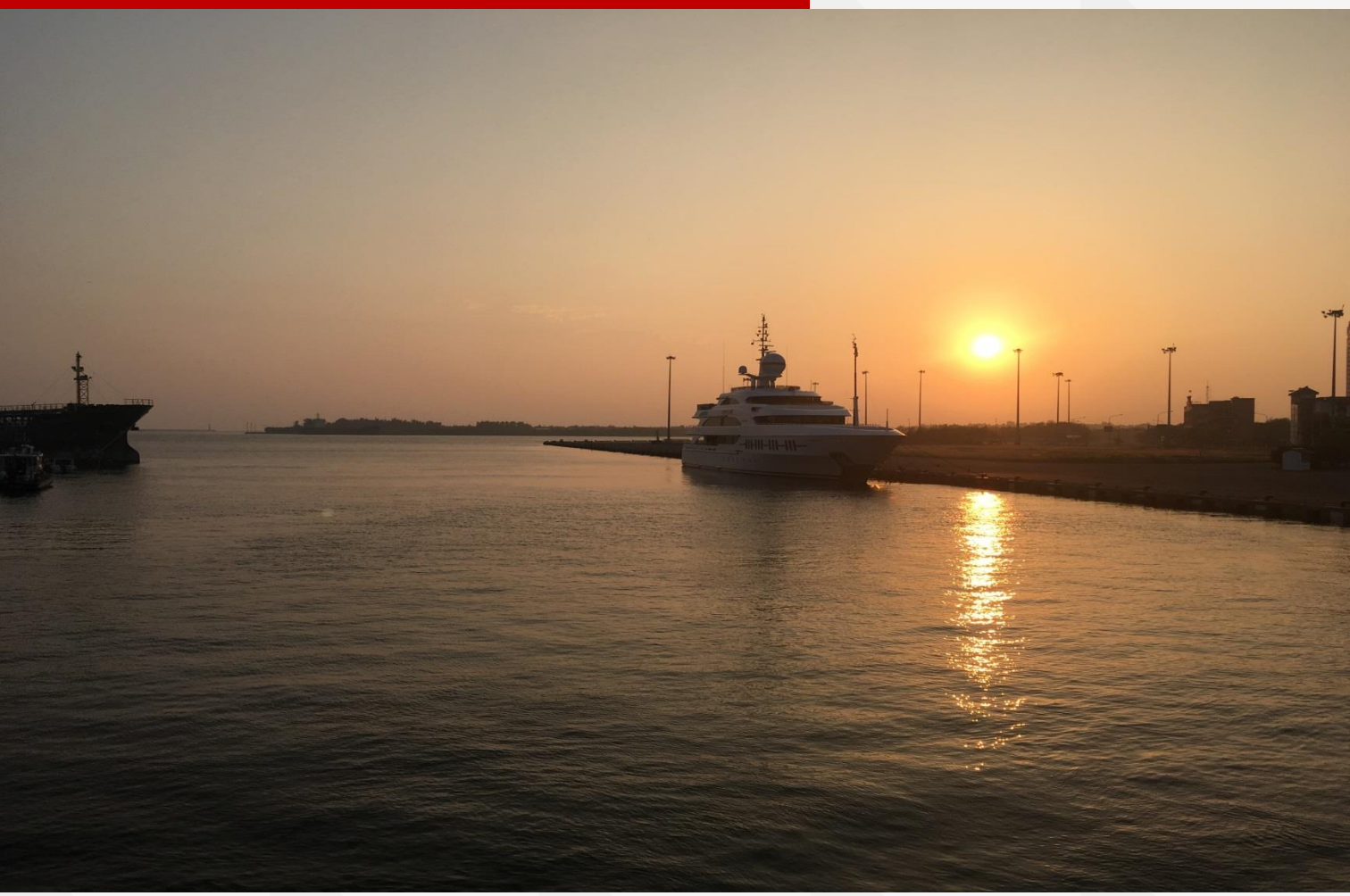
Port of Anping Environmental Report

▶ 2019



Port of Anping
Environmental Report

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

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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.

Chung-Rung Wu
Chung-Rung Wu
Chairman of TIPC

Chen Shao Liang
Shao-Liang Chen
President of TIPC

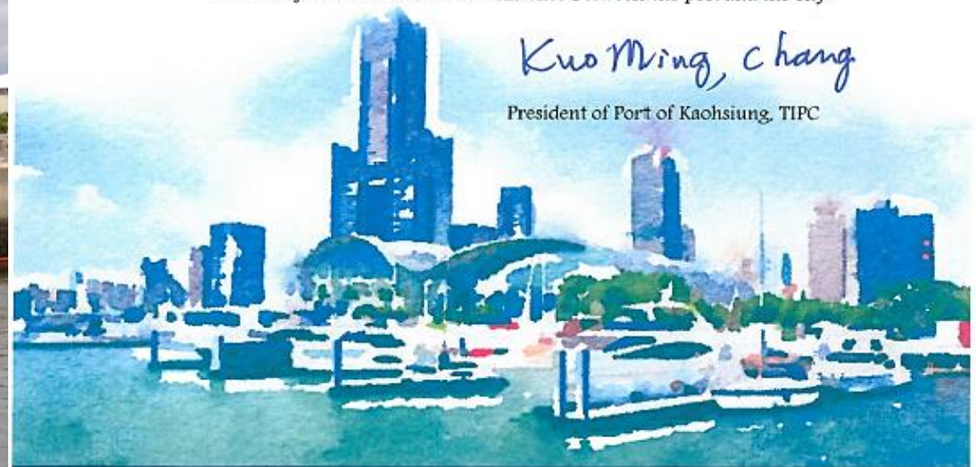
— Environmental Policy —

Ports are the core of international trades and essential for Taiwan's economic development. The Port of Kaohsiung recognizes the importance of ensuring sustainable development while keeping the balance between port prosperity and local ecology. In order to sustain the beauty and prosperity of the bay area, Port of Kaohsiung thereby established the following environmental policy to ensure consistent environmental performance.

- Fully apply the environmental management system; promote sustainable development of the green port
- Follow environmental laws and regulations; endeavor to fulfill corporate social responsibility initiatives
- Provide appropriate environmental education and training; enhance the environmental awareness and skills of our employees
- Continue environmental monitoring and pollution control; reduce energy consumption, carbon emissions, and environmental load
- Disclose environmental information regularly; establish a bridge of communication between the inner and outer port
- Strengthen the participation of communities around the port; create a friendly environment for co-existence between the port and the city

Kuo Ming, Chang

President of Port of Kaohsiung, TIPC



PORT OF KAOHSIUNG, TAIWAN INTERATIONAL PORTS CORPORATION

臺灣港務股份有限公司 高雄港務分公司

安平港營運處

TIPC Anping Port Branch Office of Kaohsiung Port, Taiwan International Ports Corporation, Ltd

Environmental Objectives

To achieve our commitments in environmental policy, the following environmental objectives are set according to the ten major environmental impacts from the port:

- **Improve Air Quality:**
  Conduct regular air monitoring, environmental inspection to trace sources of pollutions
- **Improve the Management of Vessel Sewage Discharge:**
  Effectively control and manage the flow of waste oil and sewage discharged by ships
- **Reduce cargo spillage:**
  Improve operational control and autonomous management at docking areas and reduce cargo spillage
- **Prevent Dust in the Port Area:**
  Manage fugitive dust using airtight operations and water spraying in the port area
- **Abate Ship Emissions :**
  Promote vessel speed reductions and a shore power system and reduce exhaust emissions from ships
- **Reduce Port-generated Waste:**
  Promote garbage reduction in port areas, appropriate disposal of waste and implement the recycling and reuse of resources
- **Reduction of Noise within the Port Area:**
  Monitor noise in the port area and increase control over operational and transportation noise
- **Improve Port Water Area Development:**
  Open more Waterfront and Friendly Space in Port areas to increase opportunities for people to enjoy water, and carry out ecological monitoring surveys
- **Develop a Friendly Land Environment in the Port:**
  Develop a low-pollution and beautified green port, improve the integrity of land space allocation in the port area
- **Improve Port Water Quality:**
  Plan a waste water runoff treatment system for the port area and monitor the long-term water quality of the port area

The President of the Kaohsiung Branch of TIPC is responsible for implementing, upholding, and communicating the environmental policy, and for reviewing the environmental policy annually to meet commitments, make continuous improvements, and achieve environmental objectives.

Kuo Ming, Chang

President of Port of Kaohsiung, TIPC

Date: Aug. 26, 2019

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Message from TIPC

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

The gradually growing awareness at major ports around the globe that port development and environmental protection are inseparable has created a trend of port development that focuses on environmental sustainability. Advanced countries have focused on combining the concepts of green operations and sustainability with port management. With port development aims of achieving low pollution, low energy consumption, environmental restoration, and combined benefits for the surrounding communities while sustaining economic benefits, focuses have been placed on designing suitable port plans, production operations, and protective measures of the surrounding environment.

As one of Taiwan's seven major international ports, Anping port understands that as a port administrator management, it should take the responsibility of maintaining and improving the port environment. In recent years, Anping port has devoted itself to the maintenance of green belt area, striving to create green beautification of port space, and committed to integrating environmental protection into the sustainable operation of the port.

In addition to actively promoting the development of major trade and commercial port tourism industries and pursuing port economic benefits, the port administration also considers the issues of port environmental planning, pollution prevention and control, friendly community relations and other issues as part of sustainable operation, and strives to reduce the possible environmental burden of port operation. Through the process of applying for the eco-port certification again, the goal of friendly green port is fully achieved. In line with international standards and in-depth exchanges, it adopts benchmark learning strategies to achieve the goal of co-existing interests of ecological environment, port development and port operation.

Kuo Ming, Chang

President of Port of Kaohsiung
Taiwan International Ports Corporation, Ltd

Port Profile

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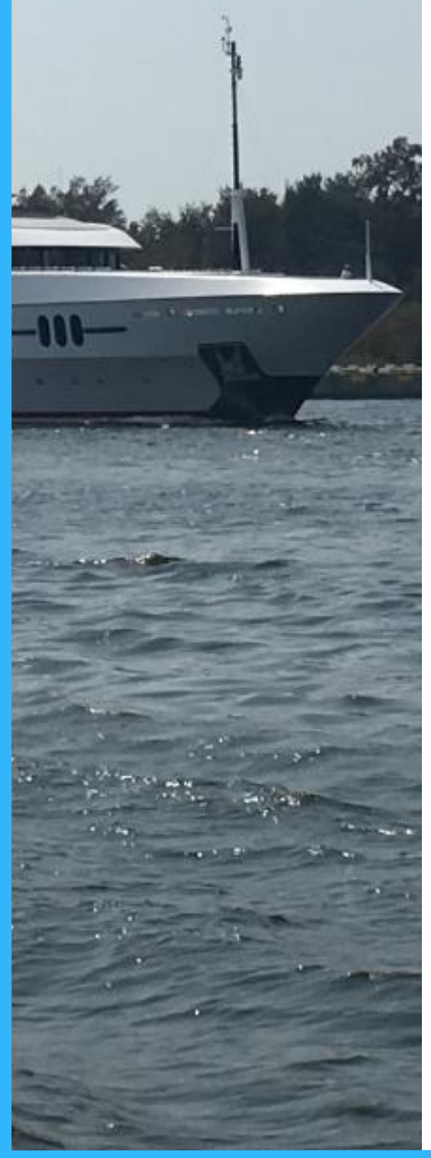
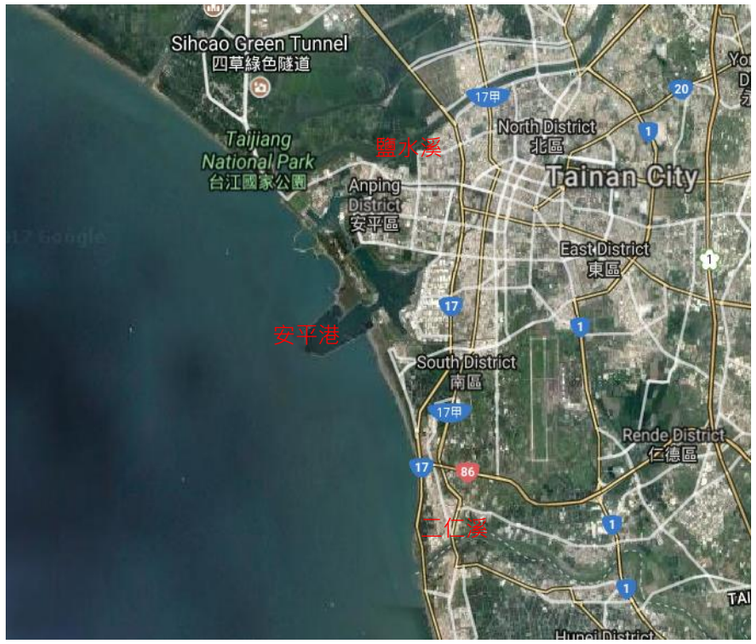
Port Profile



2.1Port Location and Port Area

The Port of Anping is located on the southwest coast of Taiwan (22°59 north latitude and 120°09' East longitude) The total area of the port district is about 18.04 square kilometers. Its land area is 2.39 square kilometers, interior water area is 2.67 square kilometers and the water area outside the port is 12.98 square kilometers. The port is 180 meters wide, its main channel depth is 12 meters, and the mean tidal range is 0.57 meters.

