

# Industrial park a model for green development

Expansion project in Donghai helps to build a world-class low-carbon, circular area in Zhanjiang

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Steel and chemical industries are easily associated with pollution, but an island industrial park in the city of Zhanjiang in South China's Guangdong province loaded with manufacturing heavyweights of the two industries has become a model for green, low-carbon and circular development.

Donghai Island, the largest island for industrial development in Guangdong, is the major industrial base of the Zhanjiang Economic and Technological Development Zone and is home to three mega industrial projects each involving investment surpassing \$10 billion.

Baosteel, China's leading steel-maker, and China Petroleum & Chemical Corporation or Sinopec, the country's leading energy and chemical company, have set up subsidiaries on the island and have continuously invested there over the past decade.

BASF, the German chemical giant, inaugurated the operation of the first plant of its new Verbund site on the island in September, its largest single investment in China with funding surpassing 10 billion euros (\$9.88 billion).

The three industrial leaders, along with dozens of other significant players in the two industrial chains, make the island one of the first industrial sites in the country with both steel and chemical investments.

Having implemented the idea of recycling for a dozen years, ecologic and low-carbon elements are as ever highlighted in the new round of development, according to the administrative committee of the development zone.

The administrative committee is expanding the industrial park on the island. The expansion follows the ecology-oriented development model advocated by the Ministry of Ecology and Environment, featuring both industrial development and ecological improvement by integrating the development of a large area of mangrove reserve.

When the expansion is complet-



The Zhanjiang Economic and Technological Development Zone is building itself into a better area for working, doing business, living and traveling. PENG ZHENQIANG / FOR CHINA DAILY



From left: Hosting a number of operations funded by renowned Chinese and international businesses, the Zhanjiang Economic and Technological Development Zone is a powerful engine for Zhanjiang's economy. XIAO GUANGZHOU / FOR CHINA DAILY One of the plants of BASF's new Verbund site in Zhanjiang. PROVIDED TO CHINA DAILY



ed, the industrial park is expected to become China's largest green and low-carbon industrial demonstration zone, officials with the zone's administrative committee said.

The Zhanjiang Economic and Technological Development Zone began to focus on recycling economy development in 2010 and the industrial park on the island became one of the first batch of circular industri-

al parks in Guangdong province in 2011.

Recycling practices have already been implemented by local industry players, especially those representing the two leading industries of steel and chemicals ever since.

For example, the waste treatment and reuse system has been set up by the companies on the island, shaping a closed loop from raw materials supply to production wastes recy-

cling and reuse and back to production again.

As a result, the utilization efficiency of the main resources, the recycling rate of the solid wastes and water utilization efficiency have been improved markedly, while pollutant discharges have been cut dramatically, according to the administrative committee.

On the production side, the recycling systems of steel and chemical

industries have already formed a connected loop to benefit both sides.

The production facility of Baosteel on the island provides hydrogen, nitrogen and oxygen to the Zhongke (Guangdong) Refinery & Petrochemical, a subsidiary of Sinopec, to support its production.

The Baosteel facility achieved a revenue of 128 million yuan in 2021 by supplying a total of 257 million

cubic meters of hydrogen, nitrogen and oxygen.

Zhongke also offers steam, desalted water, instrument air and nitrogen to other enterprises in the industrial park.

By sharing resources, the enterprises, especially smaller ones, have been freed from building similar facilities of their own, thus slashing operational costs substantially, the officials said.

Zhongke also transfers production materials including carbon-5, carbon-9, pyrolysis tar oil, carbon dioxide and ethylene oxide to the neighboring downstream chemical companies via pipelines. In this way, the materials supply could be safe and convenient, providing guarantees to the production at the downstream of the industrial chain, cutting long-distance transportation costs.

In the future, the zone's administrative committee plans to expand the integration of industries in the island industrial park from supply of resources and materials to another three major areas — industrial chain design, environmental protection and management services.

Such integration will take place in the industries of papermaking and textiles as well. The linkage between different companies and different industrial chains to promote recycling will also be highlighted.

All the efforts aim to build a world-class green, low-carbon industrial park with an effective recycling system on the island, the officials said.

The endeavors and green practices of the island industrial park have helped to enhance its appeal to investors from home and abroad. Twelve of the Fortune Global 500 corporations have invested in the island.

This year, a total of 30 key projects are either under construction or planned to begin construction, with a total investment reaching 25.82 billion yuan.

In 2021, the output of the petrochemical industrial cluster on the island hit 116.3 billion yuan, becoming the first industrial cluster in Zhanjiang that surpassed the benchmark of 100 billion yuan, official data showed.

The GDP of the development zone is projected to exceed 100 billion yuan by the end of 2025, accounting for nearly one-fourth of Zhanjiang's total, according to the government's plan.

## Rare birds drawn to island as environment is prioritized

By SONG MENGXING  
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When talking about industrial parks, people may think of chimneys, noise and polluted production sites. However, this is not the case with the industrial park on Donghai Island in Zhanjiang. It has lush vegetation, blue skies and clean waters throughout the year.

It is still an important habitat for birds, with Chinese white dolphins swimming in the nearby bay and mangrove forests growing on the west coast.

Huang Wenming works at the Zhanjiang facility of Baosteel and has photographed birds on the island and in its vicinity for more than six years. "More birds came to Donghai Island this year compared with previous years," he said, adding that some species are new to the area.

