



All rivers are clean and no water is polluted.



Stock Code:  
6641

# GSD Technologies Co.,Ltd.

## Company Presentation

2022.03.30

GREEN · SAFE · DEVELOPMENT





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- 04  Operating Strategy



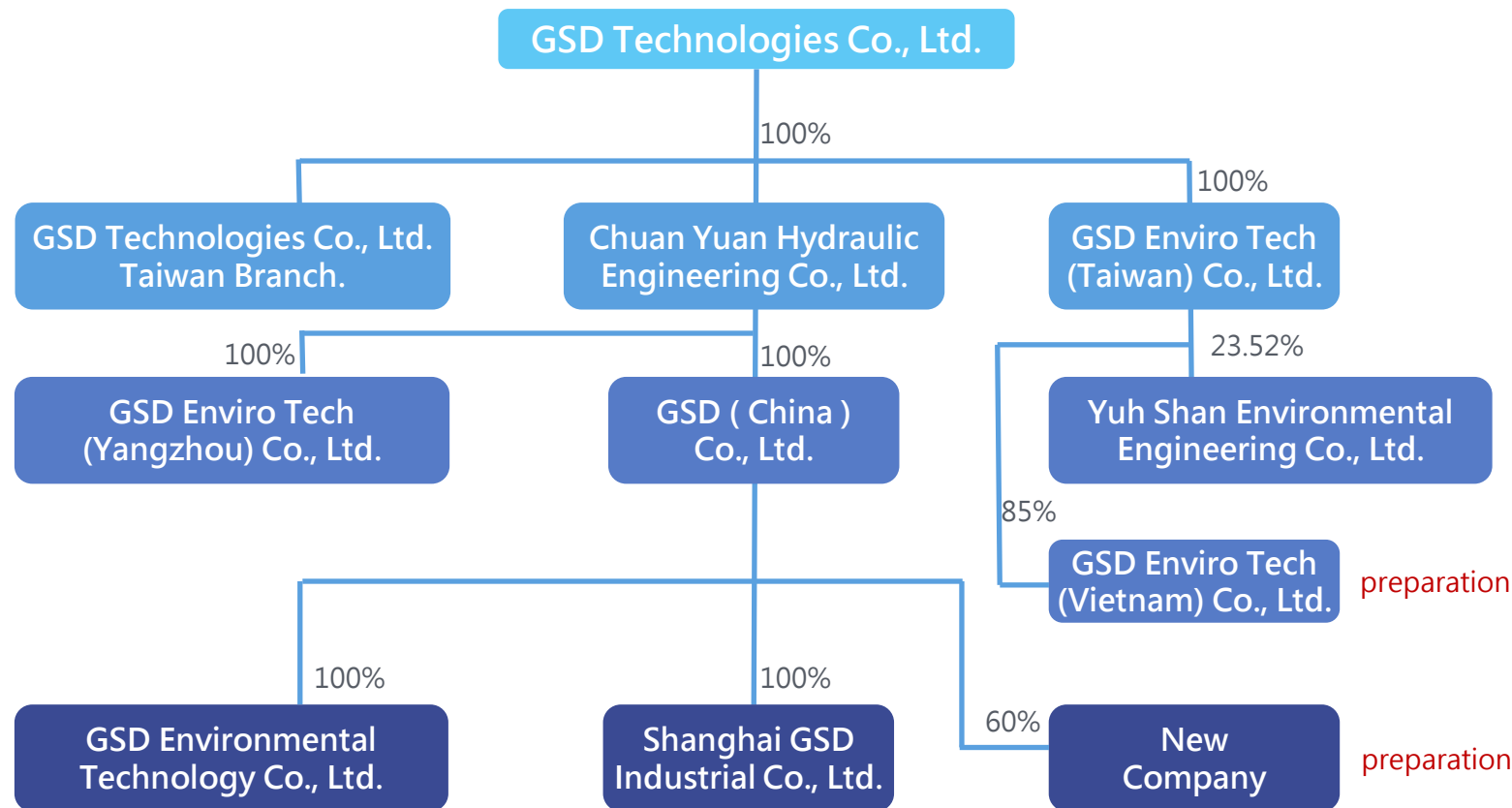
# Company Profile

# 01

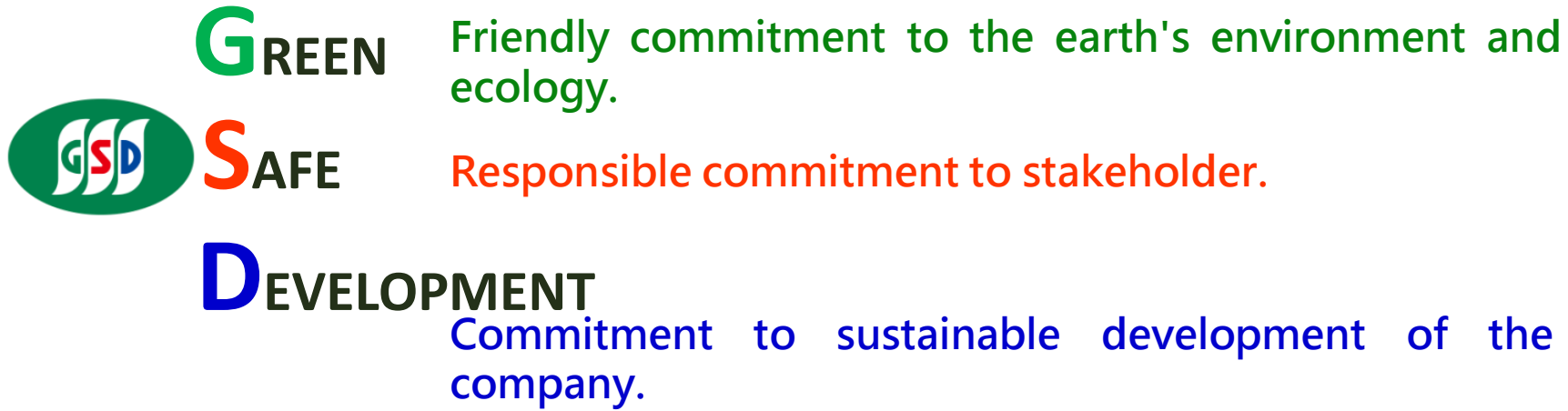
# Company Information

Company	◆ GSD Technologies Co., Ltd.
Stock Code	◆ 6641
Established	◆ Oct.2013
Chairman	◆ Hung-June, Hsieh
Paid in capital	◆ NTD 370 Millions
Major business	◆ Environmental equipment manufacturing, sales and technical services.
Brand	◆ GSD
2 Plants	◆ Pinghu in Zhejiang & Yangzhou in Jiangsu
Staffs	◆ 554 employees (2021.Dec.)

## Company Structure



# Business Philosophy



**Mission** To optimize the ecological environment and benefit to the world.

**Environment** : All rivers are clean and no water is dirty.

**Vision** **Company** : Being paragon to all brands, being leader in WWTP industry.

**Colleague** : To enable our staff' s devotion in wonderful career and life.

# GSD-ESG

## *ACTION!*

Launched the strategy of **sustainable operation**

**Set up ESG action team** to coordinate and promote the company's sustainable business strategy.

The first ESG report will be issued in 2024.

## Green Product

Launched green products to help customers save energy, reduce consumption and carbon emissions, covering mechanical energy saving, process energy saving (upgrading and reconstruction), and management/smart energy saving.



## Green Management

Checking Carbon emissions and carbon footprint, setting 30/50 goals, KPI, and formulating green investment strategies.





## Reconstruction of aeration system

### Project A

Energy consumption  **67%**

Before: 0.22kW/m<sup>3</sup> ; After: 0.08kW/m<sup>3</sup>

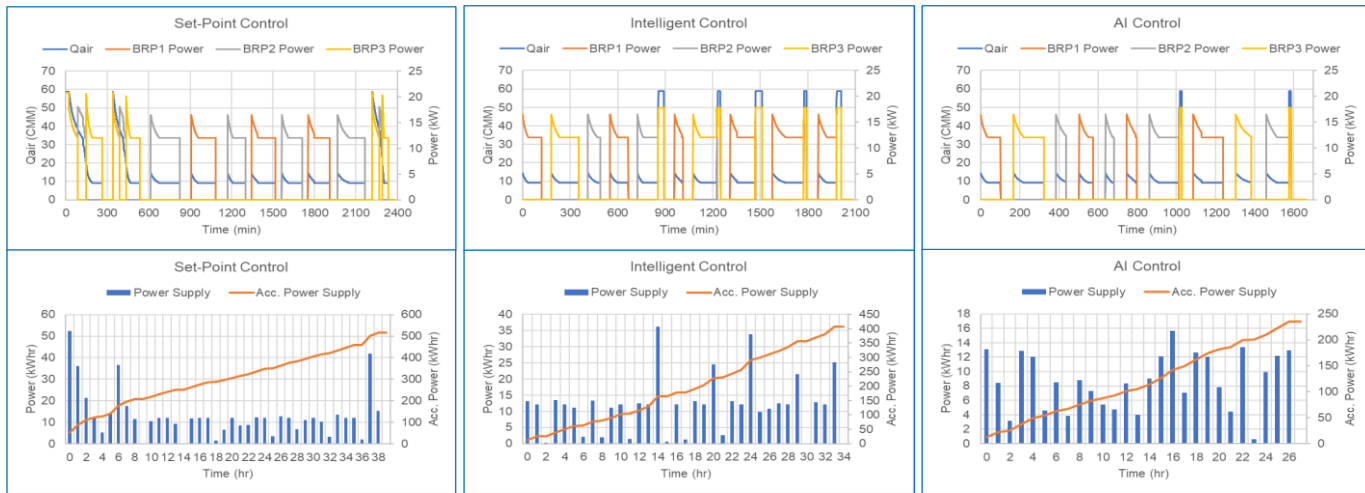


### Project B

Energy consumption  **10%**

Before :183.3KW ; After :165.8KW





Root Blower	Set-Point Control		Intelligent Control		AI Control	
	range	Avg.± Std.	range	Avg.± Std.	range	Avg.± Std.
Power (kW)	1.41 ~ 52.43	<b>13.98</b> ± 10.82	0.20 ~ 36.16	<b>12.32</b> ± 8.43	0.61 ~ 15.66	<b>8.71</b> ± 3.90
Cumulated(kWhr)	517.10		406.56		235.21	
Saving (%)	46.14		57.65		75.50	

Through data simulation and analysis, the power saving effect is obvious by AI.



