



All rivers are clean and no water is polluted.



Stock Code:
6641

GSD Technologies Co.,Ltd.

Company Presentation

2022.09.05

GREEN · SAFE · DEVELOPMENT





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Operating
Strategy



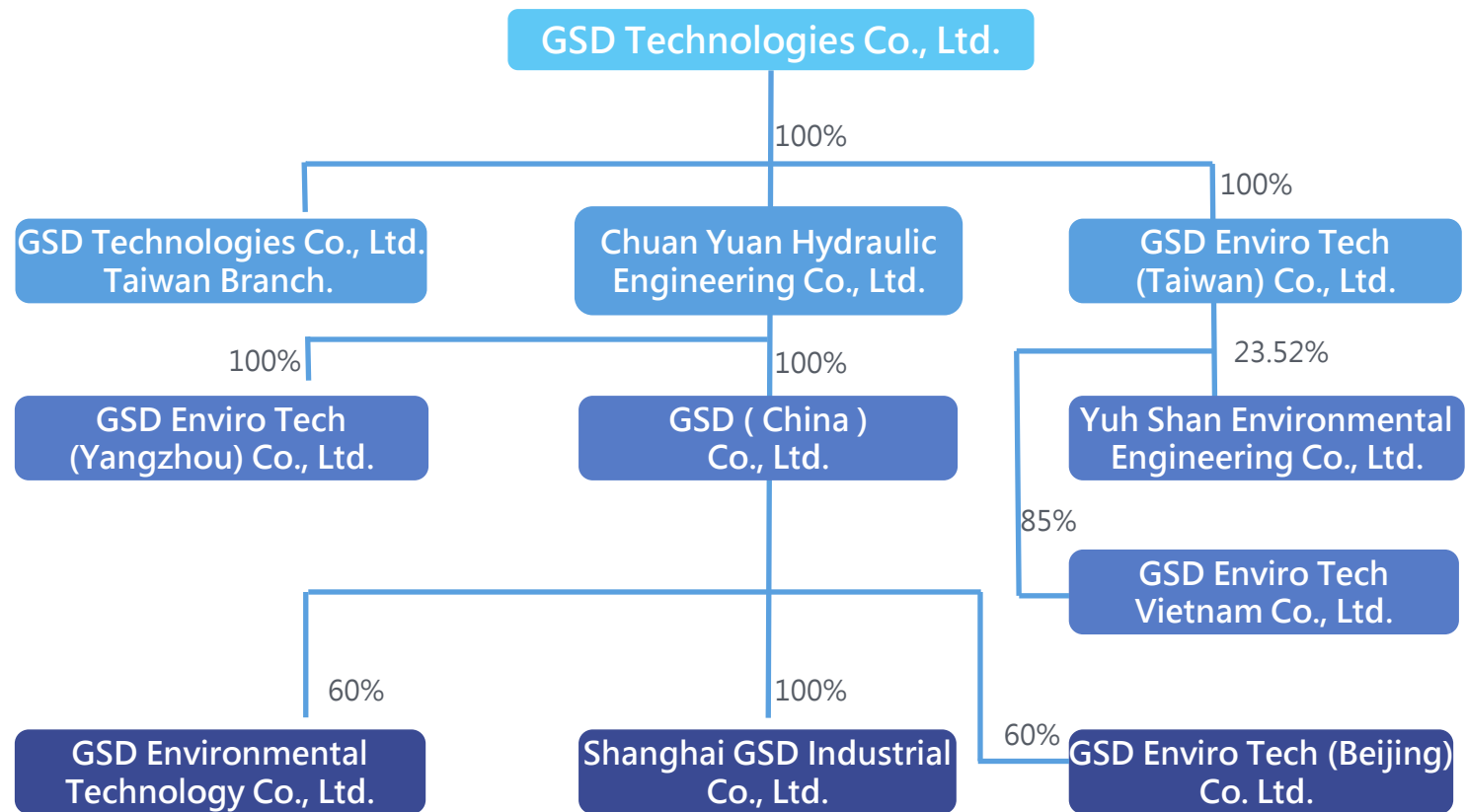
Company Profile

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	◆ 563 employees (2022.Jun.30)

Company Structure



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 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

