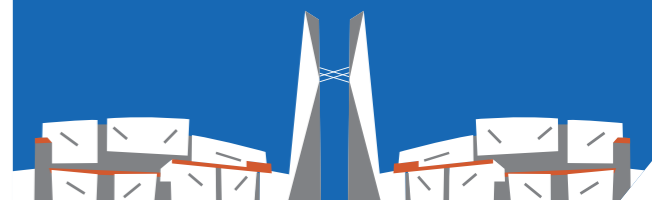




# Solid Waste Treatment



## Grandblue Environment Co., Ltd.

Stock Abbreviation: Grandblue Environment  
Stock Code: 600323  
Official Website: [www.grandblue.cn](http://www.grandblue.cn)  
E-mail: [600323@grandblue.cn](mailto:600323@grandblue.cn)

Version No.: V2.0/26.05



Enterprise Website



Wechat



# Unlocking Green For All

**Where humanity and nature intertwine, guided by the wisdom of the earth, life flourishes in an endless cycle of growth.**

A green future springs from a profound reverence for nature, and is forged through an unyielding pursuit of innovation.

Today, we stand at the vital crossroads of ecology and development. How do we reconcile boundless demand with finite resources? How do we make both green living and thriving progress truly accessible? We believe a transformative solution is not just needed, but essential.

**Grandblue : The Catalyst for Green Innovation, The Pioneer of Green Value.**

We believe that innovation is the singular path to making green truly accessible.

Our innovation transcends mere technological iteration; it is a bold, boundary-breaking re-imagining of green industries. Our innovation is not isolated environmental stewardship; it is the vibrant co-creation of value, rooted in the philosophy of open symbiosis.

**We promise to be driven by innovation and linked by cooperation :**

To empower cities with efficient resource utilization, allowing green to become the vibrant new canvas for urban development.

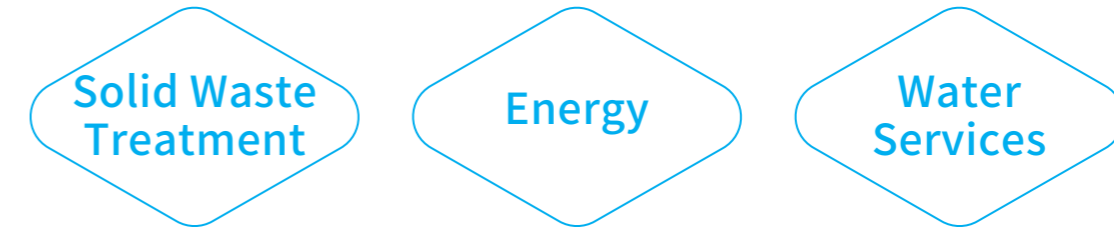
To energize industries with low-carbon transformation and upgrading, enabling green to become the dynamic new force for enterprise growth.

To safeguard a clean and beautiful future for our homeland, letting green paint a magnificent new tapestry of harmonious coexistence.



# Company Profile

## Top 10 Environmental Enterprises in China Top 10 Most Influential Enterprises in Solid Waste Treatment in China



Operating across **20** provinces, autonomous regions, and municipalities, **53** prefecture-level cities, and **78** counties throughout China

International presence in Southeast Asia

Domestic waste incineration power generation (design capacity) **97,590** tons/day

Serving over **110** million residents

Among the Top **3** domestic waste incineration power generation nationwide  
No. **1** among A-share listed companies

# Brand Culture

Mission

**Realizing Harmony Between Humans and Nature**

Vision

**Powering Green Innovation**

Slogan

**Unlocking Green For All**

Spirit

**Always Advancing, Never Stopping**

# Core Values

## Three 'Good' and Three 'Sharing'

### Good city steward

ecological protection  
scientific and standardized approaches  
high-quality and efficient services

### Good industry model

leading model setting standards for the industry  
technological innovation  
setting benchmarks

### Good community neighbor

open and honest  
neighborly and beneficial  
harmonious and win-win  
sharing success



### Sharing of wealth

provide opportunities for career growth  
share development successes  
focus on strivers  
recognize and reward hard work

### Sharing of capabilities

create an environment empowering employees  
improve capabilities  
enhance individual skills  
realize professional value

### Sharing of values

adhere to Grandblue's core principles  
offer meaningful work  
practice the Grandblue mission  
elevate the value of life

## Grandblue Employees with Five Qualities

### Aggressiveness

continuous growth, courage to break through barriers, continuous innovation

### Responsibility

diligent and accountable  
courage to take on responsibility  
solve problems

### Reverence

respect for life, nature, and rules  
focus on the bottom line, take the right path



### Altruism


engage and develop others  
achieve mutual assistance and win-win  
situations with colleagues, customers  
and partners

### Integrity


honest and trustworthy  
fair and just

# Green Circular Industry Chain

Grandblue integrates the principles of green development into every facet of its operations—establishing a green circular industry chain spanning solid waste treatment, energy, water supply, and drainage. This creates a scalable and replicable circular industrial system, helping cities build sustainable, low-carbon, and resource-efficient urban ecosystems.




**Solid Waste Treatment**  
20+ years



**Energy**  
30+ years



**Water Supply**  
40+ years



**Drainage**  
20+ years

## Solid waste Treatment

A total of 54 cities in 20 provinces and autonomous regions rely on Grandblue's high-quality solid waste treatment services. These regions and provinces include Guangdong, Fujian, Hubei, Hunan, Hebei, Liaoning, Guizhou, Jiangxi, Heilongjiang, Shandong, Shanxi, Anhui, Inner Mongolia, Zhejiang, Sichuan, Yunnan, Jiangsu, Guangxi, Hong Kong and Shanghai. We are the largest Waste-to-Energy company in Guangdong and Fujian provinces. Meanwhile, we hold stakes in a number of waste-to-energy projects in Bangkok, Thailand.

Grandblue has established a comprehensive vertical chain development model covering front-end sanitation integration, middle-end transfer, and back-end treatment. Likewise, it has established horizontal synergistic integration and resource utilization advantages in the treatment of household waste, kitchen waste, sludge, industrial hazardous waste, agricultural waste, garden waste, bulk waste, and medical waste, and has consistently improved the comprehensive environmental management service capacity, enabling the building of a "waste-free city."

