



## Upgrade of Zhongli Wastewater Treatment Plant with MBR Filtration Technology

## Customer's Problem

The Zhongli Wastewater Treatment Plant in Taiwan faced significant challenges in treating industrial wastewater reliably. The existing treatment system struggled with increasing pollutant loads and operational inefficiencies. Expanding the facility was not feasible due to limited space, necessitating an advanced treatment solution that could operate within the existing plant footprint.

Key challenges included:

- Inconsistent water quality: The old system couldn't guarantee to meet regulatory discharge standards.
- Limited space for upgrades: No room for conventional expansion.
- High industrial wastewater load: Diverse industrial sectors generated complex wastewater compositions, requiring an efficient and robust treatment solution.

## Solution Proposals

To address these issues, the plant was upgraded with a MYTEX Membrane Bioreactor (MBR) system, integrating advanced filtration processes into the existing infrastructure.

Key project features:

- **Advanced MBR Technology:** Replaced conventional treatment with MYTEX MBR for improved filtration and pollutant removal.
- **Compact Design:** Integration of 52,000m<sup>2</sup> membrane area enabled a high treatment capacity (20,000m<sup>3</sup>/day) without expanding the existing footprint.
- **Process Optimization:** Inclusion of key treatment steps:
  - Screening
  - Aeration
  - Filtration
- **Reliable Operation Model:** A BOT (Build-Operate-Transfer) model over 5 years ensured smooth execution and operation.
- **Efficient Water Management:** Filtered water is discharged in compliance with local environmental standards.

## Conclusion

The modernization of the Zhongli Wastewater Treatment Plant through the implementation of MYTEX MBR technology demonstrates a successful solution for treating industrial wastewater efficiently within spatial constraints. By upgrading to a compact and robust system, the plant achieved higher treatment performance, reliable operations, and compliance with discharge standards.

The project serves as a benchmark for wastewater treatment solutions in industrial settings, showcasing the advantages of MBR technology for capacity upgrades and environmental sustainability.

## Results

The project successfully achieved the following outcomes:

- ✓ **High Treatment Efficiency:** Improved wastewater quality, meeting stringent discharge regulations.
- ✓ **Space Efficiency:** MBR technology enabled treatment of 20,000m<sup>3</sup>/day within the existing facility footprint.
- ✓ **Reduced Downtime:** The upgrade was completed without disrupting plant operations, ensuring continuous wastewater treatment.
- ✓ **Diverse Wastewater Handling:** The system efficiently treated inflow from various industrial sectors:

### *Industrial type / Wastewater infeed composition*

<i>Electronic computer industry</i>	22.5%
<i>Metal industry</i>	13.44%
<i>Chemistry</i>	6.56%
<i>Machinery industry</i>	13.44%
<i>Textile and garment industry</i>	5.63%
<i>Wholesale industry</i>	7.19%
<i>Food and Beverage Industry</i>	6.41%
<i>Plastic and rubber industry</i>	6.09%
<i>Others</i>	18.75%

The high-quality discharge water now complies with all environmental standards, ensuring long-term sustainability and operational reliability.

The project was of impressive scale, involving a total of 72 MYTEX H5L5 modules, each with 5 levels and a surface area of 719 m<sup>2</sup> per module.



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