



GSD Technologies Co.,Ltd.

Stock Code :6641

Company Presentation

2021.11



GREEN · SAFE · DEVELOPMENT

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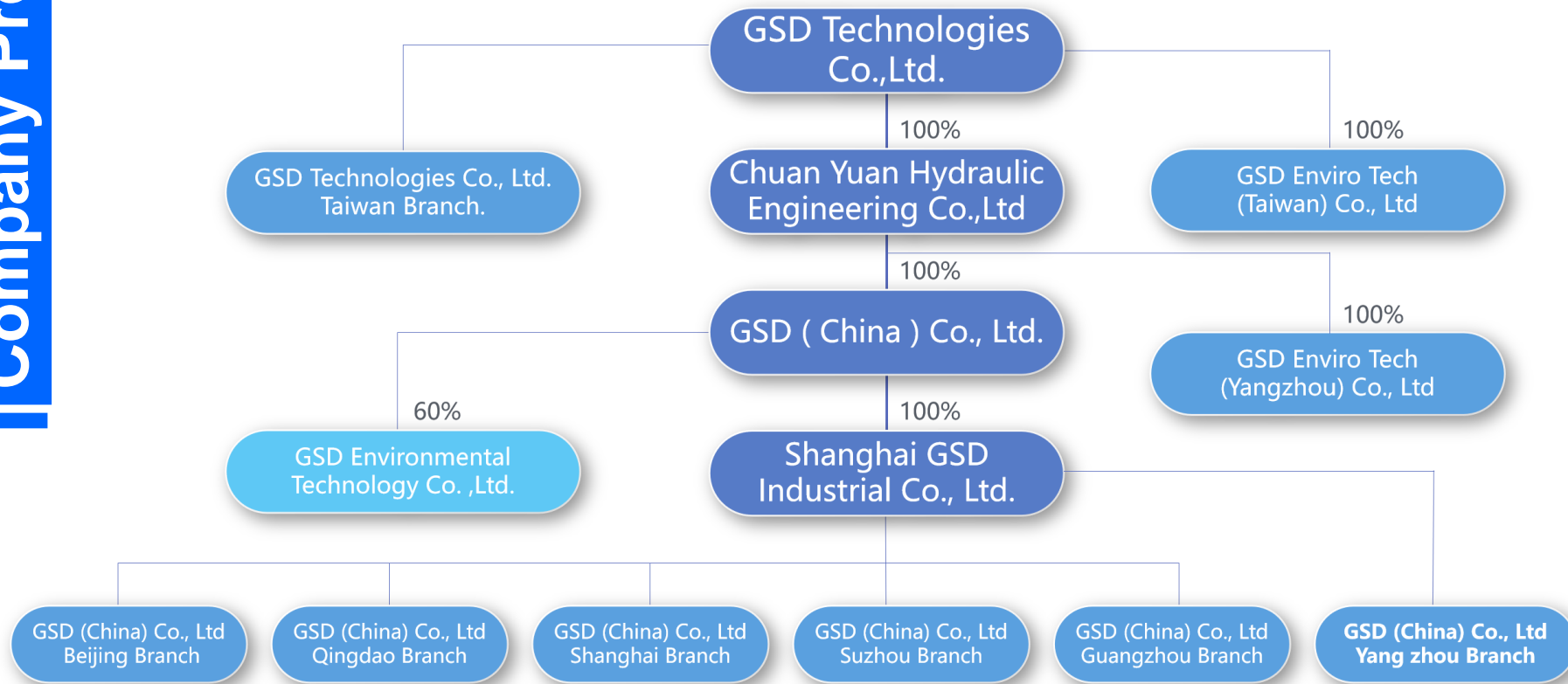
Company Profile

01

Company Information

Company	◆ GSD Technologies Co., Ltd.
Stock Code	◆ 6641
Established	◆ Oct.,2013
Chairman	◆ Hung-June, Hsieh
Paid in capital	◆ NTD 370 Millions (30 million increased on 2021.10.)
Major business	◆ Water and waste water equipment manufacturing, sales and technical services
Brand	◆ GSD
2 Plants	◆ Pinghu in Zhejiang & Yangzhou in Jiangsu
Staffs	◆ 558 employees (2021.09)

Company Profile



Business Philosophy

GREEN

Friendly commitment to the earth's environment and ecology.

SAFE

Responsible commitment to stakeholder.

DEVELOPMENT

Commitment to sustainable development of the company.

Mission & Vision

- | | |
|---------------------|--|
| Mission: | To optimize the ecological environment and to benefit the whole world. |
| Environment: | All rivers are clean and no water is dirty. |
| Company: | The paragon among all brands, the leader in WWTP industry. |
| Colleagues: | To enable our staff' s devotion in wonderful career and life. |

Green Operation

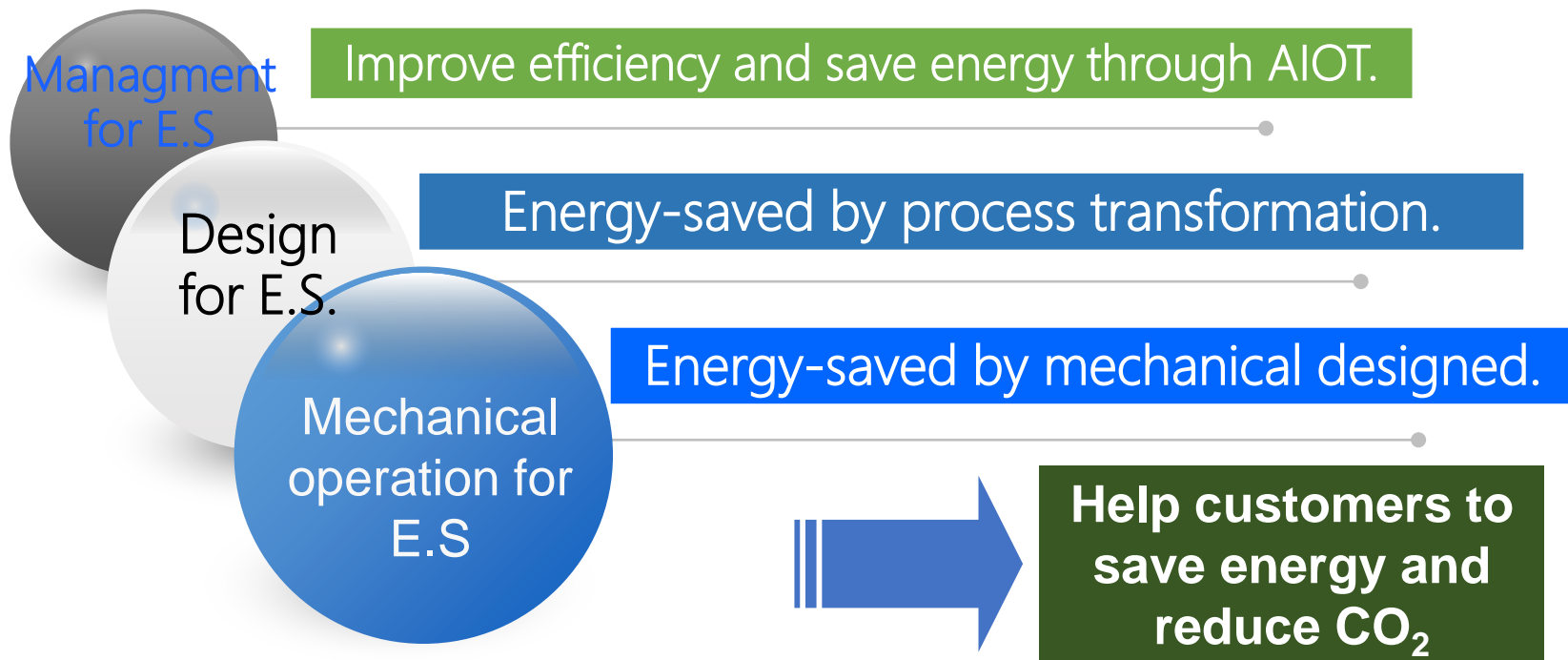


Green Product

- ✓ Altruistic culture
- ✓ Solar power generation
- ✓ Sponge factory
- ✓ Waste recovery
- ✓ Water-based paint

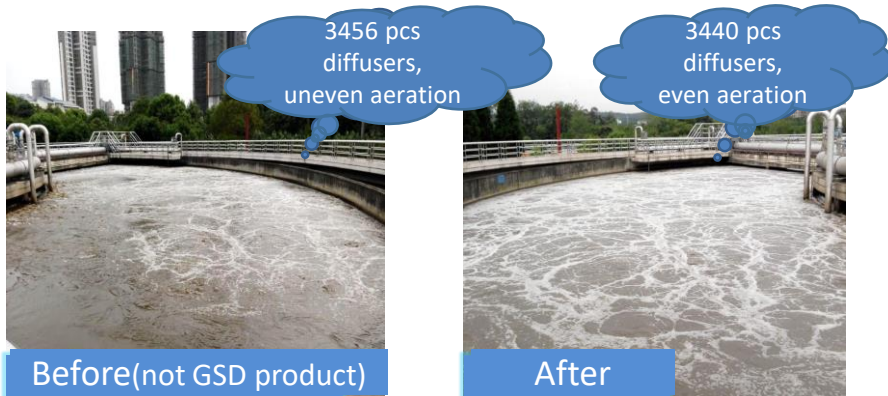
- ✓ Water treatment standard
- ✓ Energy-saving equipment
- ✓ Optimized energy-saving process
- ✓ Intelligent energy-saving solution

**ESG report will be issued
from year ended 2023.12.31.**



E.S=Energy saving.