## Green Management



Use environmentally friendly water-based paint.

Support Hubei new infectious disease hospital.

Solar power generation electricity-saving.

Support local river governance.

Construction of sponge factory.

Focus on carbon reduction from product design.



# Green Management

Cleaning plate activity

Festival activity

Team building activity

Skill competition

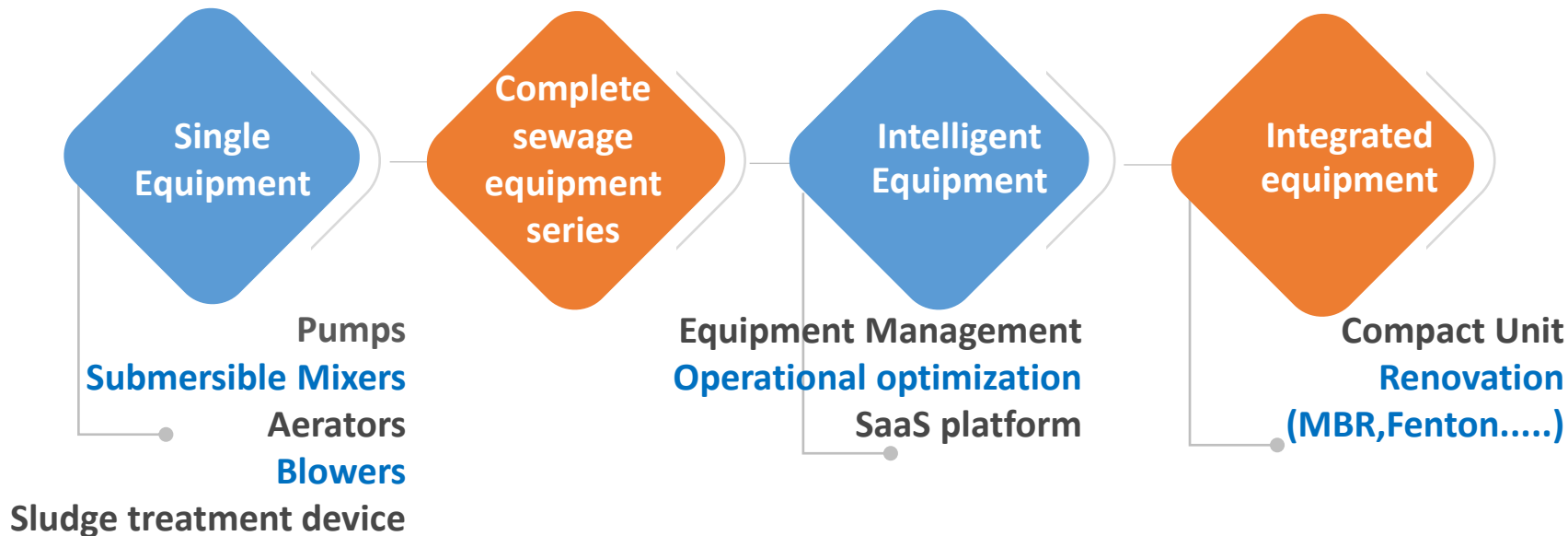
Collecting goods for rural schools

Financial aid for poor students

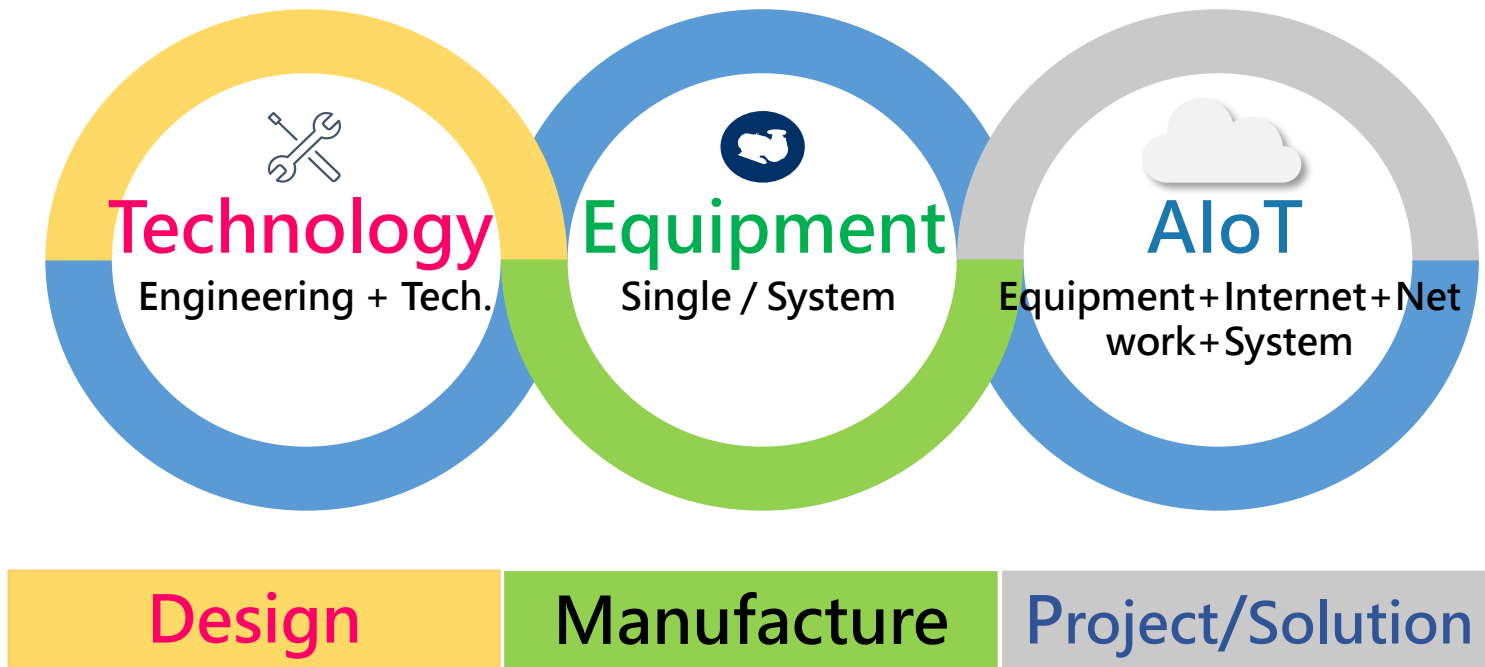
Business culture activity



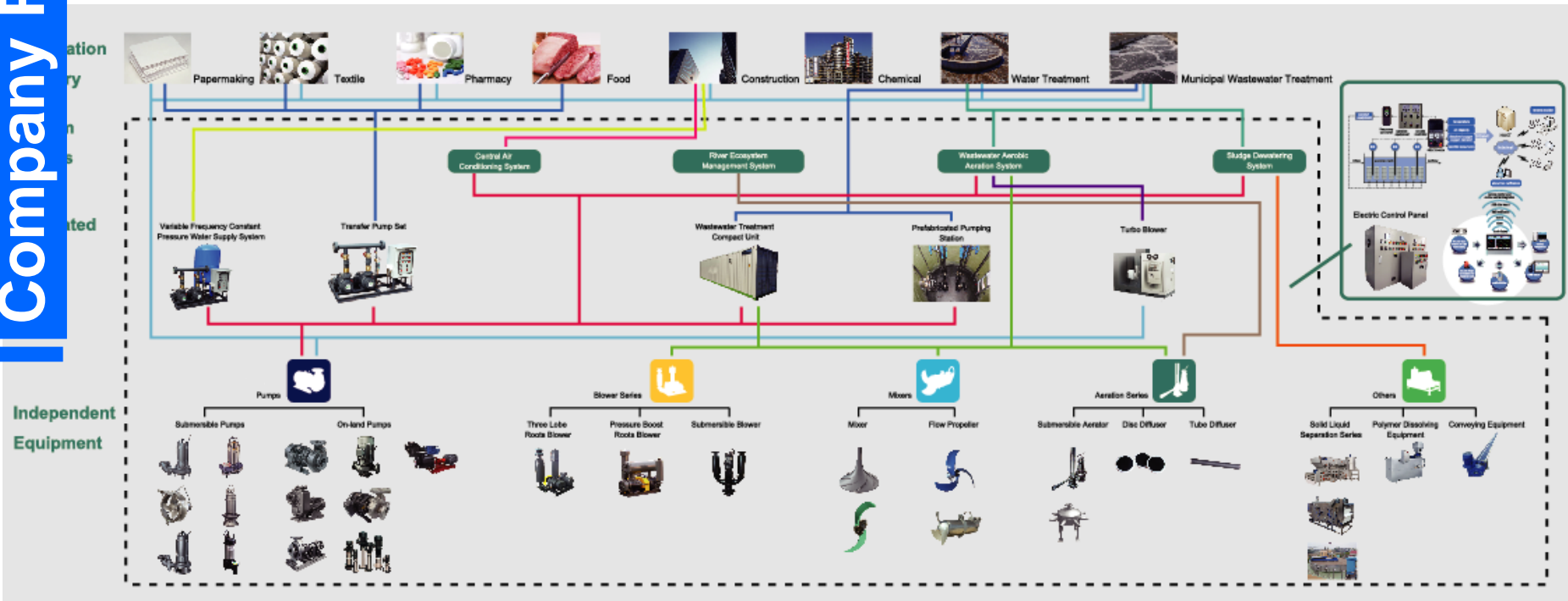
### Comprehensive provider of environmental governance



Comprehensive provider of environmental governance



## Comprehensive provider of environmental governance







**2019** GSD Technologies Taiwan Branch.

**2021** Enviro Tech (Taiwan).

**2021.May** NT\$ 300 million dollar CB was issued.

**2021.June** GSD invests in Yuh Shan Environmental Engineering Co.

**2021.Oct** Cash capital increase NT 150 million dollar.

Launch a smart water service platform - Saas (Software as a Service ) with the "Taiwan Water Industry Development Association ".

2021 Data Innovation Application Competition Gold Award in the Open Data Application Group of the Ministry of Economic Affairs:

**Do not rely on the weather for water**---the preventing & warning crystal ball”

- Use AI to predict the state of water shortage and water resource utilization in reservoirs.
- Calculate the severity of severe water conditions, and perform real-time forecasts of water supply and demand.
- Provide decision-making suggestions for local and central institution to allocate water resources.

