CASE STUDY

# MABR Plant

## Rural Wastewater Treatment, Zhejiang Province, China

- **Location:** Outang Village, Qujiang District of the Zhejiang Province in China
- **Capacity:** 40 $m^3$/day (10,500 GPD)
- **Technology:** MABR-based wastewater treatment plant
- **Customer:** Tiandi Environmental Protection Technology Co. Ltd

## Background

Outang Village in Qujiang District, Zhejiang Province, is a rural residential area next to Gao Jia town and adjacent to Qu River. Its 400 residents (150 households) are mostly farmers, growing rice, oranges and vegetables. The river is their main water source for irrigation and local domestic usage.

Wastewater discharged to the ground and river was affecting the villagers' livelihood, and they had to protect their natural environment. In 2016, the Chinese government set a 5-year plan specifying that by 2021, 70% of wastewater in rural areas must be treated to meet Class 1A standards.

## The Challenge

- There is no existing wastewater treatment for the town
- Influent characteristics of $NH_3$-N and are higher compared to ordinary domestic wastewater, and the effluent quality is required to meet the strict Class 1A Standard
- Wastewater needs to be treated to reuse quality for irrigation
- With the site adjacent to private housing, the solution needs to be odorless, quiet and environmentally friendly

## Solution Criteria

- Meets Class 1A effluent standards
- Capacity: 40 $m^3$/day
- Low energy consumption
- Economical CapEx and OpEx
- Environmentally friendly
- Timeline: delivery, installation and commissioning within six months

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# CASE STUDY • Quzhou | 40 m³/day project

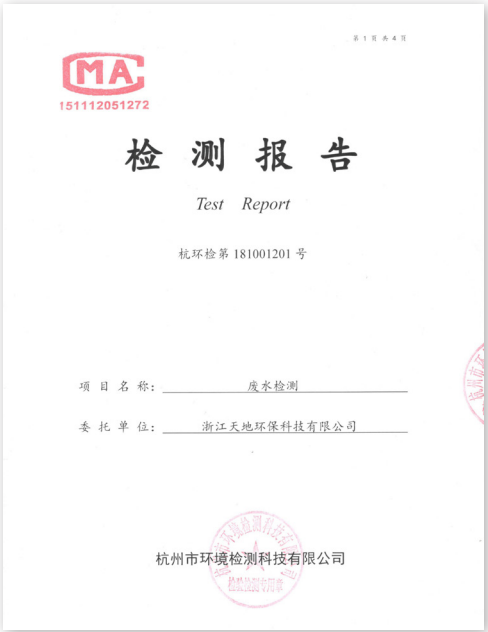
## The Solution

The plant is operational since May 2018, providing much needed wastewater treatment to the village of Outang, and meeting the highest quality Class 1A standards in China:

### Design Parameters

| Design Parameter (mg/L) | Min. Wastwater Design Temp | pH Range | $NH_4$–N | COD | TN | TP | TSS | BOD |
|---|---|---|---|---|---|---|---|---|
| Influente | 12.5°C | 6-9 | 30 | 400 | 40 | 5 | 200 | 200 |
| Effluent | | 6-9 | < 5 | < 50 | < 15 | < 0.5 | < 10 | < 10 |

- Pre-treatment: fine screen and FOG separators
- Secondary treatment: biological treatment using three MABR modules submerged inside a concrete basin
- Secondary clarifier
- Tertiary treatment: media filters and disinfection unit
- Holding tank for sludge



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检 测 报 告

*Test Report*

杭环检第 181001201 号

项 目 名 称：废水检测

委 托 单 位：浙江天地环保科技有限公司

杭州市环境检测科技有限公司

### 3rd Party Wastewater Test Report

Released by Hangzhou Environmental Testing Technology Co. Ltd
Report#No. 181001201

| Item (mg/L) | pH | $NH_4$-N | $COD_{cr}$ | TN | TP | TSS |
|---|---|---|---|---|---|---|
| Influent | 7.64 | 25.2 | 111 | 54.3 | 5.07 | 53 |
| **Effluent** | **7.27** | **0.692** | **32** | **2.01** | **0.118** | **9** |
| **Class 1A Standard** | **6 ~ 9** | **< 5/8** | **< 50** | **< 15** | **< 0.5** | **< 10** |

** Class 1A Standard refers to the National Standard of P.R.China GB18918-2002 Pollutant Discharge Standard of Municipal Wastewater Treatment Plants*