Aeration modification case: improve unit efficiency



Before(not GSD product)

After

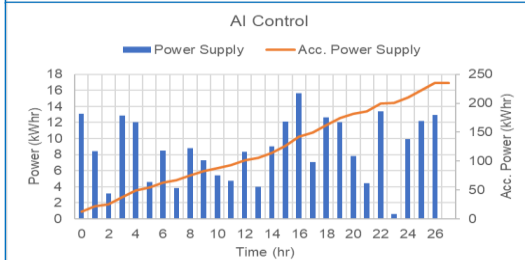
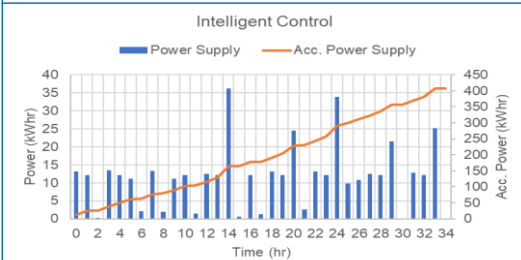
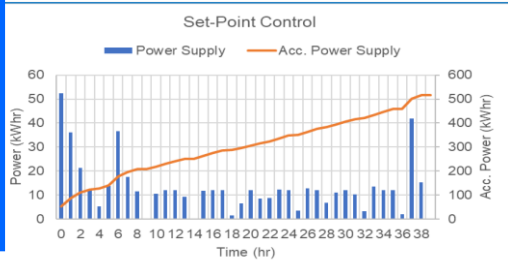
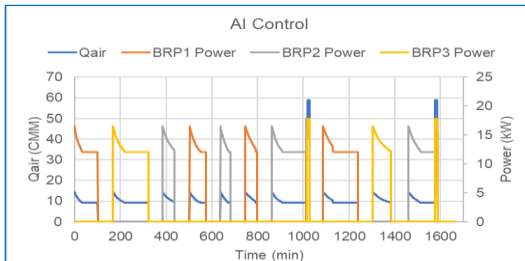
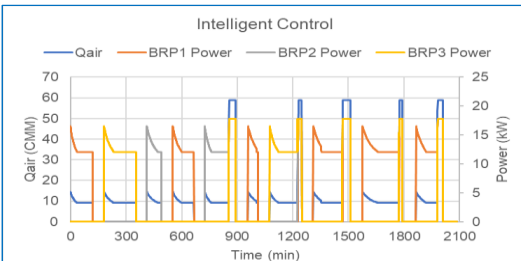
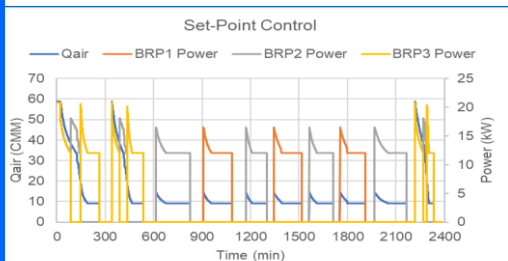
After transformation, the energy consumption of blower is **reduced by 15-20%**



Customized matching design reduces 4kw motor power.



More than 200 products have Energy saving certification.



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

Through the data simulation analysis ,the energy saving is obvious by AI Control.



Green Operation



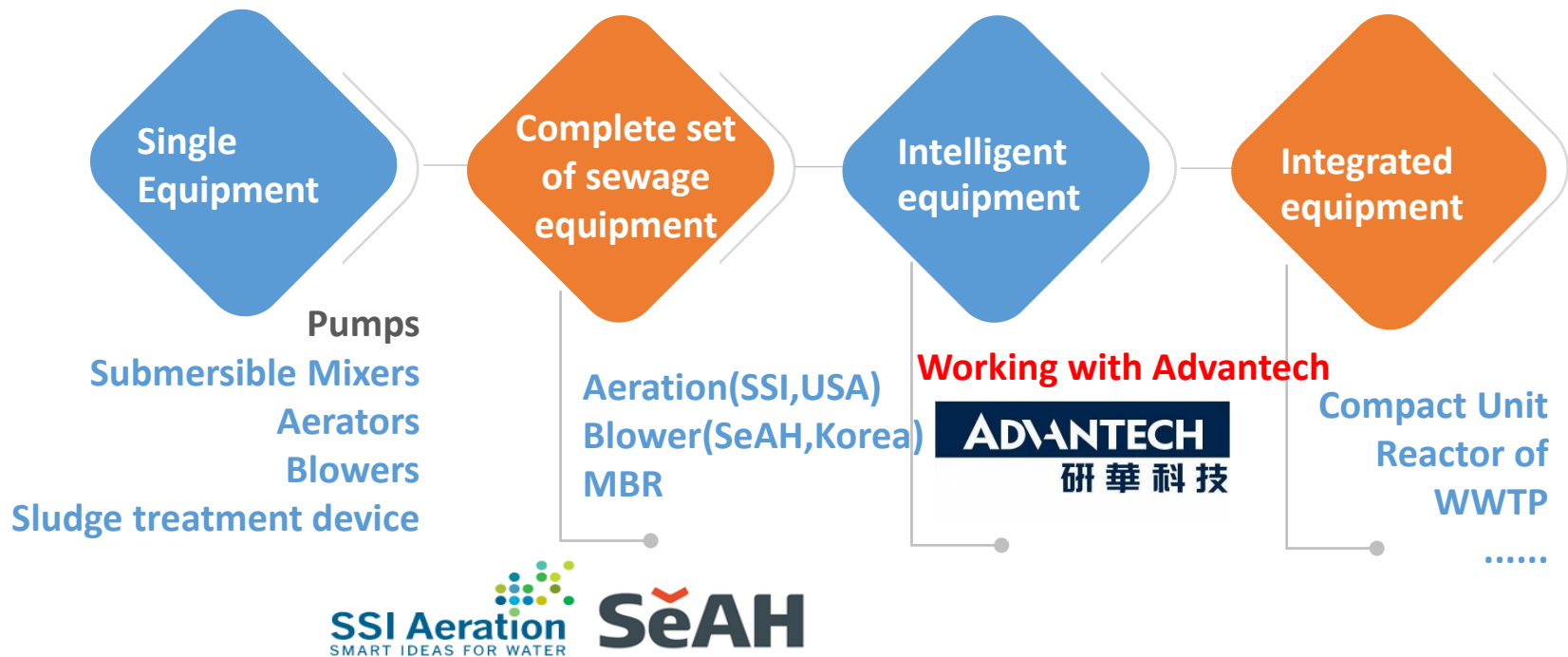
- Support Hubei new infectious disease hospital.
- Solar power generation electricity-saving.
- Support local river governance.
- Construction of sponge factory.
- Continuous development of energy saving products .

Green Operation

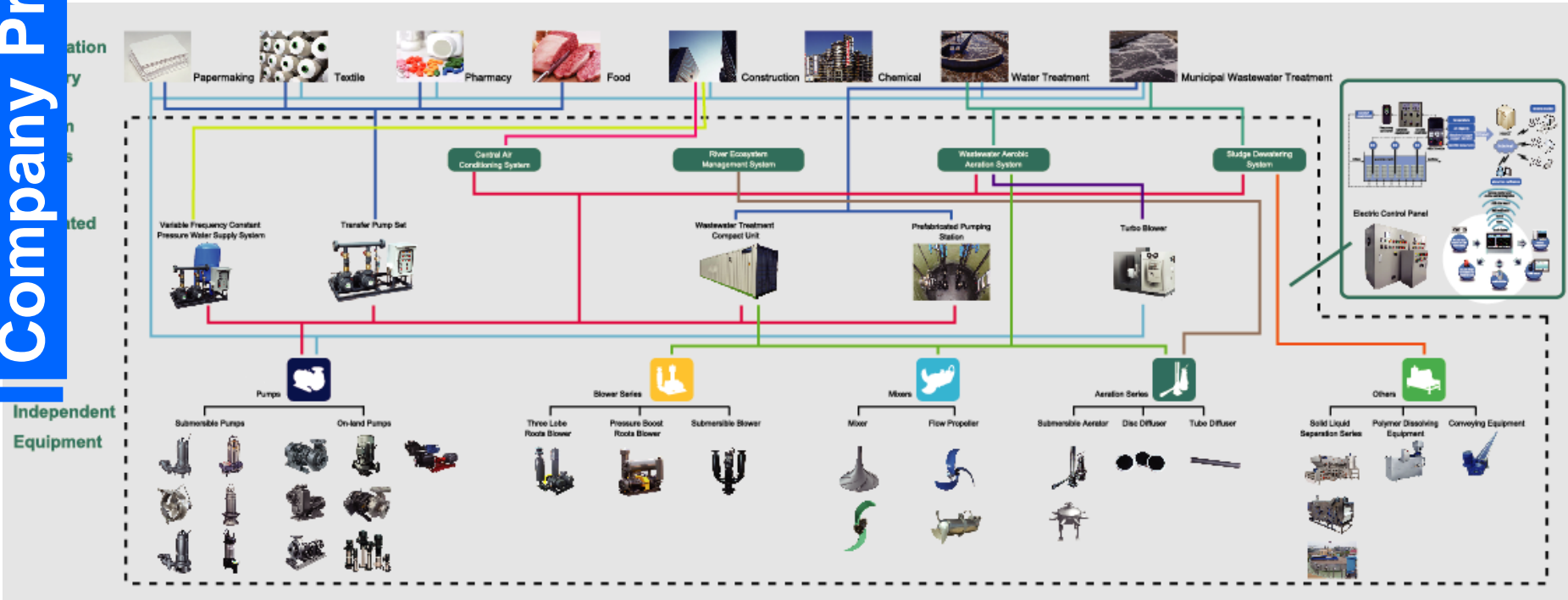


Cleaning plate activity 、
Business culture activity 、
Team building activity 、
Skill competition 、
Collecting goods for rural schools...
Financial aid for poor students





Product Scope





Year	Company founded
2019	GSD Technologies Taiwan Branch.
2021.2	GSD Enviro Tech (Taiwan).
2021.5	NT\$ 300 million dollar CB was issued.
2021.6	GSD invests in Yuh Shan Environmental Engineering Co.
2021.10	Cash capital increase NT 150 million dollar.