**Winner of the 2021 City Data Reality Competition by SME division of the Ministry of Economic Affairs.**



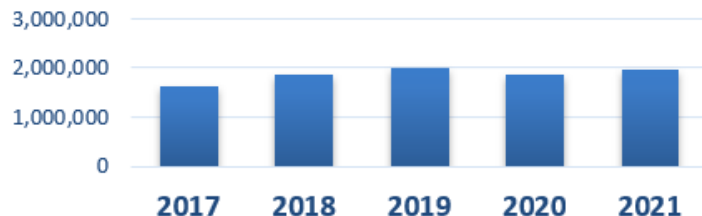
# Operating Performance

# 02

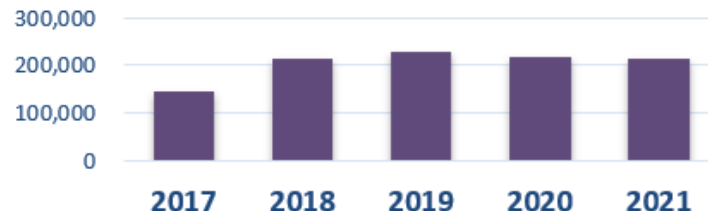
# Income statement

Items	2017	2018	2019	2020	2021
Revenue	1,622,684	1,867,639	1,992,051	1,846,674	1,960,518
Growth Rate	25.70%	15.10%	6.66%	-7.30%	6.16%
Sales margin	635,387	739,292	771,093	739,951	751,949
Op. Expenses	445,830	475,650	530,561	477,846	548,722
Op. Income	189,557	263,642	240,532	262,105	203,227
EBIT	202,756	280,499	282,631	290,949	256,126
Net income	144,433	213,672	227,154	215,511	212,274
Income growth %	91.23%	47.94%	6.31%	-5.13%	-1.50%
EPS	4.81	6.86	6.79	6.52	6.30

## Revenues



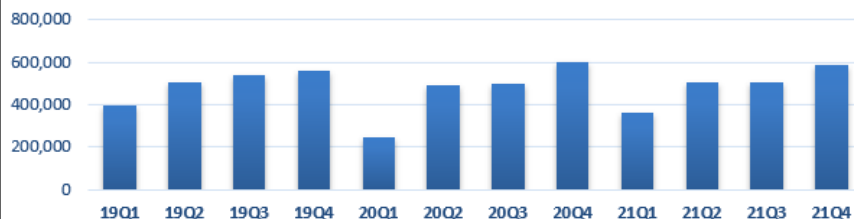
## Net Income



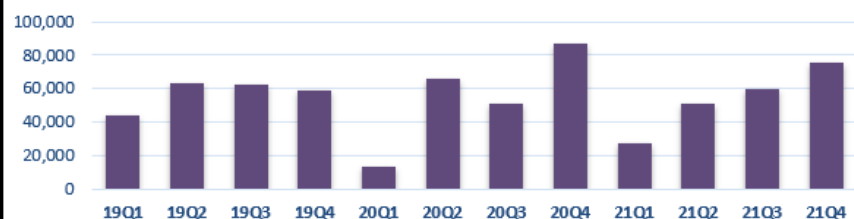
# Income statement

Items	2019Q1	2019Q2	2019Q3	2019Q4	2020Q1	2020Q2	2020Q3	2020Q4	2021Q1	2021Q2	2021Q3	2021Q4
Net Sales	394,512	505,098	535,690	556,751	248,663	493,929	501,031	603,051	361,672	506,872	507,774	584,200
Sales margin	152,536	200,285	201,412	216,860	99,188	207,187	192,320	241,256	145,642	211,623	183,314	211,370
Op. Income	43,969	66,249	68,149	62,165	9,338	83,944	65,398	103,425	24,959	67,917	43,095	67,256
EBIT	55,620	81,035	79,788	66,188	17,589	91,686	67,861	113,813	30,530	62,506	76,860	86,230
Net income	43,230	63,256	61,927	58,741	13,171	65,935	50,296	86,109	27,205	50,316	59,438	75,315

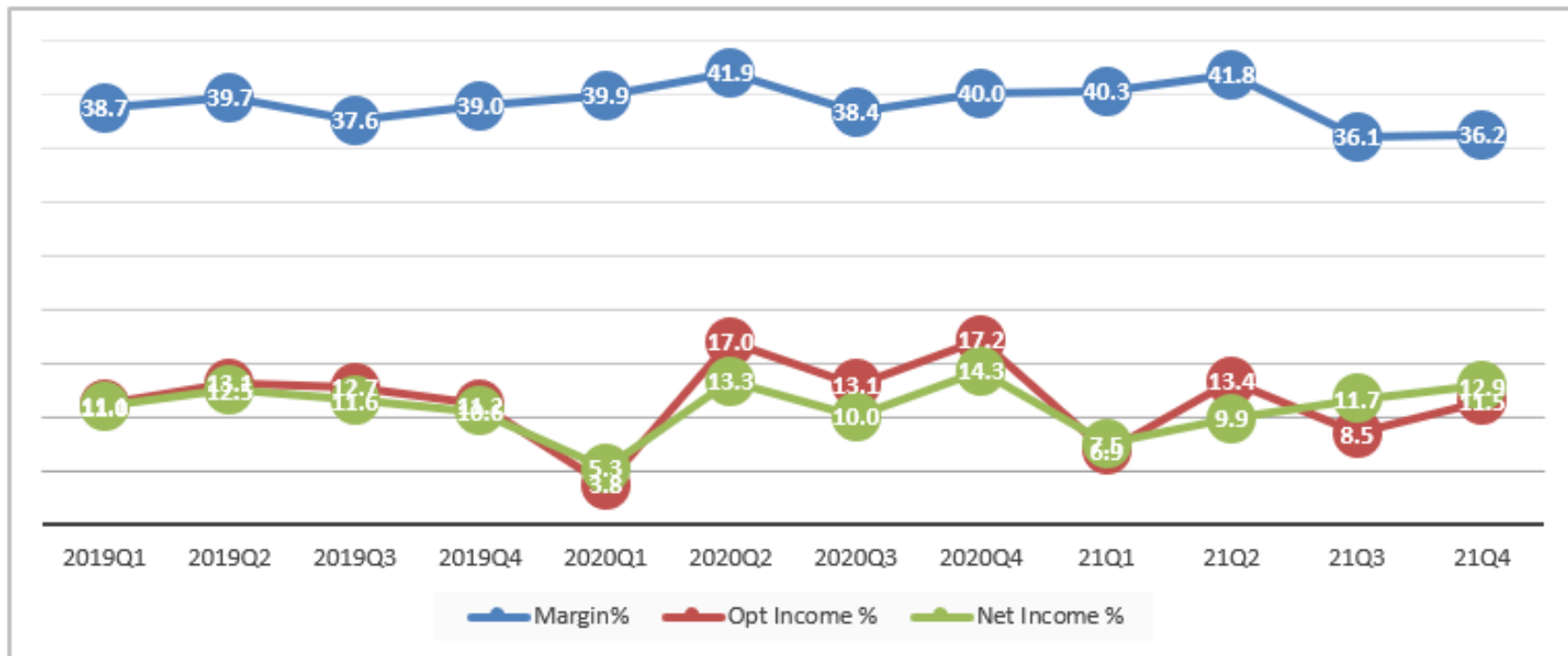
Revenues



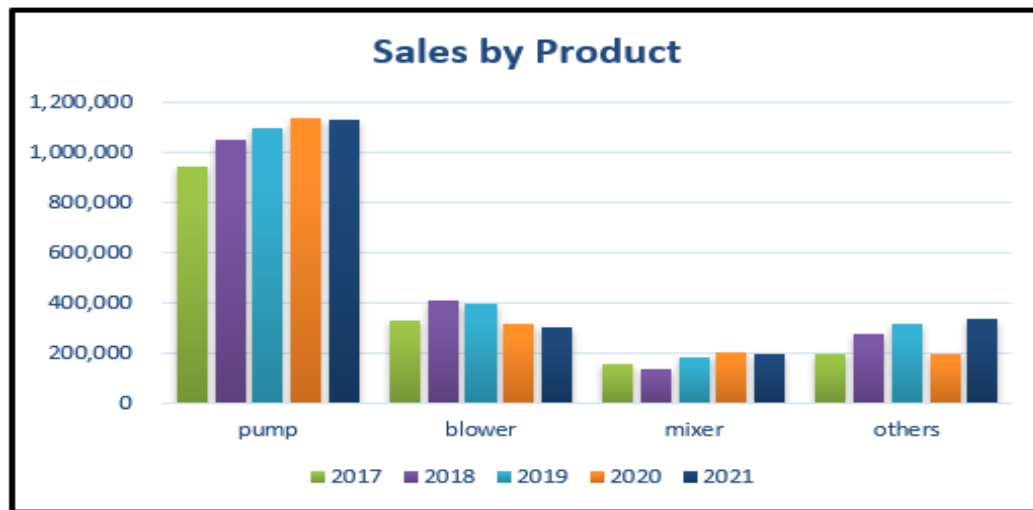
Net Income



## profitability ratio

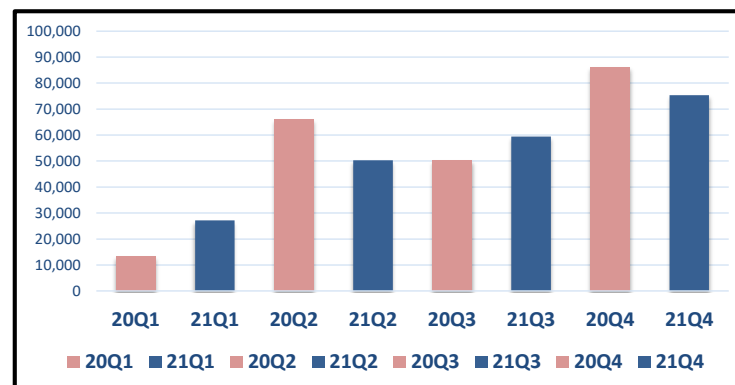
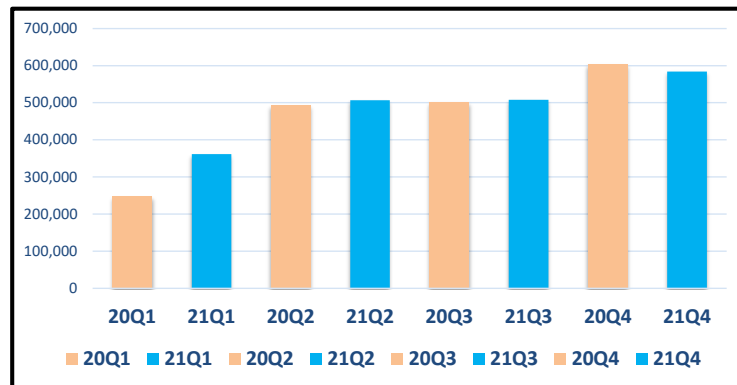


