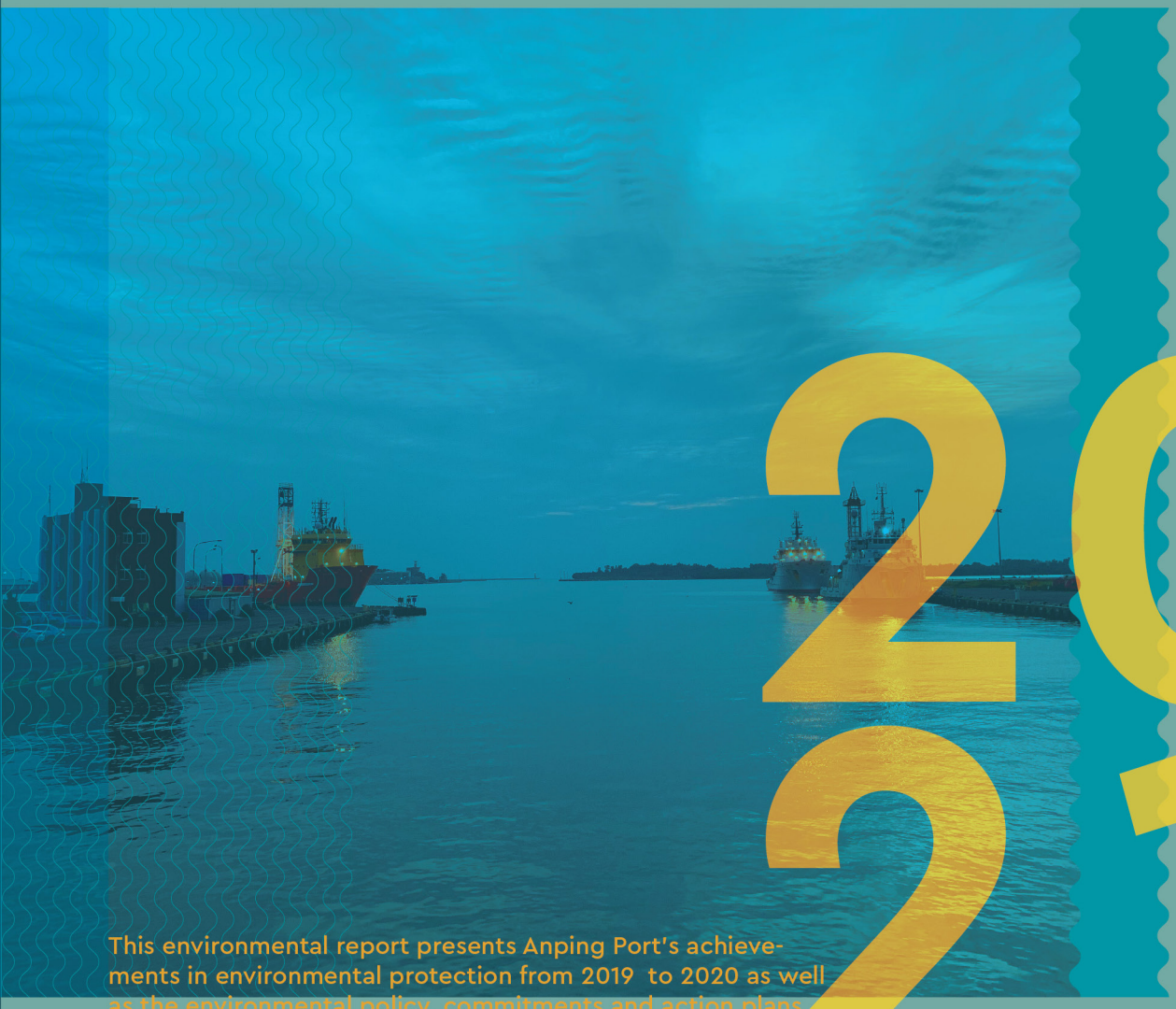
22°59'29"N 120°09'04"E

Port of Anping

Environmental Report



2021

This environmental report presents Anping Port's achievements in environmental protection from 2019 to 2020 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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Environmental Policy

Taiwan International Ports Corporation Environmental Policy

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

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

We commit to:

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

Hsien-Yi Lee

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

Shao-Liang Chen

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

Environmental Objectives

TIPC

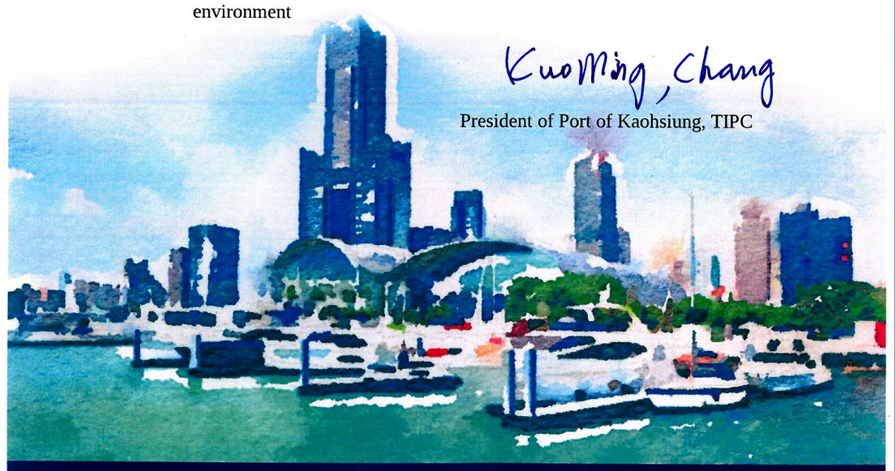
Environmental Policy

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
- Promote community participation ; co-create a friendly port-city environment

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

TIPC 安平港營運處

Environmental Objectives

- **Improve Air Quality**

Conduct regular air monitoring, environmental inspection to trace sources of pollutions

- **Prevent Dust in the Port Area**

Manage fugitive dust gradually using airtight facilities and spraying water in the port area

- **Reduce Port Generated Waste**

Promote garbage reduction in port areas appropriate disposal of waste and implement the recycling and reuse of resources

- **Monitor Port Marine Ecology**

Conduct marine biological monitoring and analysis to understand the changes and impacts of development activities on the habitat of marine organisms.

- **Improve Port Water Quality**

Plan a waste water interception and runoff treatment system for the port area and monitor the long term water quality of the port area

- **Abate Ship Emissions**

Conduct vessel speed reduction plan, promote a shore power system, use low sulfur fuel and reduce exhaust emissions from ships

- **Improve Port Water Area Development**

Expend more waterfront space in Port areas, provide a friendly environment for public to enjoy, and keep monitoring port water environment

- **Appropriate Disposal of Dredged sediment**

Cooperate with construction to handle sediment dredging in the port area, effectively use dredged sediment as materials for land filling

- **Improve the Management of Vessel Sewage Discharge**

Implement the management of collection, and effectively control the quantity and flow of waste oil and sewage

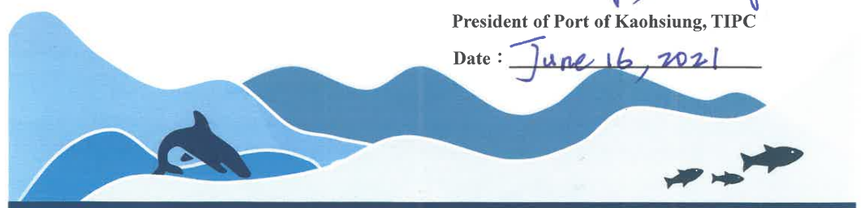
- **Reduce Cargo Spillage**

Strengthen the supervision of loading and unloading operations at docking areas, conduct autonomous management, cover cargo well and reduce spillage

Kuo Ming, Chang

President of Port of Kaohsiung, TIPC

Date : June 16, 2021



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

01

Message from Port of Kaohsiung, TIPC

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.