Will soon launch a smart water service platform by 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

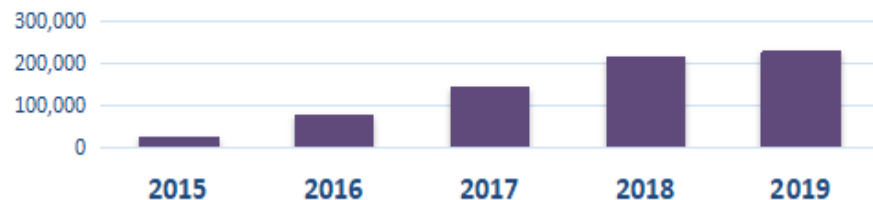
Income statement

Items	2015	2016	2017	2018	2019	2020
Revenue	1,171,289	1,290,919	1,622,684	1,867,639	1,992,051	1,846,674
Growth Rate		10.21%	25.70%	15.10%	6.66%	-7.30%
Sales margin	452,080	503,034	635,387	739,292	771,093	739,951
Op. Expenses	416,041	421,865	445,830	475,650	530,561	477,846
Op. Income	36,039	81,169	189,557	263,642	240,532	262,105
EBIT	42,662	106,469	202,756	280,499	282,631	290,949
Net income	25,773	75,529	144,433	213,672	227,154	215,511
Income growth %		193.05%	91.23%	47.94%	6.31%	94.87%
EPS	0.86	2.52	4.81	6.86	6.79	6.52

Revenues



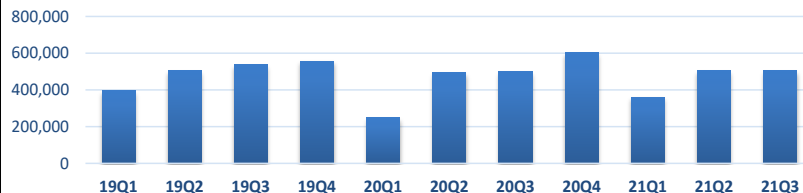
Net Income



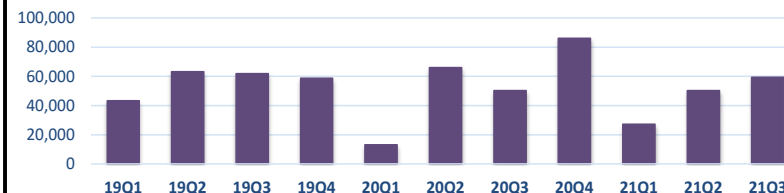
Income statement

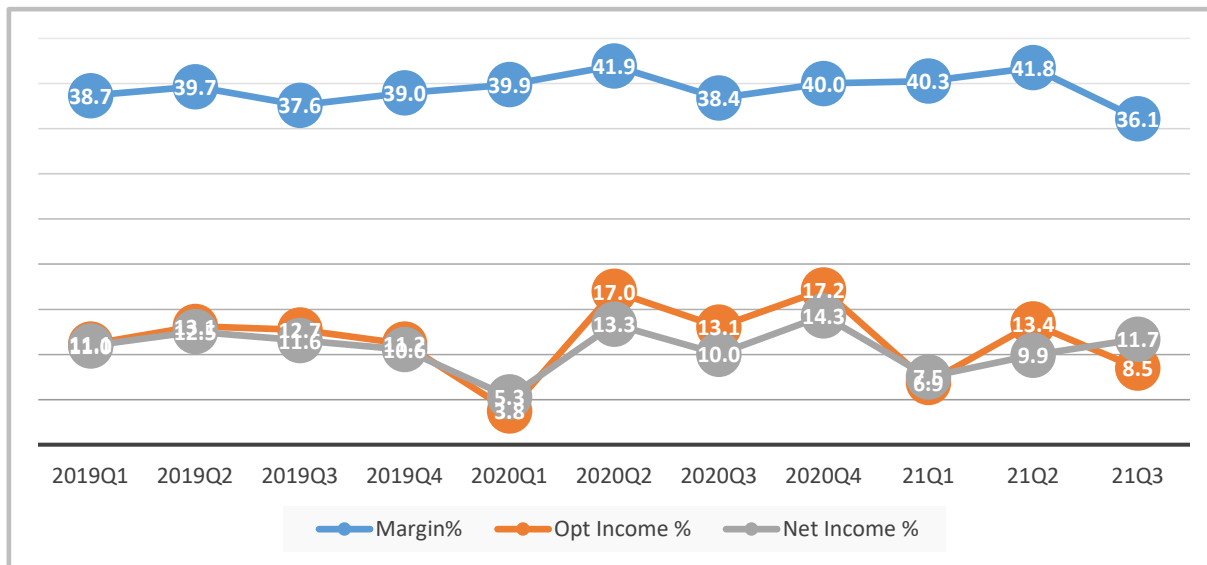
Items	2019Q1	2019Q2	2019Q3	2019Q4	2020Q1	2020Q2	2020Q3	2020Q4	2021Q1	2021Q2	2021Q3
Net Sales	394,512	505,098	535,690	556,751	248,663	493,929	501,031	603,051	361,672	506,872	507,774
Sales margin	152,536	200,285	201,412	216,860	99,188	207,187	192,320	241,256	145,642	211,623	183,314
Op. Income	43,969	66,249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

Revenues



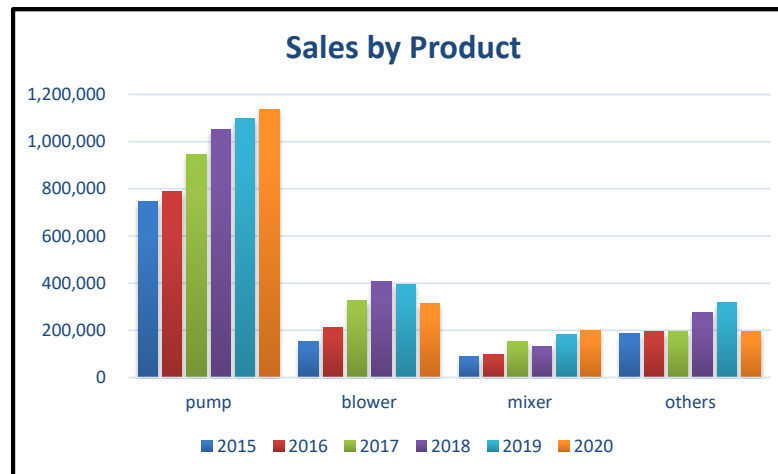
Net Income





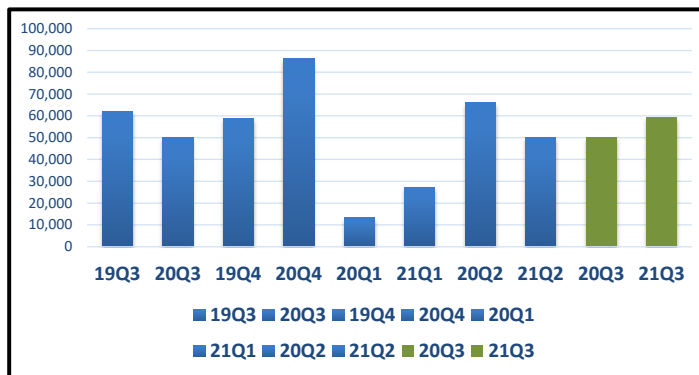
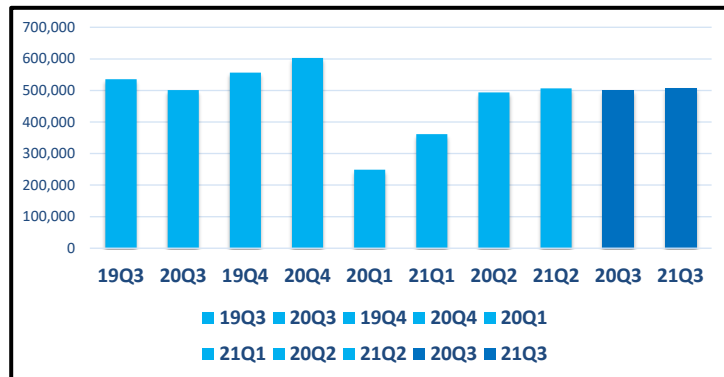
2021Q3 low gross profit :

In August Yangzhou factory lockdown caused a decrease but an increase in Taiwan performance.



item	2019		2020		2021 Q3	
	AMT	%	AMT	%	AMT	%
pump	1,097,049	55.07	1,138,671	61.66	810,790	58.91
blower	395,382	19.85	313,497	16.98	219,306	15.93
mixer	182,604	9.17	199,597	10.81	140,060	10.18
others	317,016	15.91	194,909	10.55	206,162	14.98
Total	1,992,051	100.00	1,846,674	100.00	1,376,318	100.00

QoQ Performance

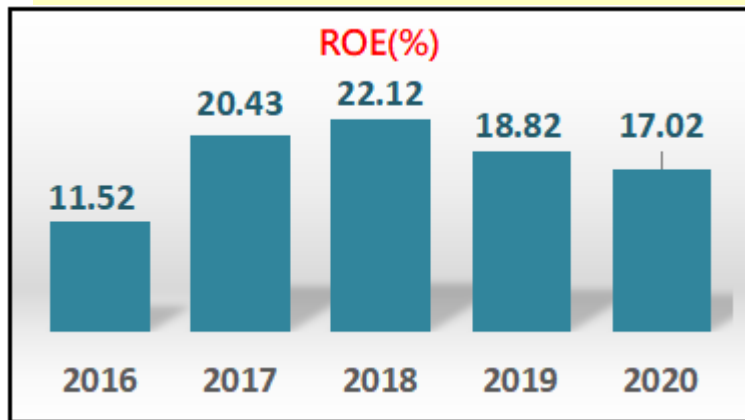


Items	19Q3	20Q3	19Q4	20Q4	20Q1	21Q1	20Q2	21Q2	20Q3	21Q3
Revenue	535,690	501,031	556,751	603,051	248,663	361,672	493,929	506,872	501,031	507,774
Net Income	61,927	50,296	58,741	86,109	13,171	27,205	65,935	50,316	50,296	59,438

Currency	2020Q3	2021Q3	Difference
NTD/CNY	4.259	4.337	1.83%

Dividend (NTD %)

EPS exceeded NTD 6.5 and distribution rate exceeded 60% for last 3 years.



