益康生态
YIKANG ECOLOGICAL

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Yikang Ecological Wastewater Treatment Solutions

- ☑ Livestock & Poultry Wastewater
- ☑ Food Processing Wastewater
- ☑ Reclaimed Water Reuse
- ☑ Municipal Wastewater

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Company Profile

Company Profile

Founded in 2014, Guangdong Yikang Ecological Environmental Technology Group Co., Ltd. is an integrated environmental solution provider focusing on agricultural and rural environmental protection.

The company specializes in agricultural and livestock pollution control, biomass resource recycling, and rural ecological environmental management, providing comprehensive solutions for the treatment, recycling and resource utilization of solid, liquid and gaseous pollutants.

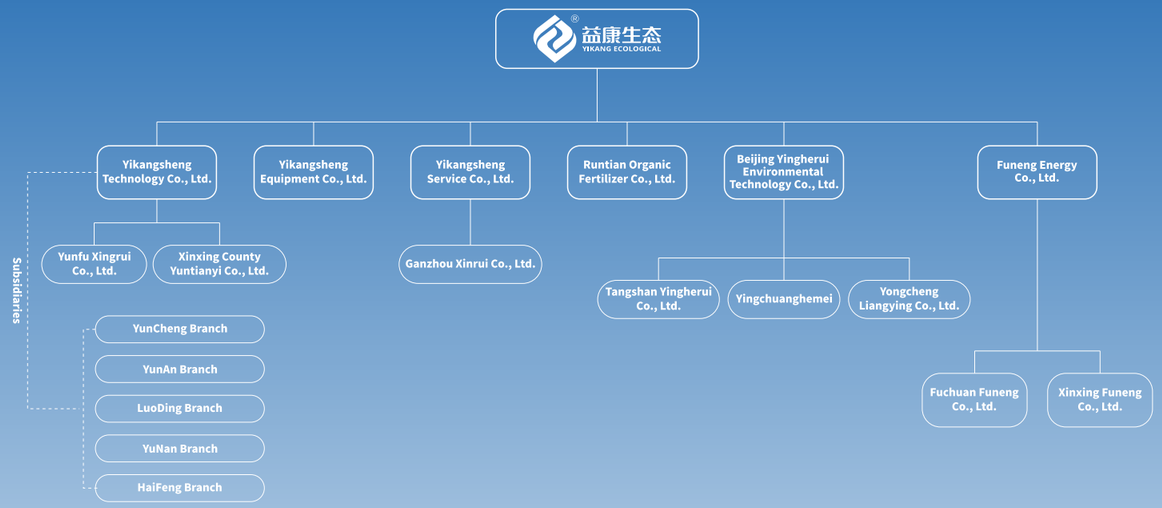
Our services cover the treatment and management of various agricultural and forestry wastes, including livestock wastewater, manure and straw.

With strong technological capabilities and extensive project experience, Yikang has become a leading enterprise in the agricultural and rural environmental protection industry.

Business Scope

- Design and construction of environmental protection projects
- R&D and manufacturing of environmental protection equipment
- Operation of environmental protection projects
- Investment and construction of biomass energy projects
- Rural environmental governance
- Production and sales of organic fertilizers