Kuoming, Chang

President of Port of Kaohsiung
Taiwan International Ports Corporation, Ltd

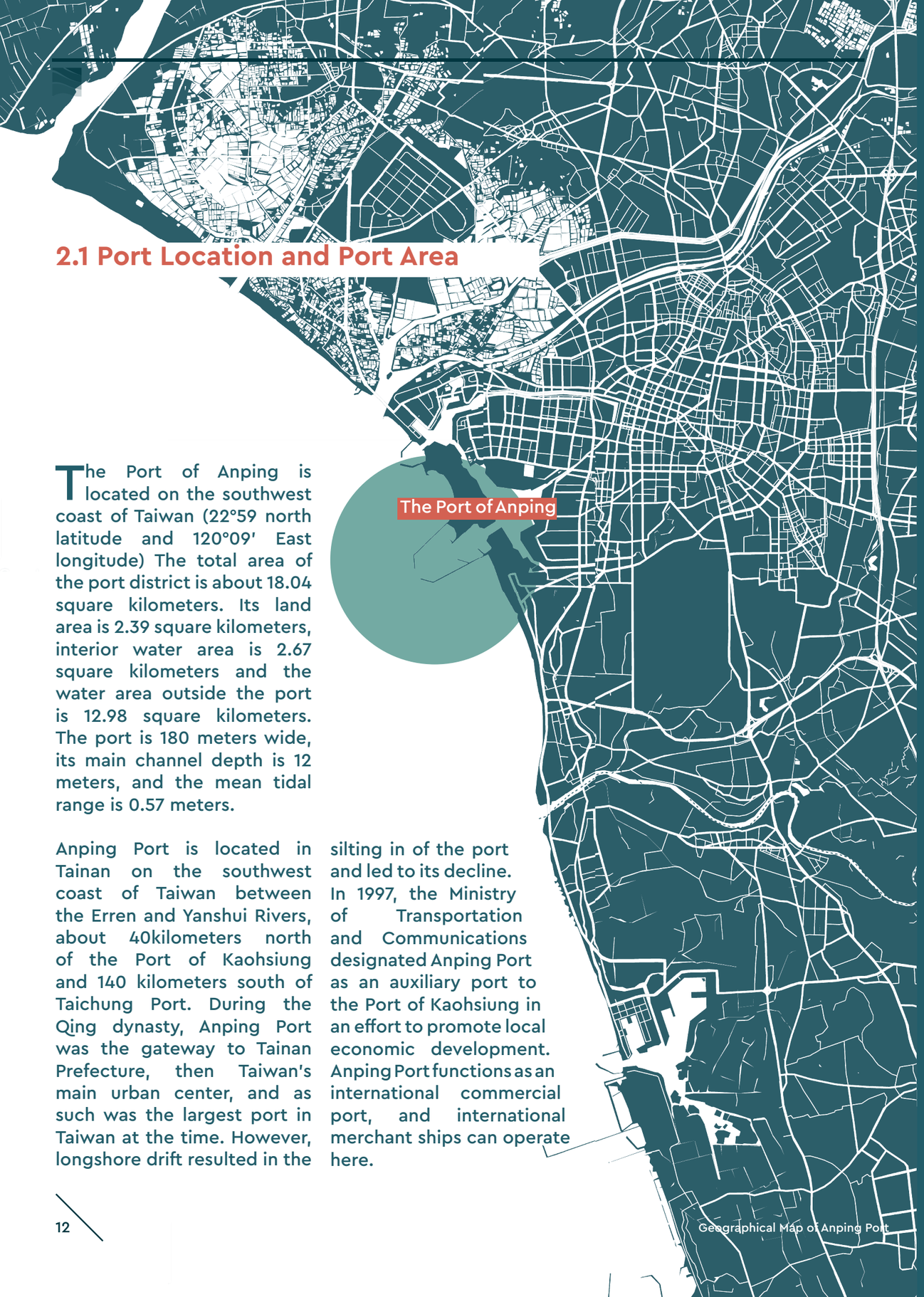
02

Port Profile

2.1 Port 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.

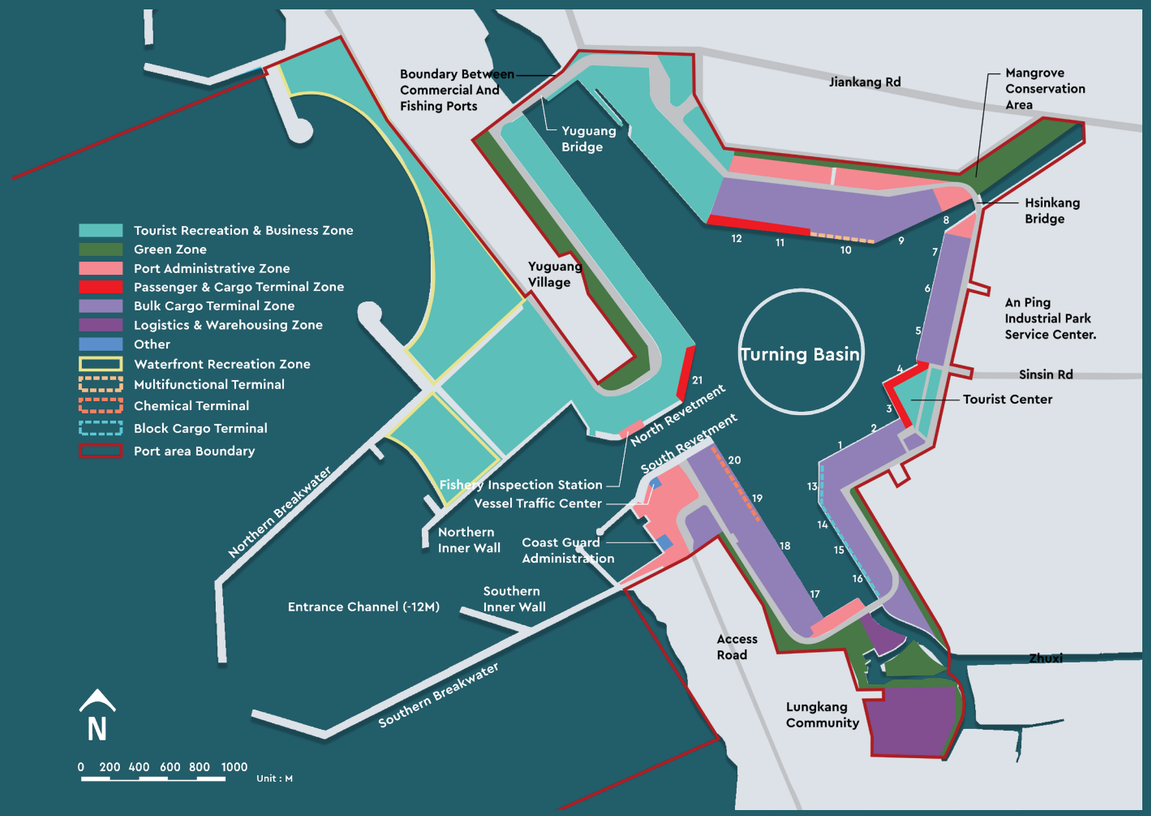
Anping Port is located in Tainan on the southwest coast of Taiwan between the Erren and Yanshui Rivers, about 40kilometers north of the Port of Kaohsiung and 140 kilometers south of Taichung Port. During the Qing dynasty, Anping Port was the gateway to Tainan Prefecture, then Taiwan's main urban center, 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

2.2 Legal 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

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.

Commercial Activities	
Aggregates (sand, gravel..)	Marinas / Leisure
Chemical industry	General manufacturing
Storage and packaging	Refrigerated cargo
Cruise industry	
Cargo Handling	
Dry bulk	Liquid bulk (non-oil)
Green energy machine	Perishable goods
Ro-Ro	General cargo

Source: Anping Port Branch Office

2.4 Main Cargoes

The main inbound cargos to Anping Port in 2019was chemical or related industrial products (74.29%). Outbound cargos were mainly chemical or related industrial products (89.12%). In 2020 was chemical or related industrial products (65.16%). Outbound cargos were mainly chemical or related industrial products(83.44%).

2.5 Port Business

Service Category		2019	2020	Difference between 2019 and 2020	
				Amount	%
Incoming and Outgoing Ships	Vessels	1,011	1,223	212	20.97%
	Gross ton	7,331,858	10,353,323	3,021,465	41.21%
Volume of Cargo Handled	Dry bulk and groceries (Revenue ton)	196,293	653,799	457,506	233.07%
	Pipeline cargo (Revenue ton)	1,327,417	1,304,778	-22,639	-1.71%
	Total (Revenue ton)	1,523,710	1,958,577	434,867	28.54%
Volume of Imports & Exports	Imports (ton)	783,873	744,092	-39,781	-5.07%
	Exports (ton)	175,294	121,065	-54,229	-30.94%
	Domestic(ton)	560,947	714,161	153,214	27.31%
	Total(ton)	1,520,114	1,579,318	59,204	3.89%
Incoming and Outgoing Passenger	Domestic line (number)	0	9,175	9,175	-
	International line (number)	641	0	-641	-
	Total(number)	641	9,175	8,534	-

Source: Annual Statistical Report, TIPC, 2019–2020

03

Environmental Management

3.1 Organizational Structure

Environmental management of the Anping Port District is enforced by the Anping Port Branch Office, Port of Kaohsiung, Taiwan International Ports Corporation 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.

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, Goverment

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 oof Kaohsiung Harbor Police Dept
-Environment Protection Bureau of Tainan City, Government

Sanction

-South Maritime affairs center-Anping MPD
-Anping Port Company Of Kaohsiung Harbor Police Dept
-Environment Protection Administration
-Environment Protection Bureau of Tainan City, Government

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

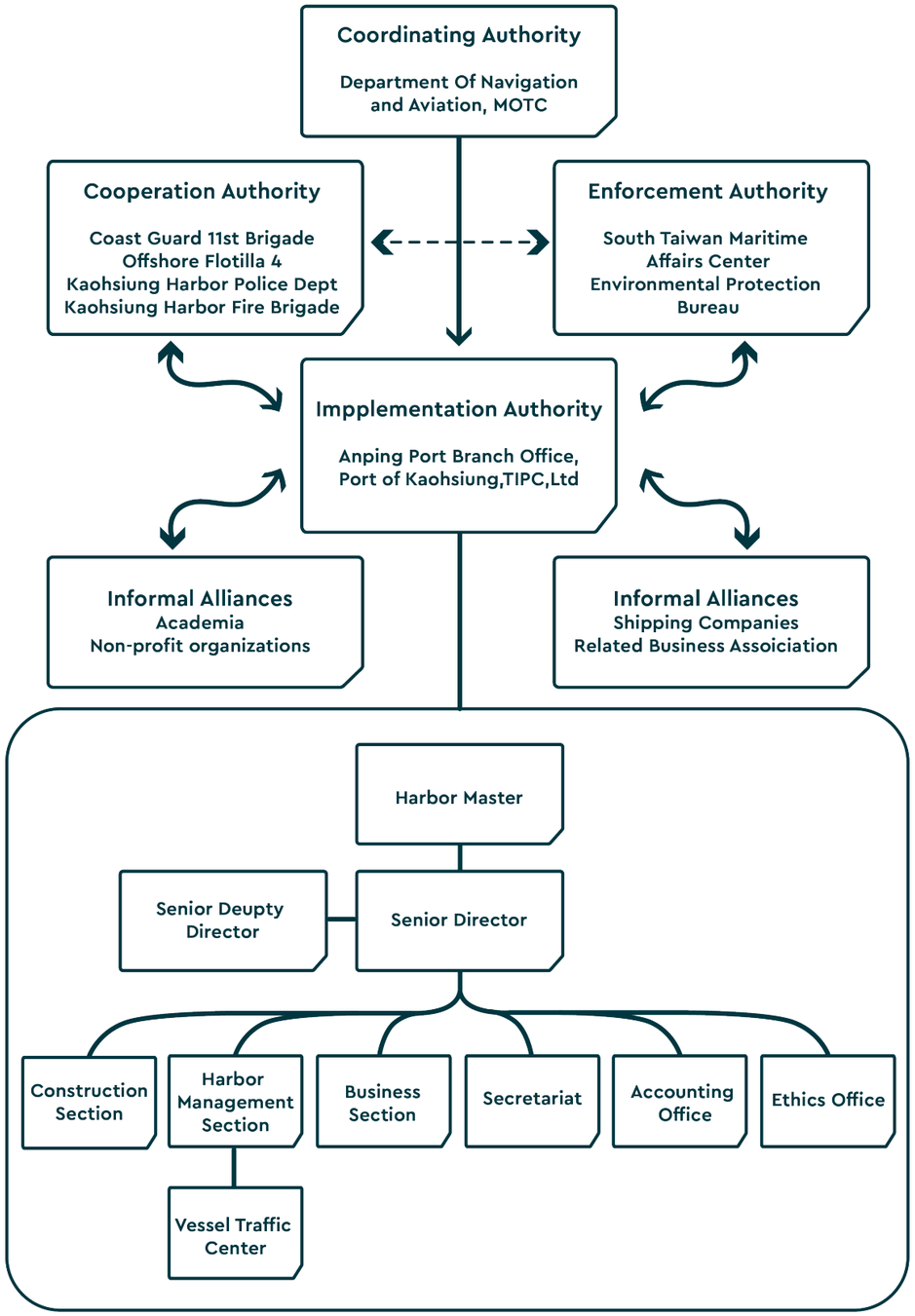


Figure of Organization chart of Anping Port

3.2.1 Environmental regulations

According to the environmental regulations that the Anping Port Branch office complies with, sources of pollution can be divided into pollution from ships at sea and discharge of pollutants during operation at port. The former is regulated by international conventions and norms, whereas the latter is mostly governed by domestic 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. as shown in Table. In addition to the international environmental specifications and conventions, 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.