Items	2017	2018	2019	2020
EPS (1)	4.81	6.86	6.79	6.52
EPS (2)	4.81	6.28	6.79	6.55
Cash Dividend	3.01	3.8	4.5	4.5
payout ratio(%) (N1)	62.58%	55.39%	66.27%	68.70%
EPS(1): Counted by average shares				
EPS(2): Counted by year end shares				
N1: Counted by EPS(2)				

Dividend yield rate: by end of 2019 closing price ($4.5/68.5=6.57\%$);
by end of 2020 closing price ($4.5/64.1=7.02\%$)

PE : by end of 2019 closing price ($68.5/6.79=10.09$);
by end of 2020 closing price ($64.1/6.52=9.83$)

The 2020 interest rate is adjusted to 4.567164 per share due to treasury shares



Industry Overview

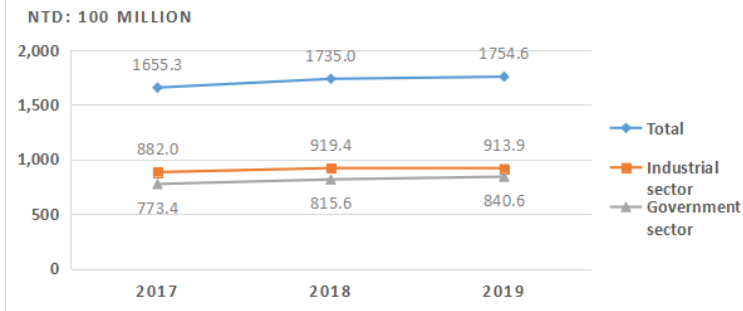
03

Unit: NT \$100 million

Catagory	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 (estimate)
1.Environmental inspection service industry	34.44	16.98	20.42	16.71	25.23	67.47	72.93	78.82	81.41	82.20	97.61	104.69	139.74	136.34
2.Wastewater treatment industry	35.07	37.40	39.89	42.54	45.37	48.39	51.60	55.03	58.69	59.08	73.34	79.70	82.63	85.68
3.Waste removal and treatment industry	321.59	711.79	503.49	440.66	411.77	483.99	493.81	503.84	520.71	539.41	642.69	680.73	700.00	719.80
4.Environmental engineering and technical consultancy services	45.52	55.30	55.90	60.86	66.36	66.44	65.43	58.43	60.11	59.07	110.11	101.60	69.28	78.87
5.Vector control industry	13.43	11.86	15.09	13.92	15.54	17.16	18.94	20.91	23.08	24.51	20.13	22.28	23.01	23.75
6.Resource recovery industry	169.34	373.00	264.61	270.83	234.53	320.58	348.51	378.86	404.99	424.41	367.49	377.66	388.12	398.87
7.Pollution control industry	24.57	24.25	23.93	23.61	23.31	23.00	22.70	22.40	23.25	23.29	37.76	41.69	46.04	50.83
8 Energy technology service industry (ESCO)	5.37	11.98	22.52	20.65	35.92	66.50	78.20	107.00	110.00	125.00	117.00	131.06	146.79	164.40
9.Environmental related verification services	15.99	15.72	15.45	15.18	14.92	14.66	14.40	14.15	14.68	14.78	14.81	15.15	16.57	18.12
10.Environmental management technology service industry	7.84	11.45	12.47	10.19	10.21	9.35	10.14	10.55	10.84	10.55	10.35	10.58	11.43	12.34
Subtotal of environmental services	673.16	1,269.73	973.77	915.15	883.16	1,117.54	1,176.66	1,249.99	1,307.77	1,362.28	1,491.29	1,565.15	1,623.59	1,689.00
Environmental service industry - growth rate		88.62%	-23.31%	-6.02%	-3.50%	26.54%	5.29%	6.23%	4.62%	4.17%	9.47%	4.95%	3.73%	4.03%
1.Environmental protection equipment and equipment manufacturing industry	188.94	206.83	215.10	157.71	230.31	263.60	245.87	259.31	254.36	246.89	254.63	257.52	272.75	298.74
2.Environmental protection material manufacturing case	356.45	326.50	300.46	223.21	280.57	323.79	319.99	305.39	331.25	295.95	162.81	186.21	191.51	200.78
Subtotal of environmental protection equipment industry	545.39	533.33	515.56	380.93	510.89	587.39	565.86	564.70	585.61	542.84	417.44	443.74	464.27	499.52
Environmental protection equipment industry - growth rate	-	-2.21%	-3.33%	-26.11%	34.12%	14.97%	-3.67%	-0.20%	3.70%	-7.30%	-23.10%	6.30%	4.63%	7.59%
1.Water supply industry	276.55	281.36	282.65	270.63	284.26	289.96	292.29	296.44	303.41	300.83	314.36	326.95	329.39	339.55
2.Resource based product manufacturing	385.00	420.00	482.00	487.00	544.00	658.00	658.00	659.00	670.00	678.00	671.00	681.00	723.40	768.44
Subtotal of environmental protection and resources industry	661.55	701.36	764.65	757.63	828.26	947.96	950.29	955.44	973.41	978.83	985.36	1,007.95	1,052.79	1,107.99
Environmental protection and resources industry - growth rate	-	6.02%	9.02%	-0.92%	9.32%	14.45%	0.25%	0.54%	1.88%	0.56%	0.67%	2.29%	4.45%	5.24%
Total of environmental protection industry	1,880.10	2,504.42	2,253.97	2,053.71	2,222.31	2,652.89	2,692.82	2,770.13	2,866.80	2,883.95	2,894.08	3,016.84	3,140.64	3,296.51
Environmental protection industry - output value growth rate	-	33.21%	-10.00%	-8.88%	8.21%	19.38%	1.51%	2.87%	3.49%	0.60%	0.35%	4.24%	4.10%	4.96%

Sources: https://eris.utrust.com.tw/enviromet/EINEWS/EINEWSE/EINEWSE_C

Function	Total (100 million)	Structure ratio (%)	Government departments (100 million)	Structure ratio (%)	Industrial sector (100 million)	Structure ratio (%)
Expenditure on pollution prevention and control	1754.6	100.0	840.6	100.0	913.9	100.0
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



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.**

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

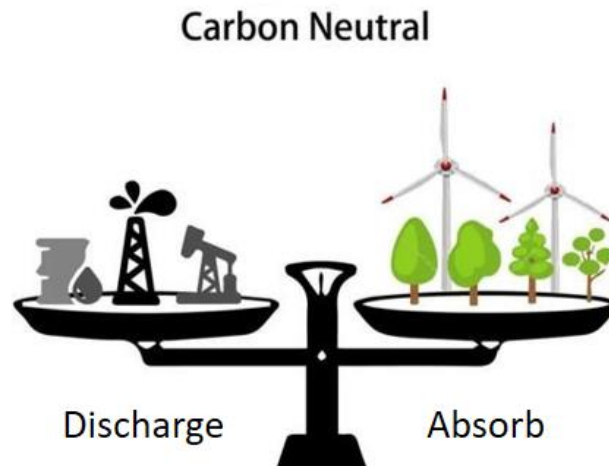
2011-2015	2016-2020	2021-2025	2026-2030	2030~
	Ten Water Phase I	Ten Water Phase II		Ten Water Phase III
	1.Periodic improvement of water environment quality. 2.The seriously polluted water has been greatly reduced.	1.Overall improvement of water environment quality. 2.Preliminary Restoration of water ecosystem function.		1.Overall improvement of ecological environment quality. 2.Ecosystem achieves a virtuous circle.
Twelfth Five	Thirteenth Five	Fourteenth Five	Fifteenth Five	
1.Improve the drainage network. 2.Improve sewage treatment capacity. 3.Improve the effluent quality of sewage treatment plant. 4.Improve the harmless treatment of sludge. 5.Improve the reuse capacity of reclaimed water.	1.Improve the sewage collection system. 2.Enhance the capacity of sewage treatment facilities. 3.Attach importance to harmless treatment of sludge. 4.Promote the use of recycled water. 5.Initial rainwater pollution control. 6.Strengthening the treatment of black and odorous water bodies in cities. 7.Strengthen supervision capacity building.	<div>To achieve the ten ecological goals of water regulations, Environmental spending is expected to continue to grow. Carbon neutralization and water resource are key words.</div>		
Investment amount: RMB 427.1 billion	Investment amount: RMB 564.4 billion			

Key words for
the 14th Five-Year
Plan

Carbon Neutral

Energy saving &
Emission reduction

Water is
becoming resource



carbon peak and neutrality

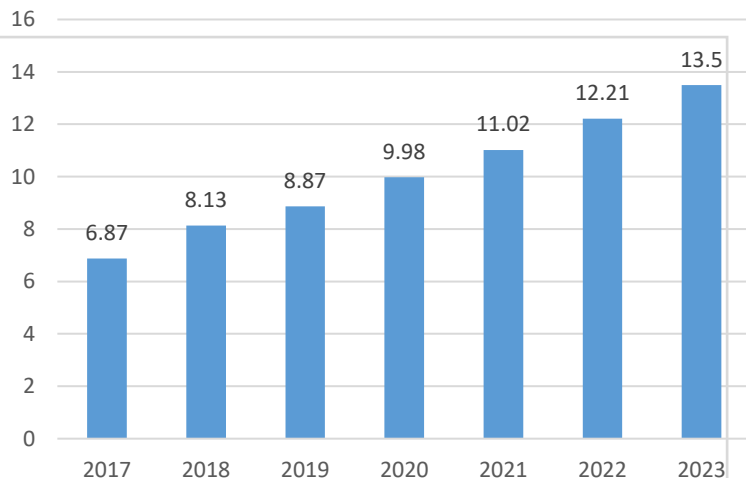
2030 carbon peak
2060 carbon neutrality

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.