## Energy

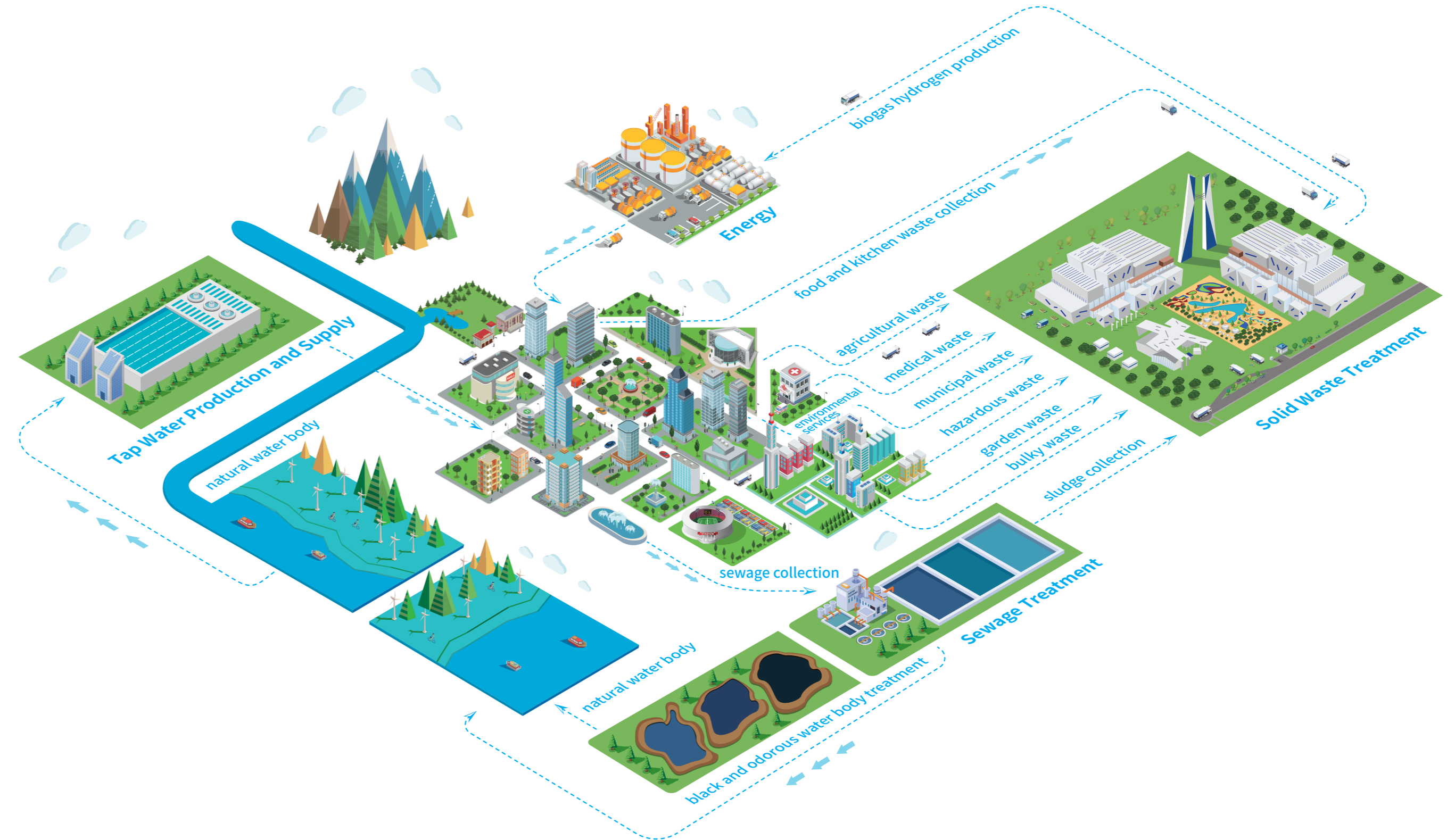
Grandblue's business scope covers city gas and new energy. The current operations include city natural gas, LNG trading, bottled LPG, hydrogen energy, and thermal energy. The company is also actively engaged in exploring solutions such as photovoltaic power generation and distributed energy, fully guaranteeing the supply of green and low-carbon energy to the city and promoting regional industrial upgrade and high-quality economic development.

## Water Supply

We offer the full spectrum of water supply services, from extraction to production to distribution to terminal customer service. The company's current average daily water supply capacity is 1.7 million m<sup>3</sup>, including supply from a single plant with a daily water supply design scale of 1.38 million m<sup>3</sup>. The company is a Grade 5A water supply service unit rated by China Water Supply Service Alliance and has been awarded as the top socially responsible enterprise in China's water industry for 13 consecutive years.

## Drainage

We have a plant-network integration industry chain covering wastewater collection network maintenance and wastewater treatment plant operation and management. We have successfully promoted the expansion of several wastewater treatment plants, and are actively focusing on the business of regional stormwater pipeline network and decentralized wastewater treatment facilities, drainage (sewage) household management, etc. We are constantly enhancing the intelligence and information-based operation of wastewater treatment plants and pipeline networks, and have achieved preliminary results in establishing a comprehensive "plant, network, and source" industry chain.



## Contributing to the construction of Waste-free Cities

Delivering all-encompassing solutions for large-scale solid waste management.  
Addressing and mitigating various solid waste pollution issues.



## Comprehensive industry chain for vertical and horizontal integration of solid waste treatment

Aligned with the construction of “Waste-free Cities,” Grandblue has developed an integrated solution for solid waste management, encompassing a full industry chain, with both vertical and horizontal integration. Front-end: “Great Municipal” butler service. Mid-end: intensive “Great Diversion” and “Disaggregated Classification” for efficient transfer processing. Back-end: comprehensive collaborative processing and resource utilization of multi-source solid waste. This complete industry chain forms the “Grandblue Model” designed to minimize comprehensive social costs and maximize comprehensive social value.



## Comprehensive services

Grandblue offers a wide range of services ranging from individual projects to fully integrated parks. Our capabilities span consulting, planning, investment, design, construction, and operation management. Grandblue engages in collaboration through various models including BOT, BOO, TOT, and PPP.

## Among the Top 3 in China for Domestic Waste Incineration Power Generation

Grandblue delivers high-quality solid waste treatment services across 20 provinces, autonomous regions, and municipalities including: Guangdong, Fujian, Hubei, Hunan, Hebei, Liaoning, Guizhou, Jiangxi, Heilongjiang, Shandong, Shanxi, Anhui, Inner Mongolia, Zhejiang, Sichuan, Yunnan, Jiangsu, Guangxi, Shanghai, and Hong Kong, covering 53 prefecture-level cities and 78 counties, and serving a population of over 110 million. Internationally, Grandblue also holds equity in multiple waste incineration power generation projects in Bangkok, Thailand, with a combined capacity of 3,300 tons/day.

domestic waste incineration power generation (designed capacity)

**97590** tons/day

domestic waste incineration power generation (operating capacity)