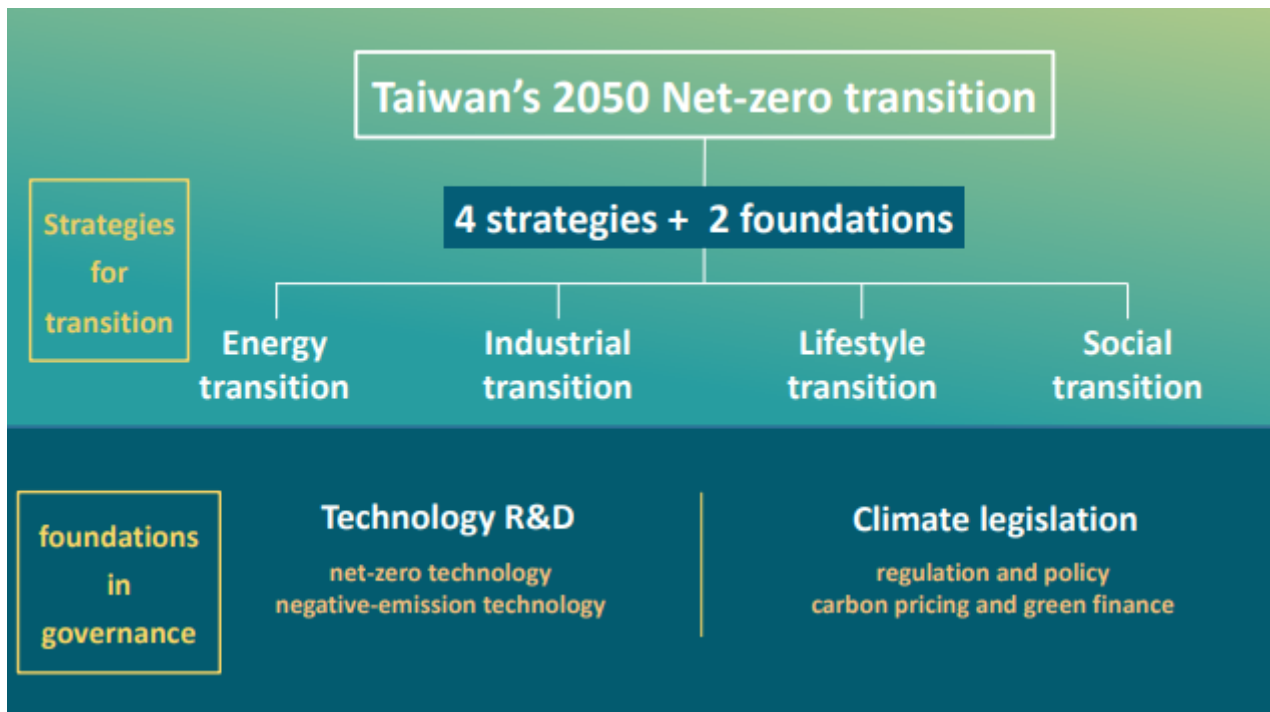
ACTION!

Launched the **sustainable operation** strategy

Set up ESG team to coordinate and promote ESG activities.

The first ESG report will be issued in 2024.

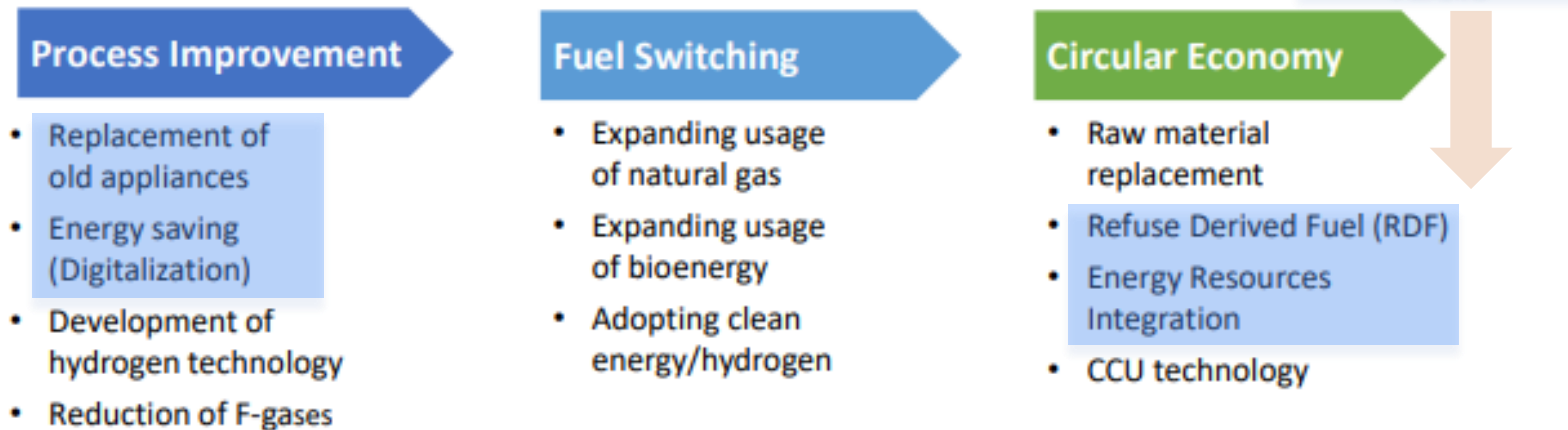
Taiwan and the world move towards net zero



Ref. : Taiwan's Pathway to Net-Zero Emissions in 2050

Taiwan and the world move towards net zero

3 aspects - 11 measures



Ref. : Taiwan's Pathway to Net-Zero Emissions in 2050

Path for manufacturing

2025

2030

2050

Low carbon

**Reduce carbon emission, and then
net zero emission**

Zero carbon

Energy resource integration

1.1

Replacement

-Process improvement & equipment replacement
-Waste heat & cold recovery technology

New equipment & energy saving technology

Expand leading-in.