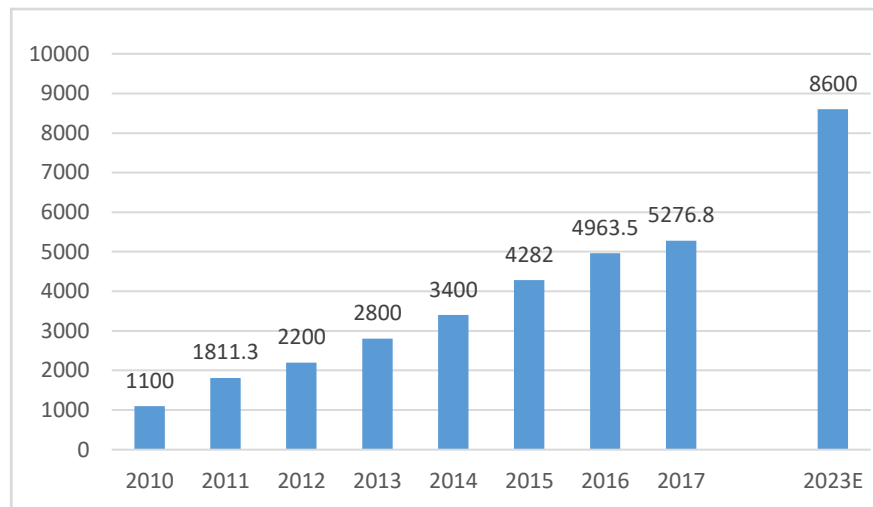
Reduce 250 million tons of energy consumption is a MAINLY potential market to achieve.

Statistics and forecast of China's environmental protection industry from 2017 to 2023



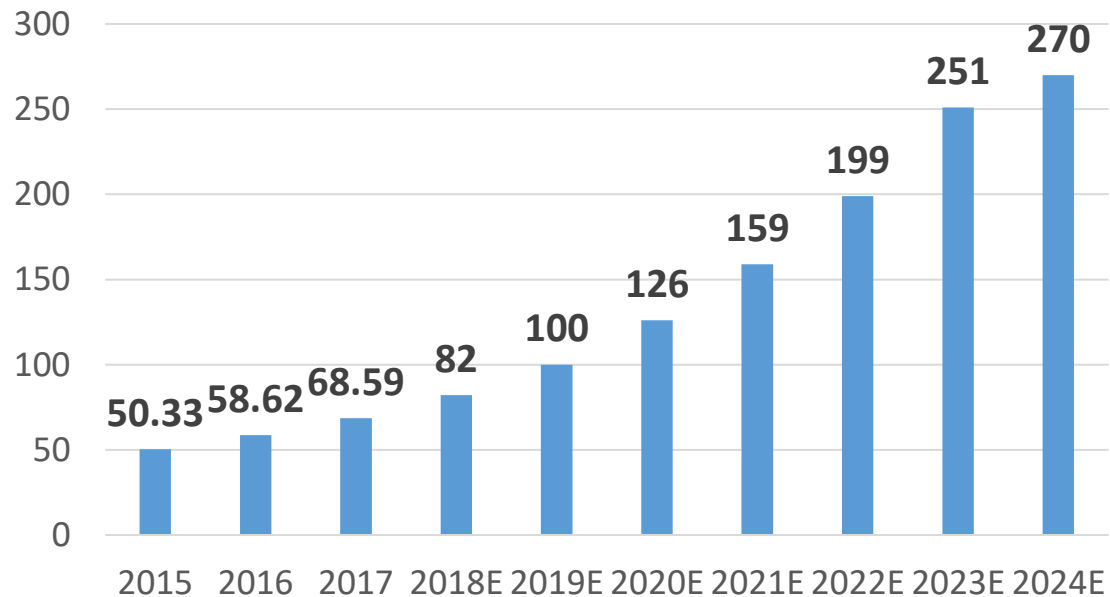
Unit: Trillion(RMB)

2010-2023 China's water industry market size



Unit: 100 million (RMB)

Unit: Trillion(RMB)



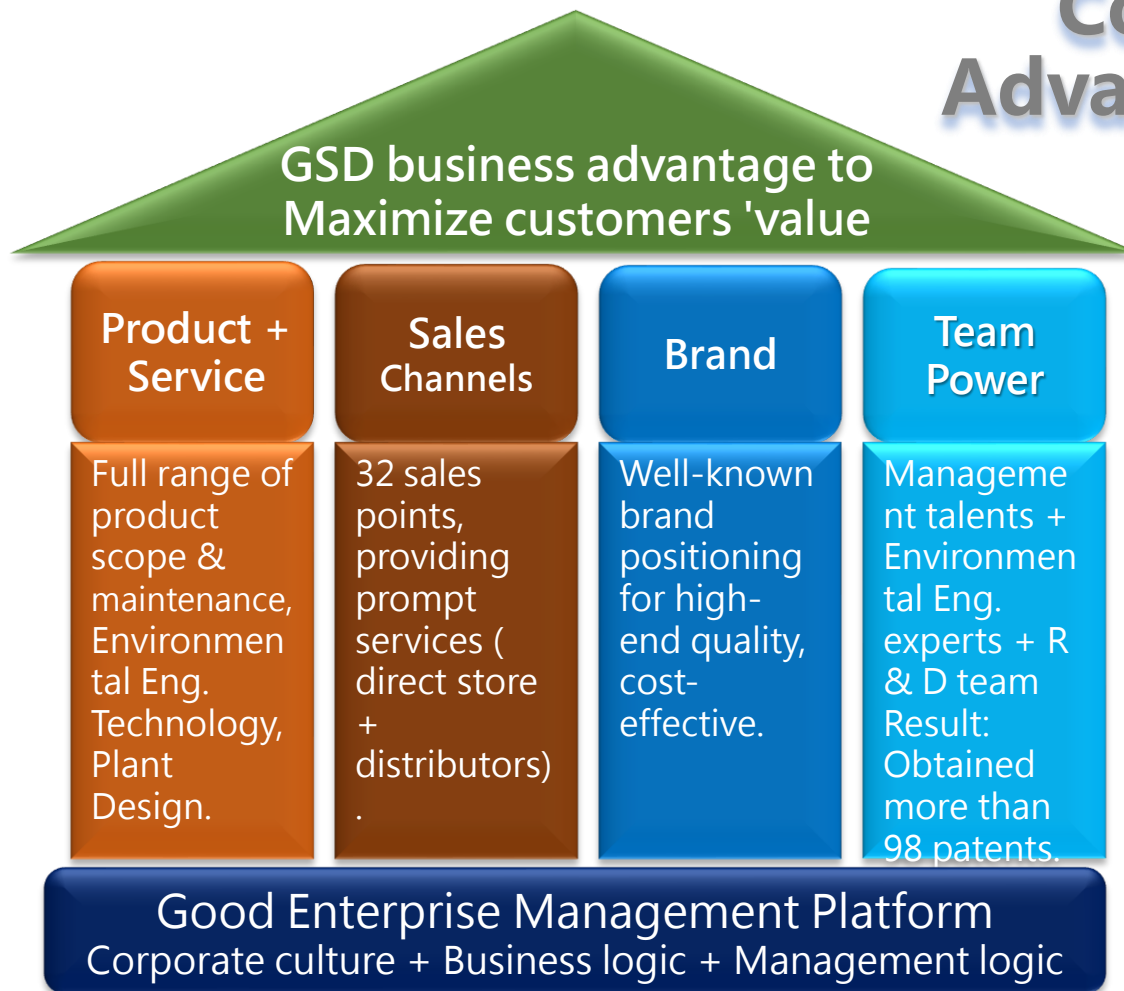
China's smart water market size and forecast

Reference: <https://kknews.cc/finance/oe9nm66.html>



Operating Strategy

04



- **S**ustainable
- **M**anageable
- **A**ffordable
- **R**esponsive
- **T**ransparent



- **W**ater/Waste
- **A**eration
- **T**oxics
- **E**nergy
- **R**esources

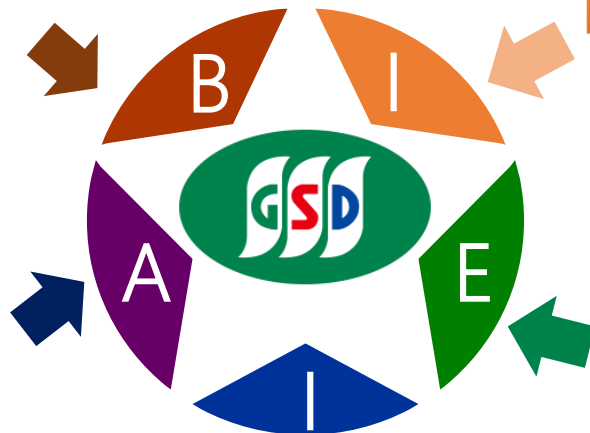
Bio 、 AI 、 IOT 、 Equipment 、 Integrated

Taking environmental engineering biotechnology, AI, and IoT as the core of innovation.
Turning the accumulated knowledge of environmental engineering into growth momentum.
Committing to upgrading of the environmental industry and creating new value.

