



# WWTP BAILONGGANG



## Concept & Location

Bailonggang is a busy suburb located on the outskirts of Shanghai, also known as the commercial capital of China. Situated in relatively close proximity to the centre of Shanghai, the district of Bailonggang was home to a wastewater treatment plant that was struggling to cope up with the increase in population that accompanies the boom in Shanghai. Although the wastewater treatment plant design had included a sludge thickening line, a need was felt to expand the capabilities and capacity of the plant to better serve the needs of one of Asia's most populous urban agglomeration. (For comparison, The Bailonggang plant served the needs of a people equivalent of 4.3 million whereas metropolitan Shanghai houses 20 million, which creates a huge demand for Wastewater management.)

The Wastewater Treatment plant at Bailonggang was funded by the International Bank for Reconstruction and Development (IBRD), and Passavant Energy and Environment were chosen to undertake the contract for the extension of the mechanical sludge thickening plant as well as for the construction of the complete sludge digestion and drying plant.

Passavant Energy and Environment assumed complete responsibility of the engineering, delivery and supervision of installation and commissioning of the complete mechanical and electrical sludge treatment plant equipment, which included a full biogas recovery system and a 24 month guidance operation.

To carry out the execution of the project, Passavant Energy and Environment established a dedicated office in China, to

handle the coordination of local construction personnel. The Bailonggang wastewater plant, uniquely identifiable by the 8 egg-shaped digesters with a total capacity of 99,200 m<sup>3</sup> of sludge treatment, is currently the largest sludge treatment plant in the world.

Passavant Energy and Environment's strong performance in the construction of the wastewater treatment plant at Bailonggang led to a string of major project wins in China. Passavant Energy and Environment have undertaken more than 50 contracts in the world's most populous country, and are well established as a major as large-scale turnkey contracting company for water, wastewater and sludge treatment in China.

Among the other major projects carried out by Passavant Energy and Environment in China are the Wastewater Treatment Plant in Beijing (Xiaohongmen with a daily flow of 600,000 m<sup>3</sup>), the WWTP at Shijiazhuang (with a capacity of 500,000 m<sup>3</sup>/d), Hangzhou (with a capacity of 600,000 m<sup>3</sup>/d), Sludge Treatment Plant (STP) at Wuhan (with a capacity of 300,000 m<sup>3</sup>/d), and the Sludge Treatment Plant at Yantai (with a capacity of 240,000 m<sup>3</sup>/d).

Passavant Energy and Environment's success in China is a vindication of the company's strong planning skills, global outreach and stellar communication and co-ordination between the local offices and the central office in Germany. The Wastewater Treatment plant at Bailonggang is a great example of the transfer of knowledge and skills in a global economy.



## Scope of Work & Innovation

Passavant Energy and Environment's official scope of work covered the following areas:

- Supply, Installation of Equipment and Civil Works for Sludge Mechanical Condensation, Digestion and Drying System at the Bailonggang Waste Water Treatment Plant.
- Installation of the following new main process units into the existing plant:
  - o Mechanical sludge thickening units
  - o Digestion Plant
  - o Sludge Transfer to Sludge Drying Plant / Sludge Silos
  - o Biogas Treatment Plant
  - o Return Water Treatment Facility
  - o Sludge Liquor Treatment Facility.

## Challenges

The WWTP at Bailonggang was an interesting learning experience for Passavant Energy and Environment. Though sludge digestion and treatment have been Passavant Energy and Environment's forte, the Bailonggang wastewater treatment plant was the company's first major initiative in China, and merging the European technical knowhow and approach with the Asian sensibility offered a welcome learning curve for Passavant Energy and Environment.

From a technical perspective, the Shanghai Bailonggang plant would be the largest sludge digestion project Passavant Energy and Environment had been involved with. In terms of capacity, Passavant had earlier worked on the massive wastewater treatment plant at Shijiazhuang (with its distinctive 6 egg-shaped digesters and a total sludge treatment capacity of 69,000 m<sup>3</sup>) but the Bailonggang plant's capacity was nearly 30,000 m<sup>3</sup> bigger.

Another challenge for Passavant-Energy and Environment was assuming complete responsibility of the project and act as the single point of contact for all issues, with the client. In its capacity as the JV leader, Passavant not only coordinated the works of all 4 Joint Venture partners, but also took the lead in furthering overall project execution.

The project also offered unique cultural challenges, but the constant involvement of Passavant Energy and Environment's local Chinese personnel facilitated the communication between the clients, the local teams and subcontractors, and the HQ in Europe.

Passavant's strong planning and constant monitoring allowed the company to meet the requirements of plant and successfully launched Asia's largest sludge treatment plant well on time.



## Innovation & Highlights

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