Corporate Structure



Innovative Achievements Capability Verification Customer Trust

420 Utility Model Patents

31 Invention Patents

25 Software Copyrights

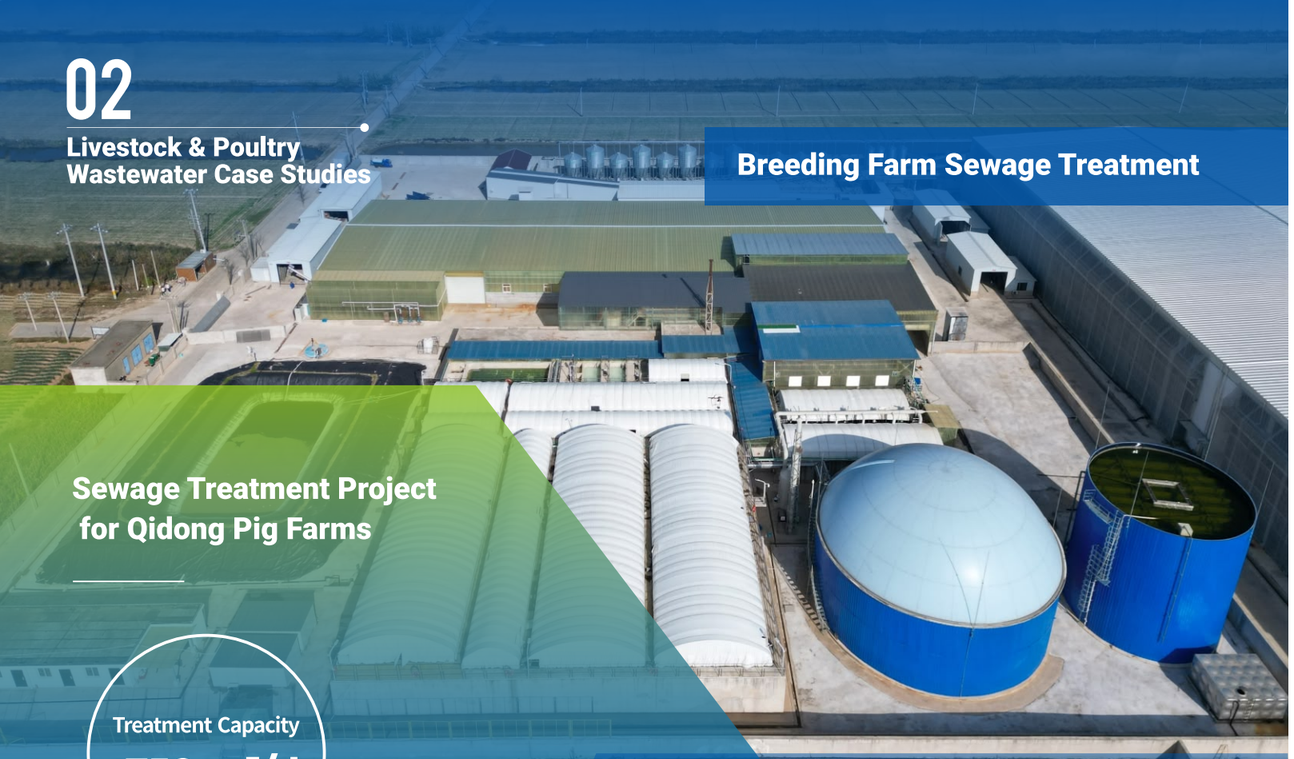
12 Design Patents

104 Registered Trademarks

02

Livestock & Poultry
Wastewater Case Studies

Breeding Farm Sewage Treatment



Sewage Treatment Project for Qidong Pig Farms

Treatment Capacity
750 m³/d

The wastewater generated from this project is primarily composed of swine urine, swine manure and pig house washing water, with the anaerobic + two-stage A/O Process employed to ensure treatment meets regulatory standards.

The project adopts the company's total nitrogen removal technology, with the effluent total nitrogen stably maintained below 40 mg/L.

A terminal denitrification system is incorporated into the project. Building on the satisfactory biochemical efficiency of the existing system, hydraulic retention time is prolonged, carbon sources are dosed, and plug-flow reactors are utilized to enhance the denitrification process, achieving a substantial reduction in total nitrogen levels.

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Juncao-Based Ecological Pond System for Total Nitrogen

The Caolang Fattening Farm in Suixi houses a total of 46,000 hogs in stock, with a sewage treatment capacity of 480 m^3/d. The wastewater is treated to meet discharge standards mainly through the anaerobic process combined with a two-stage A/O system. For this project, the company adopted a biochemical enhancement system, a carbon source dosing system and a microbial grass symbiotic pond system to strengthen the denitrification process, ensuring that the total nitrogen (TN) content in the effluent can stably stay below 70 mg/L as specified in the contract.

Aquatic ornamental plants are planted in the ponds. With well-developed root systems and dense green foliage, these plants form a complex ecosystem via the food chain, which absorbs, adsorbs, decomposes and degrades total nitrogen pollutants in the water. Meanwhile, they can also remove colloids, inert substances and chromaticity from the sewage, buffer fluctuations in water quality and volume, and reduce the dosage of advanced oxidation agents.