**80240** tons/day

number of domestic incineration power generation projects

**60**

waste compression and transfer

**9115** tons/day

kitchen waste, grease, and fecal waste treatment

**4444** tons/day

agricultural waste treatment

**1049** tons/day

industrial hazardous waste treatment

**225500** tons/year

sludge treatment

**1400** tons/day

bulk waste treatment

**100** tons/day

medical waste treatment

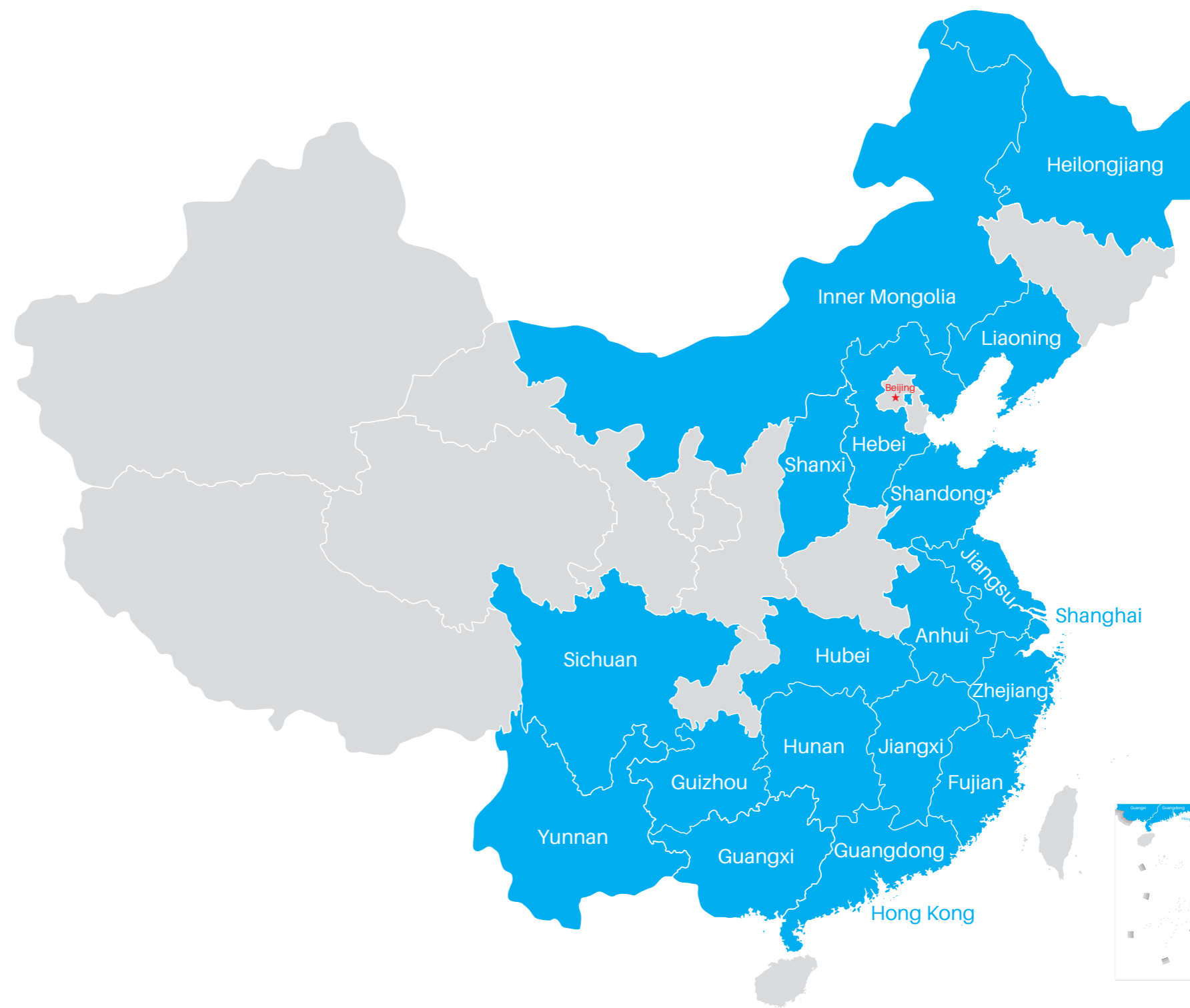
**30** tons/day

domestic waste sanitary landfill capacity

**2.04** million m<sup>3</sup>

slag resource utilization

**550000** tons/year

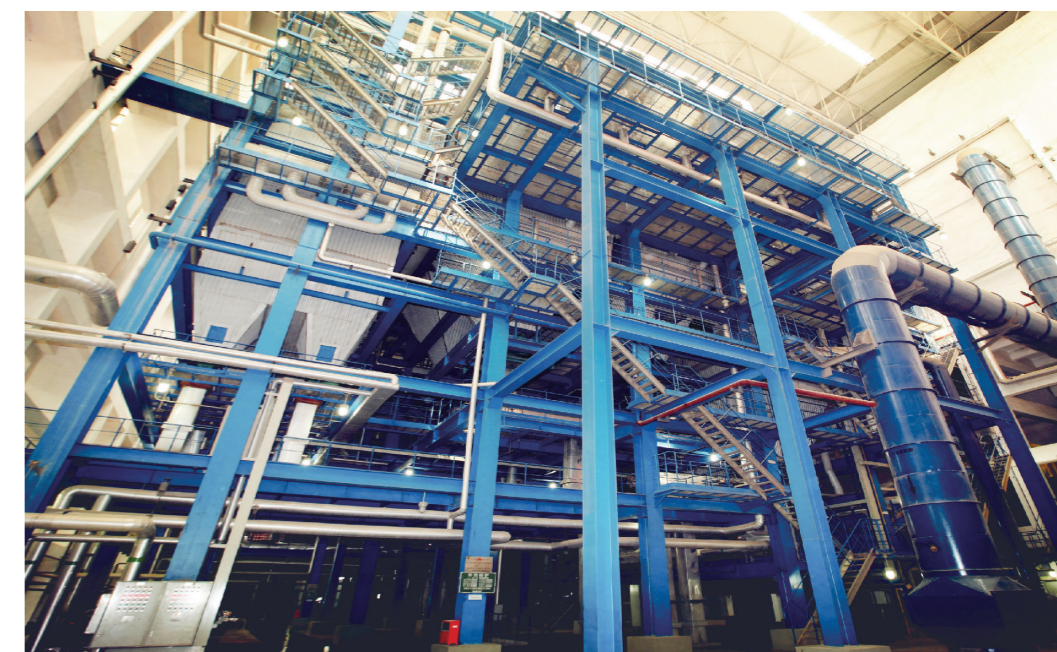




## Efficient project and stable operation

### Efficient project planning and construction management

- Our industry-leading project pre-planning and design ensure seamless integration between design and construction.
- Our service footprint spans across cities in East China, South China, Central China, North China, Northeast China, Southwest China, and other regions. Grandblue has extensive experience in designing and constructing solid waste treatment facilities of various sizes, catering to diverse climates such as high temperature and alpine conditions.
- We possess rich expertise in overall design and planning for collaborative disposal across multiple projects.
- We prioritize maintaining project construction schedules, ensuring high construction quality with minimal adjustments and repetitions, effectively controlling investment costs.



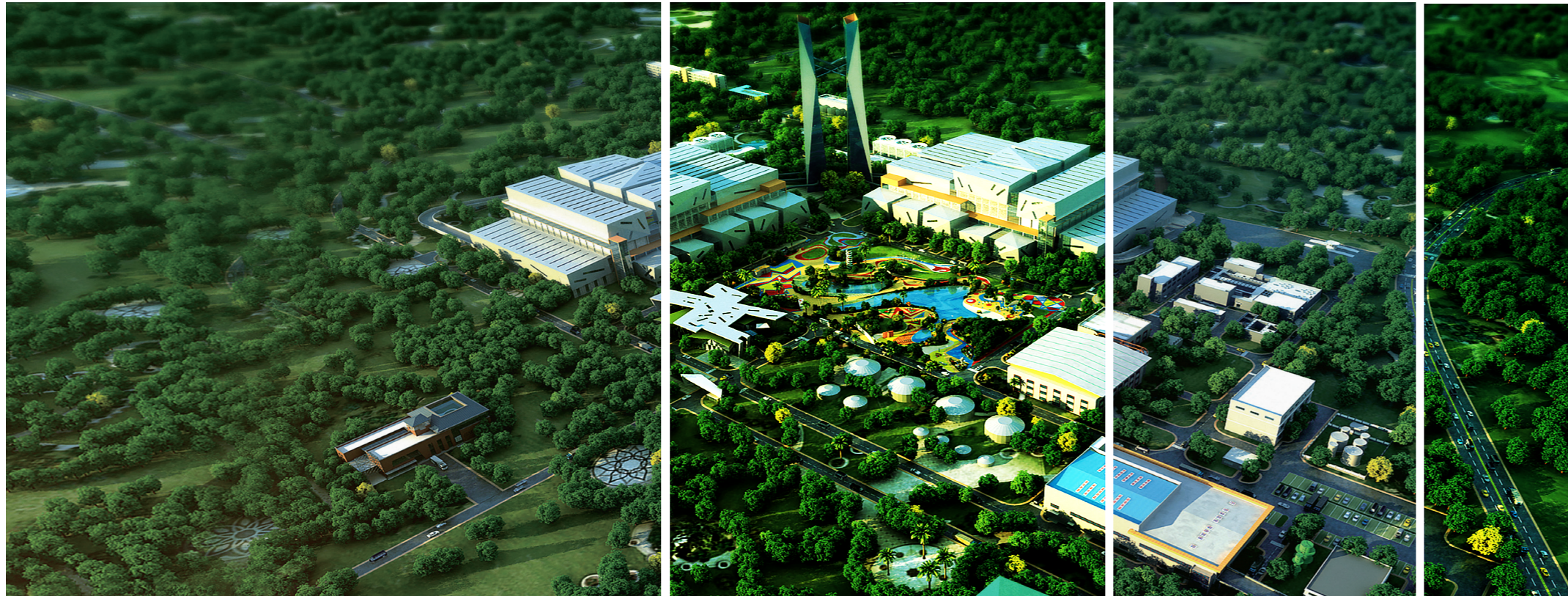
## Experience in resolving NIMBY effects, actively reported by People's Daily