2021Q3-Q4 gross profit margin decreased:  
The increase in the proportion of Taiwan's revenue.



item	2019		2020		2021	
	AMT	%	AMT	%	AMT	%
pump	1,097,049	55.07	1,138,671	61.66	1,130,537	57.67
blower	395,382	19.85	313,497	16.98	302,771	15.44
mixer	182,604	9.17	199,597	10.81	195,171	9.96
others	317,016	15.91	194,909	10.55	332,039	16.94
Total	1,992,051	100.00	1,846,674	100.00	1,960,518	100.00

## QoQ Performance



## Quarterly REVENUE

Items	20Q1	21Q1	20Q2	21Q2	20Q3	21Q3	20Q4	21Q4
Revenue	248,663	361,672	493,929	506,872	501,031	507,774	603,051	584,200
Net Income	13,171	27,205	65,935	50,316	50,296	59,438	86,109	75,315

## Quarterly NET INCOME

Currency	2020	2021	Difference
NTD/CNY	4.282	4.341	1.38%



## Dividend (NTD %)

Items	2017	2018	2019	2020	2021
EPS(1)	4.81	6.86	6.79	6.52	6.3
EPS(2)	4.81	6.28	6.79	6.52	5.91
Cash dividend	3.01	3.8	4.5	4.5	4.5
payout ratio (%) (N1)	63%	61%	66%	69%	76%
EPS(1): counted by average shares EPS(2): counted by year end shares N1: counted by EPS(2)					

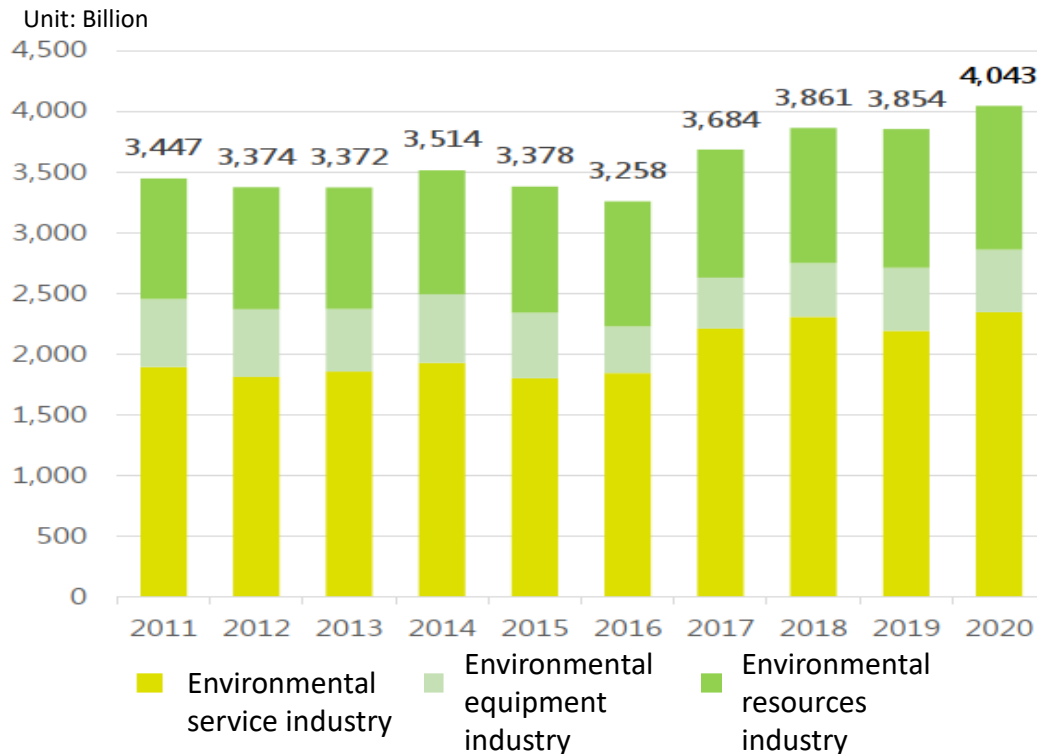
EPS exceeded NTD 6 and distribution rate exceeded 60% for last 4 years.



# Industry Overview

# 03

Taiwan's environmental protection industry output value (2011-2020)



Source : Environmental Protection Industry (Biomass Energy and Environmental Protection Industry Information Network)

Function	Total (100 million)	Structure ratio (%)	Government departments (100 million)	Structure ratio (%)	Industrial sector (100 million)	Structure ratio (%)
<b>Expenditure on pollution prevention and control</b>	<b>1754.6</b>	<b>100.0</b>	<b>840.6</b>	<b>100.0</b>	<b>913.9</b>	<b>100.0</b>
Air pollution prevention and control	464.1	26.5	100.3	11.9	363.9	39.8
Greenhouse gas reduction	26.0	1.5	4.5	0.5	21.5	2.4
Prevention and control of water pollution	426.3	24.3	162.7	19.4	263.7	28.8
waste disposal	588.2	33.5	365.1	43.4	233.0	24.4
Noise and vibration control	14.6	0.8	12.9	1.5	1.7	0.2
Prevention and control of soil and groundwater pollution	16.0	0.9	8.7	1.0	7.3	0.8
Research development	11.2	0.6	5.2	0.6	6.0	0.7
Other	208.3	11.9	181.3	21.6	26.9	2.9

**2019 Taiwan's expenditure on pollution prevention and control**      **Source: EPA**

In April 2017, Taiwan proposed "Forward looking infrastructure design plan", about "water environment construction". It is estimated NT \$250.8 billion will be invested in 8 years, to create a high-quality water environment **without water shortage & flooding, also drinking well, and water friendly.**

2011-2015	2016-2020	2021-2025	2026-2030	2031~
	<b>TEN Water Phase I</b>	<b>TEN Water Phase II</b>		<b>TEN Water Phase III</b>
	<ul style="list-style-type: none"> <li>● Staged improvement of water quality</li> <li>● Seriously polluted water has been greatly reduced</li> </ul>	<ul style="list-style-type: none"> <li>● Overall improvement of water environment quality</li> <li>● Preliminary Restoration of water ecosystem function</li> </ul>		<ul style="list-style-type: none"> <li>● Overall improvement of ecological environment quality</li> <li>● Ecosystem to achieve a virtuous cycle</li> </ul>
12 <sup>th</sup> Five	13 <sup>th</sup> Five	14 <sup>th</sup> Five	15 <sup>th</sup> Five	

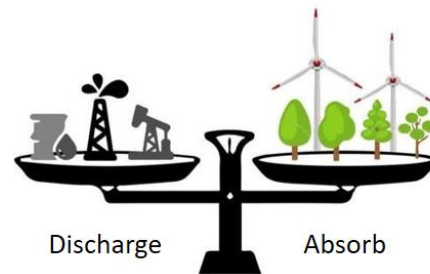
**Key words  
for the 14<sup>th</sup>  
Five-Year  
Plan**

Carbon Neutral

Energy saving &  
Emission reduction

Water is  
becoming resource

Carbon Neutral



2021.10.26<sup>th</sup> China plan to promote "carbon peak action "by 2030.

### 10 actions of carbon peak

- Green energy
- Carbon-reduced
- Industry filed
- Countryside construction
- Green transportation
- Circular Economy
- Technological innovation
- Enhance carbon capacity
- Low-carbon national action
- Green action in each area



By 2025, energy consumption will lower 13.5% , and carbon dioxide emissions will lower 18% .

By 2030, carbon dioxide emissions will reduce more than 65% compared with 2005.

2030 carbon peak  
2060 carbon neutrality

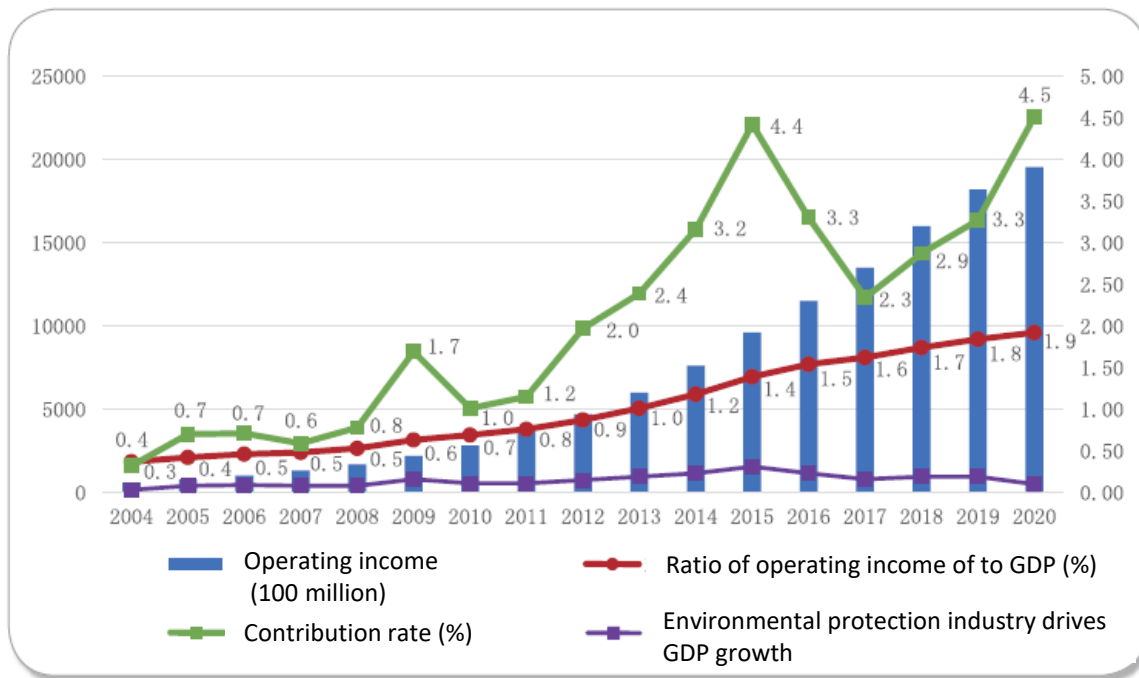
Fully implement the pollutant discharge permit system on energy conservation, carbon emission , water right.