Anping Port is located in Tainan on the southwest coast of Taiwan between the Erren and Yanshui Rivers, about 40kilometers north of the Port of Kaohsiung and 140 kilometers south of Taichung Port. During the Qing dynasty, Anping Port was the gateway to Tainan Prefecture, then Taiwan' s main urban center, and as such was the largest port in Taiwan at the time. However, longshore drift resulted in the silting in of the port and led to its decline. In 1997, the Ministry of Transportation and Communications designated Anping Port as an auxiliary port to the Port of Kaohsiung in an effort to promote local economic development. Anping Port functions as an international commercial port, and international merchant ships can operate here.



Geographical Map of Anping Port

2.2Legal Status and Port Operators

To promote modernized commercial port management system reforms, The Taiwan International Ports Corporation, Ltd. Establishment Act was promulgated on November 9, 2011, Taiwan amended the Commercial Port Law on December 28, 2011. It was then decided in March 2012 that the government should be separated from the enterprise for management of the ports. Public entities that used to manage the ports, including: Kaohsiung Harbor Bureau, Taichung Harbor Bureau, Keelung Harbor Bureau and Hualien Harbor Bureau, are integrated into a corporation (Taiwan International Ports Corporation, TIPC) to reduce legal and institutional restrictions on commercial port operations, enhance the ability of ports to respond to market changes, and increase their competitiveness. After the transformation, management of the Port of Kaohsiung is now the responsibility of the Kaohsiung Branch of TIPC. The Southern Taiwan Service Center of Maritime and Port Bureau (MPB), Ministry of Transportation and Communications (MOTC) will be in charge of navigation and management of issues related to public authority.

MASTER PLAN OF PORT OF ANPING

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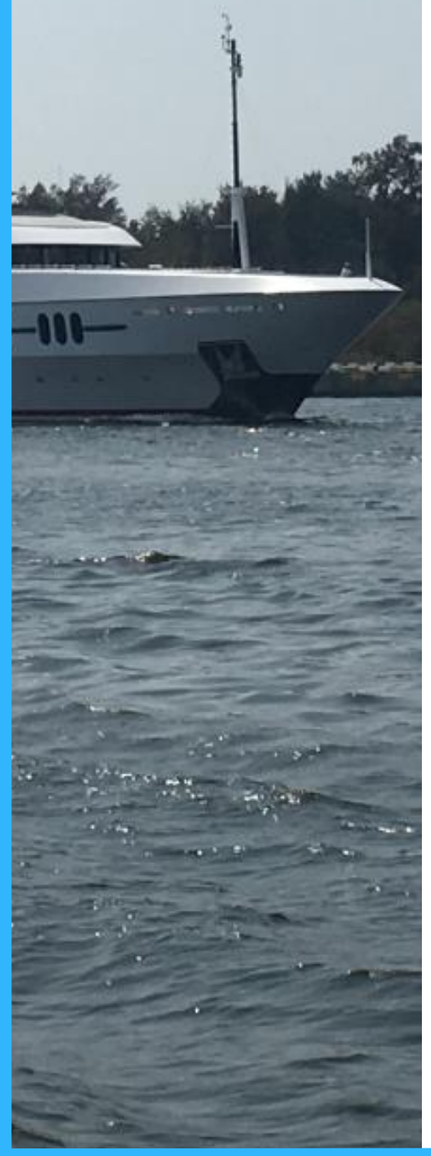
Port Profile



2.3 Commercial Activities

Anping Port offers 17 docks, 2 of which are designated as chemical product dockage for Chi Mei Corporation (CMC). The total length of the docks is 3,196 meters. Their types include breakbulk and sundry goods docks, passenger and goods docks, chemical products, bulk cargo docks, and port service docks.

2.4 Main Cargoes

The main inbound cargos to Anping Port in 2017 was chemical or related industrial products (62.0%). Outbound cargos were mainly chemical or related industrial products (96.6%). In 2018 was chemical or related industrial products (63.0%). Outbound cargos were mainly chemical or related industrial products(98.3%).

Main Cargoes of Port of Anping

Pyrites minerals	Dry bulk
Aluminium, Cement	Chemicals
Liquid bulk (non-oil)	Ores
Liquid chemicals	Coal

Source: Anping Port Branch Office

2.5 Port Business

2017-2018 Anping Port business statistics

Item		2017	2018	Difference	%
Incoming and Outgoing Ships	Vessels	820	967	147	17.93%
	Gross ton	7,584,285	7,182,688	-401,597	-5.30%
Volume of Cargo Handled	Dry bulk and groceries (Revenue ton)	459,644	119,839	-339,805	-73.93%
	Pipeline cargo (Revenue ton)	1,186,713	1,324,679	137,966	11.63%
	Total (Revenue ton)	1,646,357	1,444,518	-201,839	-12.26%
Volume of Imports & Exports	Imports (ton)	793,671	770,290	-23,381	-2.95%
	Exports (ton)	87,360	187,532	100,172	114.67%
	Domestic(ton)	739,158	511,255	-227,903	-30.83%
	Total(ton)	1,620,189	1,469,077	-151,112	-9.33%
Incoming and Outgoing Passengers	Domestic line (number)	-	190	190	-
	International line (number)	0	0	0	0.00%
	Total(number)	0	190	190	-

Source: Annual Statistical Report, TIPC, 2018

Environmental Management

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Environmental Management

3.1 Organizational Structure

Environmental management of the Anping Port District is enforced by the Anping Port Branch Office, Port of Kaohsiung, TIPC in accordance with the allocation of responsibilities stipulated in the Commercial Port Law and the Marine Pollution Control Act. The Anping Port Branch Office is in charge of environmental issues in port operations and management. The Anping Maritime and Port Section of the South Maritime Affairs Center handles environmental issues involving public rights. The Tainan City Government's Environmental Protection Bureau is in charge of environmental issues covered in the Marine Pollution Control Act.

The Harbor Management Section of the Anping Port Branch Office handles that organization's environmental management duties. The Harbor Management Section's duties are port district security management and disaster incident related duties, port district pollution prevention, environmental regulations, environmental impact assessment, environmental monitoring, oil pollution and toxic disaster emergency incident response, environmental education, port ecological conservation, plant conservation, and recycling. There are three personnel in charge of environmental protection.

>> Organizations involved in coping with the environmental issues in the port area of the Port of Anping

Port of Anping

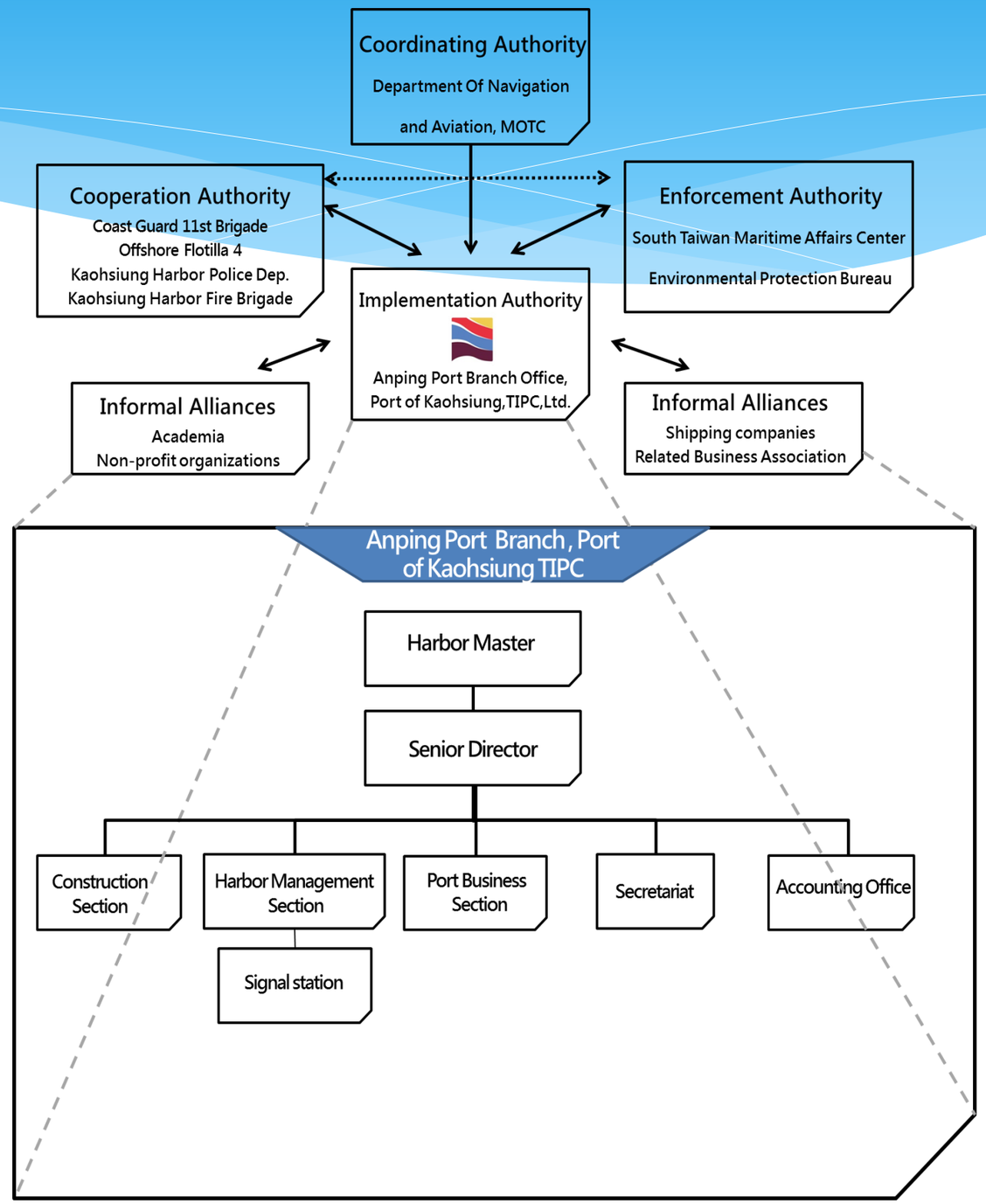
Management
- Anping Port Branch Office
- South Maritime affairs center-Anping MPD

Supervise
- Anping Port Branch Office
- South Maritime Affairs Center-Anping MPD
- Environment Protection Administration
- Environment Protection Bureau of Tainan City ,Government

Perform Interdiction ,Collection of evidence or Enforcement Referral
- Anping Port Branch Office
- South Maritime Affairs Center-Anping MPD
- Offshore Flotilla 4
- Coast Guard 11st Brigade
- Anping port company of Kaohsiung Harbor Police Department
- Environment Protection Bureau of Tainan City ,Government

Sanction
- South Maritime affairs center-Anping MPD
- Anping port company of Kaohsiung Harbor Police Department
- Environment Protection Administration
- Environment Protection Bureau of Tainan City ,Government

Figure of Organization chart of Anping Port



03/ Environmental Management

3.2.1 Relevant International Regulations

Anping Port Branch Office follows relevant international specifications, such as International Convention for the Prevention of Pollution From Ships (MARPOL73/78), International Convention for the Control and Management of Ships' Ballast Water and Sediments, International Convention on the Control of Harmful Anti-fouling Systems on Ships etc.

3.2.2 Relevant Environmental Laws and Regulations in Taiwan

The Anping Port Branch Office collaborates with local authorities to manage the environment in the Port in compliance with relevant environmental laws and regulations in Taiwan.