Conventions	Objective	Corresponding to the domestic legislation
International Convention for the Prevention of Pollution From Ships(MARPOL73/78)	Prevent pollution from ships	The Law Of Ships(article 101) The Commercial Port Law(article 75) No. 10150137211, 10150138211, 10150138451, 10250048611, and 10798000011 Administrative Law of the Ministry of Transportation and Communications
London Dumping Convention	Regulate marine dumping	Marine Pollution Control Act(article 20, 25) Regulations Governing Permission and Management of Marine Disposal
International Convention on the Control of Harmful Anti-fouling Systems on Ships	Terminate the use of toxic hull paint	Prohibition of the use of tributyltin oxide in manufacturing marine antifouling paint, specified in the "List of Prohibited Toxic Chemical Substances" of the Toxic Chemical Substances Control Act
International Convention for the Control and Management of Ships' Ballast Water and Sediments	Prevent the invasion of alien species along with ballast water, and protect marine ecology and biodiversity	Regulations on Equipment of Ships (article 174, 215, 216) International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004" issued by the Ministry of Transportation and Communications "Prohibition of Ballast Water Exchange in the Territorial Waters of R.O.C. and Related Pollution Control Measures" announced by the Environmental Protection Administration

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

Competent Authorities	Laws Title		Central Competent Authorities	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	2017/01/18	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	Environmental Protection Administration	Environment Protection Bureau of Tainan City ,Government
	Basic Environment Act	2002/12/11		
	Air Pollution Control Act	2018/08/01		
	Water Pollution Control Act	2018/06/13		
	Waste Disposal Act	2017/06/14		
	Environmental Impact Assessment Act	2003/01/08		
	Environmental Education Act	2017/11/29		
	Noise Control Act	2021/01/20		
	Indoor Air Quality Act	2011/11/23		
	Toxic-Chemical Substances Control Act	2019/01/16		
	Soil and Groundwater Pollution Remediation Act	2010/02/03		
	Environmental Agent Control Act	2016/12/07		
	Greenhouse Gas Reduction and Management Act	2015/07/01		
	Tainan City Self-Government Ordinance for Environmental Cleaning	2018/08/14		
	Tainan City Self-Government Ordinance for a Low-Carbon City	2020/03/17		
	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

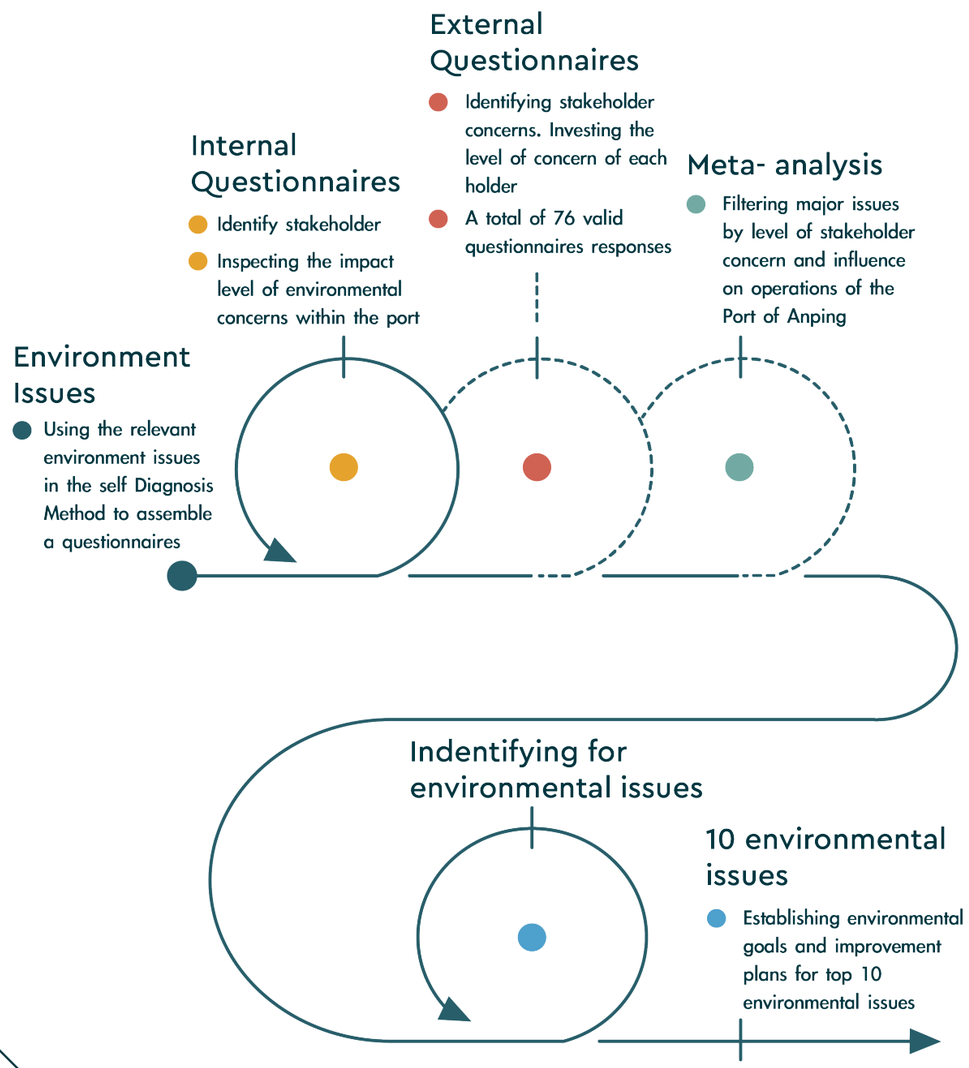
Figure of Organization chart of Anping Port

04

State of the Environment

4.1 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.



Anping Port

Environmental Issues

Top 10

1. Air quality

Indicator

-Air quality pass rate (PM_{10}、$PM_{2.5}$、SO_2、NO_2)

-The passing rate for diesel vehicles stopped and inspected inside the Clean Zone

-Promote transportation operator to use Automatic Gate Sentry Post Control System

2. Dust

Indicator

-Numbers of pollution prevention cargo handling Enclosed cargo handling and dust collection cargo handling equipments

-Ratio of enclosed storage usage in the handling of break-bulk

-general cargo (cement +coal+ other break-bulk general cargo)

-The usage of Reclaimed water

-Inspection of cargo handling operations in the port area

3. Garbage/ Port waste

Indicator

-Waste disposal of port water

-Domestic waste of crew members in port area

4. Loss of Aquatic Ecosystems

Indicator

-Pass rate of Heavy metal content in Aquatic organisms

5. Water quality

Indicator

-Marine water quality pass rate (pH, DO, BOD5, cyanide, phenols)

-Number of inspections and penalties

6. Ship exhaust emissions

Indicator

-The ratio of using low-sufer fuel and the consumption of low-sufer fuel among ships

-The ratio of using shore power among ships -general cargo (cement +coal+ other break-bulk general cargo)

-Alternative Maritime Power System facilities and usage

-Vessel Speed Reduction Achievement rate Qualified rate of low-sulfur fuel oil inspection for Vessel

7. Port development (water related)

Indicator

-Maintenance of related recreational facilities area and waterfronts in the port area

-Increase the open area of the south and north breakwater fishing area

8. Dredging disposal

Indicator

-The amount of dredging, disposal and backfilling in the port area

9. Ship emission (Sewage)

Indicator

-Waste oil sewage acceptance quantity

10. Cargo (fuel)Spillage (handling)

Indicator

-The deployment proportion of oil booms for chemical and oil product vessels

-The number of port area inspections, cargo spillage emergency response drills, and joint audits of vessels in the port area.

Figure of Organization chart of Anping Port

Related parties

In order to truly understand the opinions of related parties, Anping Port conducts opinion surveys of related parties, such as employees, the government, customers, and communities, through questionnaires, which is used as the basis for follow-up investigations on the degree of concern of related parties.

Internal questionnaire

- Air quality
- Dust
- Garbage/port waste
- Shipping waste
- Industrial emissions to air
- Dangerous goods
- Energy consumption
- Noise
- Port Development(Water Area)
- Habitat/ecosystem loss (water area)

Colleague
of Anping Port
Operations Office

External questionnaire

- Air quality
- Dust
- Industrial emissions to air
- River pollution
- Industrial discharge to water
- Ship discharge sewage
- Odor
- Garbage/port waste
- Habitat/ecosystem loss (water area)
- Shipping waste

Government
Residents
Port Operator

Regarding the issues and suggestions concerned by related parties, Anping Port has included the focus of environmental improvement in the port area, and continues to improve the port area to maintain an ecologically sustainable green port.

Issues	Situation in Anping Port
Dust	• Strengthen the inspection of cargo handling operation sites, and urge the industry to adopt dust prevention measures, install dust nets during the operation, and strengthen watering and cleaning in the operation sites to avoid dust.
Garbage/ Port waste	• Daily cleaning boats are sent to clean up water surface garbage in the port area, and a total of about 290.66 metric tons of floating garbage will be removed from 2019 to 2020. • Regularly remove garbage and waste to keep the port area clean and tidy.
Ship exhaust emissions	• Add shore power system and use low-sulfur fuel. • Implement ship deceleration policy, the achievement rate in 2019 was 72.8% • The ship deceleration achievement rate in 2020 is 64.5%.
Water quality	• Continue to carry out environmental monitoring in the port area. • Strengthen the inspection and cleanliness of the waters in the port area. • Cooperate with the Tainan City Government to promote the river and marine pollution prevention team to improve the water quality of the upper reaches of the river, add sewage sewers, and properly treat urban sewage to improve the water quality of the port area.

4.2 Air Quality

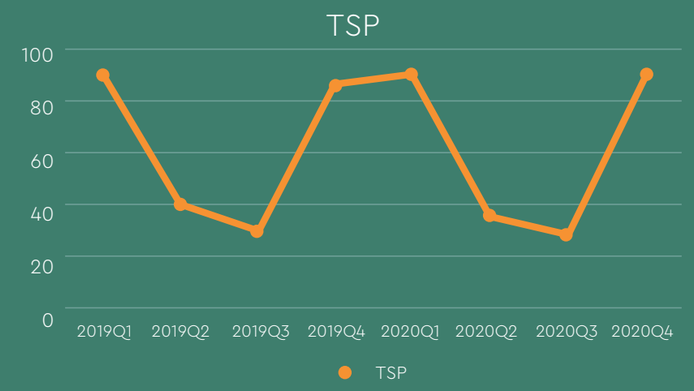
The main cause of air pollution in Anping Port comes from the exhaust gas from the burning oil of ships in the port area, the exhaust emissions from the vehicles of the port industry, and the loading and unloading equipment. The main air pollutants include nitrogen oxides (NOx), sulfur dioxide (SO_2) and fine particles. Suspended particles (PM2.5), etc.