Improve the efficiency of resource utilization to build a rigid system for water resources.

Reduce 250 million tons of energy consumption is a MAINLY goal to achieve.

1.9%

Income of  
environmental  
protection to GDP in  
2020

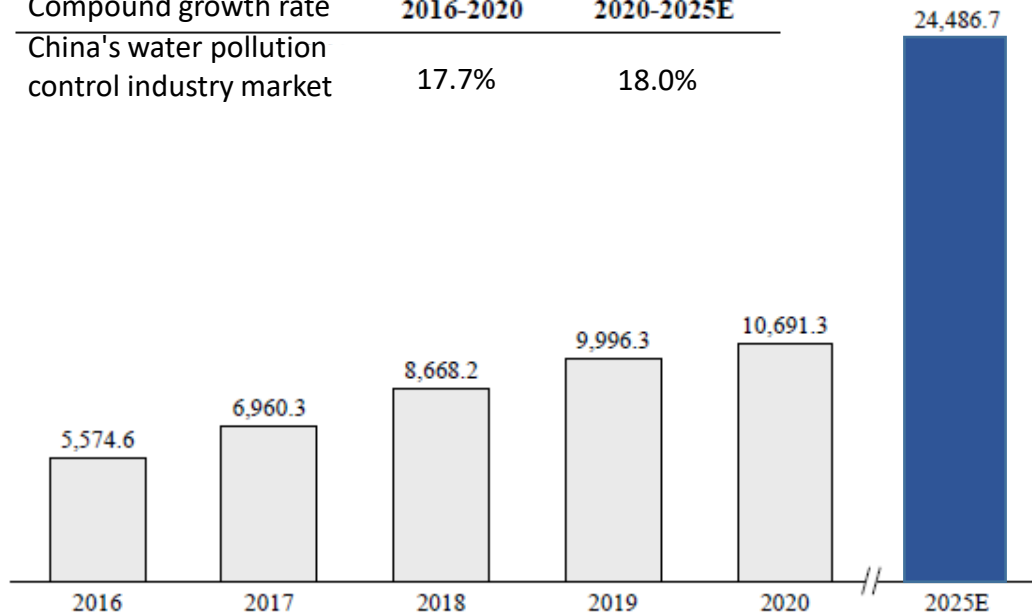


Source: report on the development of China's environmental protection industry (2021)



## Market scale of China's water pollution control industry (100 million yuan, 2016-2025 forecast)

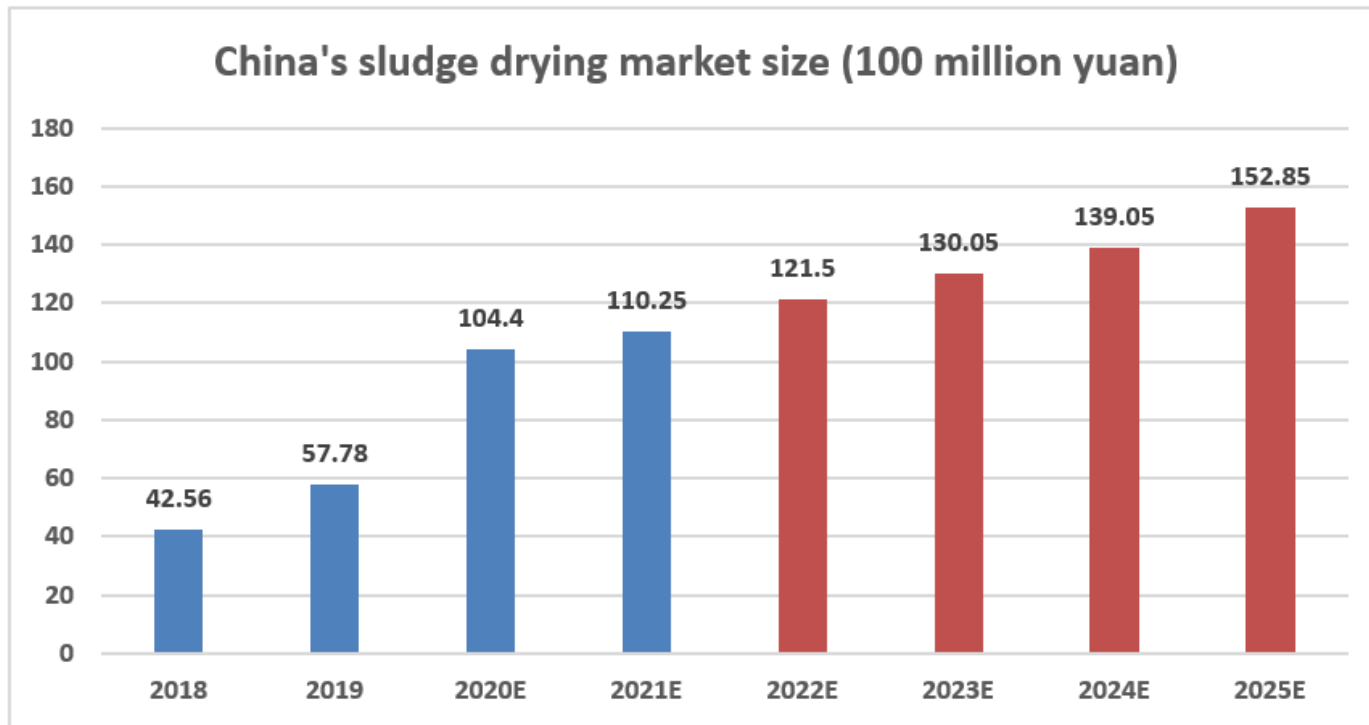
Compound growth rate	2016-2020	2020-2025E
China's water pollution control industry market	17.7%	18.0%



# 18%

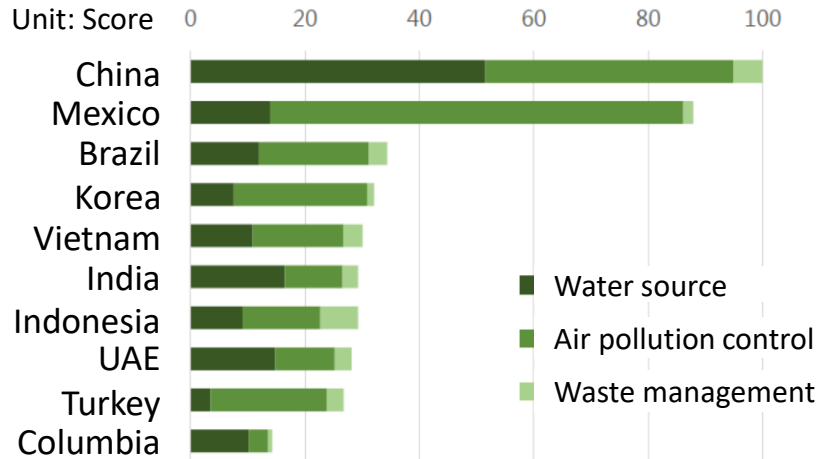
Compound growth  
from 2020 to 2025

Source: [www.leadleo.com](http://www.leadleo.com)



Unit: 100 million yuan (RMB)

Source: 2020-2025 sludge drying market analysis and investment prospect forecast report



Source:  
International Trade Administration, U.S. Department of Commerce (2020).  
2019 Environmental Technologies Top Markets: A Market Assessment Tool for U.S. Exporters.

## Vietnam environmental market

- The environmental protection technology industry is not yet mature and relies on **international company** to introduce goods and technical services.
- The government's **lack of management and law enforcement capacity**.



Air pollution

- Power depends on coal-fired generation.
- The government requires **install air pollution control systems and develop policies**.



Sewage control

- 70% of people has access to drinking water, and 75% of wastewater is directly discharged.
- >80% funds depend on international financing institutions.
- This industry is growing by **7%/year**, and several **large** WWTP are under planning.



The waste

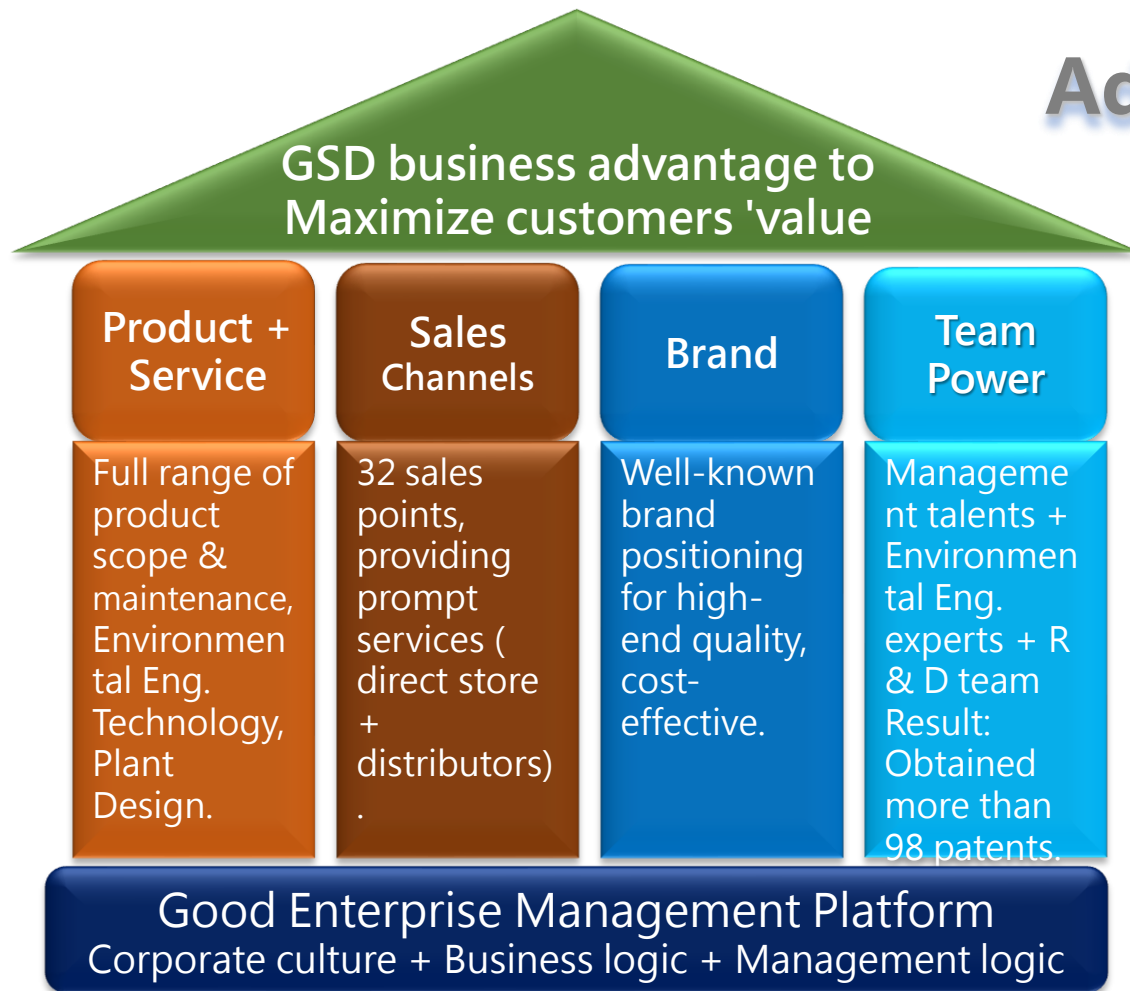
- **Recycling equipment is insufficient, and hazardous substances are NOT effectively classified.**
- Australia and China help to promote waste disposal and power generation facilities.

