for port pollution reduction


Visiting Yilan County EPB

Port Visitors


MOTC and TPC Visiting


Tour on electronic vehicle factories

Port operations unit Visit


Welcome ceremony for new port tenants


Visitng port operations unit

Promotional Events


Tree planting ceremony


Promoting awareness on Hygiene

Green Accounting

09/

Environmental costs

In order to improve the environmental awareness among staff, environmental maintenance, environmental quality, emergency response abilities, and public under-standing of the port, Taipei Port Branch Office invested in the following categories.

The Summation of Costs invested by the Investments of the Suao Port Branch Office in the Environmental Aspects is 271,133 EUR in 2015 and 209,171 EUR in 2016. (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

Items of Expenses	2015	2016
Personnel	80,249	57,099
Environmental Maintenance & Management	124,227	189,503
Environmental Monitoring	146,906	19,669
Total	271,133	209,171

Environmental Assets

In addition to developing Suao Port into a bulk cargo importing and exporting port for the Ilan 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. General construction and facilities planning included a cross-sea flyover bridge with a tiled pedestrian promenade and the elimination of areas with standing water, improvements in construction design, and oversight of public facilities.

The Suao Port Branch Office invested in fixed assets for EUR €1,445,746) and EUR €1,517,403) in 2015 and 2016, respectively. Detailed data are tabulated in Tables 10 and11. (Rate of exchange 36.2)

>>Assets invested in Environmental Issues in 2015 (Unit: EUR)

Project		Amount
Follow-up Project	2015 Channel and turning basin deepening (Suao Port)	603,840
General building and equipment purchase project		841,905
Total		1,445,746

>>Assets invested in Environmental Issues in 2016 (Unit: EUR)

Project		Amount
Follow-up Project	2016 Channel and turning basin deepening (Suao Port)	465,414
	2016 Levee and public road pavement renovation	123,674
General building and equipment purchase project		928,315
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.