Competent Authorities	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	South Maritime affairs center-Anping MPD
	The Law Of Ships	2010/12/08		
	Act for the Establishment and Management of Free Trade Zones	2012/12/28		
Sectors in the Ministry of the Interior	Fire Services Act	2011/12/21	Ministry of the Interior	Fire Bureau, Tainan City Government
Sectors related to agricultural	Wildlife Conservation Act	2013/01/23	Council of Agriculture	Agriculture Bureau, Tainan City Government
Sectors related to environmental protection	Marine Pollution Control Act	2014/06/04	Ocean Affairs Council	Environment Protection Bureau of Tainan City ,Government
	Air Pollution Control Act	2018/08/01	Environmental Protection Administration	
	Water Pollution Control Act	2018/06/13		
	Waste Disposal Act	2017/06/14		
	Environmental Impact Assessment Act	2003/01/08		
	Environmental Education Act	2017/11/29		
	Noise Control Act	2008/12/03		
	Indoor Air Quality Act	2011/11/23		
	Toxic and Concerned Chemical Substances Control Act	2019/01/16		
	Soil and Groundwater Pollution Remediation Act	2010/02/03		
	Greenhouse Gas Reduction and Management Act	2015/07/01		
	Tainan City Self-Government Ordinance for Environmental Cleaning	2012/09/13		
	Tainan City Self-Government Ordinance for a Low-Carbon City	2017/04/17		
	Public Nuisance Dispute Mediation Act	2009/06/17		Public Nuisance Disputes Mediation Committee, Tainan City Government
Intersectoral	Disaster Prevention and Protection Act	2019/05/22	Ministry of the Interior	Tainan City Government

State of the Environment

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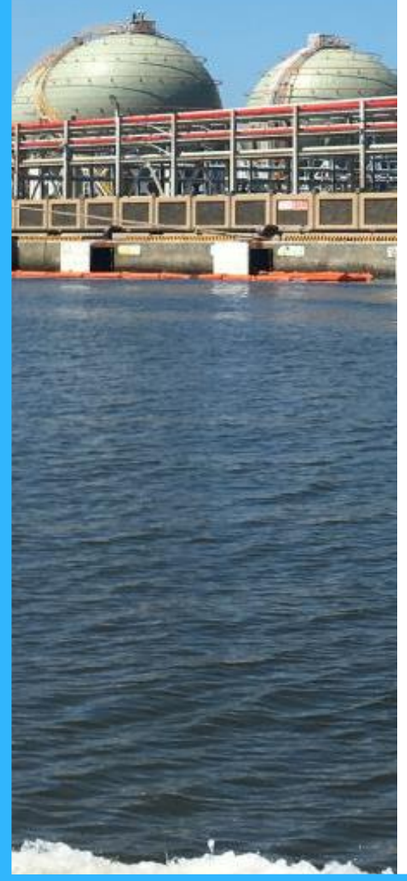
State of the Environment



Analysis of major environmental issues

To fully understand the opinion of each stakeholder and adapt to the new EcoPort Certification, the Port of Anping distributed internal questionnaires as an opinion poll among relevant stakeholders, including employees, the government, clients, and the community. The information obtained was used to evaluate the level of concern each stakeholder held. The data are plotted on the table to the right.

Stakeholder	Importance
Government	26.24%
Employee	17.87%
Customer	22.43%
Supplier/contractor	17.11%
Community	16.35%

Environmental issues

- ◆ Using the relevant environment issues in the Self Diagnosis Method to assemble a questionnaire

Internal questionnaires.

- ◆ Identifying stakeholders
- ◆ Inspecting the impact level of environmental concerns within the port

External questionnaires.

- ◆ Identifying stakeholder concerns. Investigating the level of concern of each stakeholder.
- ◆ A total of 76 valid questionnaire responses.

Meta-analysis.

- ◆ Filtering major issues by level of stakeholder concern and influence on operations of the Port of Anping.

Identifying for top 10 environmental issues.

- ◆ Establishing environmental goals and improvement plans for top 10 environmental issues.

Top 10 environmental issues in Anping Port


Interview


Interview


Interview

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State of the Environment

Air Quality

Major sources of air pollution in Anping Port Branch Office are emissions from the burning of marine fuel oils onboard ships within the port area , port operators' vehicle and loading equipment exhaust emissions, including NO_x,SO_2 and $PM_{2.5}$ and so on.

Anping Port Industrial District and the Ssu Kun Shen Checkpoint have a total of 8 entry and exit lanes, four of which are automatic gates. Vehicles passed through the gates 163,042times in 2017 and 154,575 times in 2018.

The idling and waiting time for vehicles entering and exiting the gates has been reduced and the port has increased the efficiency of its entry and exit process, aiding in the reduction of carbon emissions.

Anping Port joined the Tainan City Government EPB in establishing a clean air zone on January 1st, 2016. After a long period of advocacy and inspections , the resulting in a passing rate were over 98% in 2017-2018.

Air Quality Monitoring

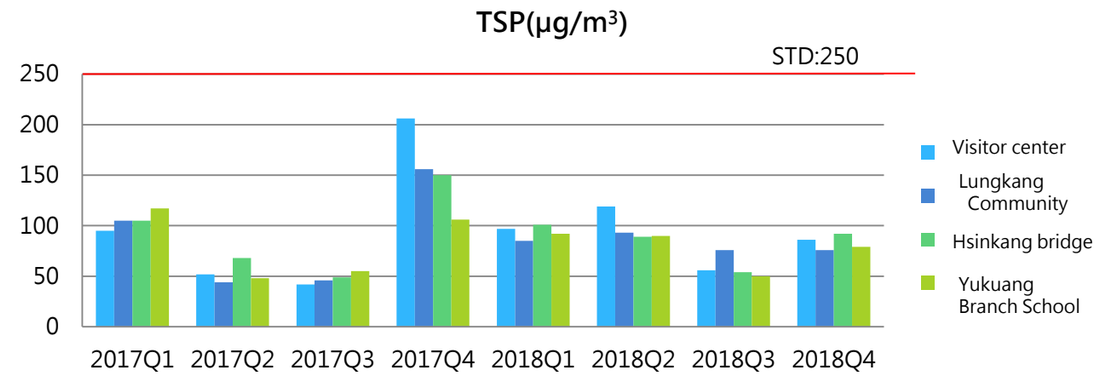
The Anping Port area currently has 4 fixed-site air quality monitoring sites, including the visitor center, Hsinkang bridge, Yitsai Elementary School, Yukuang Branch School, and Lungkang Community.

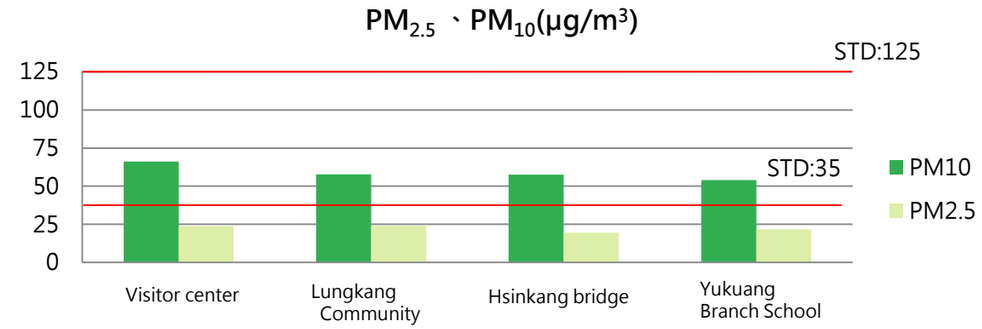
Monitoring for Total Suspended Particles (TSP) , PM_{10} , $PM_{2.5}$,SO_2 and ozone is performed once per season. All data resulting from air quality monitoring in 2017-2018, as shown in the right figure.

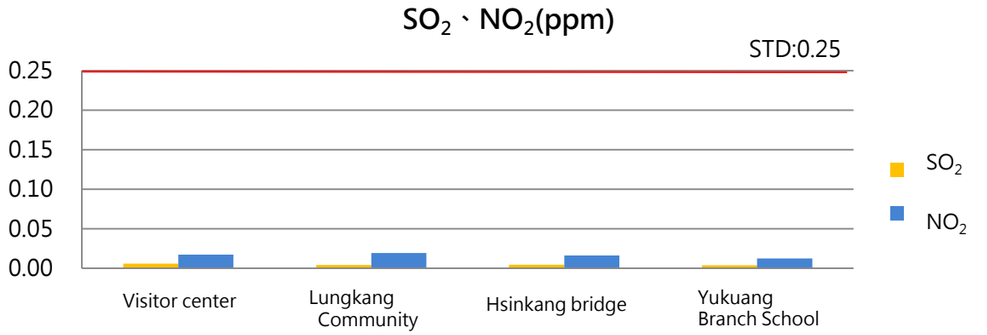
Air quality monitoring sites

Results

Pollutant (Unit)	TSP (μg / m³)	PM_{10} (μg / m³)	$PM_{2.5}$ (μg / m³)	SO_2 (ppm)	NO_2 (ppm)
Averaging Time	24 hours	24 hours	24 hours	1hour	1hour
Standards	250	125	35	0.25	0.25







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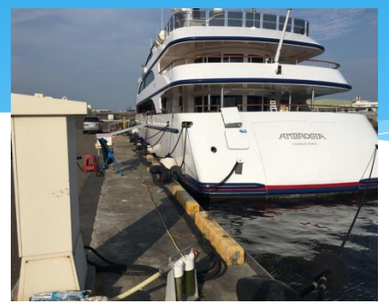
State of the Environment

Shore-side Power Supply




Shore power system

The port area is currently equipped with 7 (6 for Harbor Affairs Pier ,1 for rental). This year (2019), 33 sets of shore power systems are to be added to the Argo Yacht Pier for usage by yachts. In the future, shore power facilities will be added continuously along with the development of yacht berths.

Dust Pollution Reduction

Dust in the Port of Anping is mainly derived from stevedoring operations at bulk and general cargo terminals as well as from wind erosion and vehicle-based road emission.

In terms of dust reduction, the Anping cement loading dock and coal unloading facility have adopted enclosed warehouses, not only increasing the efficiency of ship unloading operations but also fully reducing the dispersion of particulate matter pollutants during the unloading process.

The dock is equipped with 4 vehicle washing stations. Bodies and tires of transport vehicles must be sprayed and cleaned of fugitive particulate matter before permission to exit can be granted.

The Tainan City Government Water Resources Recycling Center has a reclaimed water intake port installed at Anping' s commercial port for irrigating trees within the port area or cleaning ground surfaces and suppressing airborne dust caused by port operations. The total capacity of the reclaimed water used at Anping Port was approximately 7,606 tons in 2015 and 4,748 tons in 2016.


Reuse water intake location


wheel washes


Water reuse

Enclosed warehouse

To reduce the generation of pollution-causing particulate matter during port district stevedoring operations, the strategies used by Anping Port for dust control included using the enclosed warehouse for coal and cement transportation. This requires relevant cargo handling facilities and development of relevant operation regulations. The proportion of enclosed transportation used in coal was 54% in 2017 and 87% in 2018, which indicated an increase of approximately 33% and the proportion of enclosed transportation used in cement in2017-2018 were reached 100%.


Cement pipeline handling


Automatic coal unloader

Mobile Pollution Source Control

Vehicles traveling on land in the Port of Anping are another source of air pollution. The Anping Port Branch Office and the Tainan City Government' s EPB have collaborated to promote air quality purification advocacy and inspections since January 1, 2016 and Anping Port has officially been designated an air quality purification area; the port has also required Chi Mei Corporation' s outsourced chemical tankers and EGC Cement Corporation' s transport vehicles within the port area to carry out self-management.

Billboard of the clean air zone

Between January 1 and December 15, 2016, 17 advocacy and inspection tasks were performed at the Ssu Kun Shen Checkpoint and the main entrance on Xinxing Road. Inspections of 249 vehicles were completed; only 2 vehicles failed inspection. These inspections ensured that vehicle emissions in the Anping Port clean zone are below the vehicles' factory regulatory standards, thereby minimizing vehicle exhaust pollution in the clean zone.

Vessel Speed Reduction

To reduce pollution caused by shipping, Anping Port completed the setup of the AIS ship deceleration verification system in 2015 to control the records of ship speeds for ships entering and exiting the port. In port affairs discussion forums, ocean carriers, shipping agencies, and the relevant port operators are advised to reduce ship speeds to 12 knots within 20 nautical miles of port entry or exit to cooperate in implementing air pollution control measures. The average Anping Port speed reduction rate in 2017 was 58.5%,in 2018 was 62.8%., The carbon reduction project has been added into the ship deceleration check system since 2018, and the carbon reduction amount reached 1,153.23 tons.

In addition, by the end of September 2019, there were 496 ships entering and leaving the port, 364 of which had achieved the deceleration requirement, with the deceleration achieving rate of about 73.4% and the carbon reduction amount of 952.78 tons. Compared with the same period of 2018 from January to September (464 vessels entered and left the port, 293 of which met the requirements of deceleration, with the deceleration achieving rate of about 63.1% and carbon reduction amount of 867.59 tons), there was a significant improvement year by year.

04/

State of the Environment

Resource Consumption

Waste generation and treatment

Regarding onshore waste in the Anping Port area, the port district set up recycling bins for vessels to recycle and prevent garbage from being scattered on the wharf and falling into the dock basin. In 2017, the onshore area of Anping Port generated 82.6 tons of garbage and recycled 2.38 tons, for a recycling rate of 2.9%. In 2018, it generated 86.7 tons of garbage and recycled 0.09 tons, for a recycling rate of 0.1%.