Source: bioenergy and environmental protection industry website



# Operating Strategy

# 04



Microorganisms  
Rapid Screening tech.

Anammox Technology

AI + IOT + DB



Op. & Maintenance platform

Alliance platform

Energy Mgt. platform

Water resources Mgt.

Bio 、 AI 、 IOT 、 Equipment 、 Integrated

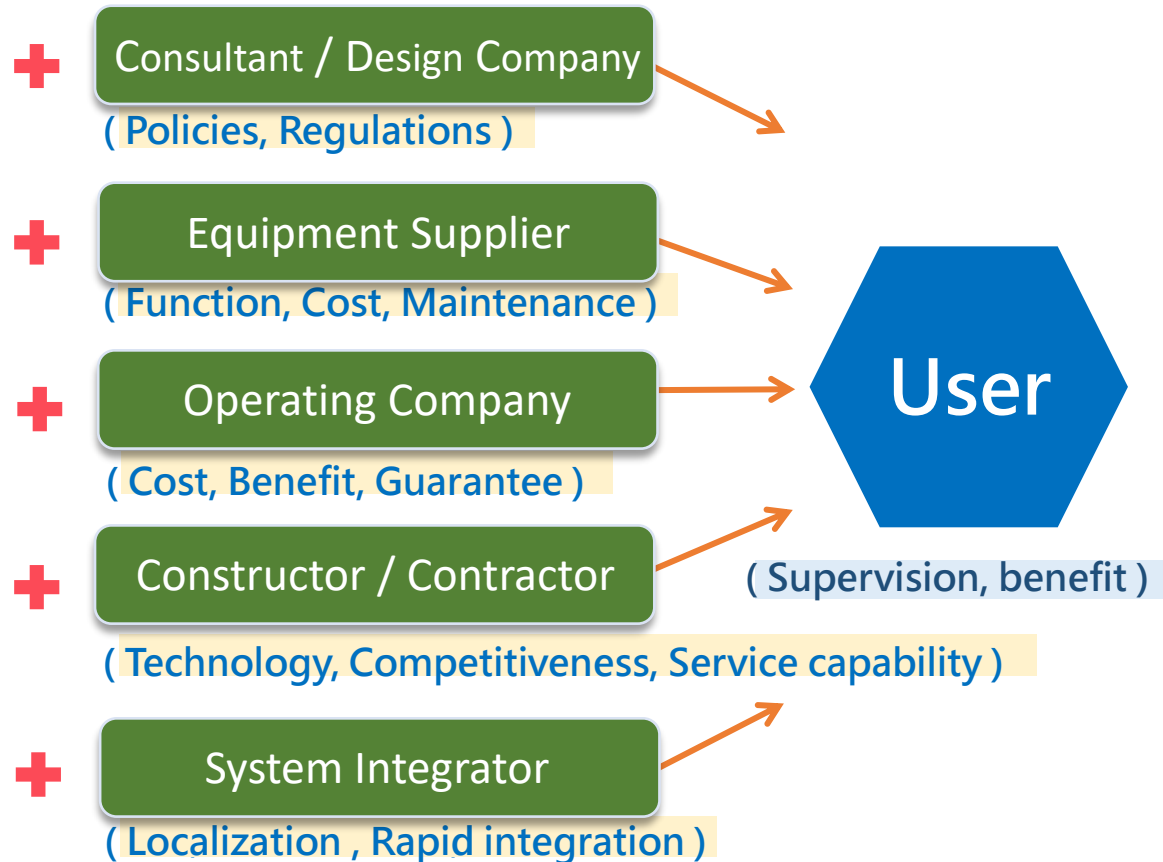
To Smart  
equipment



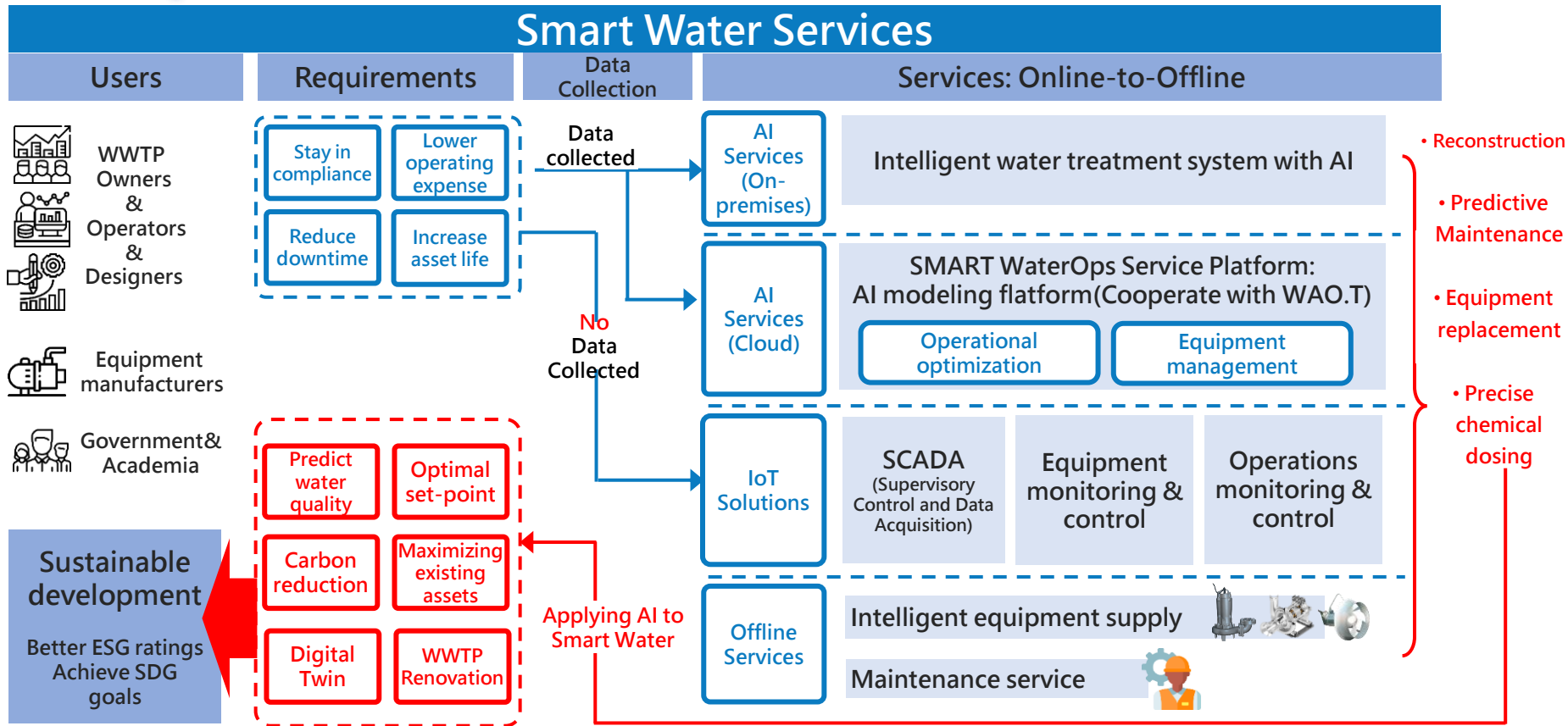
By means of intelligence  
Benefiting water resources management



AIOT  
Process Control



# Comprehensive Solution for Smart Water Services

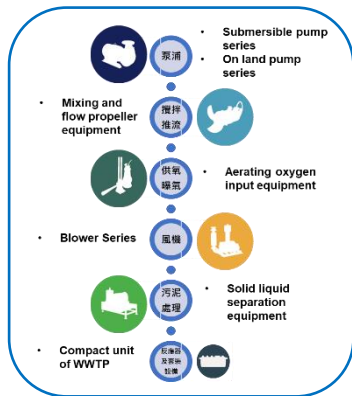




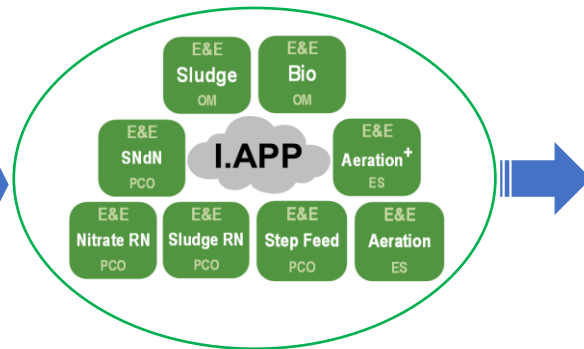
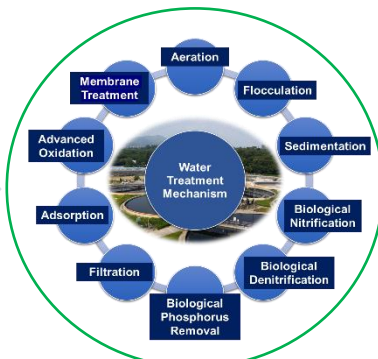
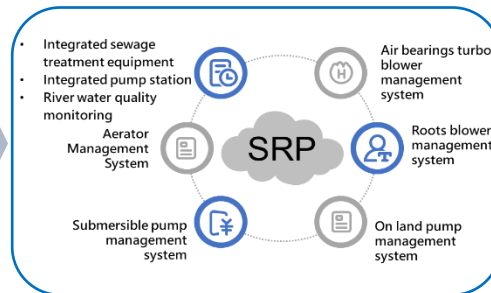
To Smart Equipment