## Addressing NIMBY issues with Grandblue solutions for the industry

- Extensive experience supporting governments at all levels with environmental, safety, and stability assessments for projects.
- Over a decade of successful operation of solid waste treatment projects in densely populated communities.
- Successfully transformed a waste incineration power generation project, initially blacklisted by the Ministry of Environmental Protection, into a beneficial and accepted facility.
- Many local governments, including those of Xiantao, Hubei; Shunde, Guangdong; and Kaiping, Guangdong, have organized resident visits to Grandblue's Foshan Nanhai Solid Waste Treatment and Environmental Protection Industrial Park before launching projects to dispel community doubts.
- People's Daily highlighted the success of Foshan Nanhai Solid Waste Treatment and Environmental Protection Industrial Park in mitigating NIMBY effects.
- Received the "Golden Key - China Action for SDG" champion award, surpassing notable domestic enterprises like State Grid, Unilever, Nestle, and Coca-Cola in the selection event.
- The Foshan Nanhai Solid Waste Treatment and Environmental Protection Industrial Park hosted the "2020 Central Enterprise Social Responsibility and Brand Work Training Course" by the SASAC of the State Council for learning and exchange.
- Featured in a special report during the two sessions in China Newsweek.





# Industry Overview

 <p>Solid waste treatment industrial park</p>	
 <p>Intelligent waste sorting</p>	
 <p>Comprehensive urban and rural sanitation services</p>	
 <p>Waste collection and transfer</p>	
 <p>Waste to Energy</p>	
 <p>Sludge treatment</p>	
 <p>Kitchen waste treatment</p>	
 <p>Integrated project for hydrogen production from biogas and hydrogen refueling</p>	
 <p>Industrial hazardous waste treatment</p>	
 <p>Agricultural waste treatment</p>	



## Solid Waste Treatment and Environmental Protection Industrial Park

The “Grandblue Model” organically coordinates the treatment of various types of solid waste, exemplified by the Foshan Nanhai Solid Waste Treatment and Environmental Protection Industrial Park. The industrial park has effectively addressed the “waste siege” issue by maximizing comprehensive social value and successfully mitigating the NIMBY challenge. It stands as China’s first, most established, and highly reputed collaborative hub for solid waste treatment and environmental protection. It enjoys a strong reputation within the domestic industry, government, and among the public.

## Foshan Nanhai Solid Waste Treatment and Environmental Protection Industrial Park

- Selected by the Ministry of Housing and Urban-Rural Development for the national “Five Years of Hard Work and Progress” large-scale achievement exhibition as the sole solid waste treatment and environment protection industrial park project.
- Recognized by the Ministry of Housing and Urban-Rural Development, the Ministry of Ecology and Environment, and four other ministries and commissions for achieving international advanced levels in solid waste management facilities (one of only 5 in China).
- First operational solid waste treatment and environmental protection industrial park in China with a full industry chain.
- Three national AAA-level Waste to Energy plants within the same industrial park.
- Designated as a National Ecological Environment Science Popularization Base.
- Recognized as one of the “Top 10 Environmental Protection Facility Open Institutions” in China.
- Among the first batch of enterprises in Guangdong Province to participate in carbon peaking and carbon neutrality programmes.

## Industrial Park replication

Comprehensive Solid Waste Treatment Center, Kaiping City, Guangdong Province

Solid Waste Treatment and Environmental Protection Industrial Park, Jinjiang City, Fujian Province

Solid Waste Treatment and Environmental Protection Industrial Park, Anxi County, Fujian Province

Solid Waste Treatment and Environmental Protection Industrial Park, Jianyang District, Nanping City, Fujian Province

Solid Waste Treatment and Environmental Protection Industrial Park, Hui’an County, Fujian Province

Solid Waste Treatment and Environmental Protection Industrial Park, Xiaogan City, Hubei Province

Solid Waste Treatment and Environmental Protection Industrial Park, Langfang City, Hebei Province

Solid Waste Treatment and Environmental Protection Industrial Park, Raoping County, Guangdong Province

Solid Waste Treatment and Environmental Protection Industrial Park, Ulanqab City, Inner Mongolia Autonomous Region

Solid Waste Treatment and Environmental Protection Industrial Park, Guiping City, Guangxi Zhuang Autonomous Region

Solid Waste Treatment and Environmental Protection Industrial Park, Jingjiang City, Jiangsu Province

Solid Waste Treatment and Environmental Protection Industrial Park, Huizhou City, Guangdong Province

Solid Waste Treatment and Environmental Protection Industrial Park, Linfen City, Shanxi Province

Solid Waste Treatment and Environmental Protection Industrial Park, Qingyuan City, Guangdong Province

Solid Waste Treatment and Environmental Protection Industrial Park, Xinyi County, Guangdong Province

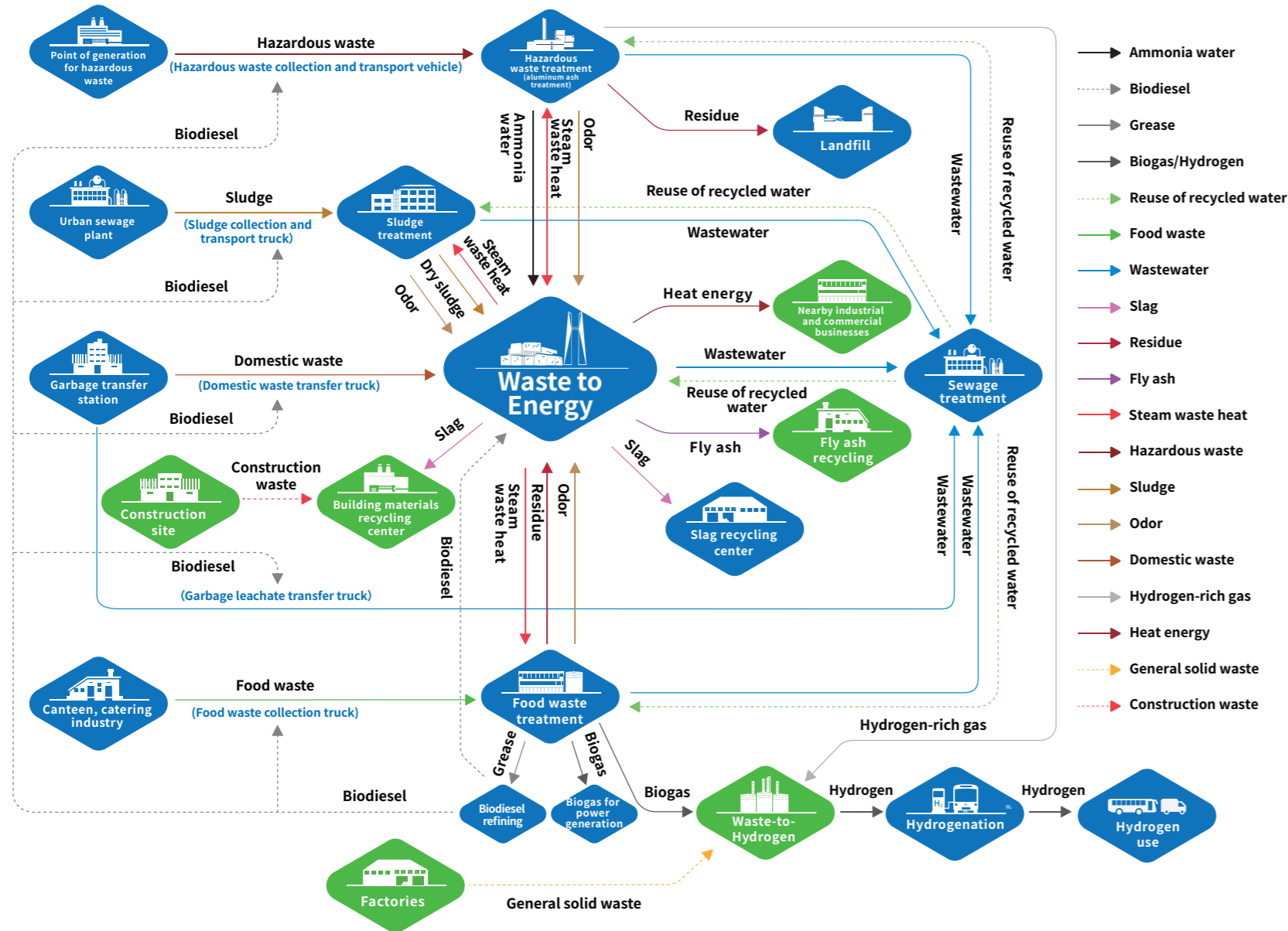


Scan the QR code

for a virtual tour of the Solid Waste Treatment and Environmental Protection Industrial Park.