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

B Bio

→ aeration + microorganism + rapid screening + microbial agents

→ Microbial control

A AI

→ data base + model + expert system

→ Optimized system

I IoT

→ working condition + health check + prediction + Preventive maintenance

→ Operational Intelligence

E Equipment

→ Single unit + set + system + sensing

→ Equipment with IoT

I Integrated

→ Single unit + Project implementation + service

→ Integrated service



Industry-Academy Cooperation

NCKU&GSD water technology R&D center
Tongji&GSD microorganism R&D center



Strategic Alliance

upstream + cross-industry + downstream partner
ex: Advantech

Environmental Steward / The 3rd Party Governance / Operation / Supervision / Investment

The cooperation case of GSD and NCKU wins the Ministry of Science and Technology Special Award

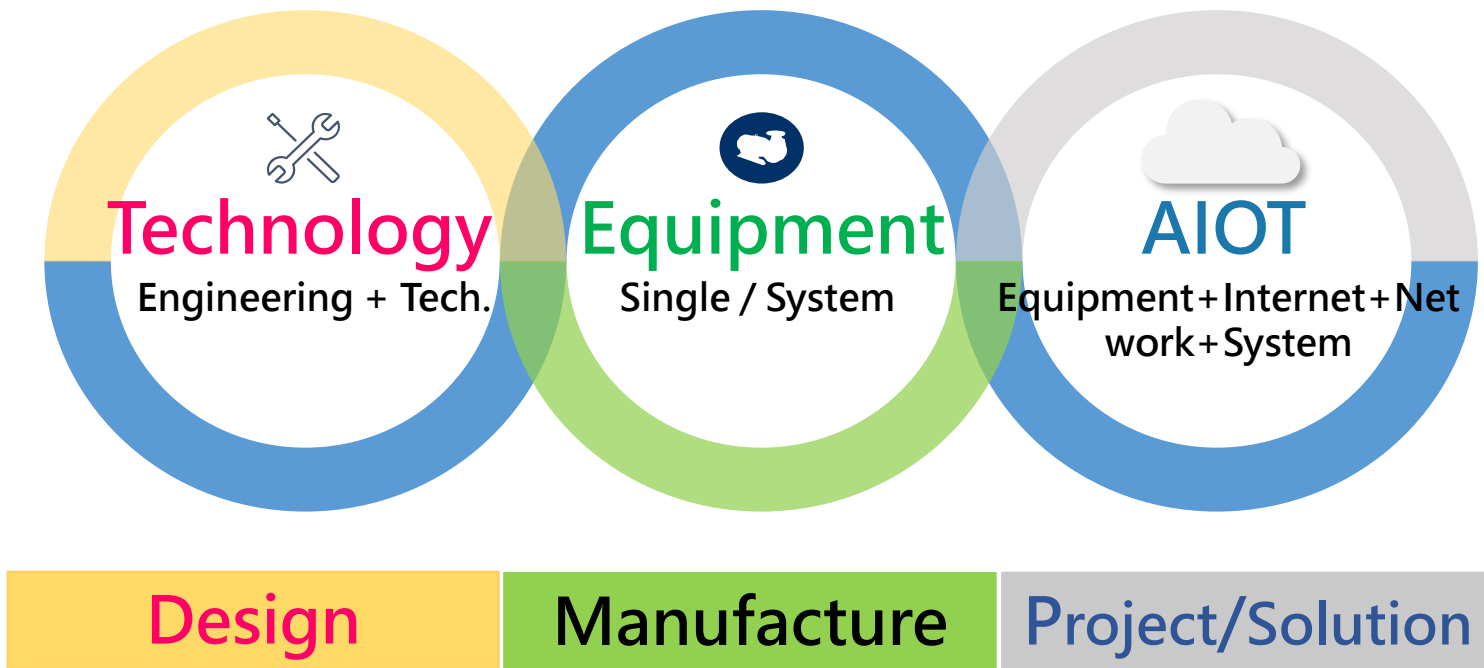


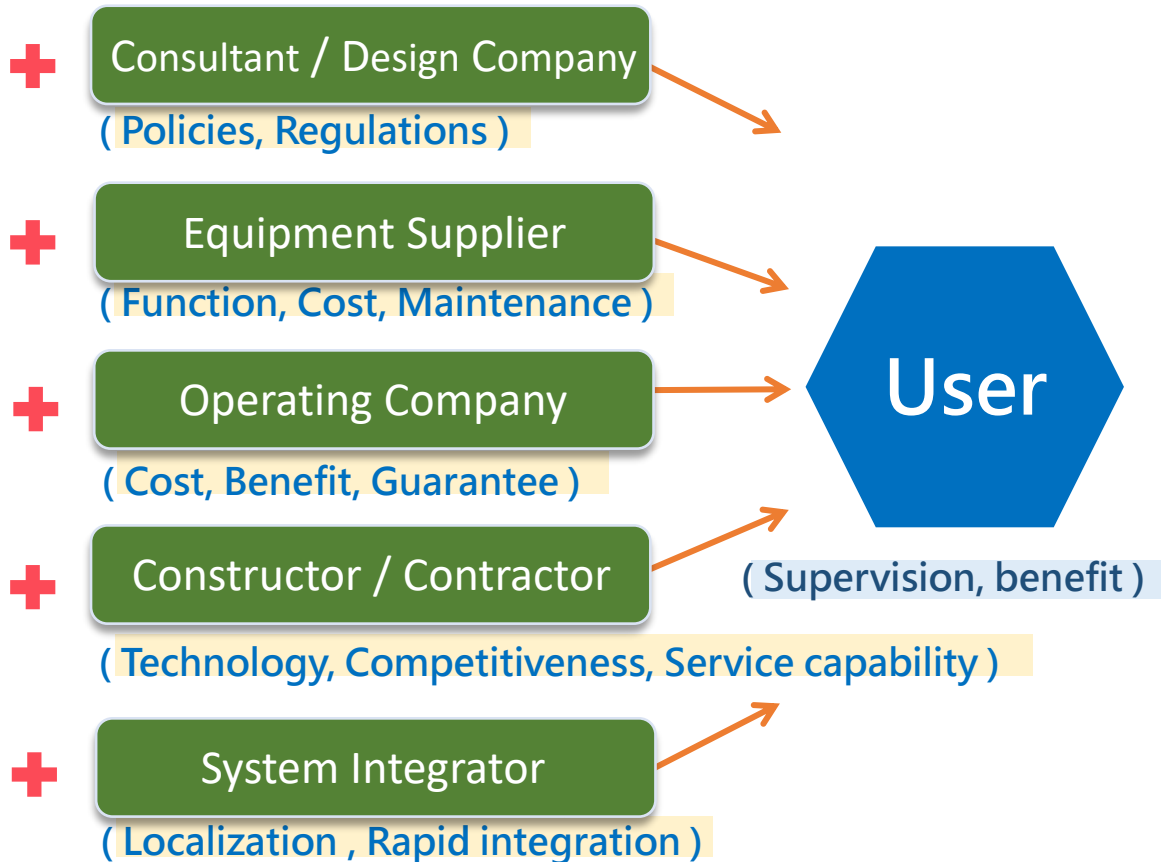
NCKU & GSD
Water Technology R&D Center

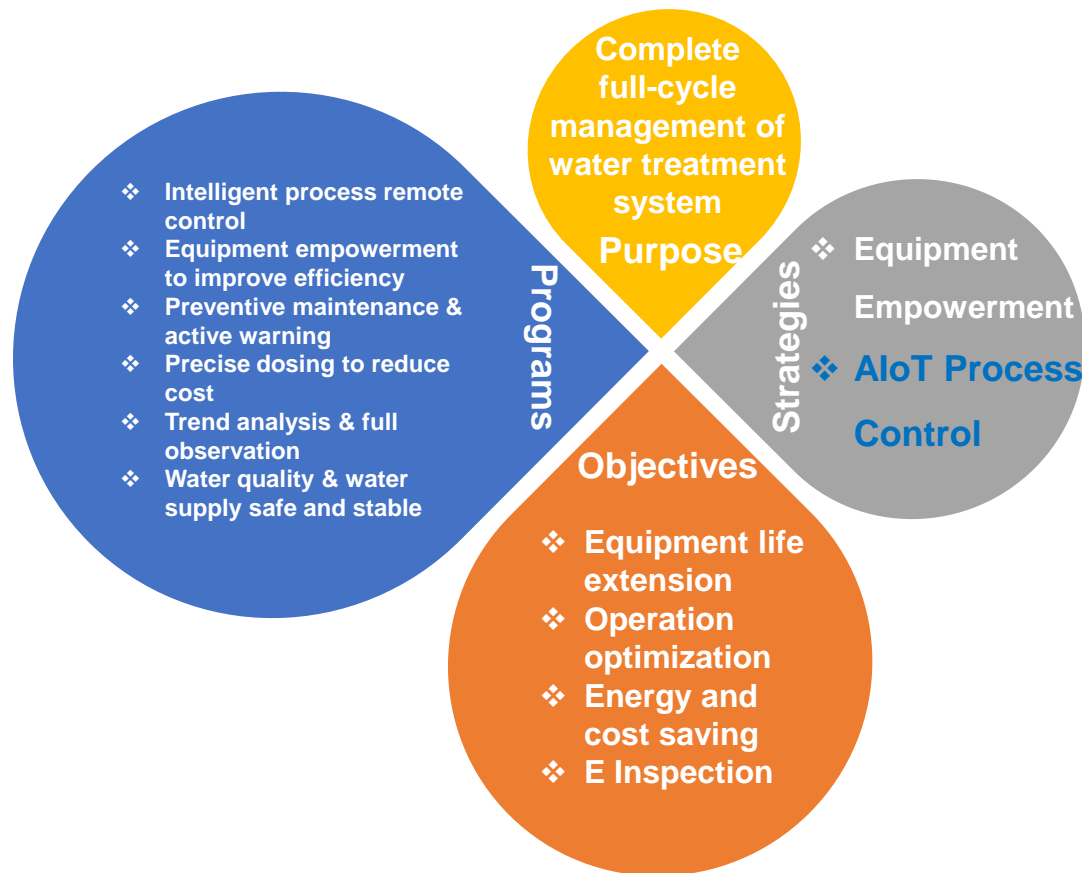


Tongji & GSD
Microorganism R&D Center

Both sides invest in microbiology-related industry-academic cooperation



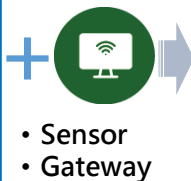
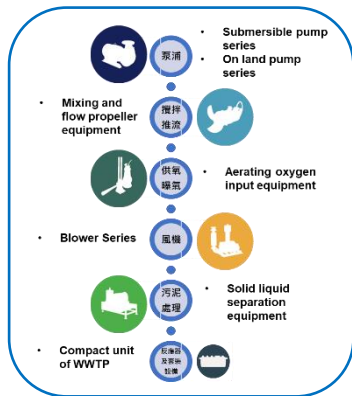