AIoT Process Control

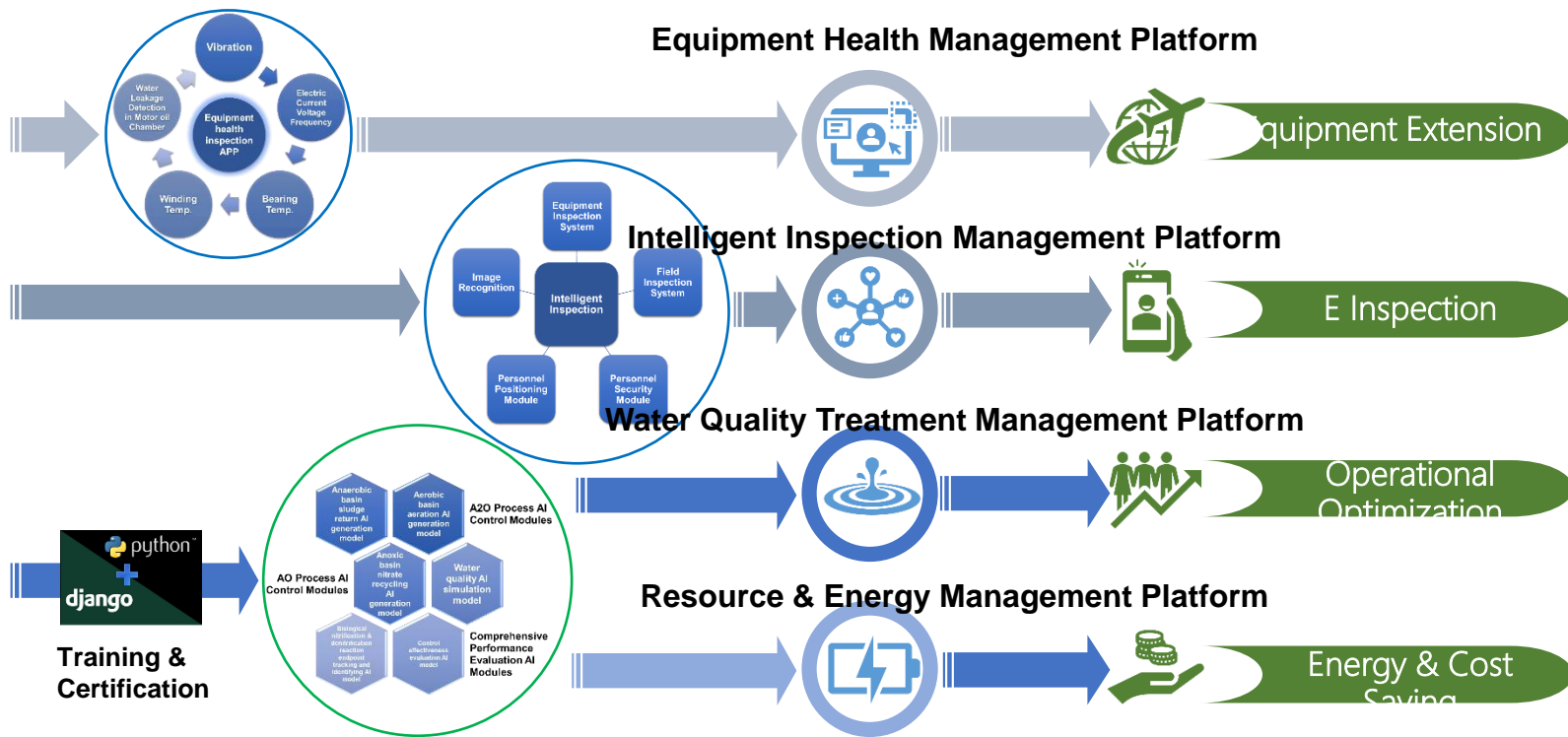


Equipment Management System

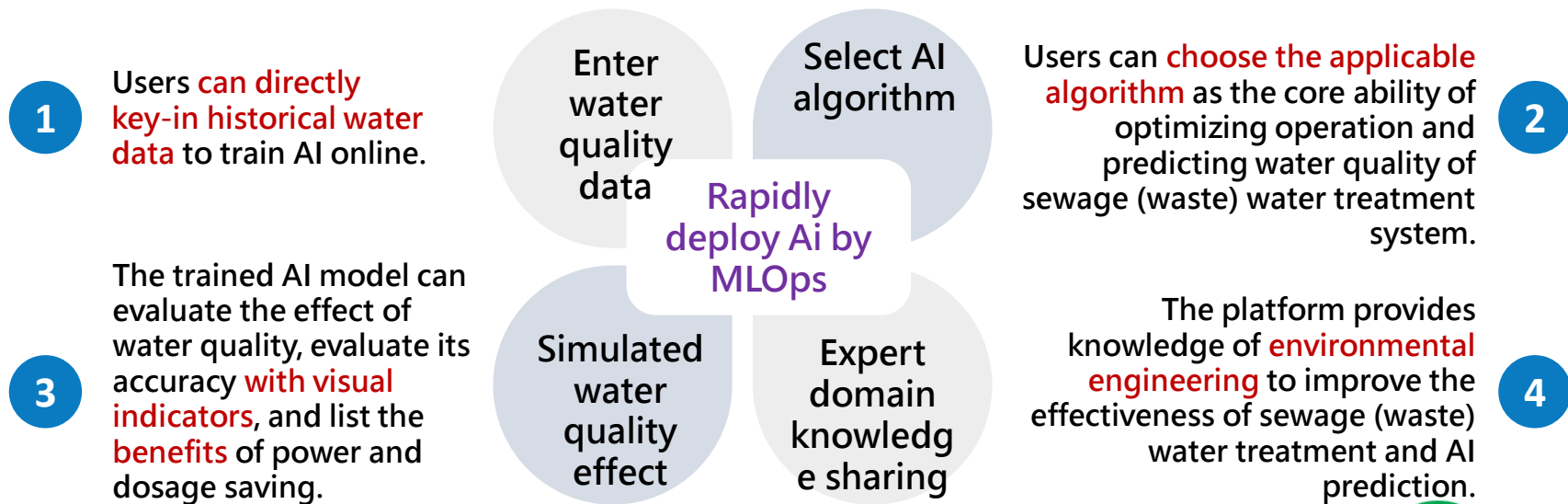


Intelligent Process Monitoring & Control Modules





Initiated launch The smart water service platform - SaaS (Software as a Service)  
Users can join the platform and use AI services when data collected.  
No AI team and software/hardware engineers needed, AI is no longer a luxury.  
The MLOps function of the platform makes machine learning and verification faster.  
Assist each water treatment related industry to use AI at a reasonable price.



## Agricultural Biotechnology Park in South of Taiwan



## Case

**Capacity: 4,000 CMD by A2O**

### User Need

- ✓ Intelligent control to cover for the lack of personnel experience and reduce the labor cost.
- ✓ Achieve the goal of optimizing A2O program operation through intelligent control.
- ✓ Solve the problem of excessive ammonia nitrogen.

### GSD Offer

- ✓ Establish the AI model to accurately control the aeration and return flow required in anaerobic, aerobic and anoxic sections.
- ✓ MLOPs is applied for sustainable operation and maintenance



## Blower room of Tainan technology industrial zone



Case



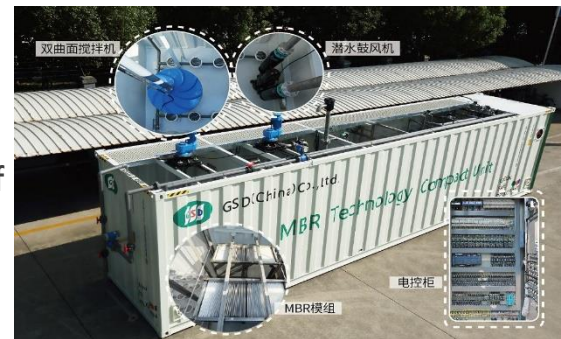
## Intelligent Compact Unit Reactor for WWTP



**Advantages:** it has low construction cost and small area, widely used in residential communities and rural areas.

**Current situation:** the equipment is located in remote areas, which **requires a lot of inspection and maintenance cost.**

**Solution:** remotely manage the equipment and water quality, send personnel for maintenance only when abnormalities occur, optimize manpower allocation, and reduce shutdown risk and overhaul cost



- **Equipment monitoring:** lift pump, mixer, blower, loop pump, dosing pump, upper drainage pump, sludge pump, sand filter inlet pump and sand filter backwash pump.
- **Process monitoring:** regulating tank liquid level, 2<sup>nd</sup> tank liquid level, 3<sup>rd</sup> tank liquid level, transient flow and cumulative flow.
- **Water quality monitoring:** SS turbidity, DO dissolved oxygen, temperature, pH, NH3 ammonia nitrogen

The Beijing customer remotely monitors the integrated sewage treatment equipment in Shandong.