Suixi Caolang Fattening Farm Sewage Treatment Project

Treatment Capacity
480 m³/d

Breeding Farm Sewage Treatment

Daping Breeding Duck Farm Sewage Treatment Project

Treatment Capacity

270 m³/d

●A terminal denitrification system is incorporated into the project. Building on the satisfactory biochemical efficiency of the existing system, hydraulic retention time is prolonged, carbon sources are dosed, and plug-flow reactors are utilized to enhance the denitrification process, achieving a substantial reduction in total nitrogen levels.

●The project adopts a multi-stage pretreatment process to reduce and remove as much as possible the solid suspended substances such as manure residue and clay particles in the wastewater, thereby alleviating the operational load of subsequent biochemical treatment processes.

●After years of operational exploration and parameter optimization, anammox bacteria have emerged in the biochemical system, which can effectively remove total nitrogen (TN) from the effluent and reduce operational costs.

The effluent of this project complies with the first-class standard of the second time period specified in the **Guangdong Provincial Local Standard for Water Pollutant Emission Limits,** with COD stably maintained below 70 mg/L and directly discharged into the river.

Wens Group Dairy Tiantang Cattle Farm Wastewater Treatment Project

Treatment Capacity

650 m³/d

Treatment Process: Multi-stage Solid-liquid Separation + Two-stage A/O System

Tiantang Cattle Farm is affiliated to Guangdong Wens Dairy Co., Ltd. Given the limited land area around the project site available for resource utilization, the project adopts a compliance discharge approach for manure and wastewater treatment.

With the influent CODcr concentration as high as 50,000 mg/L, the project is required to achieve a CODcr removal rate of over 99.86 %. Such stringent discharge standards are extremely rare in the cattle farm environmental protection industry.

Effluent Standard: First-Class Discharge Standard of the Second Time Period specified in Guangdong Provincial Comprehensive Wastewater Discharge Standard (DB44/26-2001)

Indicators	CODcr	BOD_5	SS	NH_4-N	TP	pH
Influent Data	≤ 50000	≤ 20000	≤ 8000	≤ 1500	≤ 200	6.0~9.0
Effluent Standard	≤ 70	≤ 20	≤ 60	≤ 10	≤ 0.5	5.5~8.5

Breeding Farm Sewage Treatment

Dekon Group Pingtang Daocun Pig Breeding Farm Environmental Treatment BOT Project

Treatment Capacity
1200 m³/d

- The wastewater treatment system of this pig farm adopts a tank-assembled construction mode, featuring a short construction period, convenience and high efficiency.
- For solid manure, a combined technology of biogas drying and molecular membrane compost fermentation is adopted to achieve reduction treatment and resource utilization of manure.
- The system adopts IoT-based intelligent monitoring, enabling functions such as remote command, risk identification, and data analysis to improve the quality of operation services.
- The treated effluent from the system is used to irrigate surrounding planting bases, achieving resource utilization.

Modular Equipment-Based Construction

Manure Drying System

Tailwater Reuse for Irrigation

Phase II Project of the Modern Pig Farm of Gaozhou Wens Livestock Co., Ltd.

Treatment system is
1600 m³/d

Influent Quality of Pig Farm Wastewater

(Unit: mg/L, except pH)

Parameters	pH	CODcr	BOD_5	SS	Ammonia Nitrogen (NH_5-N)	Total Phosphorus (TP)
Influent Data	6.0~8.0	⩽ 15000	⩽ 8000	⩽ 20000	⩽ 1000	⩽ 400

Wastewater Discharge Standards

Engineering Quality Standards:
According to the project requirements, the wastewater discharge standards comply with the Standard for Irrigation Water Quality (GB 5084-2021, Dryland Standard) and the Discharge Standard of Pollutants for Livestock and Poultry Breeding (GB 18596-2001). The effluent water quality parameters are shown in the table below.