# Advantages of the industrial park model: Minimize comprehensive social costs

Land saving | Resource recycling | Efficiency improvement | Ease of supervision



## Intelligent comprehensive collection and transfer center

- Different types of solid waste are transferred in separate categories using patented transport boxes, preventing pollution caused by “dropping, bubbling, dripping or leaking.”
- Digital management, intelligent route planning, and scheduling enhance the efficiency and control of waste collection and transfer.
- Effective supervision enables the government to monitor waste production from sewage discharge institutions in real-time, improving safety.
- Collection waste is directly transferred to the park for centralized treatment, preventing illegal dumping and unauthorized transfer of solid waste.

## Collaborative and resource-based disposal center

- Unified planning integrates multiple solid waste treatment facilities, ensuring high land utilization and simplifying site selection.
- Centralized construction reduces the workload and complexity of early-stage environmental, safety, and stability assessments, as well as operational processes.
- Maximize resource use and mitigate NIMBY concerns.
- Organically coordinate various types of waste, enabling them to serve as resources for each other, improving efficiency and reducing emissions.

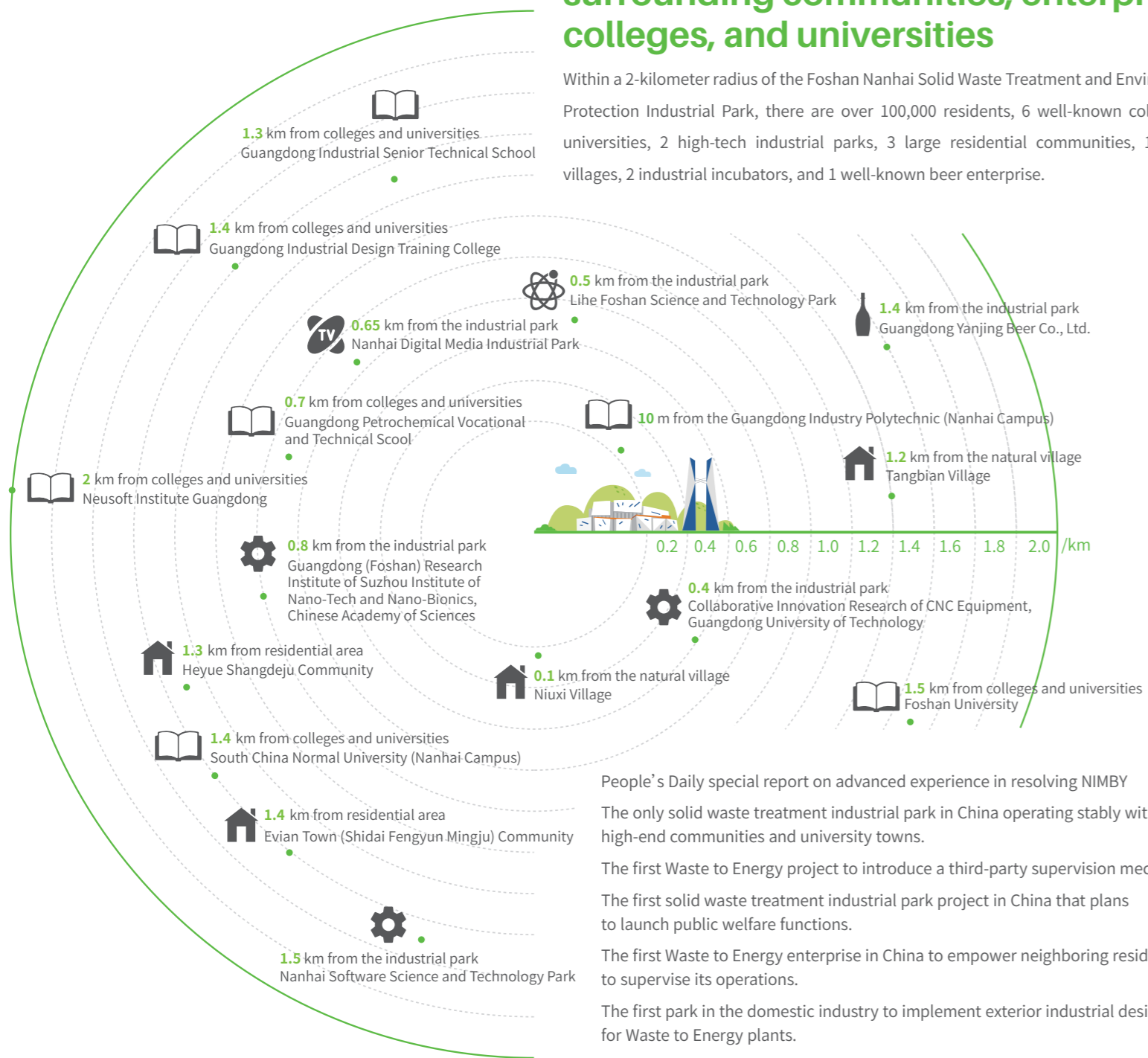
## Shared tail-end treatment center

- Facilities within the park share sewage treatment infrastructure, with all recycled water being reused.
- Zero odor and zero wastewater discharge, achieving 100% harmless solid waste treatment, eliminating the psychological burden of public concern.
- Equipped with complete fly ash treatment and waste residue landfill facilities.
- Safe and stable operation ensures emissions meet standards, eliminates secondary NIMBY risks, reduces government pressure on urban solid waste management, and enables one-stop supervision of solid waste treatment facilities.



## The park coexists harmoniously with surrounding communities, enterprises, colleges, and universities

Within a 2-kilometer radius of the Foshan Nanhai Solid Waste Treatment and Environmental Protection Industrial Park, there are over 100,000 residents, 6 well-known colleges and universities, 2 high-tech industrial parks, 3 large residential communities, 16 natural villages, 2 industrial incubators, and 1 well-known beer enterprise.



People's Daily special report on advanced experience in resolving NIMBY

The only solid waste treatment industrial park in China operating stably within high-end communities and university towns.

The first Waste to Energy project to introduce a third-party supervision mechanism.

The first solid waste treatment industrial park project in China that plans to launch public welfare functions.

The first Waste to Energy enterprise in China to empower neighboring residents to supervise its operations.

The first park in the domestic industry to implement exterior industrial design for Waste to Energy plants.

Recognized as one of the "Top 10 Environmental Protection Facility Open Institutions" in China

## Ten years of being neighbors: close and intimate

The Nanhai solid waste treatment project initially faced strong opposition from neighboring communities. After Grandblue took over, it embraced social responsibility as its core concept and focused on addressing the real environmental needs of the people. Through measures such as transparent supervision, neighbor-friendly operation and maintenance, in-depth cooperation, and sharing of environmental protection assets, the project has transformed from a single waste incineration power plant into a comprehensive solid waste treatment and environmental protection industrial park. This transformation has led to a significant shift from strong community rejection to acceptance and recognition, turning NIMBY concerns into a neighborly and beneficial relationship.