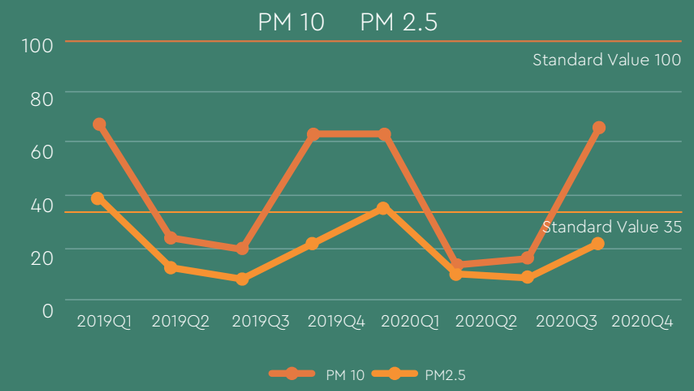
Air quality Performance	Index presentation (qualified rate %)			
	PM_{10} Daily average (>125μg/m³)	$PM_{2.5}$ Daily average (>35μg/m³)	SO_2 Daily average (>0.75ppm)	NO_2 Daily average (>0.1 ppm)
Standards	100%	100%	100%	100%
2019	100%	94%	100%	100%
2020	100%	88%	100%	100%

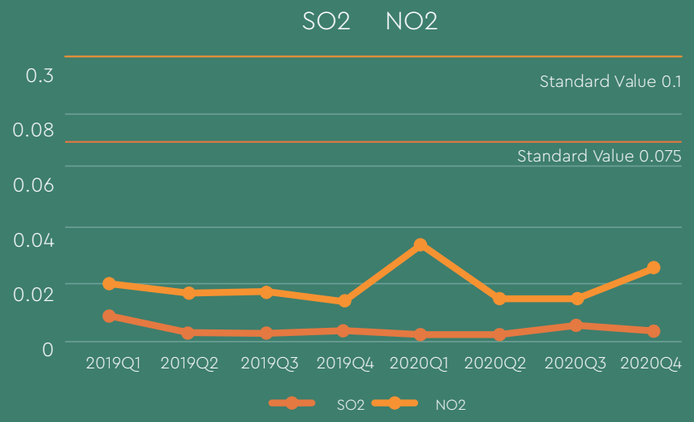
There are currently 4 air quality monitoring sites in Anping Port District, including the vistor Center, Hsinkang Bridge, Yukuang Branch School and Lungkang Community. The monitoring items include total suspended particulates (TSP),suspended particulates (PM10), and fine suspended particulates. (PM2.5), sulfur dioxide (SO2), nitrogen oxides (NOx) and ozone (O3). The monitoring frequency is quarterly. According to the air quality monitoring results from 2019 to 2020, as shown in the right figure.

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	-	100	35	0.075	0.1







Automatic Gate Sentry Post Control System

The main cause of air pollution in Anping Port comes from the exhaust gas from the burning oil of ships in the port area, the exhaust emissions from the vehicles of the port industry, and the loading and unloading equipment. The main air pollutants include nitrogen oxides (NOx), sulfur dioxide (SO_2) and fine particles. Suspended particles (PM2.5), etc. In terms of vehicle control, Anping Port Industrial District and the Ssu Kun Shen Checkpoint have a total of eight entry and exit lanes, four of which are automatic gates. The OCR and RFID of the system automatically and rapidly identify and compare information with the database for verification. Furthermore, digital billboards, traffic lights, and other hardware equipment are installed to facilitate the control of incoming and outgoing persons, vehicles, and containers. Vehicles passed through the gates 195,787 times in 2019 and 326,503 times in 2020. it is estimated that the carbon emissions will be reduced by about 0.152 kg per vehicle. The carbon reduction in 2019 will be about 29.76 metric tons in 2020. Annual carbon reduction is about 49.63 metric tons.

Year	Total number of vehicles	Reduced fuel consumption	Reduced carbon emissions (kg)	Carbon reduction (metric tons)
2019	195787	24.6g/Vehicle	0.152Kg/Vehicle	29.759624
2020	326503			49.628456

Note.1 : The fuel consumption data comes from The Automotive Research & Testing Center (ARTC)

Note 2: Based on the data of the Environmental Protection Agency "Eco Taiwan Clean Homes Gucuobian Green Living Network"

In February 2021, two control points in Anping Port cooperated with the Tainan Municipal Environmental Protection Bureau to set up vehicle identification equipment to facilitate subsequent control of mobile pollution sources.

Mobile Pollution Source Control

Figure of Signs of clean air quality zones

Land mobile transportation in Anping Port is another major source of air pollution. The Anping Port Operations Office and the Environmental Protection Bureau of Tainan City Government have cooperated to promote air quality purification promotion and inspection. Since January 1, 2016, Anping Port has officially become " The "clean air quality zone" also requires the independent management of chemical tank trucks outsourced by Chi Mei Industrial in the port area and the transportation vehicles of Wanqing Cement Company. Diesel vehicles entering the clean zone shall obtain the self-management mark for smoke emission approved by the Environmental Protection Agency. The standards are stricter than the regulations and standards of the vehicle when it leaves the factory. After a long period of publicity and inspection operations, the vehicle was stopped 106 times in 2019, with 0 penalties, and the pass rate was 100%. In 2020, there were 118 interceptions and 1 penalty. The pass rate is 99%.

2016- 2020 Tainan City Government Environmental Protection Bureau Audit performance table

Inspect Performane	Index presentation (qualified rate %)		
	No. of checks	Number of penalties	qualified rate
2016	249	2	99.2%
2017	249	2	99.2%
2018	173	2	98.8%
2019	106	0	100%
2020	118	1	99%

Reduce Dust Pollution

Anping Port mainly imports and exports raw materials such as coal and cement, and also has bulk and general cargoes handling operation such as sand and gravel. In order to avoid fugitive dust, there are 4 vehicle washing ponds in the pier area of Anping Port, which provide tire cleaning for handling vehicles. The Anping Port Branch Office requires transportation vehicles entering and leaving the port area to be cleaned by the vehicle washing ponds before leaving the port area, so as to keep the roads clean and reduce fugitive dust pollution. In addition, the Tainan City Government Water Resources Recycling Center has set up a reclaimed water intake pipeline in the Anping Port area, which can be used by port operators to clean the quay floor or sprinkle water during handling operations to prevent fugitive dust. The total reclaimed water usage saw 136 metric tons increase, 718 metric tons in 2019 and 854 metric tons in 2020.

Reclaimed water usage of Anping Port Operation Office

Year	Usage	Increase
2019	718	-
2020	854	136

Reclaimed water intake point

Road cleaning to avoid dust

Car wash tenk

All loading and unloading vehicles must pass through the car wash pool before they can leave

Automatic coal unloading enclosed warehousing operations

In order to reduce the environmental pollution caused by the suspended particles generated by the handling of goods, the actual strategy adopted by Anping Port to suppress fugitive dust emissions includes the installation of closed storage for coal and cement transportation, mainly through the installation of handling prevention equipment and the regulation of handling operations. The use of closed storage was approximately 92.8% in 2019 and approximately 65% in 2020.

Automatic coal unloader and enclosed coal warehouse

Install dust-proof nets and strengthen watering during loading and unloading operations

Pipeline transportation and enclosed warehouse are used for cement loading and unloading to reduce dust .

Port waste treatment

For waste in the land area of Anping Port, the port has set up waste sorting bins at fixed points for vessels to to avoid waste scattering on the quay surface and falling into the port basin. In 2019, Anping Port generated 121.99 metric tons of land-based garbage and 0.124 metric tons of resources were recovered, and in 2020, 168.67 metric tons of garbage was generated and 0.138 metric tons were recovered. Most of the garbage was not recovery-based and would be recovered by the operators in the port area; as a result, the amount of resource recovery was low, but the effectiveness of waste disposal in port area was not reduced. In terms of vehicle control, Anping Port Industrial District and the Ssu Kun Shen Checkpoint have a total of eight entry and exit lanes, four of which are automatic gates. The OCR and RFID of the system automatically and rapidly identify and compare information with the database for verification. Furthermore, digital billboards, traffic lights, and other hardware equipment. In 2019, the volume of water area waste disposal was 136.78 metric tons and the number of collection was 27 times, and in 2020, the volume was 202.55 tons and the number of collection was 45 times. Despite of the countless marine floating garbage, the Anping Port Branch Office still cleans the water and land area of the port every day and removes garbage and waste regularly to keep the port clean.

Anping Port Waste Recycling Statistics

Item	2019	2020
Garbage generated (metric tons)	121.99	168.67
Resource recovery (metric tons)	0.124	0.138

Outsourcing company to clean up port garbage

Tzu Chi Elementary School Beach Cleaning Activities

Environment cleanliness

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. According to statistics, there are currently 4 qualified businesses of waste oil and water cleaning companies in Anping Port, 82.9 tons of vessel waste oil and wastewater was cleaned up in Anping Port in 2019, and 81.9 tons in 2020.

Collection volume of waste oil and sewage from ships in Anping Port

year	boat	Waste oil sewage (mt)
2019	10	82.9
2020	7	81.9

Sterilization work of port area

Vessel waste oil recycle management

Cleaning work for water area

Cleaning and mantainese work for port

Improve the water quality of the port

Anping Port Branch Office is committed to promoting the improvement of sewage treatment facilities in the port area. In 2005, the construction of the "Terminal Treatment Facility for Municipal Sewage in Port Area" was completed. In order to improve the reuse of domestic wastewater and to reduce the waste of resources in the operation of the facilities, we negotiated with the Water Resources Bureau of Tainan City Government and agreed to transfer the domestic wastewater in the port area to the sewerage system of Tainan City directly, and the transfer was completed in October, 2018. The domestic sewage was treated by the Tainan City Government Water Resources Recycling Center and turned into recycled water for use. At present, the Anping Port Branch Office is planning to move forward to separate surface runoff rainwater and sewage in the port area, hoping to effectively reduce runoff waste water pollution in the pier area through the public pier area runoff waste water diversion ditch project. Reclaimed water consumption of Anping Port Operation Office Anping Port has developed for tourism and recreation, and relevant stakeholders are also very concerned about water quality issues (such as Yaguo). Anping Port Operation Office has been conducting environmental monitoring of the port area since 1997, in addition to cooperating with the Tainan City Government on a monthly basis The Environmental Protection Bureau conducts environmental inspections of ships in the port, checks the relevant pollution prevention certificates of ships, and cooperates with the Tainan Municipal Government to hold emergency response drills for marine environmental pollution incidents in the port area every year, and integrates and coordinates local governments and related public-private joint defense systems to prevent and suppress Pollution of marine and port water.