Through his camera, he has found more than 10 animal species on the national third-class list for protection so far this year. He has also spotted several kinds of rare and endangered birds, such as chestnut-headed bee-eaters, on beaches or even manufacturers' premises.

The bee-eaters have demanding environmental requirements. Their presence demonstrates that the Zhanjiang Economic and Technological Development Zone, of which the island industrial park is a part, has protected its environment well.



Flocks of birds are spotted near the Zhongke establishment on Donghai Island. LIN JIANGHAI / FOR CHINA DAILY

Behind this pleasant scene are the joint efforts of the zone's administrative committee and the enterprises on the island to improve the ecological environment of their homeland. The zone has set aside a fund worth more than 10 billion yuan (\$1.37 billion) for projects related to energy conservation and environmental protection on the island. It aims to promote clean production and utilize energy resources efficiently.

Great efforts have been made to improve the water environment and air quality, solve soil pollution problems and recycle solid waste.

To ensure the stability of the ecosystem, the zone has endeavored to protect mangrove forests, coral reefs and coastal wetlands on and near the island. It also aims to improve the quality of life for residents and build itself into a better area for working, doing business, living and traveling.

Many enterprises on the island have joined. Baosteel Zhanjiang has invested more than 10 billion yuan in total over the past few years in energy conservation and environmental protection and adopted 153 related technologies.

Several environmental indicators of the company have been rat-

ed satisfactory. It has also developed a drainage-recycling project and achieved "zero discharge of wastewater".

For the first phase project, Zhongke (Guangdong) Refinery and Petrochemical facility invested more than 3.68 billion yuan in environmental protection and used internationally advanced clean production techniques. In total, 98.52 percent of its water resources are reused while 76.2 percent of sewage is recycled.

Chemical company BASF announced in May it had signed a long-term agreement with Brookfield, a renewable energy power company. Brookfield will build a renewable energy power station, comprising solar power, wind power and energy storage, for BASF's Verbund site on Donghai Island.

BASF also plans to explore the recycling of plastic waste and build a higher-level recycling system.

In the next step, the Zhanjiang Economic and Technological Development Zone will focus on reducing the discharge of main pollutants, volatile organic contaminants and its energy consumption to get prepared for more massive projects to come, local authorities said.

## Companies step up use of tech for ecologically friendly transformation

By YUAN SHENGGAO

A number of giant projects on Zhanjiang's Donghai Island, Guangdong province, are not only key drivers for industrial growth but also examples of green development for others to follow.

They have launched innovation-driven technologies and cooperative projects to accelerate the green transformation in industrial development as part of their commitment to serving China's goals in carbon peak and neutrality.

Baosteel Zhanjiang Iron and Steel is the first of the three jumbo projects — each involving an investment of over \$10 billion — that have settled on the island.

The company has made great efforts to realize green and ultra-low-carbon development by treating wastewater, solid waste and air pollutants; developing green energy; adopting low-carbon steelmaking techniques; and getting involved in circular development.

It has taken the lead in China's steelmaking industry to realize zero wastewater discharge, to have solid waste totally recycled and to reduce emissions to an ultra-low level.

Baosteel Zhanjiang has 23 sets of water treatment systems, capable of

treating all the wastewater and recycling 98 percent of it at present.

The company established its first system for zero wastewater discharge in 2019, then the first of its kind in China. Its second system was in place in March to make sure the wastewater treatment capacity will suffice when the third blast furnace becomes operational.

The steelmaker has spent 4.4 billion yuan (\$602.8 million) on the systems for reducing emissions from its three blast furnaces to an ultra-low level and it is probably the first steelmaker worldwide to have realized desulfurization and denitration of coke oven flue gas simultaneously, according to the company.

The company has built eight facilities disposing of solid waste and 11 channels for reusing the recycled waste. As a result, its annual solid waste treatment and recycling amount exceeds 5 million metric tons, making it the first steelmaker in China with the capacity for disposing of and recycling 100 percent of the solid waste as of 2020.

Green energy is another sector that the company has attached great importance to. The first phase of its solar power generation project, with an installed generation capacity of 48 megawatts, has become operational,

making it the Chinese steelmaker with the largest solar power generation capacity. The project's second phase, with the same installed capacity, is set for completion by the end of this year. With an annual power output volume of 100 million kilowatt-hours, Baosteel Zhanjiang will become the largest solar power supplier among China's steelmakers.

Donghai Island boasts advantages for developing a green, low-carbon circular economy as the steelmaking and chemical industries can be complementary in the share of resources produced by each other, an industrial insider said.

He suggested that the enterprises on the island should join forces in technological research in biomass carbon, carbon capture, utilization and sequestration among others and collaborate to plan green energy development.

Baosteel Zhanjiang is providing huge amounts of nitrogen, oxygen and hydrogen — which are byproducts from steelmaking — to other companies on the island.

Another mega project, Zhongke (Guangdong) Refinery and Petrochemical is the next-door neighbor to Baosteel Zhanjiang. It has also played an exemplary role in green development.

Since July 2016 when it began construction, Zhongke has set up 17 systems for environmental protection, especially in the areas of waste treatment.

By working together with other enterprises in the neighborhood, it has initiated a group of resource-recycling and clean energy projects, including projects for wind power and solar power generation.

In 2021, the emission indicators of Zhongke's two production sites were evaluated as better than the government's emission standards.



The Baosteel Zhanjiang premises feature a garden-like environment. PROVIDED TO CHINA DAILY