**Du Anguo, Party Secretary of Guangdong Industry Polytechnic**

If we had not cooperated with Grandblue in a friendly manner and turned the "incident" into a "story," I am afraid there would not be this opportunity to integrate environmental talent training, scientific research cooperation and industrial tourism today.

**Qin Wenshu, Associate Professor of Guangdong Industry Polytechnic**

Our students like the solid waste treatment and environmental protection industrial park very much. The environment inside is very good. Even when we stand next to the dump pit, we cannot smell any odor.

**Mrs. Bi, a resident of the neighboring area**

The industrial park has improved the community environment, and there is no more waste flying everywhere. The arrival of Grandblue has really changed the surrounding environment a lot.

**Mr. Chen, a resident of the neighboring community**

After Grandblue took over, the residents' attitude toward the Waste to Energy plant gradually changed from being very dissatisfied to being very satisfied. The waste power plant also often takes care of our villagers.

**Tang Jiansheng, a resident of the neighboring community and an employee of the industrial park**

At first, we were all very disgusted with the old waste incineration power plant. Now, several friends from the village and I work in the park, and everyone regards this as an important part of our community.



## Intelligent Waste Sorting

### Service process

Government and program implementation → pilot → promotion and mobilization → source classification → classified delivery → classified collection → classified treatment → promotion

### Project performance

Danzao Yunshanfengjing Demonstration Site

Awarded the 2019 China Smart Sanitation “Intelligent + Waste Classification” Typical Demonstration Case issued by the China Association of Urban Environmental Sanitation.

Lishui Chishan Village Demonstration Case

Earned the title of “Typical Demonstration Case of China’s New Smart Sanitation Model in 2020” by the China Association of Urban Environmental Sanitation.

### Traceability of waste classification

Point cards are issued to track residents’ information, including names, community names, contact information, point card numbers, points, and classified delivery records. Additionally, an information archive is maintained for intelligent waste classification recycling bins, recording location information, full-load conditions, collection, and transfer data.

### Redemption of residents’ points

Residents can use their point cards to exchange items at designated redemption sites, turning waste into valuable resources. This system allows residents to personally experience the benefits of waste classification.



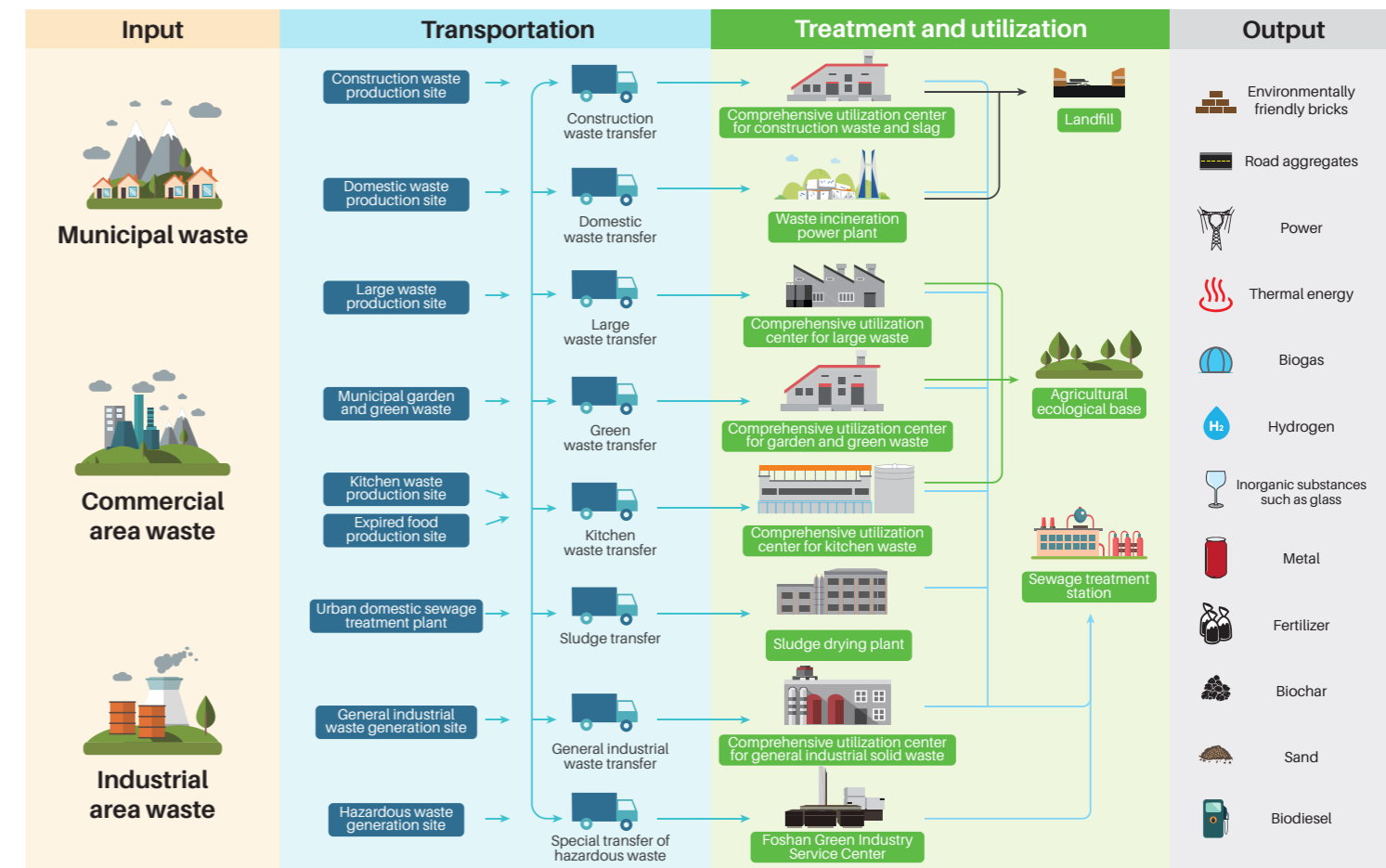
### Full-process information tracking

Utilizing the “intelligent waste classification box + cloud service platform + mobile app platform” and other comprehensive data collection systems, real-time statistics and data analysis are conducted on the waste classification process. This includes delivery, collection, transportation, and treatment, enabling intelligent integrated management of the entire process.

### Terminal classification and treatment

With the terminal waste disposal facilities at Grandblue Solid Waste Industrial Park, we achieve classified collection, transportation, storage, and harmless treatment of waste.

## Business system diagram



# Comprehensive Urban and Rural Sanitation Services with Vertical and Horizontal Integration

## Business features

### “Great Municipal” collaborative integrated service industry chain

Focus on urban and rural sanitation, covering a comprehensive management service industry chain known as “Great Municipal.” This includes waste classification, landscaping, river and lake cleaning, property management, public toilet management, pipe network maintenance, municipal road management, solid waste treatment, and other related services.

### Full life cycle management of domestic waste

Grandblue achieves full life cycle management of domestic waste. This includes waste classification, sanitation cleaning, waste collection and transfer, incineration power generation, sanitary landfill, percolate treatment, fly ash treatment, and source to terminal management.

### Connecting to big data + smart municipal management platform

Grandblue utilizes Internet of Things (IoT), mobile internet, and big data technologies to enable intelligent management of personnel, vehicles, objects, and facilities involved in urban and rural sanitation management. This platform connects to a smart municipal network, offering managers and operators cloud-based services anytime, providing necessary support for efficient operations and management.



## Project performance

Yangxin Project in Hubei Province

✓ Awarded the title of “Sanitation Industry Demonstration Case” by the China Association of Urban Environmental Sanitation.

Yiyuan County Project in Shandong Province

✓ Awarded the title of “Sanitation Industry Demonstration Case” by the China Association of Urban Environmental Sanitation.