Because most refuse is not a resource, the business operators are free to collect and recycle them. This results in low resource recycling rates but high waste disposal efficiency.
The volume of refuse cleared by the operation department of Anping Port was 254.9 metric tons in 2017 and 208.7 metric tons in 2018; an average of 231.8 tons of marine refuse in the port is cleared per year.

>> Collection amount of ship oily wastewater

Year	Vessel	Oily wastewater (ton)
2017	3	49.6
2018	8	104.06

Waste oil recovery

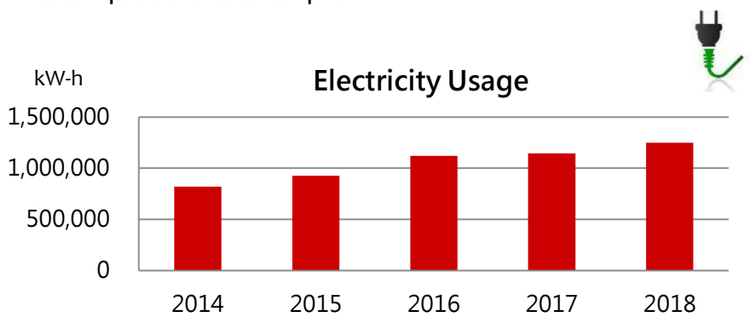
>> Waste recycle & disposal amount at the Port of Anping

Item	2017	2018
Total waste generation(ton)	82.6	86.7
Recycle (ton)	2.38	0.09
Recycle Rate (%)	2.9	0.1

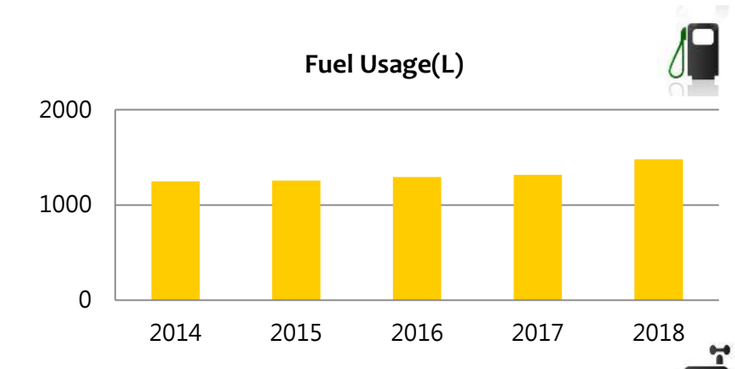
Beach Cleanup

The Four-Saving Project

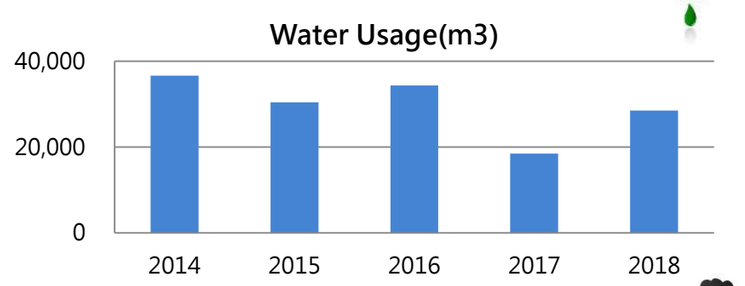
The Port of Anping applies the Four-Saving Project with the goals of annual power, fuel, water and paper consumption reduction to decrease resource consumption and waste production of the port .



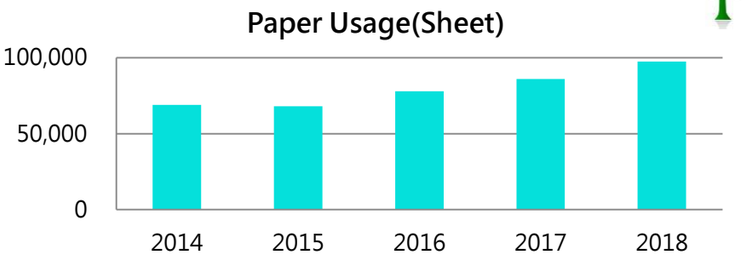
In recent years, the cargo handling volume and annual revenue of anping port have both increased. Therefore, the electricity consumption has increased slightly to serve port operations and provide lighting facilities.



Oil consumption increased slightly due to increased usage of official vehicles for business growth and investment promotion and increased frequency of inspection in water and on land for the maintenance of port environment.



The port's reduced water consumption can primarily be attributed to increasing public awareness of the need for water conservation. Additionally, the port coordinates with Tainan City's nearby Anping water resource recycling center in waste water treatment and recycling operations. By using reclaimed water for plant irrigation and vehicle washing stations. Moreover, water consumption increased slightly in 2018 due to increase of leasing manufacturers

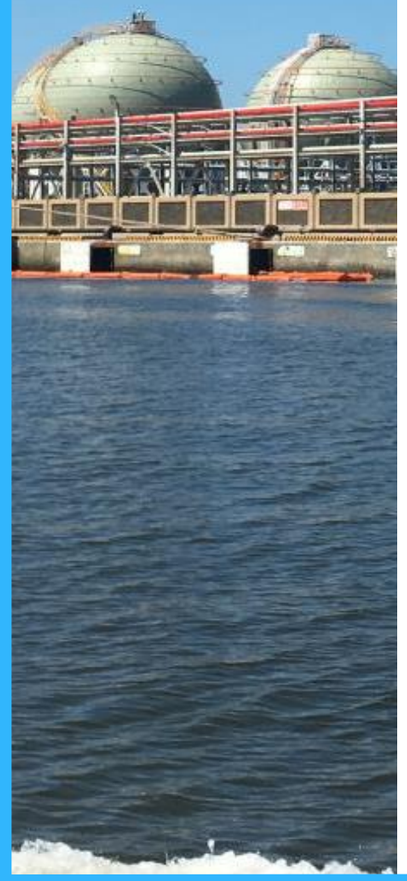


In recent years, due to the dual axis development of free trade in the south and tourism in the north, Anping port has strengthened investment promotion and expanded business. Increased marketing and conference materials resulted in a slight increase in paper consumption.

Source: Anping Port Branch Office,Port of Kaohsiung resources consumption in 2014-2018

04/

State of the Environment



Noise

The Port of Anping is adjacent to urban areas and next to the industrial district. Consequently, the industrial activities and cargo transport in and nearby the port, as well as the noise caused by port construction, tend to affect nearby residents' quality of life. Noise pollution is a public environmental concern as well.

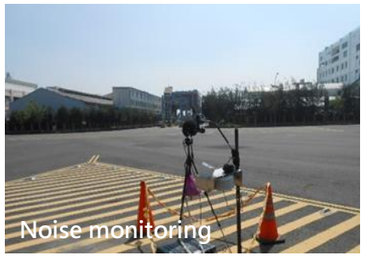
Improvement Strategy

Anping Port constructed a sixty meter wide green belt and thirty meter wide Harbor road, with a total length of 1,500 meters. The road forms a nearly ninety meter wide buffer zone separating the port from the neighboring community. The Anping Port Branch Office has formulated a transportation route for large vehicles that takes them from the harbor road in the port through the Ssu Kun Shen Checkpoint to the community outer ring road, and thence towards the West Coast Expressway. The route reduces crossover between port district and resident traffic, maintains pedestrian and vehicle safety, and greatly reduces port district noise impacts on the neighboring community.

Noise Monitoring

The Anping Port commercial port area observes noise control standards for type 4 control areas next to roads measuring at least 8 m. The port laid out 4 noise monitoring points, at Hsinkang bridge, Yukuang Branch School, the Anping industrial area control station, and Lungkang Community to monitor nearby sensitive receptor zones, port traffic arteries, and loading areas. Environmental quality monitoring results in 2017 and 2018 show that 100% compliance with the port's noise control standards was achieved.

Time perid	Day Level	Evening Level	Night Level
Road Category D Noise Control Criteria : dB(A)	75	70	65
Next to roads that are wider than 8 m	76	75	72


Noise monitoring


Green buffer

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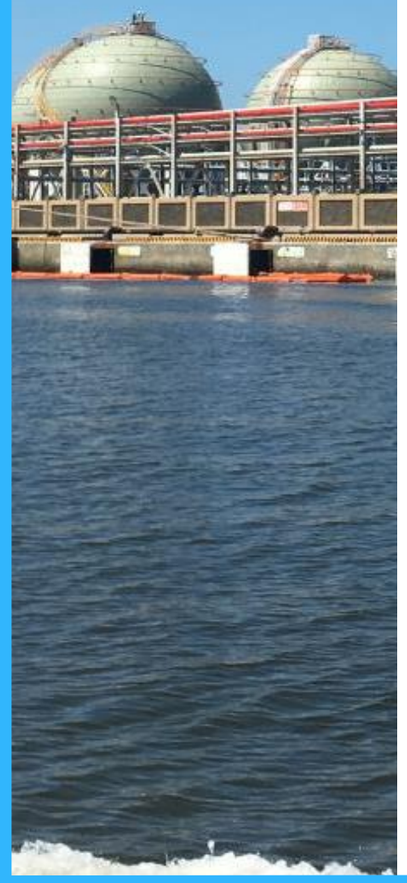
State of the Environment



Reduce cargo spillage

To maintain the port’ s safety and facilitate good management of the environment, the Anping Port Branch Office has installed CCTV to monitor all operations at the port around the clock. In addition, the department also deploys personnel to patrol the port. When pollution is detected, the patrolling personnel notify the relevant law enforcement unit to penalize the business operator. The Anping Port acts in accordance to the Taiwan International Ports Corporation’ s Plan for Disaster Prevention and Rescue Affairs. In the event of chemical spillage hazards or any emergency, the Department must cooperate with the Ministry of Transportation and Communication and Environment Protection Bureau in their emergency operations to mitigate the loss caused by the disaster, protect life and the environment, restore normal port operations, and mitigate chemical disaster effects.

>>Inspections conducted in 2017-2018

Item/year	2017	2018
Inspections	49	53
Oil fence (vessels)	197	226
Number of vessel joint inspection	20	21

The petrochemical and chemical storage and transportation industries within Anping Port are businesses with potential for considerably high-risk environmental hazards. In the event of emergencies, spills or leakages could endanger the ecosystem and neighboring residents. Therefore, the implementation of cargo management and reinforcement of port safety is viewed as a major environmental issue at Anping Port. For their part, all business operations must have corresponding emergency response plans and periodically organize disaster drills, while also cooperating in joint port drills to strengthen emergency response capabilities in case of accidents.

In terms of management, , Anping port is to devise disaster response plans and prepare the relevant resources for chemical spillage events. In addition, the department is to work on strengthening collaboration and coordination with relevant support agencies, and establishing mutual aid such that the relevant human resources and equipment can be effectively utilized. To reduce the probability of pollution caused by cargo spillage, the Anping Port requires vessels carrying chemical and oil products to deploy oil booms.

When cargo spillage occurs, oil booms are used to contain pollutants and prevent them from spreading, thereby protecting water spaces and collecting the oil spill. In the 2017, 197 vessels carrying chemical and oil products have deployed oil booms. In 2018, 226 vessels carrying chemical and oil products deployed oil booms. In short, the Anping Port has fully enforced the regulation of oil boom deployment for vessels carrying chemical and oil products.

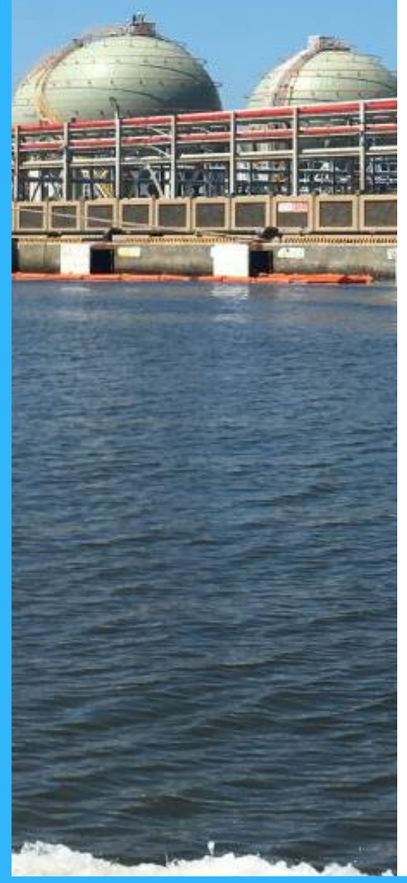
Deployed oil booms

Inspection of vessel pollution control certification (including air, water, and waste oil)

CCTV monitoring

04/

State of the Environment

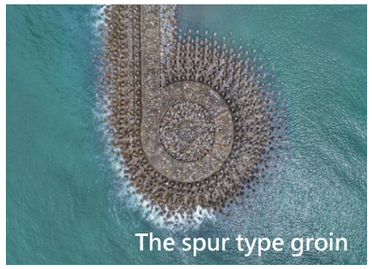


Improve Port Water Area Development

During the dredging operation in the first stage of Anping Port' s construction, the dredged soils were placed between the commercial port and the fishery port for the purposes of artificial beach maintenance. To achieve long-term beach protection and create waterfront space, a beach protection and maintenance plan employing hard structures—specifically, the spur groin type breakwater—was proposed.