## Mobile Pumping Truck



Case

2020/08/05[三] 11:15:06

剩餘1484.34GB · 共1862.76GB



設備管理系統

Supervise and Control System

即時數據

平面圖

總覽

設備狀態

數據分析

警報查詢

警報統計

趨勢圖

匯出報表

手動回補資料

帳號紀錄

設定

設備參數設定

管理項目設定

通訊設定

權限設定

Mail設定

簡訊購設定

Line/WeChat設定

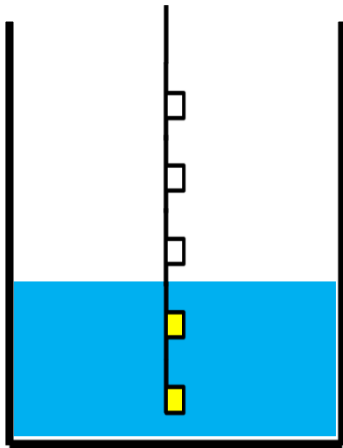
其他設定

聯絡方式

關於

登出

v1.22 (2020/07/29)

揚水站P07  
HH  
OFF揚水站P07  
HH  
OFF揚水站P07  
H  
OFF揚水站P07  
L  
ON揚水站P07  
LL  
ON揚水站P07  
EC  
Read..  
uS/cm揚水站P07  
PH  
Read..揚水站P07  
變頻器3級停控制  
OFF  
自動揚水站P07  
變頻器2級停控制  
OFF  
自動揚水站P07  
變頻器1級停控制  
OFF  
自動揚水站P07  
變頻器3頻率  
0.0  
Hz揚水站P07  
變頻器3頻率45/60Hz  
OFF  
自動揚水站P07  
變頻器3頻率55/60Hz  
OFF  
自動揚水站P07  
變頻器2頻率  
0.0  
Hz揚水站P07  
變頻器2頻率45/60Hz  
OFF  
自動揚水站P07  
變頻器2頻率55/60Hz  
OFF  
自動揚水站P07  
變頻器1頻率  
0.0  
Hz揚水站P07  
變頻器1頻率45/60Hz  
OFF  
手動揚水站P07  
變頻器1頻率55/60Hz  
OFF  
手動

揚水站P07



新增地點



修改地點



刪除地點



匯出地點



匯入地點



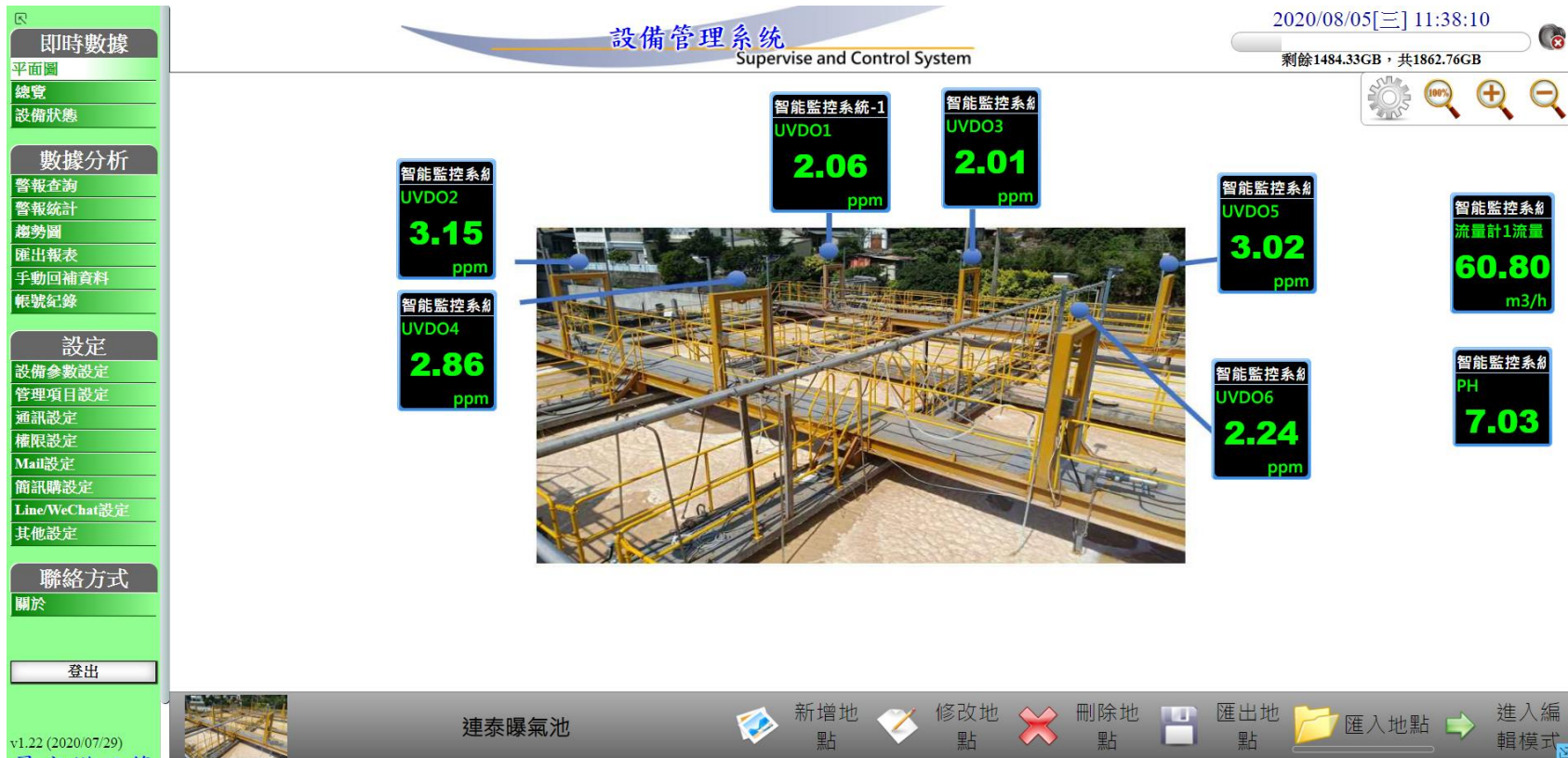
進入編輯模式



## Aeration Tank of a Paper Mill in Miaoli



## Case





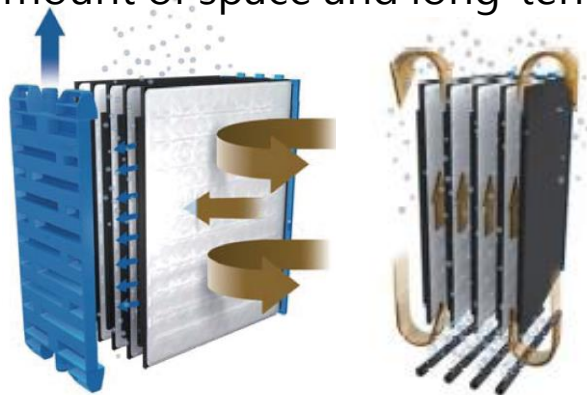
## Linyuan Factory in Kaohsiung

**Expansion of existing sewage treatment plant**

On the basis of the original sewage plant, a new recovery system was added.  
It can handle 800 tons/day

**Benefit**

After installing the GSD's MBR (membrane bioreactor) module, sewage can be efficiently treated in the original space, eliminating the traditional need for a large amount of space and long-term maintenance costs.



# Investment strategy

## Based on China

Focus on..

Production Capacity,  
Product Development

- ◆ Pinghu II plant construction
- ◆ Yangzhou plant construction

## Invest Taiwan

Focus on..

Strengthening  
Competitiveness

- ◆ AIoT
- ◆ Equipment Factory
- ◆ Engineering Consultant
- ◆ Operating Company
- ◆ Circular economy

## Invest Southeast Asia

Focus on..

Market Expanding

- ◆ Short-term: Building Channel
- ◆ Long-term: Capacity Development
- ◆ Method: Integrating Taiwan Resources .

- ◆ Established in 1993, the capital is NT \$255 million.
- ◆ Qualified for technical consulting, professional construction industry, environmental inspection & measurement organization, and also obtained the certification of ground water drilling.
- ◆ In 2021, the revenue is about NT \$910 million, EPS is NT\$ 1.63.
- ◆ More than 110 projects in the remediation of soil and groundwater pollution.
- ◆ Soil remediation by water washing and thermal desorption for CPC Shell& CPC Kaohsiung refinery.
- ◆ MT/MBT projects has achieved the goal of reduction of more than 80% by taking out the available resources from the waste. At present, in Yunlin and Pingdong have been in operation.

Share held  
**23.53%**

The calorific value of RDF5 is about 2 / 3 of coal, but the carbon emission is about 1 / 3 .



**CPC Kaoshiung plant: the 3<sup>rd</sup> and 4<sup>th</sup> district have issued contracts.**

In Sep. 2021, the project of "Kaohsiung Refinery Area III ( NT\$ 980 million)" was obtained, and expected to complete the soil remediation before Oct. 2022.

The contract of "CPC Kaohsiung project" amounted NT\$340 million , owner changed to Kaohsiung City .

This case is part of "S corridor project" , which will implement the national strategy of stabilizing Taiwan's leading semiconductor industry. Other areas of the Kaohsiung Refinery will be awarded successively.

## New Company in China

- ◆ Adopted by the board of directors on Feb. 25<sup>th</sup>
- ◆ The capital is 10 million RMB and the shareholding is 60%
- ◆ The initial operation is sludge drying business and energy management
- ◆ Clear sludge treatment route after the 14<sup>th</sup> five year plan

According to the policy: the harmless and resource utilization level of sludge in cities and counties has been further improved, and the harmless disposal rate of urban sludge has reached more than 90%.

### Policy

Change the emphasis on both sludge and sewage

### Technical

Biomass utilization + drying incineration

### Capital

Sewage treatment fee covers sludge treatment (2020)



- ◆ The economic growth rate is  $> 6\%$
- ◆ Participate in 17 FTAs to witness the development potential of the Vietnamese market
- ◆ Near China
- ◆ With demographic dividend (with a working population of more than 70 million)
- ◆ Per capita income has more than tripled in the past 10 years
- ◆ Adopted by the board of directors on Feb. 25<sup>th</sup>
- ◆ Capital: USD 1 million
- ◆ Equipment sales + technical service (integrating agent business)
- ◆ Start operation in the second quarter

# Disclaimer

- This presentation is a summary and assessment of the past, present and future operations of our company at the time of the presentation. It contains forward looking statements that will be affected by risks, uncertainties and inferences, some of which will partially beyond our control. The actual conclusions may differ greatly from these forward-looking statements.
- The information provided (including views on the future) does not express or imply that it is correct, complete and reliable ; nor does it represent a complete exposition of the company, the state of the industry and the subsequent major developments.
- The expectation for the future in this presentation reflects our company's view so far. If there is any change or adjustment, our company is not responsible for reminding and updating at any time.

# Thank you !