Wenshang County Project in Shandong Province

Jinxiang County Project in Shandong Province

Langfang Project in Hebei Province

Jingxian County Project in Anhui Province

Qidu Town Project in Suzhou City, Jiangsu Province

Huaian Project in Jiangsu Province

Huangbo District Project in Wuhan City, Hubei Province

Anxi County Project in Fujian Province

Raoping County Project in Guangdong Province

Nanhai District Project in Foshan City, Guangdong Province

Sanshui District Project in Foshan City, Guangdong Province

Ulanqab Project in the Inner Mongolia Autonomous Region





## Waste Transfer

Front-end intelligent comprehensive collection and transfer prevents illegal dumping and leakage, enhancing the capacity utilization of back-end processing facilities.

### Classified collection and transfer

Covers collection and transfer of solid waste such as domestic waste, kitchen waste, and industrial hazardous waste. Different types of solid waste are collected and transferred separately, using patented innovatively designed vehicles to prevent pollution from dropping, bubbling, dripping, or leaking.

### Digital management

Utilizes digital methods for centralized route dispatching, improving the efficiency and control of collection and transfer operations.

### Effective supervision

Enables real-time monitoring of waste production from sewage discharge institutions in real time, facilitating convenient government oversight.

### Collection and transfer and disposal connection

Ensure waste is directed to appropriate treatment facilities upon collection and transfer, thereby eliminating illegal dumping and unauthorized transfer of solid waste.

**Unified planning**  
Site planning aligns with urban solid waste treatment needs and geographical locations.

**Unified construction**  
Transfer stations are designed and constructed with an industrial appearance, integrating harmoniously into the community.

Four Unifications

**Unified operation and management**  
Fully enclosed, large-tonnage special transfer vehicles prevent issues such as "dropping, bubbling, dripping or leaking" and manage odor effectively.  
Unified dispatching: Real-time intelligent dispatching optimizes routes, monitors vehicle conditions, and ensures efficient waste delivery to designated destinations.

**Unified dispatching**  
Real-time intelligent dispatching optimizes routes, monitors vehicle conditions, and ensures efficient waste delivery to designated destinations.

Reduce the duration domestic waste remains in residential areas.

Reduce odor issues at transfer locations.

Four Reductions

Reduce the overall volume and water content of waste materials.

Reduce leakage and odor concerns along transportation routes.

## Project performance

- Nanhai District Project in Foshan City, Guangdong Province
- ✔ **"Municipal Public Science and Technology Demonstration Project" of the Ministry of Housing and Urban-Rural Development**
- ✔ **Excellent Transfer Station Project of the Guangdong Environmental Sanitation Association**
- Chaozhou Project in Guangdong Province

- Langfang Project in Hebei Province
- Wenshang County Project in Jining City, Shandong Province
- Zibo Project in Shandong Province
- Wuhan Project in Hubei Province
- Hui'an County Project in Fujian Province
- HongKong Project

# Waste to Energy

## Adapting to local conditions and rich experience

Grandblue's service spans across East China, South China, Central China, North China, Northeast China, Southwest China, and other regions. The company possesses extensive experience in designing, building, and operating Waste to Energy plants of various sizes, from large to small, while adapting to diverse climatic conditions, including high temperature and alpine environments.

## Industry-leading construction and operation management capabilities

- Grandblue ranked first in the Recommended List of Construction and Operation Enterprises of Waste to Energy Projects in Guangdong Province (First Batch) by the Guangdong Provincial Department of Housing and Urban-Rural Development.
- Grandblue has built and operates three national AAA-level Waste to Energy plants within the same park, showcasing the highest standards.
- The company strictly implements national emission standards, with key emission indicators surpassing EU standards.
- Pioneering the implementation of exterior industrial design for Waste to Energy plants in the domestic industry, integrating harmoniously into the community.



## Digital intelligent management

- Grandblue constructed the first fully digital Waste to Energy plant in China.
- Through a partnership with Alibaba Cloud, ET Industrial Brain was integrated into the environmental protection sector. This collaboration aims to develop a big data model for managing solid waste treatment operations and maintenance. These algorithms enhance the efficiency of Waste to Energy plants by increasing power generation rates and reducing equipment maintenance requirements. This initiative ensures more effective city-wide waste management.

## Complete transparency and safe operations to consistently earn community trust

- Over a decade of experience operating and managing Waste to Energy projects in densely populated communities.
- Facilities include environmental protection parks and exhibition halls accessible to the public, offering value-added services to the community.
- Praised by the Ministry of Ecology and Environment for installing automatic monitoring equipment, setting up display screens, and integrating monitoring data with ecological and environmental departments at all levels.

## Project performance

Grandblue owns 20 national AAA-level Waste to Energy plants, including

Nanhai Project in Foshan City, Guangdong Province (Phase I, II & III)

Kaiping Project in Guangdong Province

Nancheng Project in Dongguan City, Guangdong Province

Hengli Project in Dongguan City, Guangdong Province

Zhongshan Project in Guangdong Province

Zhanjiang Project in Guangdong Province

Dalian Project in Liaoning Province

Jinjiang Project in Fujian Province

Hui'an Project in Fujian Province

Changshan Project in Fujian Province

Nanping Project in Fujian Province

Xiaogan Project in Hubei Province

Huangshi Project in Hubei Province

Guiyang Project in Guizhou Province

Wanzai Project in Jiangxi Province

Jianyang Project in Chengdu City, Sichuan Province

Ulanqab Project in Inner Mongolia Autonomous Region

Guiping Project in Guangxi Zhuang Autonomous Region



## Sludge Treatment

### Cooperative treatment and resource utilization

By integrating with domestic waste incineration projects, waste heat steam from power generation is utilized to dry sludge, thereby enhancing resource efficiency and lowering carbon emissions.

Sewage treatment facilities are shared with waste incineration power generation projects to cut costs and reduce land use.

### Effective odor treatment

Effective odor treatment is achieved through an advanced negative pressure system, which directly pumps odors into the domestic waste incinerator for combustion and elimination. Advanced biological deodorization technology further ensures complete odor control in sludge treatment processes.

### Reduction and harmless treatment

After the sludge is dried, it is mixed with domestic waste and incinerated. This process not only maximizes resource utilization but also effectively eliminates viruses and bacteria in the sludge, ensuring thorough reduction and harmlessness.

### Project performance

Nanhai District Project in Foshan City, Guangdong Province

† “National Key Environmental Protection Practical Technology Demonstration Project” of the China Association of Environmental Protection Industry

Kaiping Project in Guangdong Province

Jinjiang Project in Fujian Province

Anxi County Project in Fujian Province

Xiaogan Project in Hubei Province



# Kitchen Waste Treatment

## Integrated collection, transfer and treatment

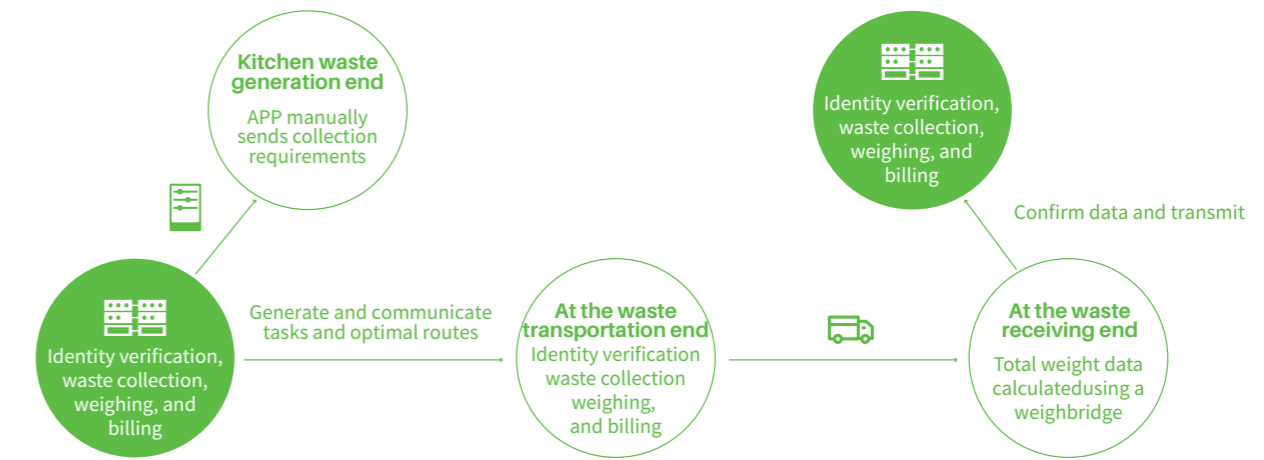
The collection and transfer system, treatment system, and resource utilization system are seamlessly connected to offer customers comprehensive kitchen waste collection and transfer services, addressing waste collection at its source.