The spur type groin is typically constructed using ecological engineering methods. The groin head and the opening between the two groins are designed to breed ecological reefs. These reefs provide habitats for aquatic organisms. In short, the reefs enrich the ecological system of the surrounding coastal area and protect Crescent Bay. Crescent Bay on Yuguang Island between two jetties is now included in the Anping Port land area. Properly managed and maintained, Crescent Bay provides a beautiful and safe waterfront space for tourists. In addition, Crescent Bay is also a popular spot for watching sunsets and beach walks.

According to relevant statistics, the area of the port' s waterfront and environmentally friendly space is approximately 22 hectare. In the future, we will cooperate with Tainan city government sailing training base to plan recreational activities. The argo yacht has been set 62 yacht berths (2 hectares) at this stage, yachts with the shore power and electricity with environmental protection, energy saving effect, and adding waste water pumping system for the use of a yacht,gather to handle to protect the Marine environment to avoid pollution of the land, and to open promotion of sailing boat, ocean sailing school education activities, related to the future planning and continuous development, through the diversified development, combined with local characteristics shaping bank leisure environment, to provide citizens and tourists perfect water recreation field.



The spur type groin

Develop a Friendly Land Environment in the Port

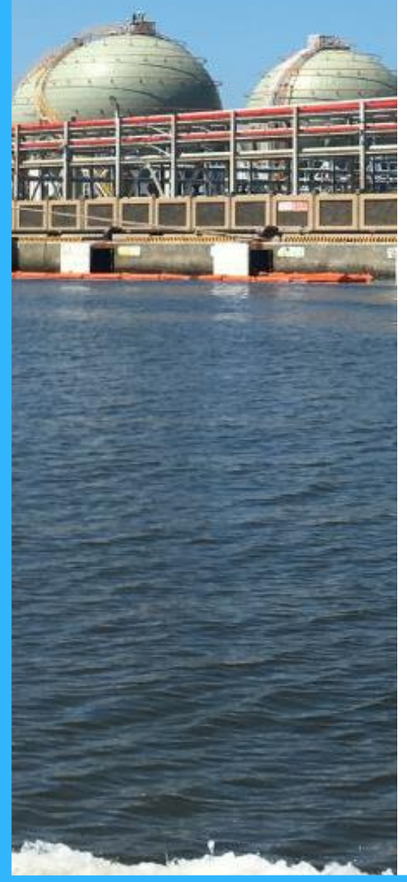
By executing the 2017–2021 Overall Development Plan approved by the Executive Yuan, Anping Port has been developed according to a dual theme: "The north as a tourism area and the south as a free trade area". The port' s tourism and recreational areas of the port are to be developed zone-by-zone. Zone A of the Yacht Pier has a total area of 12.74 ha (including 9.74 ha of land and 3 ha of water space). The development of this zone was initiated officially in April 2018, and carried out collaboratively by Argo Yachts Development Co., Ltd and Banyan Tree Hotels and Resorts Group from Singapore. The overall planning direction takes tourism hotels, health resorts, hotels, outlet stores, shopping malls, retail outlets, food and beverage businesses, yacht wharf and other harbor complex commercial facilities and sightseeing and leisure business operators or even international corporate groups as the target of investment. Zone A of the Yacht Pier would be completed gradually between 2020 and 2023, at present has developed 4 hectares, which has the restaurant, the shop street and the yacht club and so on. When it is completed, it is to become a new waterfront tourist spot for Tainan and in turn to create job opportunities and stimulate tourism in Tainan, one of the most historical cities in Taiwan.

Yuguang Island Beach cooperate Anping harbor in north tourism development, in the "International commercial port plans for future development and construction of 2017-2021" correction plan is adjusted for "hydrophilic recreation area".Annual investment in environmental cleanup in partnership with community associations such as district office and Yuguang Village.

Also, arts and cultural activities are held from time to time to promote local tourism and recreation. In addition, we are now carrying out relevant urban plans, so as to provide beach recreation and hydrophilic leisure activities in combination with geographical environment and investment promotion, and create a new ecological tourism environment in the future.

04/

State of the Environment

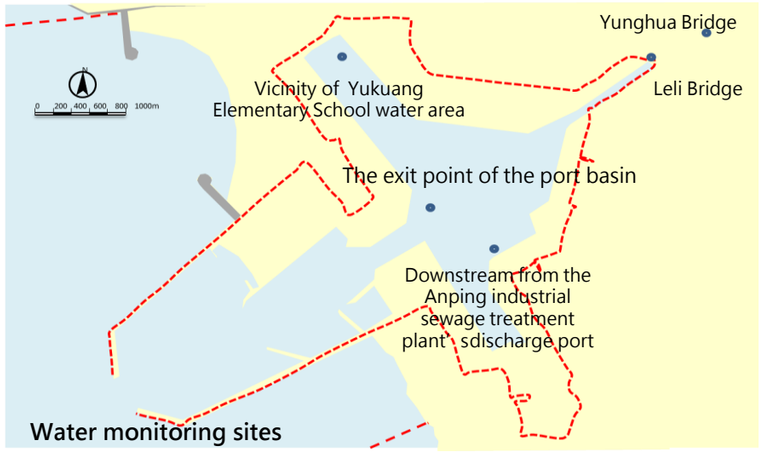


Enhance Port Water Quality

The Anping Port Branch Office has committed to facilitating the establishment of rainwater treatment facilities. The port completed construction on the port district wastewater end-stage processing facility in 2005. To facilitate the reuse of domestic sewage and reduce wastage resulting from facility operations, the Water Resources Bureau has agreed to channel the port' s domestic sewage to the underground drainage system of Tainan City. The operation was completed in October 2018. After being collected by the Tainan City Water Recycling Center, the domestic wastage is to be processed into reclaimed water for further usage. Environmental protection bureau of Tainan city Government expressed approval. Currently, the Anping Port is working on separating runoff rainwater and sewage flowing through the port' s land surface. To effectively reduce the pollution caused by runoff sewage, the department hopes to make use of the public jetty area to channel sewage to drainage ditches. The development of tourism and recreation in Anping port, water quality issues are also of great concern to relevant stakeholders (such as Argo and Tainan Environmental Protection Bureau).

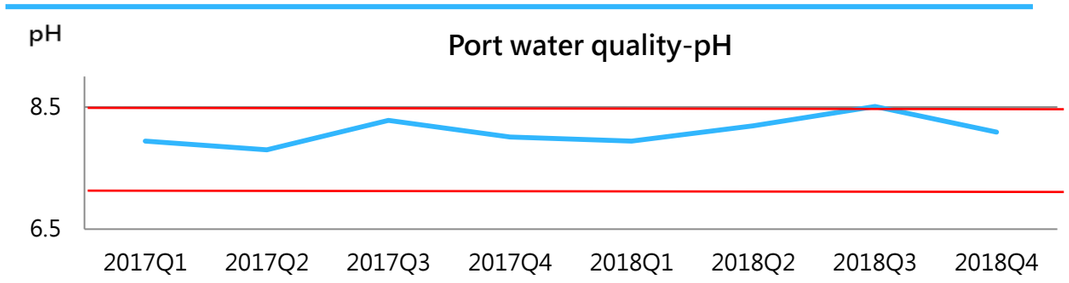
Water Quality Monitoring

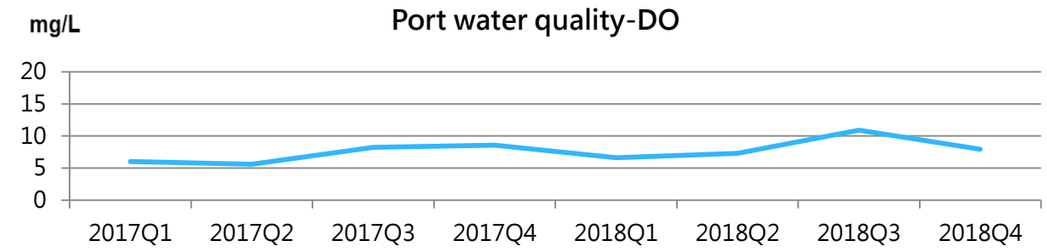
The Anping Port area currently provides 5 water quality monitoring stations, at Yukuang Elementary School, Leli Bridge, Yunghua Bridge, the exit point of the port basin, and downstream from the Anping industrial sewage treatment plant' s discharge port. Inspection items include water temperature, pH, dissolved oxygen, and E. coli. Sea water quality is monitored and subsequently reviewed by 5 professors and the Tainan Environmental Protection Bureau to assess the effectiveness of the implemented water quality control measures. Daily also for the port area water drift waste has the related environment maintenance. In the future, Anping Port will continue to make progress in accordance with the environmental impact assessment commitments, and require port operators to incorporate sewage treatment facilities or build sewage treatment equipment to improve the quality of port waters.

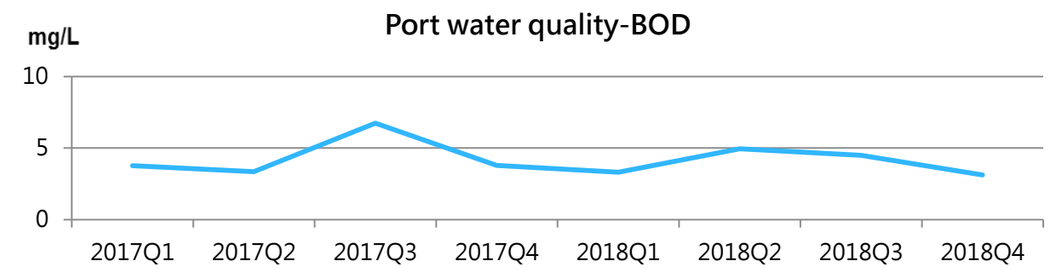


>> Records of 2017, 2018 Anping Port Water Quality

Indicators	Standards	Measurements	Pass rate(%)
pH	7.0~8.5	7.8-8.51	87.5-94
DO(mg/L)	≧2.0	5.6-10.9	100
BOD_5(mg/L)	≦6.0	3.1-6.7	>81.3







Improve the Management of Vessel Sewage Discharge

Vessel waste oil and wastewater cleanup businesses must apply and present the relevant documentation before they can conduct vessel waste oil and wastewater collection within the port.

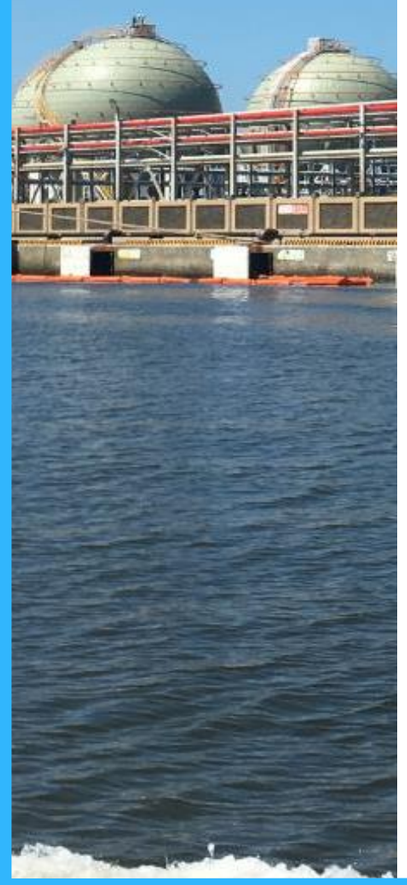
Certified businesses must report the amount processed each month. Statistics show that 49.6 tons of vessel waste oil and wastewater was cleaned up in Anping Port in 2017, and 104.06 tons in 2018.