(Unit: mg/L, except pH)

Parameters	CODcr	BOD_5	SS	Ammonia Nitrogen (NH_5-N)	Total Phosphorus (TP)	pH	TN
Design Effluent Data	⩽ 200	⩽ 100	⩽ 100	⩽ 50	⩽ 8	5.5~8.5	⩽ 70
Recent Effluent Data	181.96	46.8	9	1.07	0.22	7.8	39.85

Effluent Discharge Photos

The project is located in Jiaxiudong Village, Ban Village Committee, Shiban Town, Gaozhou City, Maoming. Upon completion, the farm will house **10,000** breeding sows, **1,300** replacement sows, and 58,000 nursery piglets as well as **58,000** finishing pigs, with a total annual stock of approximately **127,300** pigs and an annual output of about **250,000** finishing pigs.

The manure management system adopts a combined process of mechanical scraping and liquid manure flushing. Under full-load operation, the estimated wastewater generation is **1,500 m³/d**. In addition, the deodorization wastewater from pig houses is approximately 100 m^3/d. Therefore, the designed treatment capacity of the wastewater treatment system is **1,600 m³/d**.

Wastewater Treatment Project of Jiarun Food Slaughterhouse Wastewater Treatment Project

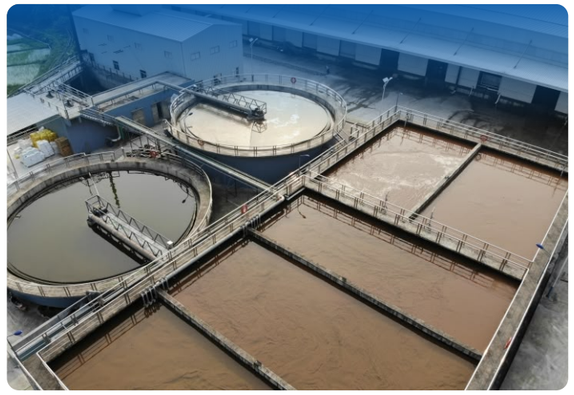
Daily Treatment Capacity
2500 m³/d

Project Scale:
Annual slaughter capacity of 45 million broiler chickens

Effluent Standard:
Compliant with the Guangdong Provincial Local Standard – Integrated Wastewater Discharge Standard (DB44/26-2001), Phase II, Class I Discharge Standard

Wastewater Treatment Project of Wens Jiafeng Xincheng Slaughterhouse

Daily Treatment Capacity
2300 m³/d



Project Scale:
Daily slaughter capacity of approximately **120,000** broiler chickens

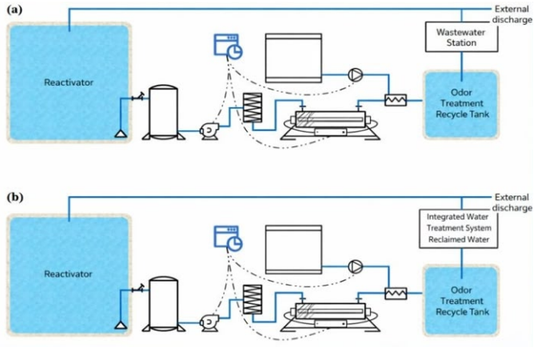
Effluent Standard:
Compliant with the Discharge Standard of Water Pollutants for Meat Processing Industry (GB 13457-92)

Wastewater Treatment Project of Wens Jiawei Food Factory

Daily Treatment Capacity
800 m³/d

Effluent Standard:
Compliant with the Standard for Wastewater Discharge into Urban Sewers (GB/T 31962-2015) and the Guangdong Provincial Local Standard – Integrated Wastewater Discharge Standard (DB44/26-2001), Phase II, Class III Discharge Standard.

With the increasing water demand of supporting deodorization systems, the volume of generated wastewater has also risen significantly. The quality of reclaimed water in the existing environmental protection area no longer meets the African swine fever (ASF) virus prevention and control requirements of the deodorization system at the exhaust fan outlets of pig houses. As a result, the reclaimed water cannot be directly reused, leading to high costs for fresh water consumption.The purpose of this utility model is to design a reclaimed water disinfection and reuse system for the environmental protection area of multi-storey pig farms, which enables the reclaimed water to be disinfected and reused in the deodorization system at the exhaust fan outlets of pig houses.