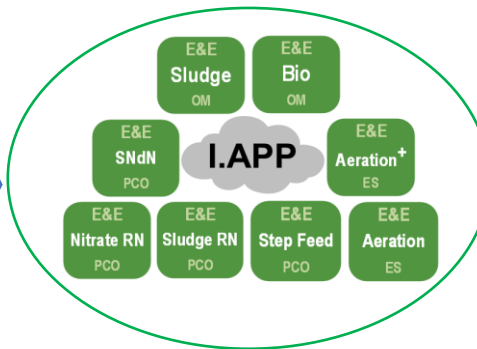
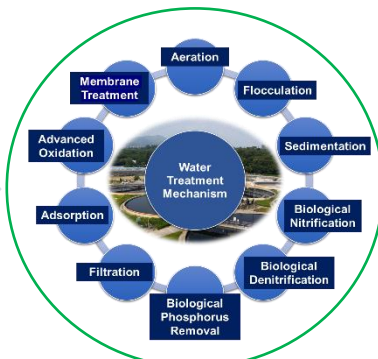
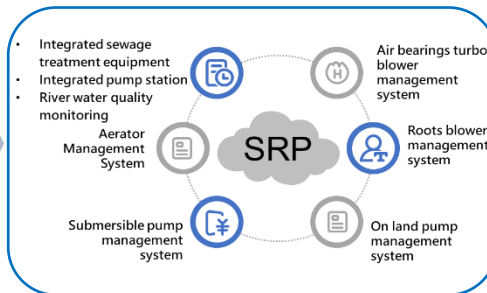
To Smart Equipment



AIoT Process Control

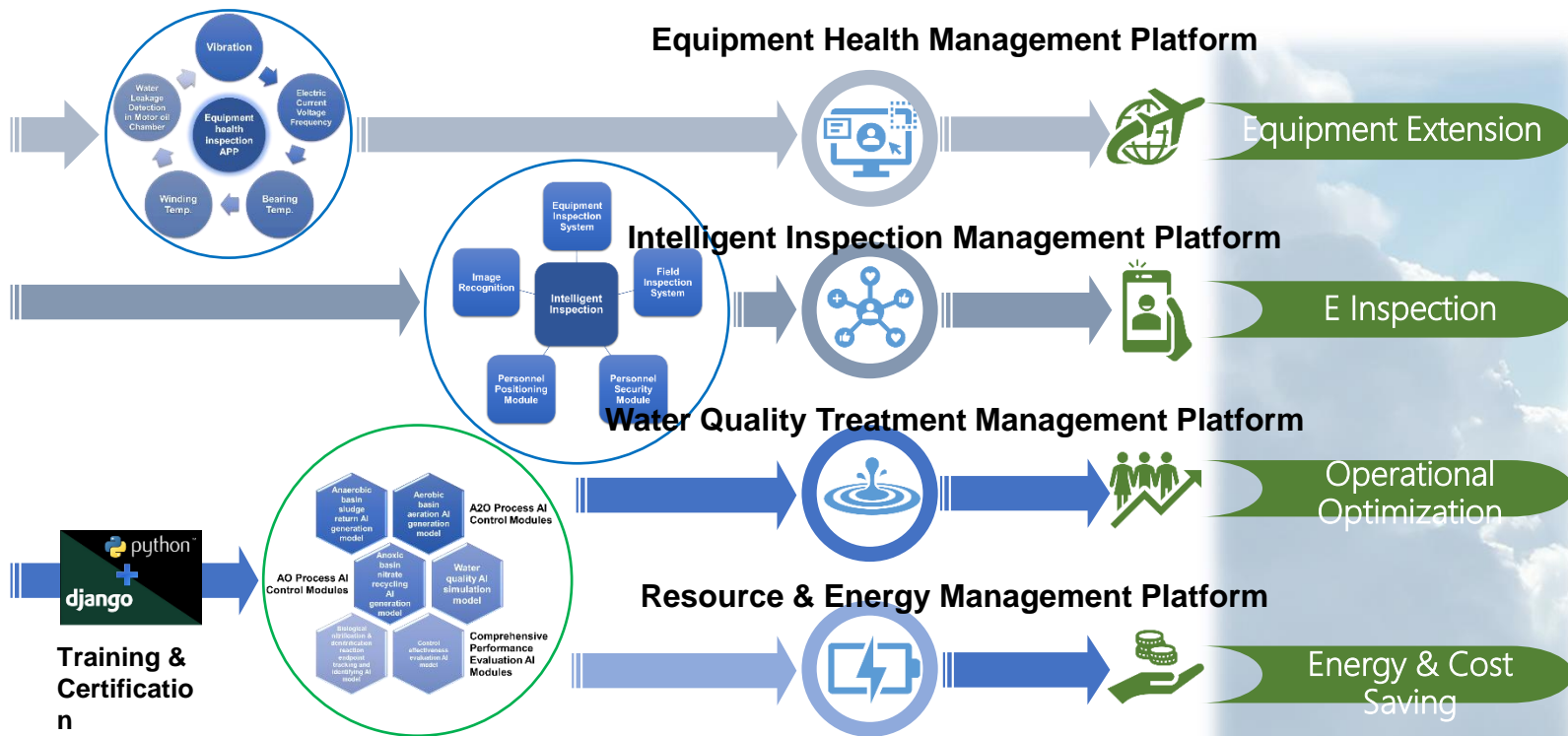


Equipment Management System

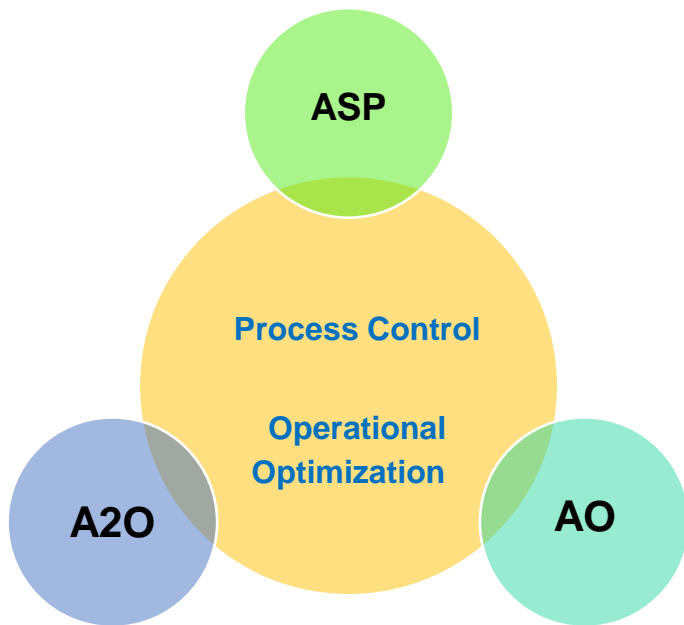


Intelligent Process Monitoring & Control Modules

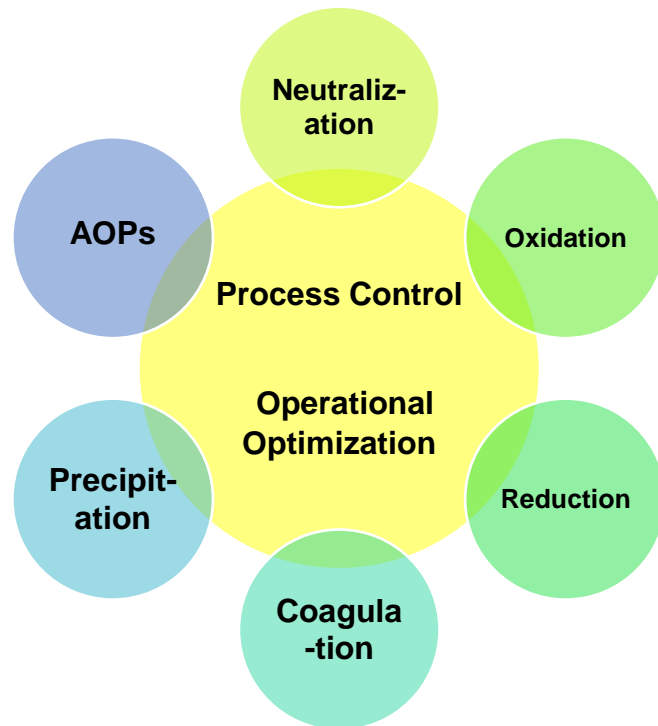




Biological treatment procedure



Chemical treatment procedure



Physical treatment procedure



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



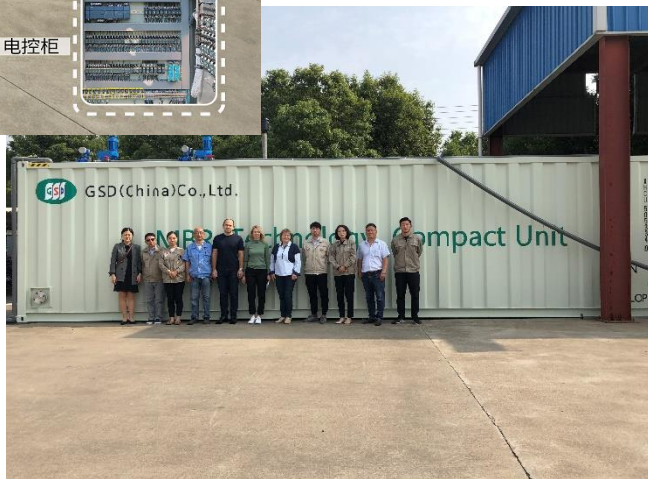
Case



Intelligent Compact Unit Reactor for WWTP



Suitable for: urban and rural domestic sewage,
General industrial wastewater
and black & smelly rivers.