Water area waste cleanup


Egrets


Water quality sampling

04/ State of the Environment



Environmental Performance Indicators of Anping Port

Significant environmental issues	Index item	Calculation method	Target value	Indicator presentation (calculation details)	
				2017	2018
Air Quality	Air quality pass rate (PM_{10}、$PM_{2.5}$、SO_2、NO_2)	The ratio of the measurements in the air quality monitoring station of the port that meet the "Air Quality Standards"	• PM_{10} of the daily mean measurements satisfy the standard (<125μg / m3): 100% • $PM_{2.5}$of the daily mean measurements satisfy the standard (<35μg / m3): 60% • $SO_2$of the daily mean measurements satisfy the standard (<0.1 ppm): 100% • $NO_2$of the hour average measurements satisfy the standard (<0.25 ppm): 100%	• PM_{10} of the daily mean measurements satisfy the standard: 87.5% • $PM_{2.5}$ of the daily mean measurements satisfy the standard:94% • SO_2 of the daily mean measurements satisfy the standard: 100% • $NO_2$of the hour average measurements satisfy the standard: 100%	• PM_{10} of the daily mean measurements satisfy the standard: 100% • $PM_{2.5}$ of the daily mean measurements satisfy the standard: 81.3% • SO_2 of the daily mean measurements satisfy the standard: 100% • $NO_2$of the hour average measurements satisfy the standard100%
	The passing rate for diesel vehicles stopped and inspected inside the Clean Zone	(Number of vehicles stopped and inspected – Number of penalized vehicles = Number of vehicles that passed inspection) ÷ Number of vehicles stopped and inspected = Passing rate	Satisfy the standard :95%	In 2017, 249 vehicles were stopped and inspected, and two vehicles were penalized, resulting in a passing rate of 99.2%.	In 2018, 173vehicles were stopped and inspected, and two vehicles were penalized, resulting in a passing rate of 98.8%.
Ship discharge (sewage)	• Waste oil and wastewater collection volume • Waste oil and wastewater collection rate	The actual amount of waste oil and sewage received by qualified operators in the port district oil record book or established appropriate waste oil, wastewater, or other pollutant collection facility (Production Amount ÷ Collected Volume × 100% = Collection Rate)	Waste oil and wastewater collection rate 100%	Waste oil and wastewater production volume: 49.6 tons Waste oil and wastewater collection volume: 49.6tons • Waste oil and wastewater collection rate: 49.6÷49.6×100%=100%	Waste oil and wastewater production volume: 104.06 tons Waste oil and wastewater collection volume: 104.06tons • Waste oil and wastewater collection rate: 104.06÷104.06×100%=100%
Cargo Spillage (handling)	The deployment proportion of oil booms for chemical and oil product vessels	The deployment proportion of oil booms for chemical and oil product vessels (Number of vessels deployed with oil booms/ number of vessels entering the port × 100% = the oil boom deployment proportion).	Deployment oil booms of ship Bunkering is 100%	Deployment oil booms of ship Bunkering is 100% (197÷197)×100%=100%	Deployment oil booms of ship Bunkering is 100% (226÷226)×100%=100%
	The number of port area inspections, cargo spillage emergency response drills, and joint audits of vessels in the port area.	The number of port area inspections, cargo spillage emergency response drills, and joint audits of vessels in the port area.	• Number of port area inspections:45 • Number of cargo spillage emergency response drills: at least one a year. • Number of vessel joint audits in the port area: at least 20 per year.	• Number of port area inspections:49 • Number of emergency response drills: 1 • Number of vessel joint audits in the port area: 20	• Number of port area inspections:53 • Number of emergency response drills: 1 • Number of vessel joint audits in the port area: 21

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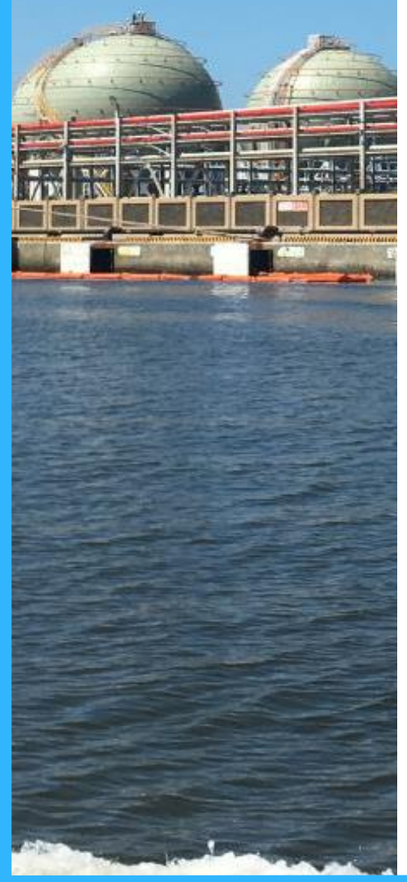
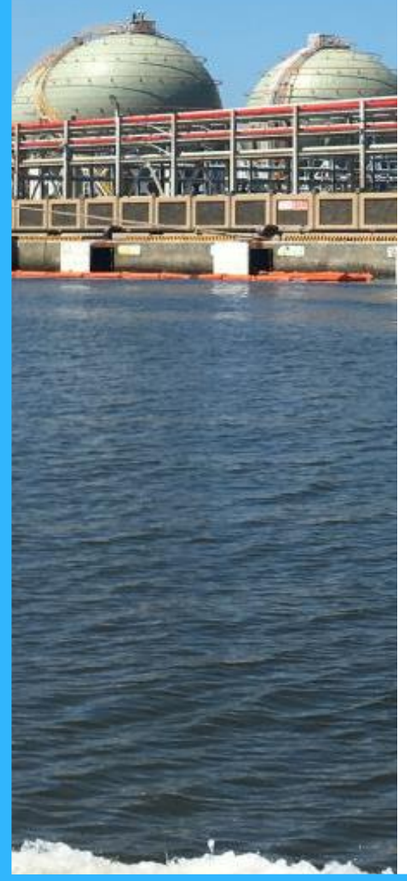
State of the Environment



Environmental Performance Indicators of Anping Port

Significant environmental issues	Index item	Calculation method	Target value	Indicator presentation (calculation details)	
				2017	2018
Dust	Number of pollution prevention device for cargo handling	Increase/update or maintain the number of dust prevention devices	Perform biennial reviews of the prevention devices	Enclosed cargo handling equipment sets: 2 (Wan Qing Cement Corporation and Yu Hang Coal Corporation).	Enclosed cargo handling equipment sets: 2 (Wan Qing Cement Corporation and Yu Hang Coal Corporation).
	Ratio of enclosed transportation usage in the handling of break-bulk general cargo (cement +coal)	Amount of bulk cargo handled indoor÷total bulk cargo×100% (Cement and coal are calculated separately)	Ratio of enclosed transportation usage in the handling of cement is 100%, coal is 50%	The amount of break bulk general cargo handled using the enclosed storage method ÷ (cement /coal) * 100% Cement : 427,128÷427,128×100%=100% Coal : 39,660÷73,521×100%=54%	The amount of break bulk general cargo handled using the enclosed storage method ÷ (cement /coal) * 100% Cement : 481,100÷481,100×100%=100% Coal : 37,213÷43,002×100%=87%
Ship exhaust emissions	The ratio of using low-sufer fuel and the consumption of low-sufer fuel among harbor crafts	• Number of harbor crafts using low-sufer fuel (marine diesel oil or marine gas oil)÷Total number of harbor crafts×100% • Consumption of low-sufer fuel among harbor crafts	The ratio of using low-sufer fuel reaches 100% among harbor crafts	1÷1×100%=100% Among the 1 harbor craft, 1 use low-sufer fuel	1÷1×100%=100% Among the 1 harbor craft, 1 use low-sufer fuel
	• The ratio of using shore power among harbor crafts • Number of shore power installations for yachts	Number of harbor crafts using shore power ÷ Total number of harbor crafts×100%	• The ratio of using shore power reaches 100% among harbor crafts • Number of shore power installations for yachts has been increased	1÷1×100%=100% All the harbor craft use shore power during berthing operations	1÷1×100%=100% All the harbor craft use shore power during berthing operations In 2019, 33 sets of shore power systems were added to the Argo Yacht Pier for usage by yachts.
	Ships deceleration target completion rate	The automatic identification system for ship deceleration is applied to determine the deceleration of ships within 20 sea miles from the port	The achieved speed reduction rate was 45%	Vessels entered and exited the port 665 times, 408 vessels have achieved deceleration requirements in 2017. The achieved speed reduction rate was approximately 58.5%.	• Vessels entered and exited the port 523times, 326 vessels have achieved deceleration requirements in 2018. The achieved speed reduction rate was approximately62.8%.The carbon reduction amounted to 1,153.23 tons. (from 2018, carbon reduction calculation project will be added to the ship deceleration check system) • According to statistics from 2019 to September, a total of 496 vessels entered and left the port, 364 of which met the requirements of deceleration, with the deceleration achieving rate of about 73.4% and the carbon reduction amount is 952.78 tons.



Environmental Performance Indicators of Anping Port

Significant environmental issues	Index item	Calculation method	Target value	Indicator presentation (calculation details)	
				2017	2018
Garbage/port waste	Port recycling rate	Amount of recycled waste ÷ Waste generation×100%	Port recycling rate reaches 10%	• Amount of recycled waste: 2.38tons • Waste generation: 82.6 tons • Recycling rate: 2.88%	• Amount of recycled waste: 0.091tons • Waste generation: 86.7 tons • Recycling rate: 0.1%
Noise	Quarterly ratio of noise levels satisfying related regulations	Road Category D 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 Leq 100% • Evening Leq 100% • Nighttime Leq 100%	• Daytime Leq 100% • Evening Leq 100% • Nighttime Leq 100%
Port development (water related	• Maintain port recreational spaces and facilities • Water development: Yuguang Island Beach,Argo yacht	Area of port recreational related space	Maintain or increase recreational areas at the coast and environmentally friendly space in the port area.	-.	• According to the demand of wind sailing training base of Tainan City government, the future planning will focus on water sports, activity training and water leisure activities. • Argo yacht berth has been developed with an area of 2 hectares.
Port development (land related)	• Maintain or increase port green area • Land development: Yuguang Island Beach,Argo yacht	Calculate annual port green area	Maintain or increase port green area	• The port area green space in year 2017 is approximately 60 ha.(Isolated green area, greening and beautification) • In 2017, yuguang island beach (hydrophilic recreation area) will be maintained with an area of about 22 hectares of waterfront and friendly space	• The port area green space in year 2018 is approximately 60 ha. • In 2018, yuguang island beach (hydrophilic recreation area) will registration and maintain its waterfront and friendly space area of about 22 hectares • In 2019, the tourism and recreation area of Argo has been developed with an area of 4 hectares
Water quality	Marine water quality pass rate(pH, DO, BOD_5 cyanide, phenols)	The ratio of port water quality measurements (obtained at the water quality monitoring station in the port) satisfying the Marine Environment Classification and Quality Criteria	Marine water quality: 100% of the quarterly pH, DO, BOD_5 , cyanide and phenols measurements satisfy the criteria	Marine water quality criteria for Category C pH94% DO100% BOD_5 81.3% Cyanide 100% Phenols 95%	Marine water quality criteria for Category C pH87.5% DO100% BOD_5 100% Cyanide 100% Phenols 100%

Emergency Response

05/

05/

Emergency Response

5 Emergency Response

In order to maintain port safety, the Anping Port Branch Office conducts daily land and marine environment inspection. When any suspicious behavior was identified, the inspection per-sonnel will immediately notify for correction or inform com-petent legal authorities for legal enforcement. In 2017 and 2018 there have been no occurrences of fishing boat induced navigational safety incidents, small-scale oil spills within the port district, waste and fire alarms, ship collisions, fires, explosions, oil spills, chemical spillage, occupational safety incidents (with personnel casualties), or other accidents or incidents.

For port pollution and disaster, Anping Port Branch Office, Tainan City Environmental Pro-tection Department, and South Maritime Affairs Center-Anping MPD . A grievance channel has been put into place for reporting or contact by members of the public, ship companies, or other relevant organizations. Regarding catastrophic events such as vessel or fire explosions, the Port triggers emergency response procedure to cope with disastrous incidence.