Patent Grant Publication No.: CN 221971424 U

Compliant Reuse

Reclaimed Water Reuse Project for Deodorization at a Wens Pig Farm in Anhui Province

05

Township Wastewater Case Study

Serving Beautiful Rural Construction – Rural Environmental Governance

Rural Domestic Sewage Treatment

Multi-dimensional Planning

Multi-process Paths

Multi-model Approaches

Cost Advantage

Quality Advantage

Guarantee Advantage

1500+

Constructed and operated over 1,500 domestic sewage treatment stations in towns and villages

We provide compact, landscape-integrated comprehensive environmental solutions for domestic sewage, kitchen waste, and water environment treatment in small and medium-sized cities and rural areas, to support the construction of beautiful countryside.

Adapt to Local Conditions

Rural Domestic Sewage Treatment / Multi-dimensional Planning Advantages

- Integrating the plant-connected, centralized, decentralized and resource-oriented approaches;
- Selecting processes in light of local conditions, and designing technical solutions featuring energy conservation, low carbon emissions and minimal environmental impact;
- Pursuing the sustainability of sewage treatment.

Plant-connected Mode

Villages located in the vicinity of urban areas, featuring high population density and sound economic conditions, can be connected to the municipal sewage system. This mode is suitable for adopting the pipe-network connection approach, which not only saves the costs of facility construction and operation & maintenance, but also ensures high-efficiency sewage treatment and superior effluent quality under centralized plant management.

Centralized Treatment Mode

For villages with relatively concentrated residences or adjacent villages, a centralized treatment approach is adopted, with unified sewage treatment facilities and supporting pipe networks constructed.

Decentralized Treatment Mode

For villages with scattered residences and small population sizes, priority should be given to approaches that integrate with farmland ecosystems and rural toilet upgrading initiatives. Where conditions permit, the construction of artificial wetlands is recommended. On the premise of preventing the formation of black-odor water bodies and new pollution sources, decentralized sewage treatment and resource utilization shall be implemented.

Rural Domestic Sewage Treatment Multi-process Path Advantages

● Pretreatment + Natural Assimilation

It features the smallest footprint, relatively short hydraulic retention time, moderate shock load resistance, the lowest project investment, minimal operational costs, and simple maintenance. The effluent can be recycled for multiple receptors including rural farmlands, woodlands, grasslands, and vegetable gardens.

Applicability: Natural villages with small populations, scattered residences, scarce available land resources, and conditions

● Hydrolysis-Acidification + Constructed Wetland/Stabilization Pond

It has a moderate footprint, long hydraulic retention time, excellent shock load resistance, low project investment, minimal operational costs, fewer equipment requirements, and simple maintenance. Moreover, it can serve as a landscape feature to enhance the surrounding environment.

Applicability: Natural villages with small populations, concentrated residences, abundant available land resources, and no conditions for natural assimilation.

● Micro-Power Treatment System + Constructed Wetland

It features a large footprint, long hydraulic retention time, relatively high shock load resistance, high project investment, excellent effluent quality, and simple maintenance, and can also serve as a landscape element to beautify the surrounding environment.

Applicability: Natural villages with a large population, concentrated residences and ample available land resources.

● Hydrolysis-Acidification + Biological Contact Oxidation

It features a relatively small footprint, short hydraulic retention time, excellent shock load resistance, low project investment, minimal operational costs, easy system startup, and simple maintenance.

Applicability: Natural villages with a large population, concentrated residences, and scarce available land resources

● Anaerobism + Anoxia + Aerobism

It features a relatively small footprint, long hydraulic retention time, excellent shock load resistance, low project investment, high treatment efficiency, and simple maintenance.

Applicability: Natural villages with a large population, concentrated residences, and scarce available land resources.

Rural Domestic Sewage Treatment Flexible Construction Approaches

Engineering-Based — **Equipment-Based** — **Above-Ground Type** — **Underground Type**

Based on factors such as housing distribution, resource conditions, planting patterns and villagers' willingness of each village, we formulate project site selection, process routes and construction modes tailored to local conditions, minimize construction and operation costs to the greatest extent, and ensure the sustainable operation of the treatment projects.

Construction Mode of "Domestic Sewage Treatment + Waste Disposal + Sanitary Toilets"

Construction Mode of "Domestic Sewage Treatment + Cultural & Leisure Park"

Resource Utilization Construction Mode