Water quality monitoring situation

There are currently 5 water quality monitoring points in the Anping Port Area, including the waters near Yuguang Elementary School, Leli Bridge, Yonghuaqiao, the exit of the port and the downstream of the discharge outlet of the sewage treatment plant in Anping Industrial Zone. The monitoring items include water temperature, hydrogen ion concentration, Dissolved oxygen, BOD, Escherichia coli and other projects are regularly monitored in the port area on a quarterly basis, and five professors with environmental protection majors from Chenggong University and the Tainan City Government Environmental Protection Bureau are invited to review, and grasp the effectiveness of port water quality control through water quality monitoring. On weekdays, there are related environmental maintenance for the drifting wastes in the port waters, and manpower is invested to strengthen the cleanliness of the waters. In the future, Anping Port will continue to improve in accordance with the environmental assessment commitments, and require port operators to incorporate sewage treatment facilities or build sewage treatment equipment to improve The water quality of the port area has been significantly improved compared to 2019 and 2020. In 2020, all measurement items meet the marine environmental quality standards of Class C sea areas.

Water quality monitoring of Anping Port in 2019 and 2020

Water Quality Project	Standard value (Note)	Monitoring value measured value	Coincidence rate (%)	
			2019	2020
pH	7.0~8.5	7.7–8.9	82.5%	100%
DO(mg/L)	≧ 2.0	3.4–12.3	100%	100%
BOD(mg/L)	≦ 6.0	<1–10.8	87.5%	100%
Cyanide	0.02	ND	100%	100%
Phenols	0.005	ND	100%	100%

Note: applicable marine environmental quality standards for Class C sea areas

Water quality monitoring sample collection

Water quality monitoring sampling

Environmental Ecosystem

The environmental monitoring program of the Anping Port Branch Office conducts quarterly surveys and analyses of marine organisms every year, and, through long-term data accumulation, provides basic marine ecological information and understanding of the marine ecological balance, biological resources and water quality.The ecological monitoring program includes plankton, benthic organisms, larva and fishes, and the samples of phytoplankton, zooplankton and benthic organisms are identified to the genus, grouping and species level, and the richness index, dominance index, uniformity index and diversity index are calculated, among which the fish are analyzed for heavy metal content of organisms, including six types of heavy metal such as cadmium, copper, zinc, lead, manganese and iron. According to the ecological indicators of various marine organisms and changes in heavy metal content of organisms, we can effectively control the trend of environmental changes in sea ecology and use it as an important reference for the impact of ecological system during marine development. Since the heavy metals in the organisms are cumulative, after comparing the past monitoring results of the heavy metals-exceeding organisms, it was found that the relevant species did not exceed the standard in previous tests, and it is presumed that they may be influenced by occasional environmental factors. The Anping port Branch Office will continue to monitor and track the water bodies in the port area as they are the end-load carriers. It also recommends the Tainan City Government to accelerate the interception of river sewage and the construction of domestic sewage sewers to reduce the discharge of pollutants in order to maintain the ecological environment of the port area. In addition to marine organisms, Anping Port conducts annual monitoring and surveys on the land ecology of the mangrove conservation area, establishes land ecological data, and analyzes the relevant data to understand the development of land ecology for the future of Anping Port as a reference for environmental indicators in accordance with.

Diploderma swinhonis

Egretta garzetta

Calanoida

Reduce ship exhaust emissions

In October 2015, Anping Port started to promote the Vessel Speed Reduction (VSR) program for vessels entering and leaving the port, that is, to limit the speed of vessels to less than 12 knots in waters within 20 NM, and to encourage the voluntary participation of carriers through information disclosure and public praise, so that the rate of speed reduction of vessels entering and leaving the port area can be gradually increased, which can reduce the air pollution emission from ships in the port area and create an environment-friendly green port together. The total average rate of speed reduction achievement in Anping Port was 72.8% in 2019 and 64.5% in 2020. Starting from 2019, vessels entering the commercial harbor area should use low sulfur fuel with a sulfur content of 0.5 or less or devices or alternative fuels with the same emission reduction effect, and Anping Harbor helped to promote incoming vessels to comply with the relevant regulations and replace qualified fuels to reduce vessel emissions. In accordance with the audit of South Taiwan Maritime affairs center-Anping MPD in 2019 and 2020, the vessels of Anping Harbor were in compliance with the requirements

Explorer Dream Curise

Alternative Maritime Power System (AMP)

A total of 6 public alternative maritime power systems and 1 rental AMP are installed at Anping Port pier. 33 new AMP for yachts were installed in 2019 and 29 in 2020. The amount of AMP used at Anping Port were 669,514 kWh in 2019 and 1,190,438 kWh in 2020. The amount of AMP equipment and usage have been significantly increased in both years, effectively reducing the environmental impact.

Argo marina shore power system

Vessels used shore power system

Enhancing port development

During the dredging operation of the Anping commercial Harbor Phase I Project, the dredged earth volume was placed between the commercial harbor and the fishing harbor for the purpose of artificial beaching. In order to protect the beach for a long period of time and to create a stable water and water-friendly space, a hard structure was proposed to protect the sand source of the beach, hence the engineering idea of the jetty spur.The jetty spur is designed as an ecological submerged reef by incorporating the ecological method and using the opening between the jetty head and the two jetties, which can fully provide a habitat for sea creatures to gather and enrich the ecological function of the coastal area and protect the Crescent Bay. The Crescent Bay in Yuguang Island is now included in the land area of Anping Port. Through the environmental arrangement and maintenance management, it can provide tourists with a beautiful and safe waterfront environment and a wonderful scenic spot to watch the sunset on the waves, and the waterfront and its friendly space of the port area is now registered and maintained at about 22 hectares.

The Crescent Bay in Yuguang Island

Sunset at Yuguang Island

According to the Building Plan of International Commercial Ports (2017-2021) approved by the Executive Yuan, Anping Port has adopted "Tourism and recreational ports in the North and Free Trade Zones in the South" as the dual core development axis, and the tourism and recreational areas in the port were developed by zones. The Yacht Marina Area A has a total development area of 15.25 hectares (including 9.75 hectares of land and 5.5 hectares of water) and is a joint venture between Argo Yachting Co. and Banyan Tree Hotels & Resorts Singapore, with a sailing school to promote sailing and marine related educational activities. At the same time, through promoting the development of multiple functions of marine education, leisure and recreation, and combining the urban texture and local development characteristics to create a waterfront leisure environment, the marina will provide a perfect water-friendly recreational area for Tainan residents and domestic and foreign tourists.

Argo Yacht Carnival

Argo marina

The north and south breakwaters of Anping Port were partially opened to the public for fishing in 2004 and 2005, and the Anping Port Branch Office has set up safety measures such as safety rails, life buoy, and danger signs in the fishing areas of the north and south breakwaters, and regularly cleans and maintains the environment of the water and land areas. In response to the plan to open the entire section of the north and south breakwaters in 2021, a new north and south breakwater management station, public toilets, surveillance system, and lighting equipment were built in 2020, and fishing groups were commissioned to assist in environmental management and maintenance in order to provide a safe and clean leisure and recreational area for the public.

North Breakwater Fishing Area Management Station and Toilets

South Breakwater Fishing Area Toilet

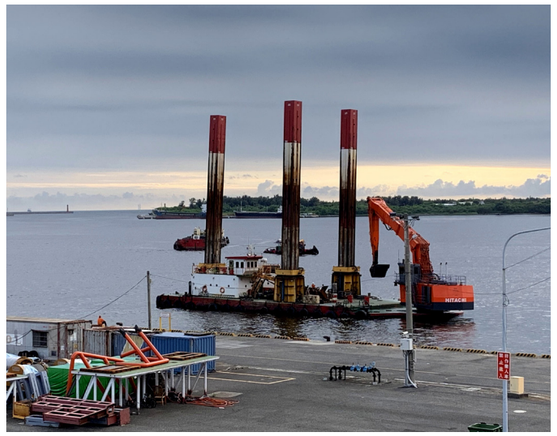
Properly dispose of dredged sediment

To ensure the navigation safety of vessels in the channel in the port area, the Anping Port Branch Office conducted channel dredging works from time to time, and adapt the principle of balanced dredging and filling in the port area to properly place or transport the dredged substrate from the channel dredging to the Anping Port north breakwater for beach maintenance (protection) . In 2019, Anping Port carried out water dredging works in the Anping Port branch channel downstream of Zhuxi Bridge. The dredging volume was 25,792 metric tons. In 2020, the dredging volume of Anping Port Sikuang dock was 533,480 metric tons, totaling 559,272 metric tons. Backfill in the port area.

Dredging volume from Anping Port Operation Office

Dredging / year	2019	2020
Location	Zhuxi	No.17、18 dock
Volume	25,792	533,480

Dredging at Dock 17, 18



Port area dredging

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 Branch Office 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. At other times, the Department 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 Branch Office 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 2019, 143 vessels carrying chemical and oil products have deployed oil booms. In 2020, 178 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.

Number of inspections, containment oil ropes, and joint inspections by the Anping Port Operation Office

Task/Year	2019	2020
Patrol	69 Times	142t Times
Ensemble the oil rope (ship)	143 Times	178 Times
Joint Ship Inspection	22 Times	19 Times

Laying oil ropes on petrochemical ships

Drills to prevent oil pollution from spreading

Port Energy

Anping Port has sufficient sunshine conditions and has important conditions for solar energy development. Therefore, the roof of the passenger service center and 5A warehouse in the port area is leased to energy companies to install solar photovoltaic power generation equipment, which not only makes good use of space to increase income, but also installs solar energy on the roof. Block sunlight, reduce indoor temperature, reduce electricity consumption, and increase green energy. It will be about 300,630 degrees in 2020.

Tourist Center Solar Panel

Ocean current generator set

Solar power generation

	5A warehous	Tourist center	Total	Carbon reduction (metric tons)
2020	108,156	192,474	300,630	around153

4.2.16 Greenhouse Gas Inventory

Anping Port checks the annual greenhouse gas emissions in accordance with the ISO14064-1 standard. Its main activities are port management operations and office administration. The greenhouse gas organization boundary setting method is to identify all emission sources within the organization boundary in accordance with the operation control law. That is, 100% is the scope owned and controlled by the Anping Port operation premises, so the emissions of the relevant tenants are not included in the calculation. The inventory of greenhouse gas emissions from 2020 to 2021 is expected to be completed next year (2022).