>>Environmental Inspection and Punishment in Port of Anping

Item\Year	2017	2018
Number of patrols	49	53
Exhaust emission	0	0
Oil fence (vessels)	197	226
vessel joint inspection	20	21
Admonishment for improvement	0	0
Notification	0	0
Penalty (Maritime and Port Bureau)	0	0

Source： Anping Port Branch Office


ISPS drill


ISPS drill

>> 2017-2018 Anping Port Drill Records

Year	Name of the Drill	Content	Dates
2017	Tainan City Environmental Pollution Incident Joint Emergency Response Drills.	Conducted drills for the emergency response of Marine pollution incidents, so that all units understand the emergency response procedures and minimize disasters through the joint prevention system .	Apr21
	International Ship and Port Facility Security Drills.	Conduct personnel training for various safety issues in the port area	Mar 29 Jun 29 Sep 28 Dec 27
2018	Tainan City Environmental Pollution Incident Joint Emergency Response Drills.	Conducted drills for the emergency response of Marine pollution incidents, so that all units understand the emergency response procedures and minimize disasters through the joint prevention system .	Apr26
	International Ship and Port Facility Security Drills.	Conduct personnel training for various safety issues in the port area	Mar 21 Apr24 Sep 27 Dec 26

>>Accidental Incidents in Anping Port

Accident type/Year	2017	2018
Ship collision, fire, explosion, fuel spill, chemical spill	0	0
Ship breakdown, tilt (no affecting safety)	0	0
Safety and health accident (cause injuries or deaths)	0	0
Major warehouse, storage tank explosion	0	0
Port minor pollution, fire, chemical spillage	0	0
others	0	0

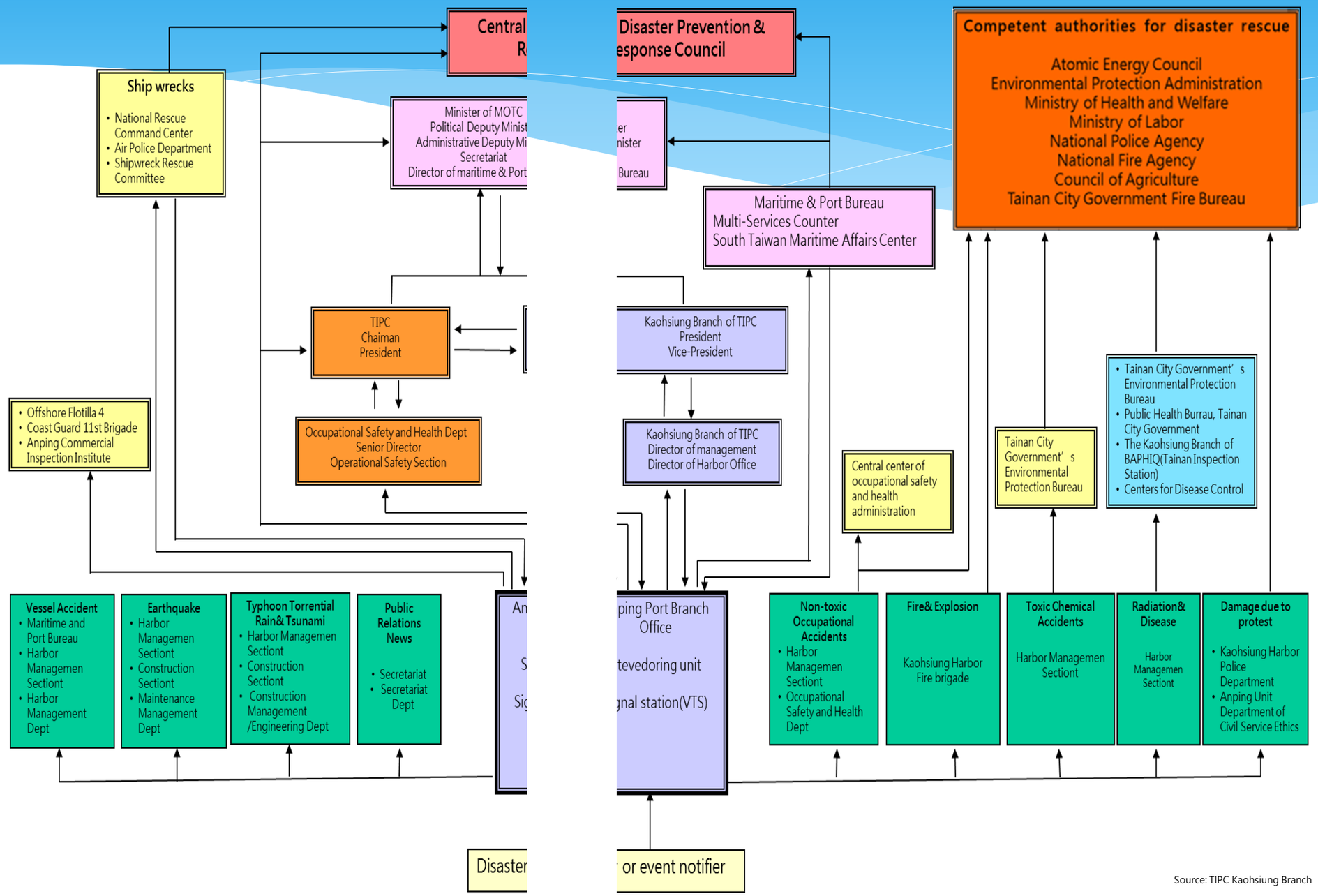
Source： Anping Port Branch Office


Emergency equipment vehicle


Tank car stop leakage

05/ Emergency Response

Flow Chart for Disaster and Accident Notification in Port of Anping

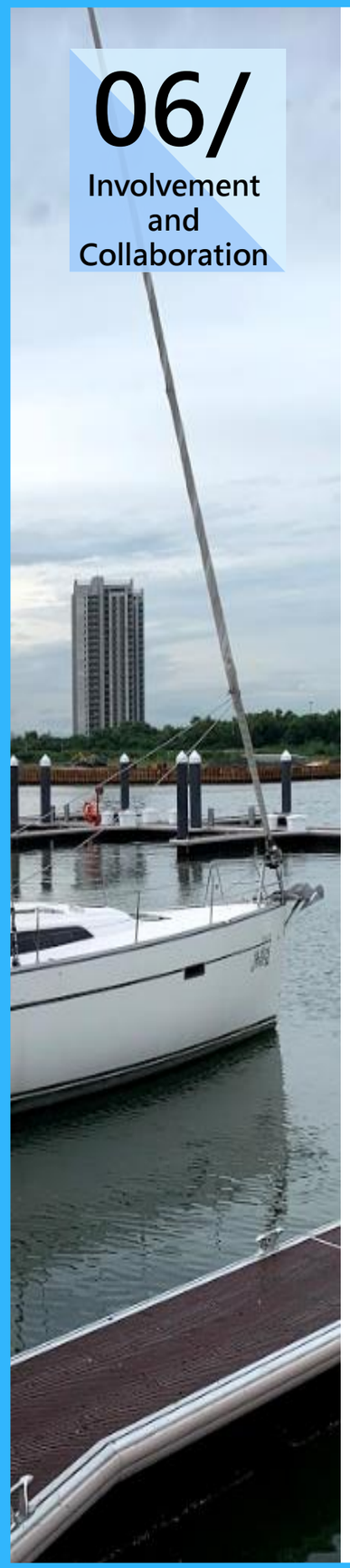


Source: TIPC Kaohsiung Branch

Involvement and Cooperation

06/

Port of Anping has established best practices for issues concerning the port environment, which include (1) Yuguang island, Crescent Bay Beach ; (2) Argo Smart Berthing. In addition, the proposed example of best practices can be incorporated into the database of the ECO Sustainable Logistic Chain as a reference for other EcoPorts.



06/ Involvement and Collaboration

6.1.1 Yuguang island, Crescent Bay Beach

Environmental issue：Soil,Water Quality, The maritime and land area development of the port.,Relationship with local community

Strategies：Exemplifying,Enabling

Content

Attention/Motives

Currently, the TIPC and the Tainan City Government has reached an understanding regarding future planning for Anping Port. The development of Anping Port would be based on a dual development theme: "The north as a tourism area and the south as a free-trade area" .

The land located at the north of the 12th Pier of Anping Port is to be modified and used for tourism and recreational purposes. Anping Port is to be used in conjunction with the harbor land of Yuguang Island for low-density development of industries in a recreational and leisure waterfront space.

Solutions

To maintain the comprehensiveness of waterfront tourism and maintain a clean and attractive bay environment, the management and maintenance of Yuguang Island , and low carbon ecological tourism and leisure water activities are to be developed in this area in accordance with the "utilization management integration" strategy.

Anping Port authorities hope to create a high-quality waterfront public beach space that provides a safe and waterfront space for the public. In creating an international-level low carbon ecological tourism island, the port operates in accordance with the low density–high value ecological tourism concept

Investment amount(NTD)

Year	Item	Cost
1999-2004	Outer breakwater and lighthouse construction project.	2.78 billion dollars
2003-2005	Coastal restoration project	279 million dollars
2017	Environmental maintenance expenditures	3 million dollars
2017	The 2017 Yuguang Island Art Festival.	50 thousand dollars
2018	Environmental maintenance expenditures	3 million dollars
2019	The 2019 Yuguang Island Art Festival.	1 million dollars
2019	Environmental maintenance expenditures	3.45 million dollars

Effect/Benefits

- The artificial beach maintenance method was used to preserve the beach between the commercial and fishery port. Two spur-type groins were also constructed for the same purpose.
- The ecological reefs between the two spur type groins are approximately 300 m in length. The reefs provide habitats for algae. They also attract marine life. Therefore, the reefs play a role in preserving and restoring aquatic species.
- Even though the beach is to feature international resorts, villas, and a sea forest artistic park, the landscape and scenery of the beach is still to be preserved. By linking up these tourism attractions, a new ecotourism environment may be established.

Stakeholders

Anping Port Branch Office, Port of Kaohsiung, Taiwan International Ports Corporation; Tainan City Government (Anping District Office, Environment Protection Bureau, Sport Bureau, and Cultural Affairs Bureau).;The residents of Yuguang Island and tourists who visit the Anping Port

Participating Units

Anping Port Branch Office, Port of Kaohsiung, Taiwan International Ports Corporation; Tainan City Government (Anping District Office, Environment Protection Bureau, Sport Bureau, and Cultural Affairs Bureau).

Implementation/Timeline

2003-2005	Coastal restoration project
2017-2019	The restoration and preservation of the beach environment in Yuguang Island.

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06/ Involvement and Collaboration

6.1.2 Argo Smart Berthing

Environmental issue : Soil, Water Quality ,Air Quality, Port development in the maritime and land., Relationship with local community

Strategies : Exemplifying, Enabling

Content

Attention/Motives

By executing the 2017–2021 Overall Development Plan approved by the Executive Yuan, the completion of Anping Commercial Port Yacht Pier in June 2019. Preservation of the yacht pier environment has always been a focus of attention. Thus, smart technologies are to be used for creating a high-quality water space environment to achieve environmental sustainability.

Solutions

The area of water space developed by the ARGO CONGLOMERATE is approximately 3 ha. An international-level yacht pier with 62 berthing spaces was established here along with an institution promoting water activities (e.g., sailing) and maritime education. To maintain the comprehensiveness of the Anping Port Yacht Pier waterfront development and maintain a clean bay environment, the Argo Yacht Pier adopts the PORALU berthing system from France. When the yachts dock, they refuel directly using the hydroelectric poles by the pier. This berthing system is both environmentally friendly and energy efficient. Furthermore, to avoid polluting marine environments, wastewater produced by the yachts is collected and channeled on shore for further processing using a wastewater pumping system.

Implementation/Timeline

Planning phase：2018/6~2019/2
Construction phase：2019/3~2019/8
Operation phase：2019/9~

Investment amount(NTD)

Planning: about 5 million dollars
Construction: 186 million dollars
Operation and maintenance cost: approximately 1 million dollars /month.

Effect/Benefits

- Introduce the first "International Yacht City" in Taiwan. Integrate industrial and local resources to create a coastal recreation environment.
- The berthing system at the yacht piers is both effective and environmentally friendly.

Participating Units

Anping Port Branch Office, Port of Kaohsiung, Taiwan International Ports Corporation ; Tainan City Government; Maritime and Port Bureau; Kaohsiung Port Land Development Corporation, Ltd.

Stakeholders

Yacht operators、Tenants, Anping Port Branch Office, Port of Kaohsiung, Taiwan International Ports Corporation

wastewater pumping equipment

Shore filling facilities

Port of Anping
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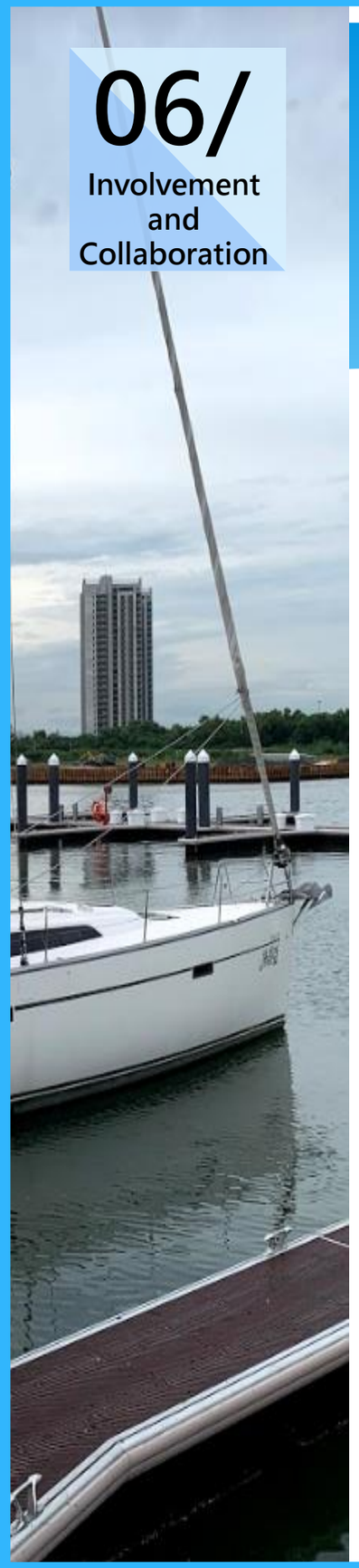


06/ Involvement and Collaboration

6.2 Involvement and Collaboration

The Anping Port Branch Office has been very active in collaborating with the private sector, public sector and academia in Taiwan and abroad on issues related to the environment. In addition to understanding environmental development trends in the international arena, the Port of Kaohsiung also works to achieve the goal of becoming a sustainable green port through technological cooperation, joint venture, joint investigation and seminars.