## Achieving 100% full resource utilization of kitchen waste

To ensure harmless treatment, biogas residue is sent to the waste incinerator for burning, biodiesel is reused as fuel for collection and transfer vehicles, biogas is used for power generation and grid connection or hydrogen production, and biogas liquid is returned to the field for further use. This approach maximizes the utilization of by-products from kitchen waste treatment, resolving all issues related to by-product disposal.



## The most advanced system for collection and transfer - Grandblue intelligent kitchen waste collection and transfer system



## Efficient waste collection and transportation

- Automatically generate optimized routes for complex scenarios.
- Eliminate the need for manual planning; collection and transfer tasks can be dynamically and quickly adjusted.
- Send notifications through the app, allowing the site manager to prepare before the vehicle arrives and coordinate with the collection process.

## Instant handling of emergencies

- Drivers can report vehicle abnormalities instantly via the on-board system.
- Collectors can use handheld devices to record and report any operational issues with a single click.
- Central control system personnel can promptly detect and address improper driving behavior such as speeding.

## Refined business data management

- Generate reports and graphical displays of fuel consumption data.
- Provide reports and graphical displays of waste collection volumes.
- Conduct scientific statistics and assessments of driving behavior and collection efficiency among drivers.

## Real-time government supervision and social supervision

- Government regulatory authorities prioritize regulatory actions based data analysis.
- Promote national supervision and encourage public engagement in waste classification and food safety concerns.

## Project performance

Nanhai District Project in Foshan City, Guangdong Province  
 Kaiping Project in Guangdong Province  
 Huizhou (Zhongkai & Huidong) Project in Guangdong Province  
 Harbin Project in Heilongjiang Province  
 Daqing Project in Heilongjiang Province  
 Mudanjiang Project in Heilongjiang Province  
 Jinjiang Project in Fujian Province

Nanping Project in Fujian Province  
 Anxi County Project in Fujian Province  
 Hui'an County Project in Fujian Province  
 Langfang Project in Hebei Province  
 Xiaogan Project in Hubei Province  
 Linfen City Project in Shanxi Province  
 Ulanqab Project in the Inner Mongolia Autonomous Region



## China's pioneering large-scale integrated project to produce hydrogen from biogas derived from kitchen waste and facilitate hydrogen refueling

- Biogas undergoes desulfurization, decarbonization, and reforming in a device capable of producing 3,000 Nm<sup>3</sup>/h of hydrogen.
- The project has a hydrogen production rate of 6 tons per day, approximately 2,200 tons annually. Upon reaching full production capacity, it is expected to achieve comprehensive carbon emission reductions equivalent to 1 million tons.

### Industrial resource synergy

The project uses biogas generated from kitchen waste treatment as a primary resource and leverages natural gas storage and distribution stations for capacity peaking and production scheduling.

### Flexible production mechanism and strong risk resistance

The project can operate at full capacity during peak hydrogen demand periods and redirect the purified methane into the natural gas pipeline network for sale to gas companies during low-demand periods.

### Strong Replicability of the Project

The project is an important part of Grandblue's closed-loop model to build the whole chain of hydrogen production, refueling, transmission and use.

Grandblue can utilize its own resources and application scenarios for off-site replication. The technology of this project is also applicable to the production of biogas and hydrogen from landfill biogas.

## Integrated demonstration model of hydrogen "production, refueling, and use"



# Hazardous Industrial Waste Treatment

Covers the entire lifecycle of hazardous industrial waste, including classification, collection, storage, transportation, and disposal. Offers platform-level solutions and comprehensive services for hazardous industrial waste treatment.

## Controllable collection and transfer

Establishes an efficient industrial hazardous waste collection system based on data from the investigation of industrial hazardous waste and waste production patterns of regional waste-producing enterprises. Utilizes big data to design optimal collection and transfer routes. Implements a vehicle management system for collection and transfer, ensuring transparent and effective supervision of industrial hazardous waste destinations.

## Comprehensive treatment process coverage

Leverages extensive experience in constructing and operating large-scale industrial hazardous waste treatment projects. Provides customers a full range of treatment solutions, including incineration, physical and chemical disposal, stable solidification landfill, comprehensive utilization, inventory management, and on-site industrial services.

## Comprehensive professional service capabilities

Grandblue offers overall planning for industrial hazardous waste treatment projects. Provides consulting services for the construction and operation of specialized treatment facilities. Manages project trusteeship and operation.



## Government service model

Grandblue serves as key partner for governments at all levels in managing industrial hazardous waste. We provide emergency rescue services for environmental emergencies in various regions, including enterprise emergency response, hazardous chemical leakage rescue, and unclaimed waste collection and disposal.

## Industrial Park service model

Grandblue partners with various industrial parks to offer comprehensive environmental protection consulting, trusteeship, and operation services. We support parks in planning, construction, project introduction, and normal operation stages, ensuring environmental compliance and efficiency.

## Service model for enterprises, public institutions and scientific research institutions

Grandblue acts as an “environmental protection expert” for various enterprises, public institutions, and scientific research institutions, providing capital investment, technical support, and hazardous waste reduction, and safety management services for cooperative customers throughout the project life-cycle.

## Project performance

- Green Industry Service Center Project in Foshan City, Guangdong Province
- Nanhai Industrial Aluminum Ash Project in Foshan City, Guangdong Province
- Ganzhou Project in Jiangxi Province
- Jiaying Project in Zhejiang Province





## Agricultural Waste Treatment

### Comprehensive bio-epidemic prevention system

The processing center adheres to three major epidemic prevention principles: epidemic prevention zoning, one-way circulation, and strict disinfection, ensuring complete protection for vehicles, personnel, and materials entering and exiting the factory. A point-to-point collection and transfer mode is established to efficiently collect, manage, and process animal waste, preventing secondary environmental pollution.

### Supervision of the entire collection and transfer process

Through comprehensive information management, including phone call-based reporting by farmers, generating reporting forms, automatic task assignment and route planning, uploading collection and transfer evidence, government remote review, insurance linkage, real-time monitoring of collection, transportation, storage and processing is achieved. This ensures clear understanding of the source, quantity, and destination of animal waste.

### Achieve an ecological closed loop

Grease produced after harmless treatment can be used as biodiesel or aviation fuel, and further processed into surfactants. Meat and bone meal obtained is rich in organic matter, nitrogen, phosphorus, potassium, and amino acids, and can be converted into organic fertilizer and insect protein through technological processes, ensuring full resource utilization.

## Project performance

Baoding Project in Hebei Province

Shaoguan Project in Guangdong Province

Zhanjiang Project in Guangdong Province

Zhaoqing Project in Guangdong Province

Jiangmen Project in Guangdong Province

Maoming Project in Guangdong Province

Guiping Project in the Guangxi Zhuang Autonomous Region

Wengyuan Project in Shaoguan City, Guangdong Province (Livestock and Poultry Manure)

## Process Flow