Greenhouse gas emissions of Anping Port Operations Office over the years

Year	2016	2017	2018	2019
Greenhouse gas emissions Mt CO_2e	645.729	674.838	715.318	693.461

Port related company briefing session

Internal audit meeting

Electric moped

Electric car

4.3 Anping Port Environmental Performance Index

Significant environmental issues of Anping Port		Indicator	Calculation method	Target value	Indicator presentation (calculation details)	
					2019	2020
1	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/m^3):90% • $PM_{2.5}$ of the daily mean measurements satisfy the standard (<35μg /m^3):75% • 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%	• PM10 of the daily mean measurements satisfy the standard:100% • PM2.5 of the daily mean measurements satisfy the standard:94% • SO2 of the daily mean measurements satisfy the standard: 100% • NO2 of the hour average measurements satisfy the standard: 100%	• PM10 of the daily mean measurements satisfy the standard: 100% • PM2.5 of the daily mean measurements satisfy the standard: 88% • SO2 of the daily mean measurements satisfy the standard:100% • NO2 of the hour average measurements satisfy the standard: 100%
		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 :96%	Number of vehicles stopped and inspected = 106 Number of penalized vehicles =0 Satisfy the standard = 100%	Number of vehicles stopped and inspected = 118 Number of penalized vehicles =1 Satisfy the standard = 99%
		Promote transportation operator to use Automatic Gate Sentry Post Control System	• The ratio of lanes (in and out of the port area) setting of Automatic Gate Sentry Post Control System • Numbers of passing vehicles • Carbon reduction	• Maintain or increase the lanes of automatic gate sentry post control • Increase number of passing vehicles and carbon reduction ratio annually	• The ratio of lanes (in and out of the port area) setting of Automatic Gate Sentry Post Control System • 4÷8*100%=50% • Numbers of passing vehicles:195787 • Carbon reduction:About 29.8 tons	• The ratio of lanes (in and out of the port area) setting of Automatic Gate Sentry Post Control System • 4÷8*100%=50% • Numbers of passing vehicles：326503 • Carbon reduction：About 49.6 tons

Anping Port Environmental Performance Index

Significant environmental issues of Anping Port		Indicator	Calculation method	Target value	Indicator presentation (calculation details)	
					2019	2020
2	Dust	Numbers of pollution prevention cargo handling、Enclosed cargo handling and dust collection cargo handling equipments	Increase/update or maintain the number of dust prevention devices	Perform biennial reviews of the prevention devices	• Numbers of pollution prevention device：2 (Wan Qing Cement Corporation and Yu Hang Coal Corporation). • Enclosed cargo handling equipment sets: 2 • Dust collection cargo handling equipment：1 • Number of dust-proof nets：8	• Numbers of pollution prevention device：2 • Enclosed cargo handling equipment sets: 2 • Dust collection cargo handling equipment：1 • Number of dust-proof nets：8
		Ratio of enclosed storage usage in the handling of break-bulk general cargo (cement +coal+ other break-bulk general cargo)	Amount of bulk cargo handled indoor÷total bulk cargo×100%	Maintain or increase ratio of enclosed storage usage in the handling of break-bulk general cargo	The amount of general cargo handled using the enclosed storage method (Chemicals +cement + coal) ÷ The total weight of break-bulk general cargo*100%= (601,913+558,010+99,027)÷1,356,216×100%=aound 92.8%	The amount of general cargo handled using the enclosed storage method (Chemicals +cement + coal) ÷ The total weight of break-bulk general cargo*100%=(534,644+601,350+29,205)÷1,805,341×100%=aound65%
		The usage of Reclaimed water	The usage of Reclaimed water in port area	Increase usage annually	The usage of Reclaimed water:718 tons	The usage of Reclaimed water:854 tons
		Inspection of cargo handling operations in the port area	Numbers of Inspection of cargo handling operations	Inspect at least 50 times annually	• Numbers of Inspection:52 • Transferred cases:0	• Numbers of Inspection:53 • Transferred cases:0
3	Garbage/ Port waste	Waste disposal of port water	• Ratio of Waste removal of port water • Waste removal and transportation volume in port waters	Monthly Waste removal of port water	• Numbers of Waste disposal removal in 2019 : 27 • Volume of Waste disposal removal of port water：136.78 tons	• Numbers of Waste disposal removal in 2020 : 45 • Volume of Waste disposal removal of port water: 202.55 tons
		Domestic waste of crew members in port area	• The ratio of domestic waste removal of crew members in port area • The volume of domestic waste removal of crew members in port area	• The ratio of domestic waste removal of crew members in port area: 2 times a week.	• Removal ratio : 2 times a week. • The volume of domestic waste removal of crew members in port area : 121.99 tons	• Removal ratio : 2 times a week. • The volume of domestic waste removal of crew members in port area :168.67 tons

Anping Port Environmental Performance Index

Significant environmental issues of Anping Port		Indicator	Calculation method	Target value	Indicator presentation (calculation details)	
					2019	2020
4	Loss of Aquatic Ecosystems	Pass rate of Heavy metal content in Aquatic organisms	The ratio of various heavy metals in the organisms in the waters that meet the 「Sanitation Standard for Contaminants and Toxins in Food」	Heavy metal content in Aquatic organisms: (Cd) , (Pb)	Sanitation Standard for Contaminants and Toxins in Food (Cd) 96.2% (Pb) 96.2%	Sanitation Standard for Contaminants and Toxins in Food (Cd) 100% (Pb) 70%
5	Water quality	Marine water quality pass rate (pH, DO, BOD, 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 , cyanide and phenols measurements satisfy the criteria	Marine water quality criteria for Category C pH 82.5% DO 100% BOD 87.5% Cyanide 100% Phenols 100%	Marine water quality criteria for Category C pH 100% DO 100% BOD 100% Cyanide 100% Phenols 100%
		Number of inspections and penalties	• Number of inspections • Number of penalties	• Number of inspections of water area increasing annually • The number of penalties in port waters is decreasing year over year	• Number of inspections of water area：2 • The number of penalties in port waters：0	• Number of inspections of water area：12 • The number of penalties in port waters：0

Laying oil-absorbing cotton and oil-retaining rope

Oil extractor

EPA cargo inspection

Anping Port Environmental Performance Index

Significant environmental issues of Anping Port		Indicator	Calculation method	Target value	Indicator presentation (calculation details)	
					2019	2020
6	Ship exhaust emissions	The ratio of using low-sufer fuel and the consumption of low-sufer fuel among ships	Number of ships using low-sufer fuel (marine diesel oil or marine gas oil)÷Total number of harbor crafts×100%	The ratio of using low-sufer fuel reaches 100% among ships	4÷4×100%=100% Among the 4 ships, 4 use low-sufer fuel (Diesel)	5÷5×100%=100% Among the 5 ships, 5 use low-sufer fuel (Diesel)
		The ratio of using shore power among ships	Numbers of ships use Alternative Maritime Power System÷Total number of ships×100%	Ratio of ships use Alternative Maritime Power System : 100%	4÷4×100%=100% Among the 4 ships, 4 use Alternative Maritime Power System	5÷5×100%=100% Among the 5 ships, 5 use Alternative Maritime Power System
		Alternative Maritime Power System facilities and usage	• Increasing numbers of Alternative Maritime Power System facilities • Usage of Alternative Maritime Power System	Maintain or increasing the number of Alternative Maritime Power System facilities increasing the usage of Alternative Maritime Power System	Port area : 6 AMP、1 private yatch AMP Argo yatch marina :33 AMP, 33 AMP for yatch in total . Usage of AMP : 669,514kWh	Port area : 6 AMP、 1 private yatch AMP、Argo yatch marina :29 AMP, 62 AMP for yatch in total . Usage of AMP : 1,190,438kWh
		Vessel Speed Reduction Achievement rate Qualified rate of low-sulfur fuel oil inspection for Vessel	According to the AIS vessel speed reduction checking system to understand the status of vessels speed reduction , when approaching port about 20 sea mile (Qualified vessels/Checked vessels)*100%=Qualified Rate	Reduction Achievement rate 50% Qualified rate 85%	Reduction Achievement rate about 72.8% Checked vessels：3 Qualified vessels：3 Qualified rate 100%	Reduction Achievement rate about 64.5% Checked vessels：8 Qualified vessels：8 Qualified rate 100%
7	Port development (water related	Maintenance of related recreational facilities area and waterfronts in the port area	The area of related recreational facilities area and waterfronts	Maintain or increase The area of related recreational facilities area and waterfronts	Yuguang island beach: 22 ha Argo yacht marina: about 15,25 ha • Total Waterfront area : 37,25 ha	Yuguang island beach : 22 ha Argo Yacht marina: about 15,25 ha • Total Waterfront area : 37,25 ha
		Increase the open area of the south and north breakwater fishing area	The length of open area of the south and north breakwater fishing area	Maintain or increase The port recreational area and provide friendly waterfront area for citizen	North breakwater open area length : 600 Meters South breakwater open area length : 1600 Meters	North breakwater open area length : 600 Meters South breakwater open area length : 1600 Meters • 2021 Fully open for all area, North breakwater open area length : 1500Meters South breakwater open area length : 1900 Meters

Anping Port Environmental Performance Index

Significant environmental issues of Anping Port		Indicator	Calculation method	Target value	Indicator presentation (calculation details)	
					2019	2020
8	Dredging disposal	The amount of dredging, disposal and backfilling in the port area	Dredging volume (metric tons) Disposal amount (metric tons) Backfill volume (metric tons) Backfill rate = (backfill volume ÷ dredging volume) * 100%	Backfill rate = 100%	Dredging amount: about 25792 metric tons Disposal amount: 0 metric tons Backfill volume: about 25792 metric tons Backfill rate: 100%	Dredging amount: about 533,480 metric tons Disposal amount: 0 metric tons Backfill volume: about 533,480 metric tons Backfill rate: 100%
9	Ship emission (Sewage)	Waste oil sewage acceptance quantity	The acceptance quantity of waste oil and sewage (oil record book) by qualified operators' implementation or set up appropriate collection facilities for waste oil, wastewater and other pollutants (volume produced ÷ volume received × 100% = acceptance rate)	Waste oil sewage acceptance rate 100%	waste oil wastewater 82.9 metric tons Waste oil sewage acceptance quantity 82.9 metric tons Acceptance rate of waste oil and sewage: 100%	waste oil wastewater 81.9 metric tons Waste oil sewage acceptance quantity 81.9 metric tons Acceptance rate of waste oil and sewage: 100%
10	Cargo (fuel) 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 : (143÷143)×100%=100%	Deployment oil booms of ship Bunkering : (178÷178)×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:50 • 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:69 • Number of emergency response drills: 1 Number of vessel joint audits in the port area: 22	• Number of port area inspections:142 • Number of emergency response drills: 1 Number of vessel joint audits in the port area: 19

05

Emergency Response

5.1 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 personnel will immediately notify for correction or inform competent legal authorities for legal enforcement. In 2019 and 2020 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.