Participation organizations

Public sector

Environmental Protection Bureau of Tainan City Government

The Tainan City Government EPB held its 2015 Tainan City Environmental Pollution Incident Response Drill, 2016 National Hazardous Chemicals Emergency Response Drill, and 2017 Tainan City Environmental Pollution Incident Response and Rescue Integrated Drill at the northern seawall beach of Anping Commercial Port to improve its environmental pollution emergency response capabilities. The Tainan City Government declared Anping Commercial Port a Clean Air Zone in 2016 and required all vehicles entering and exiting the port to obtain a self-regulatory lak

Tourism Bureau of Tainan City Government

The Tainan City Tourism Bureau held its soft opening of Anping One at the Anping Port District in 2017. Tourists can now enjoy harbor views and experience the beauty of Anping by joining one of its yacht tours. To promote these sightseeing cruises, new routes were opened for investment in 2016. One operator' s application has already been approved, and service will be opened in three stages.

Southern Taiwan Service Center of MPB, MOTC

The South Taiwan Maritime Affairs Center of the MPB under the MOTC is in charge of the affairs related to port security, disaster relief, and pollution control in the Port of Anping, as well as the implementation of laws and regulations, gathering of evidence, and penalty consideration. The Anping Port Branch Office cooperates with the South Taiwan Maritime Affairs Center to conduct land–water inspection in the port.

Bureau of Economic Development, Tainan City Government.

In order to revitalize investment in Anping Port, the Tainan City Bureau of Economic Development and TIPC strengthened port construction, opened new shipping routes, and improved port infrastructure through a smart logistics strategy. The completion and opening of Terminal 10, a multipurpose port terminal, in 2016 was beneficial to cargo stevedoring operations. It integrated Tainan City' s agricultural and industrial zones and developed a combined sales/production business model.

Industries

ARGO CONGLOMERATE

Anping Port . pursues dual axis development of free trade in the south and tourism in the north. In the north region recreation business development includes Argo Conglomerate, which plans to create Taiwan's first "international yacht city." In tandem with Tainan city monuments and Anping port to historic park, it will bring new opportunities and a revolutionary change. Argo Conglomerate will invest more than 6.8 billion dollars to build Taiwan' s biggest yacht port, international coastal resort hotels and resorts, and a 500 meter long coastal recreation trail, transforming Tainan to a city with accessible waterfront, leisure and recreation.

Hung Hua Construction CO.,LTD

The company is in charge of the "Anping bulk cargo wharf construction (pier no. 17, no. 18)" which started in February 2018 and is expected to be completed in 2020. It will add two bulk cargo wharfs and 6 hectares of hinterland. The two new 11-meter-deep steel sheet pile wharfs increase Anping port' s deep-water quaywall number, creating an incentive for docking of large ships.
The completed construction will provide integrated service and cuts down transportation costs. It is expected to advance the port' s overall competitiveness, drive the development of the surrounding area, thus reaching co-prosperity of port and city.

Asia Environment Technical Corp.

The implementation of the 2017-2018 Environmental Monitoring Plan, a subsection of Anping Port' s overall plan, includes biannual analysis of harbor area terrain features and cross sectional water depth analysis, annual marine status observations, water quality, substrate, noise vibration, and marine life monitoring.

Academic Institution

National Cheng Kung University

The 2014 International Creative Industries Day Exhibition was organized by National Cheng Kung University' s Institute of Creative Industries Design. After visiting Anping, foreign students at National Cheng Kung University proposed the idea of reinventing the space using public art as medium to promote Anping Port as a sightseeing destination. The port commissioned National Cheng Kung University to conduct land and harbor groundwater quality and sediment/soil testing in 2015. The school also participated in the Anping Port Yacht Harbor Area and Large-Scale Shopping Mall Planning Forum in August, 2015.

Training

07/

07/ Training

7. Training

In compliance with its environmental policies, the Anping Port Branch Office provides suitable environmental education and training programs to improve staff' s environmental awareness, enhance their environmental protection knowledge and improve the competitiveness of the Port of Anping.

In 2017 and 2018,the Anping Port Branch Office organized environmental education courses for internal staff members. The courses included: pollution prevention, natural disaster, environmental impact assessment and ecological education.

Course title : Marine education

Course title : ISPS education and training course

2017 Labor environmental education

2017cleanup Event

2018 Labor environmental education

2018 Greenhouse gases inventory education training

Drill

Communication and Publication

08/

08/ Communication & Publication

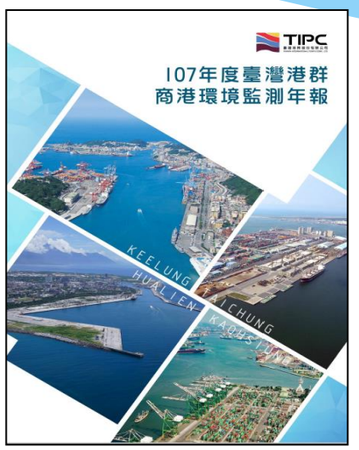
8. Communication & Publication

Promotion activities, seminars, publication, and websites, have been organized to align Anping 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.

Publication

Port of Anping Introduction Booklet



TIPC Environmental Monitoring Report

Website

Chinese and English web pages for TIPC Green Policy

"Contact us" on the Anping Port Branch Office ,Port of Kaohsiung,website

Anping Port Branch Office FB Pages

To present the achievements of TIPC in promoting green ports, Chinese and English web pages have been set up on our website. These web pages can also enhance communication between Taiwan and other countries.

Anping Port Branch Office, the general public and consumers can provide us with their feedback through the e-mail information on "contact us".

Port district event information is shared to create a closer bond between Anping Port and the public.

Activities

The sun liner Venus of the Pacific has first moored in Anping Port

The Navy's Friendship Fleet Visits Anping Port

The 12th Tainan Ancient Capital International Marathon

National experimental research institute southern summer series activities

"Caledonian Sky" first moored in Anping Port

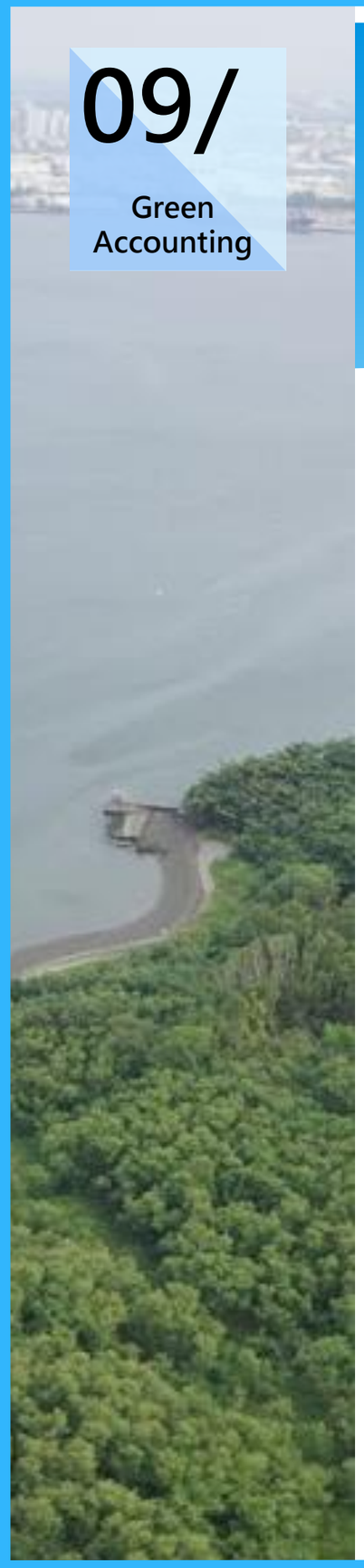
Rainbow warrior promotes plastic reduction

Yuguang Island Festival

Green Accounting

09/

09/ Green Accounting



9.1 Environmental costs

Regarding the environmental issues, the Anping Port Branch Office has spent funds on their employees, environmental maintenance, management, environmental monitoring, publications, emergency response and communication, with the aim of enhancing employees' environmental awareness and environmental maintenance , to improve environmental quality and ability of emergency response, and to increase the public' s understanding of the port.

The Summation of Costs invested by the Investments of the Anping Port Branch Office in the Environmental Aspects is €684,722 in 2017 and €682,649 in 2018.

Environmental investments in the Anping Port

- Staff: Costs for environment-related staff and training.
- Environmental maintenance and management: Port greening and beautification, waste disposal, and dredging.
- Environmental Monitoring: Monitoring the air, noise, water, sediment, dredging as well as environmental patrol
- Emergency response: Charges for handling accidents, materials for pollution in the port, and charges for testing dangerous goods.
- Communication and publications: Website maintenance, promotional activities, and environmental publications.

>> Costs related to Environmental Issues, Anping Port Branch Office in 2017 (Unit: €)

Item of Expense		2017
Staff	Cost of environment-related personnel	99,219.2
	Training costs	428.1
	Subtotal	99,647.3
Environmental maintenance and management	Outsourced spending for port garbage disposal	394,996.3
	Port greening (plantation and maintenance) and beautification	6,822.9
	Consultant fees of the construction and management operations	81,609.2
	Subtotal	483,428.4
Environmental Monitoring	Test request fee	96,522.9
Emergency Response	Port disaster drill expenses	1,057.1
Communication and Publication	Welfare expenditure (for networking with neighboring communities)	4,065.9
Total		684,722

>> Costs related to Environmental Issues, Anping Port Branch Office in 2018 (Unit: €)

Item of Expense		2018
Staff	Cost of environment-related personnel	110,376.67
	Training costs	1,585.25
	Subtotal	111,961.92
Environmental Maintenance & Management	Outsourced spending for port garbage disposal	315,782.87
	Port greening (plantation and maintenance) and beautification	5,075.16
	Consultant fees of the construction and management operations	155,421.84
	Subtotal	476,279.88
Environmental Monitoring	Test request fee	88,240.6
Emergency Response	Port disaster drill expenses	938.59
Communication & Publication	Welfare expenditure (for networking with neighboring communities)	5,227.64
Total		682,648.63

9.2 Environmental Assets

The Anping Port Branch Office has launched a series of port development projects to improve the efficient use of property by the Port of Anping, promote local economic prosperity, and develop the port into an eco-friendly green port. Several projects concern environmental aspects. For example, the infrastructure of the recreational area in the Port of Anping has been built to increase public access to the port, an AIS for inspecting vessel speed reduction has been built that updated to increase operational effectiveness and reduce possible pollution caused by construction projects . Cost invested by the investments of the Anping Port Branch Office in the Environmental aspects in 2017-2018 is €824,965.9& €564,700.6.

>> Assets invested by the Anping Port Branch Office in the environmental aspects in 2017 – 2018 (General building and equipment plan) Unit: Euro

Item	2017	2018
Improvement on land	608452.6	256647.4
Buildings	126659.2	16339.64
Machinery and equipment	13575.85	213429.4
Transportation Facilities	61481.81	55066.95
Miscellaneous equipment	14796.5	23217.24
Total	824,965.9	564,700.6

Improvement Recommendations

10/

Anping Port became an international commercial port in 1997 and positioned itself as an international bulk cargo importing and exporting port with tourism and recreational functions. The port successfully reinvented itself, supplementing its gravel unloading operations with the dual goals of developing free trade to the south and tourism from northern regions. Free trade operations were established in conjunction with a free trade harbor, and the provision of cargo operating services to effectively increase free trade zone efficiency. Tourism from northern regions was encouraged by combining port tourism with local urban culture and the promotion of the yacht harbor area, Yukuang Island, Crescent Moon Bay, and other recreational industry businesses to shape a seaport environment where visitors can enjoy leisure activities.

As an international port operator, Anping Port fully understands the importance of operating an ecofriendly port. The port has initiated many port district environmental protection projects since the early days of its inception, including a mangrove restoration project, enclosed cargo handling operations, the construction of an onshore power facility, and the formulation of air quality zones. As an International Eco Port, besides exchanging information on the latest green port construction measures and best management practices with other green ports around the world, Anping Port plans to implement the eco port philosophy in future port district land developing planning. For example, the North Tourism Zone development project will adopt a low density, low carbon development philosophy, including the construction of a low carbon waterfront eco island, to promote the establishment of a green, sustainable, advanced top quality port destination.

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PORT OF KAOHSUNG TAIWAN INTERNATIONAL PORTS CORPORATION, LTD

環科工程顧問股份有限公司
Environmental Science Technology Consultants corporation