Mobile Pumping Truck



Case



Pump Station in Linkou WWTP



Case

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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

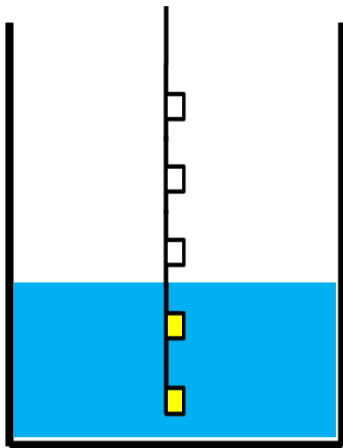
其他設定

聯絡方式

關於

登出

v1.22 (2020/07/29)



揚水站P07

HHH

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啟停控制

OFF

自動

揚水站P07

變頻器2啟停控制

OFF

自動

揚水站P07

變頻器1啟停控制

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

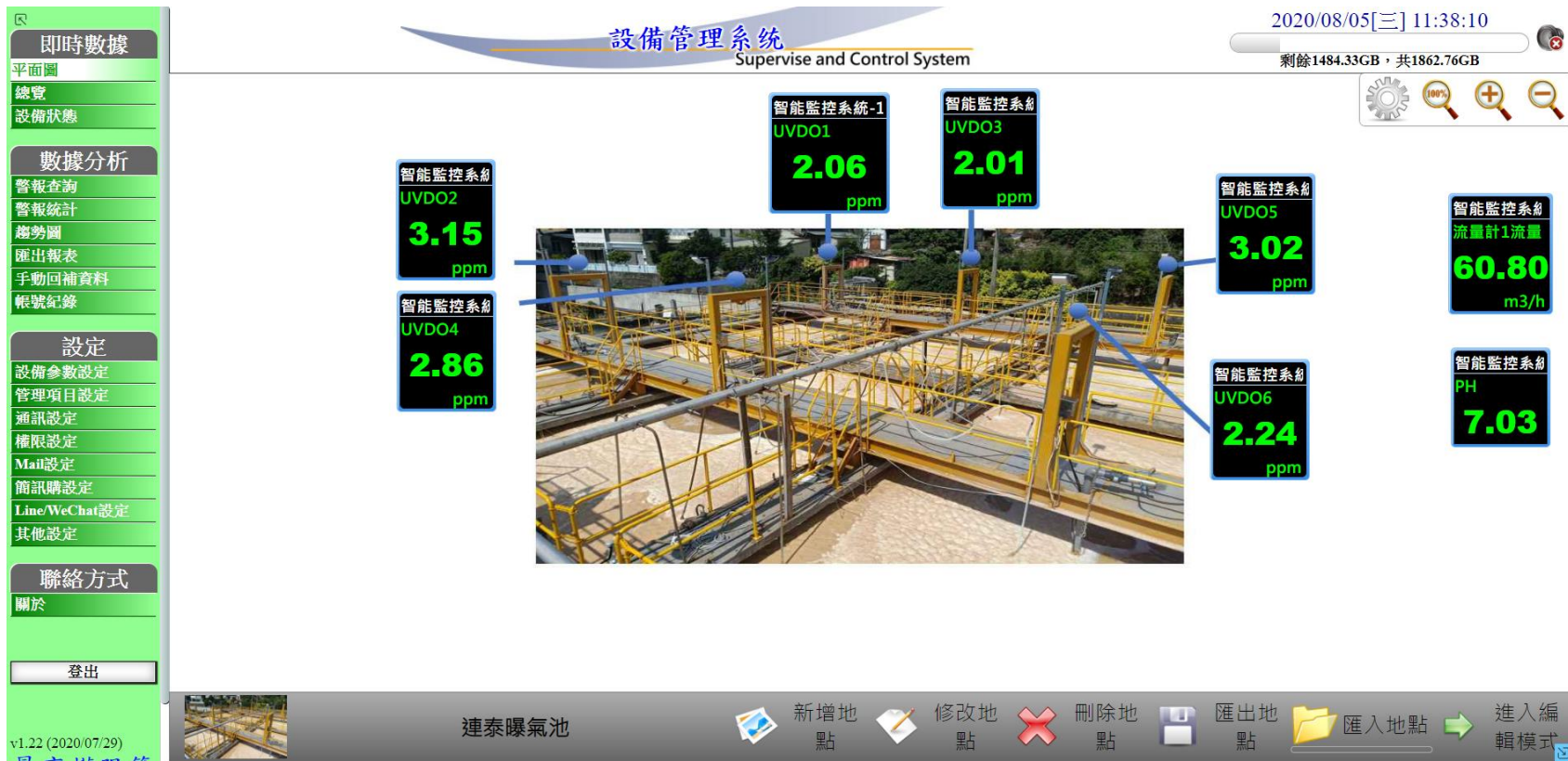


進入編輯模式

Aeration Tank of a Paper Mill in Miaoli



Case



Soil Thermal Desorption



Case

Problem Description

Before the introduction of intelligent thermal desorption equipment, the owner controls the fire rate and feeding time according to experience, which results in great energy consumption (oil consumption), and the treatment effect may not meet the treatment standard.

After applying GSD solution

Through the customized platform, online intelligent remote control can be realized, and the efficiency and yield rate are improved.

Real-time trend display



Best operating suggestion



Energy consumption analysis



Linyuan Factory in Kaohsiung

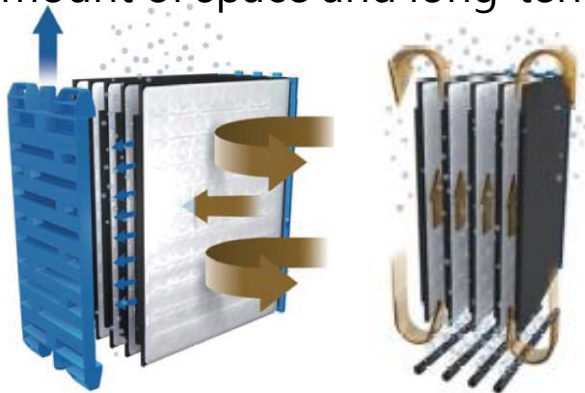
Expansion of existing sewage treatment plant

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.



Based on China**Invest Taiwan****Invest Southeast Asia****Focus on..****Production Capacity,
Product Development**

- ◆ Pinghu II plant construction
- ◆ Yangzhou plant construction

Focus on..**Strengthening
Competitiveness**

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

Focus on..**Market Expanding**

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

To Invest Taiwan: Yuh Shan Environmental Engineering Co., Ltd.

BOD resolved to obtain shares of Yuh Shan ,
By NT \$18/share.
(shareholding : 23.53%)

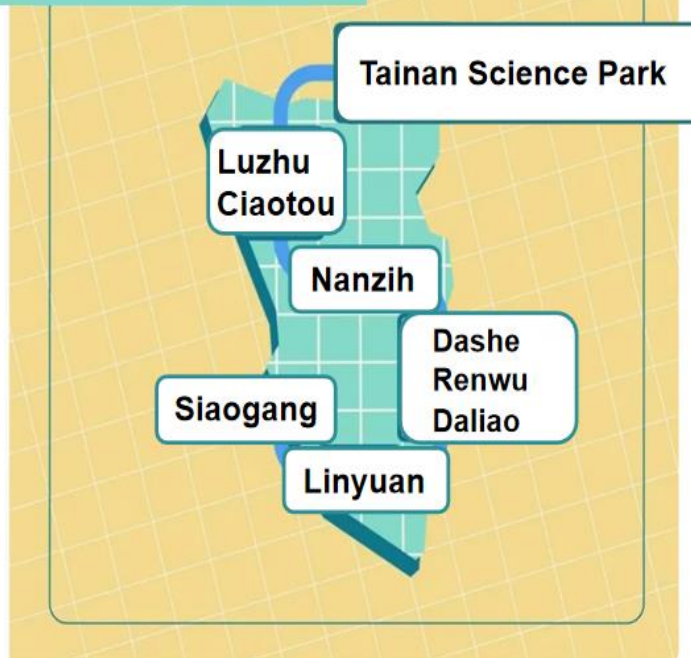


Yuh Shan Environmental Engineering Co., Ltd.

Enter the market of soil, groundwater pollution
treatment and mechanical biological treatment (MBT)
(circular economy).

- ◆ Established in 1993, current capital is **NT \$255 million**.
 - ◆ It is qualified for technical consulting company, professional construction industry, environmental inspection and measurement organization, and also obtained the certification of ground water drilling. **The turnover in 2020 is about NT \$490million.**
 - ◆ Since 2000, it has ≥ 110 projects engaged in the remediation of soil & groundwater pollution.
 - ◆ In recent developed **washing and thermal desorption methods** for soil remediation have great results, and have obtained some cases from **CNPC**.
 - ◆ Investing MT/MBT projects recently, it has achieved the goal of **reduction of more than 80%** by taking out the available resources from the waste. At present, in Yunlin has been in operation, and also in Pingdong, action will be started.
- The calorific value of RDF5 is about 2 / 3 of coal, but the carbon emission is about 1 / 3 .**

Semiconductor S Corridor
in Southern of Taiwan



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.

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 !