Warehouse protection drill

Chi-Mei Oil Depot Self-Defense Fire group Group drill

Tainan City Marine Pollution and Anping Commercial Port Flood Control, ISPS and Lifesaving Comprehensive drill

Tainan City Marine Pollution and Anping Commercial Port Flood Control, ISPS and Lifesaving Comprehensive drill

Results

Environmental Inspection and Punishment in Port of Anping

Item\Year	2019	2020
Number of patrols	121	195
Exhaust emission	0	0
Oil fence (vessels)	143	178
vessel joint inspection	22	19
Admonishment for improvement	4	7
Notification	4	1
Penalty (Maritime and Port Bureau)	0	1

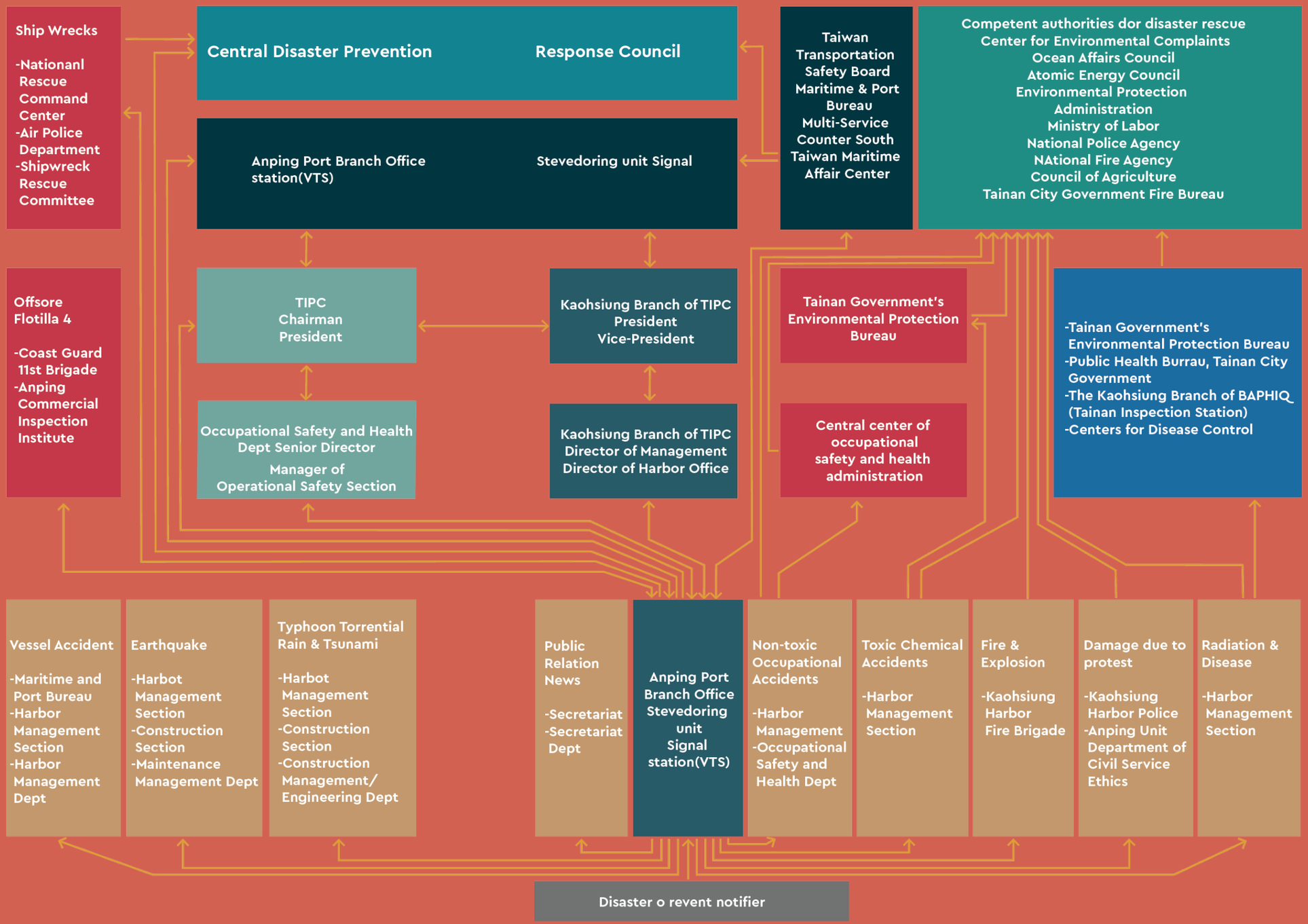
Number of accidents in Anping Port

Accident type/Year	2019	2020
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	2	0
Port minor pollution, fire, chemical spillage	0	3
others	0	0

Anping Port Operation Office's Drill record from 2019 to 2020

Year	Name of the Drill	Content	Dates
2019	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	Jan 21 Apr 02 Aug 28 Dec 18
	Typhoon and flood prevention drill and international ship and port facility preservation drill	Conduct drills for emergency response to typhoon events, so that all units understand emergency response procedures and handling methods when disasters occur, and use the energy of the joint defense system to jointly minimize disasters.	Apr 17
2020	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 .	Mar 27
	International Ship and Port Facility Security Drills.	Conduct personnel training for various safety issues in the port area	Jun 22 Aug 28 Oct 26

Flow Chart for Disaster and Accident Notification in Port of Anping



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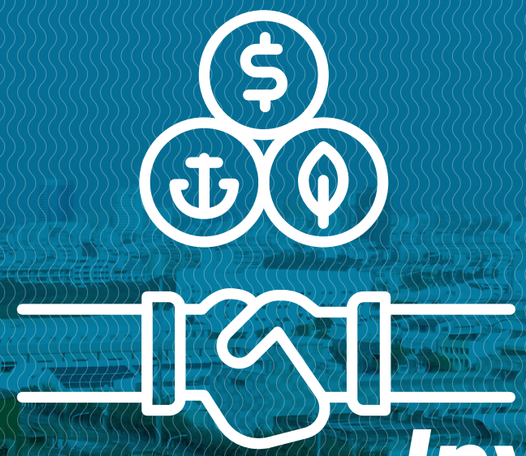

Involvement and Cooperation

6.1 The fishing areas of the north and south breakwaters

- Environmental Issues : Water Quality ,The maritime and land area development of the port., Relationship with local community
- Environmental management strategy: Exemplifying / Enabling

A. Attention/Motives

The Anping Port South and North Breakwaters Fishing Area is currently open for public use and is managed by the relevant fishing association without compensation, but due to the lack of dedicated management, lack of public toilet facilities, and insufficient human resources, it is not possible to maintain a clean environment on a regular basis. In order to actively improve the environment and facilities of the open fishing areas, and in line with the Executive Yuan's policy of paying tribute to the sea and encouraging people to "dealing with the sea, so people better understand and engage with the ocean." The Anping Port Branch Office has planned to open all sections of the Anping Port South and North Breakwaters to public fishing operations, with the principles of "safety and comfort," "environmental hygiene," and "ecological sustainability," so as to provide safe and high-quality resting places for the public.However, the waters outside Anping Port are covered with oyster huts, in the event of typhoons or severe weather changes, and there are often broken or discarded oyster racks, polaroids and other trash, as well as trash and discarded fishing gear left behind by anglers in the north and south breakwaters, resulting in a dirty environment.


Fishing area Cleanning work


Tzu Chi Elementary School's North Breakwater Environmental Cleaning Activities


Life-saving equipment and notice board in fishing area


South Breakwater Fishing District Management Station and Public Toilets

B. Solution

In order to promote environmental maintenance and effective safety management of the north and south breakwaters, the Anping Port Branch Office started to extend the construction of the entire section of the safety rails of the north and south breakwaters in 2019, set up management stations, public restrooms, lighting and surveillance systems, and conducted open selection for entrusting the management of the fishing areas of the south and north breakwaters, which would be entrusted to fishing groups to maintain the environment and safety management of the fishing areas.In order to strengthen the cleaning and maintenance of the fishing area, the Anping Port Branch Office not only regularly has outside vendors to clean the environment of the fishing area, but also carries out wastewater area waste disposal removal from the waters inside and outside the breakwaters. Through facility improvement, environmental maintenance and safety management, a safe, clean and environmentally sustainable quality waterfront open public space is created, providing the public with a safe and clean water-friendly environment.

C. Implementation/Timeline

1999–2004	Outer breakwater and lighthouse project
2014–2021	South and north breakwaters fishing area environmental maintenance
2020	South and north breakwaters fishing area additional electrical and monitoring system project
2020–2021	South and north breakwaters fishing area management stations, public restrooms establishment
2020–2021	South and north breakwaters safety rails extended to the jetty head and lighting equipmen

D. Investment Amount

Facility funding

Date	Project	Cost (EUR)
1999–2004	Outer breakwater and lighthouse project	63,331,830
2020	Additional electrical and monitoring system project	22,248
2020–2021	Management stations, public restrooms establishment	107,585
2020–2021	Safety rails extended to the jetty head and lighting equipment	728,713

Environmental management funding

Date	Project	Cost (EUR)
2014–2021	Environmental cleaning and maintenance work over the years 2.7 million and 100 thousand	825,936
2014–2021	Strengthen environmental cleaning work	11,886

Afforestation funding

Date	Project	Cost (EUR)
2017–2021	South and north breakwater afforestation	825,936

E. Effect/Benefits

To create a high quality waterfront leisure public space and provide a safe water-friendly environment for the public.Implement the policies dealing with the sea, so people better understand and engage with the ocean.

F. Participating Units

Anping Port Branch Office, Port of Kaohsiung, Taiwan International Ports Corporation; Taiwan Fishing Rights organization, City of Tainan Quanxing Fishing Association.

G. Stakeholders

Anping Port Branch Office, Port of Kaohsiung, Taiwan International Ports Corporation; Taiwan Fishing Rights organization; City of Tainan Quanxing Fishing Association;The surrounding residents and tourists who visit the Anping Port.

Contact

Port of Anping
Harbor Management Section, Anping Port Branch Office, Port of Kaohsiung, Taiwan International Ports Corporation

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6.2 E.G.C. CEMENT CORP. one-stop closed storage afforestation

- Environmental Issues : Water Quality ,The maritime and land area development of the port., Relationship with local community
- Environmental management strategy: Exemplifying / Enabling

A. Attention/Motives

In line with the government's policy of "east cement west transportation" and to meet the demand for cement supply and sales in the neighboring areas of Tainan, we plan to carry out the "Bulk Cement Storage Construction Project between E.G.C. CEMENT CORP. and Kaohsiung Harbor Bureau" at Pier No. 6 in Anping Port. It provides a storage and transshipment facility for cement in Tainan and neighboring areas, facilitating the cement transportation between the east and the west. This will not only reduce transportation costs and speed up the flow of goods, but also completely eliminate air pollution and fugitive dust caused by bulk or bagging operations, and enable the construction to proceed smoothly, which will help improve environmental quality.E.G.C. CEMENT CORP. cement storage have been established for more than 27 years, and there is a gap between the serious rusting of the storage and the development of the port area and the city. E.G.C. CEMENT CORP. is committed to improving the environmental landscape of the green harbor and implementing pollution prevention measures related to storage and transportation to continuously promote the maintenance of the quality of the operating environment.

B. Solution

Due to the rusty appearance of the storages and their location in the port area, visited by many visitors and foreign guests, it deviated from the goal of "Tourism and recreational ports in the North and Free Trade Zones in the South" of the Anping Port and jeopardized the eco-port environment. Thanks to the communication of Anping Port Branch Office, E.G.C. CEMENT CORP. agreed to the afforestation of the storage, and the project was completed in 2020 at a cost of about $9.4 million. This is the best example of environmental consensus among the stakeholders of the port area. Meanwhile, E.G.C. CEMENT CORP. has been implementing the improvement of storage facilities one by one in recent years under the supervision of the Environmental Protection Administration of the Executive Yuan. differential sleeve pressure devices installed to detect abnormalities in the differential sleeve pressure in 2019, and steel fencing installed on both sides of the unloading lane to help block the wind and avoid fugitive dust emissions during unloading in 2020.In order to reduce the impact of handling operations on the environment and to comply with relevant laws and regulations, E.G.C. CEMENT CORP. regularly conducts air quality and noise monitoring in the vicinity of the plant every quarter, inspects operating machinery, and reduces the burden on the environment by implementing air quality, water quality, noise and other related pollution prevention and control to achieve the concept of sustainable operation.

C. Implementation/Timeline

Before 1992/08	Planning phase
1992/08–1994/1	Construction phase
1994/1 Start	Operation phase

D. Investment Amount

Project	Cost (EUR)
The company was founded	2,438,190
Operating capital increase	2,413,810
Equipment construction	481,542
Reservoir beautification	286,487
Maintenance	164,578

F. Participating Units

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

G. Stakeholders

Cement companies in the western region, construction plants, ready-mixed concrete plants, construction companies,Anping Port Branch Office.

Contact

Port of Anping
E.G.C. CEMENT CORP.
Contact Person:
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Fax : 06-2923224
E-mail:matt.cheng@taiwancement.com

E. Effect/Benefits

Promote the economic of the nearby areas and increase employment opportunities, accelerate the flow of goods, and reduce the transportation costs of land transportation and environmental pollution. The use of closed storage, one-stop operation and water pollution recovery system effectively reduce the negative impact of handling on the environment. The afforestation of the appearance of storage improves the landscape of Anping Port and integrate into the eco-port environment.

Comparison of cement storage tank before and after beautification

Pipeline transportation

Unloading lane surrounds with iron sheets

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.

臺南市政府環境保護局
ENVIRONMENTAL PROTECTION BUREAU OF TAINAN CITY GOVERNMENT

Environmental Protection Bureau of Tainan City Government

In 2016, Tainan City designated Anping Commercial Port as a clean air quality zone, requiring all vehicles entering and exiting to obtain self-regulatory label. for diesel vehicle smoke emission from time to time. The Environmental Protection Bureau of Tainan City Government has enhanced its emergency response capabilities for environmental pollution. In 2020, the "Tainan City Marine Pollution and Anping Commercial Port Flood Prevention, ISPS, and Lifesaving Comprehensive Drill" has held in the Anping Port Area.

臺南 TAINAN

Tainan City Government

Tainan Historical Capital International Marathon is hosted by the Tainan City Government. It is known for its highest density of historical sites. The historical sites and scenic routes passed in 2016, in addition to the original well-known attractions, the city government invited Taiwan Port Corporation to jointly plan, and it will be open to runners for 2017 to enter Anping Port and experience the beautiful sea view.2016 and required all vehicles entering and exiting the port to obtain a self-regulatory label.

交通部航港局
Maritime and Port Bureau, MOTC

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.

Tainan City Government Tourism Bureau
台南市政府 觀光旅遊局

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.

宏華營造股份有限公司
HUNG HUA CONSTRUCTION CO.,LTD

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.

台灣釣權會
Taiwan Fishing Right Organization

Taiwan Fishing Right Orgnization

The Taiwan Fishing Rights Association has assisted the management of the Anping Port South Breakwater for free . In recent years, it has organized related activities for fishermen and the public to participate. It hopes to establish a correct fishing activity through marine leisure activities and not to discard wastes to pollute the ocean.

WT 威騰有限公司
Weiteng Technology Co.,Ltd

Weiteng Technology Co.,Ltd

Carrying out the 2020-2021 Anping Port overall planning environmental monitoring plan of the Anping Port Operation Office of the Taiwan Ports Co., Ltd. Kaohsiung Port Branch, which includes the analysis of the topographic characteristics and cross-sectional water depth of the sea twice a year, and the once a year walrus observation, water quality, Bottom quality, noise and vibration and marine biological survey, etc.

ARGO
YACHT CLUB

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.

全興釣魚協會

Quanxing Fishing Association

The Quanxing Fishing Association assisted the management of Anping Port’s north breakwater for free and maintained the environment of the fishing area. In 2018, the "Tainan City Environmental Protection Cup" was held to promote the importance of protecting fishery resources and maintaining marine ecology.

NATIONAL CHENG KUNG UNIVERSITY 1931

National Cheng Kung University

For many years, professors of the Department of Environmental Engineering of Chenggong University have been entrusted to assist in reviewing the overall planning and environmental monitoring plan of Anping Port, assisting Anping Port to more effectively explore various environmental conditions, and help enhance and improve the environmental quality of the port area.

07

Training

7. Training

In compliance with its environ-mental 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 2019 and 2020,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.

2020 Labor Environment Education


Fire advocacy activities

Muscle Motivation-Sports Activity

ISPS Education Training Course


2020 Greenhouse Gas Inventory Education and Training


Fire control Experience Day-Publicity Course

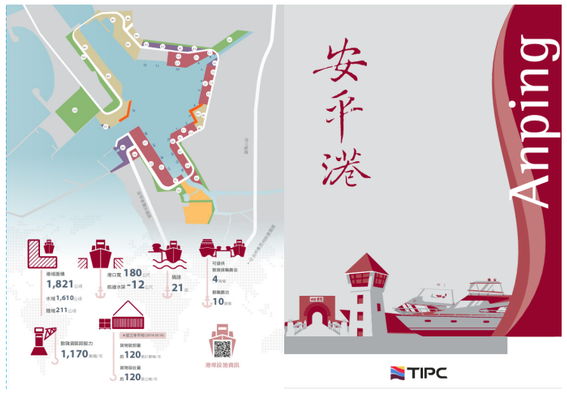

Beach cleaning activities

08

Communication and 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 institu-tions, and subsidiary units.



Anping Port Introduction Flyer

Global Information Webpage of Anping Port Operations Office

In order to present the results of the green port implementation on the international stage, Taiwan Ports Co., Ltd. has set up the "Taiwan Ports Corporation Green Policy Website in Chinese and English" to establish a channel for communication between my country and other countries.

Visit by the Department of Shipping Man-agement, Kaohsiung University of Science and Technology

Teachers from Sun Yat-sen University visited Yaguo Yacht

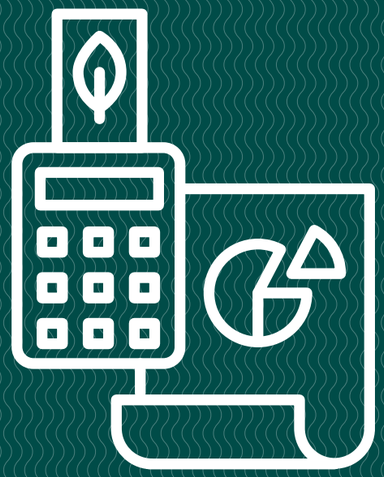
Teachers from Xindian High School "Visit to the Southwest Coast of Taiwan for Energy Enrichment Study"

Facebook Filter of Anping Port

NATCHAN RERA operation trial

Tainan Historical Capital International Marathon

Explorer Dream Curise Maiden voyage



09

Green Accounting

Oh Haiyou explore Tainan! Fucheng Dream Market Event

National day firework

Yuguang Island Art Festival

Family Day-Visit at Signal Station

Family Day

9.1 Environmental investment and cost

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 €638,246 in 2019 and €752,182 in 2020.

- 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.
- Green procurement: office supplies that meet the green environmental protection label
- Communication and publications: Website maintenance, promotional activities, and environmental publications.

Costs related to Environmental Issues, Anping Port Branch Office in 2019 (Unit: €)

Item of Expense		Amount
		Unit: EUR
Staff	Cost of environment-related personnel	137,260
	Training costs	3,132.55
	Subtotal	140,392
Environmental maintenance and management	Outsourced spending for port garbage disposal	391,477
	Port greening (plantation and maintenance) and beautification	3,921.64
	Consultant fees of the construction and management operations	0
	Subtotal	395,398
Environmental Monitoring	Test request fee	96,899.2
Emergency Respose	Port disaster drill expenses	1,634.47
Communication and Publication	Welfare expenditure (for networking with neighboring communities)	7,924.11
Green procurement	Office supplies cost	1,126.26
Total		643,374

Costs related to Environmental Issues, Anping Port Branch Office in 2020 (Unit: €)

Item of Expense		Amount
		Unit: EUR
Staff	Cost of environment-related personnel	178,839
	Training costs	5,215.40
	Subtotal	184,054
Environmental maintenance and management	Outsourced spending for port garbage disposal	426,225
	Port greening (plantation and maintenance) and beautification	3,900.06
	Consultant fees of the construction and management operations	0
	Subtotal	430,125
Environmental Monitoring	Test request fee	130,530
Emergency Respose	Port disaster drill expenses	2,516.61
Communication and Publication	Welfare expenditure (for networking with neighboring communities)	9,752.75
Green procurement	Office supplies cost	1,247.59
Total		758,226

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 and purchase products that meet environmental protection standards to reduce environmental burdens and achieve the concept of sustainable operation. Cost invested by the investments of the Anping Port Branch Office in the Environmental aspects in 2019–2020 is around €537,818 & €1,031,380.

Assets invested by the Anping Port Branch Office in the environmental aspects in 2019 – 2020
(General building and equipment plan) Unit: Euro

Item	2019	2020
Improvement on land	241,654	374,098
Buildings	14,385.2	191,925
Machinery and equipment	79,164.8	294,526
Transportation Facilities	196,524	167,922
Miscellaneous equipmen	10,649.3	11,653.9
Total	542,377	1,040,120

10

Improvement Recommendations

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.

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

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Port of Kaohsiung
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