1.2

Energy saving management

-Build intelligent energy management system
-Introducing intelligent energy monitoring system

Demonstration of digital technology to reduce CO₂.

Expand leading-in.

1.3

Hydrogen development

-Build high temperature reaction simulator.

Complete the setting of blast furnace hydrogen injection nozzle

-Hydrogen energy smelting technology research.

Construction of continuous demonstration line

The technology of green hydrogen direct reduction of iron was established.

1.4

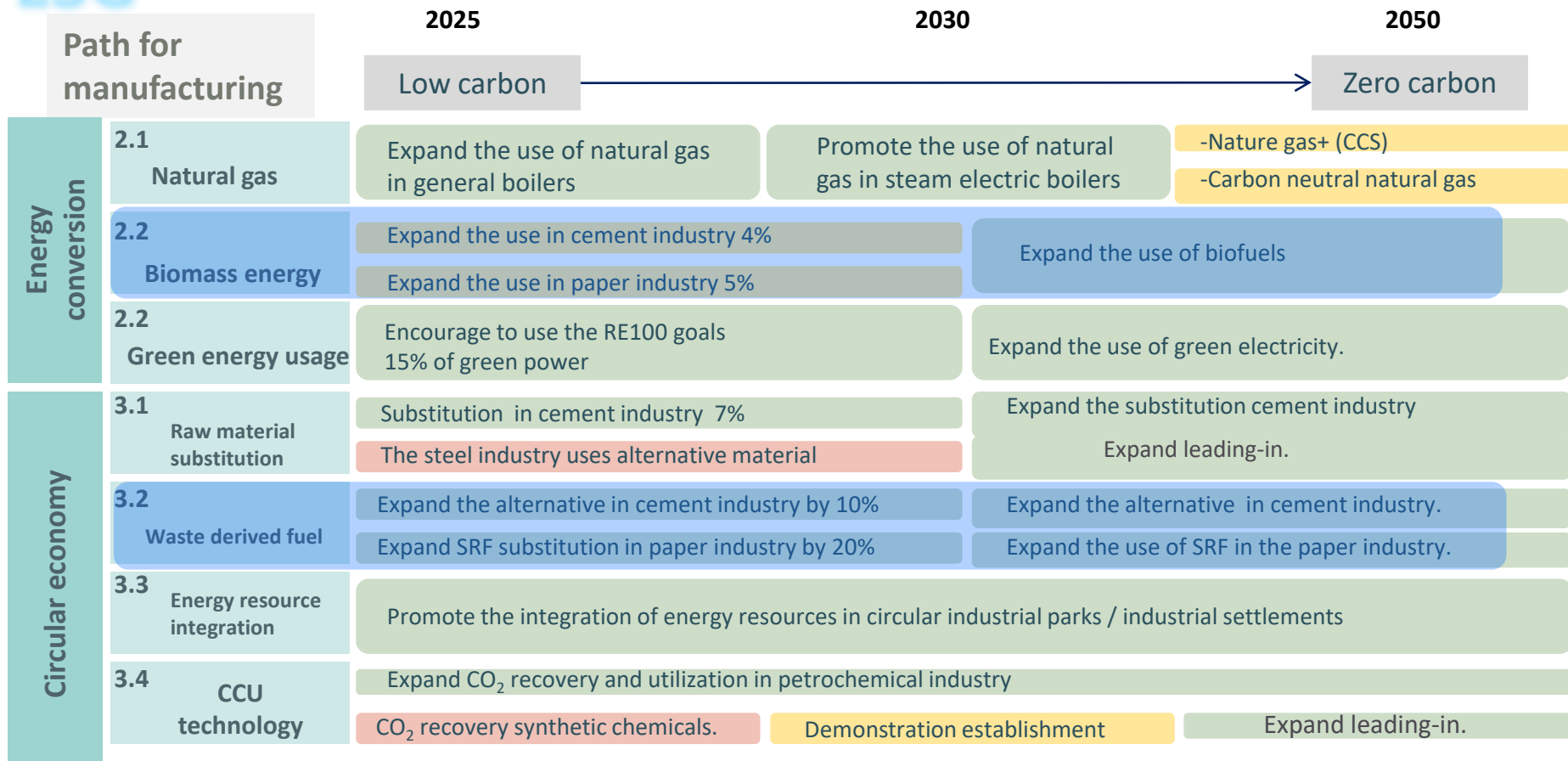
Fluorine reduction

Development of fluorine-containing gas substitution technology

Demonstration establishment

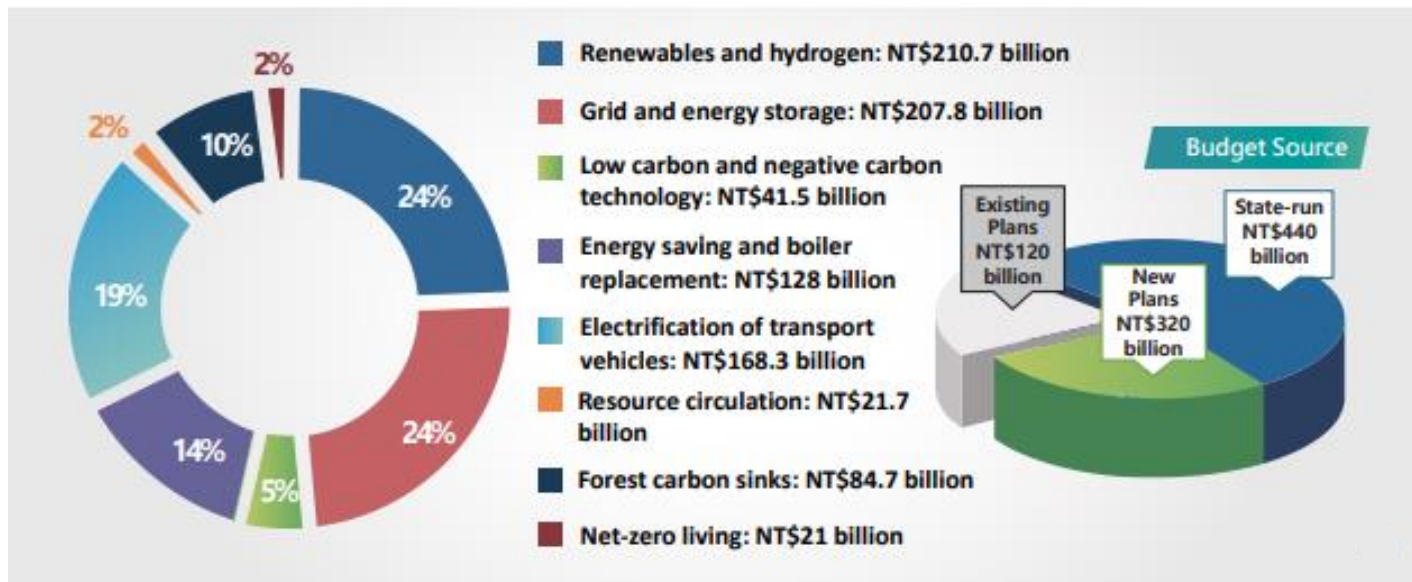
Expand leading-in.

Ref. : Taiwan's Pathway to Net-Zero Emissions in 2050



Ref. : Taiwan's Pathway to Net-Zero Emissions in 2050

A Budget of Nearly NT\$900 billions by 2030 for Major Plans of 2050 Net-zero Transition



Ref. : Taiwan's Pathway to Net-Zero Emissions in 2050

ESG Strategies



Green Product

Supply green products to help customers save energy, reduce consumption and carbon emissions, including saving of mechanical energy, process energy (upgrading and reconstruction), management/smart energy saving, and recycling (sludge, water recovery, SRF).

Green Management

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

ESG Strategies

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



- **W**ater/Waste
- **A**IoT
- **T**ransition
- **E**nergy
- **R**educe/reuse/recycle

Bio、AI、IoT、Equipment、Integrated

Based on equipment, environmental engineering, biotechnology and AIoT, GSD creates a new operation mode to provide customers with all solution to pursue sustainable of the environment.

ESG Strategies

B	Bio	→ aeration + microorganism + rapid screening + Pharmacy	→ Optimized rationalization
A	AI	→ data base + machine learning + digital luansheng	→ Optimized operation
I	IoT	→ working condition + health check + prediction + preventive maintenance	→ Operational Intelligence
E	Equipment	→ Single unit + set + system + empowerment	→ Equipment with IoT
I	Integrated	→ equipment + environmental engineering + Intelligent + Integration	→ 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
Establishing an ecosystem

Integrated services / **Operation** / **Investment**

Green Product



More than 200 products
have Energy saving
certification.(Over 40% of
revenue)



Customized-design reduces motor power by 4kW and
saves energy.



Launch turbo & magnetic levitation blower
with excellent energy-saving effect.

Green Product

Reconstruction of aeration system

Project A

Energy consumption  **67%**

Before: 0.22kW/m³ ; After: 0.08kW/m³



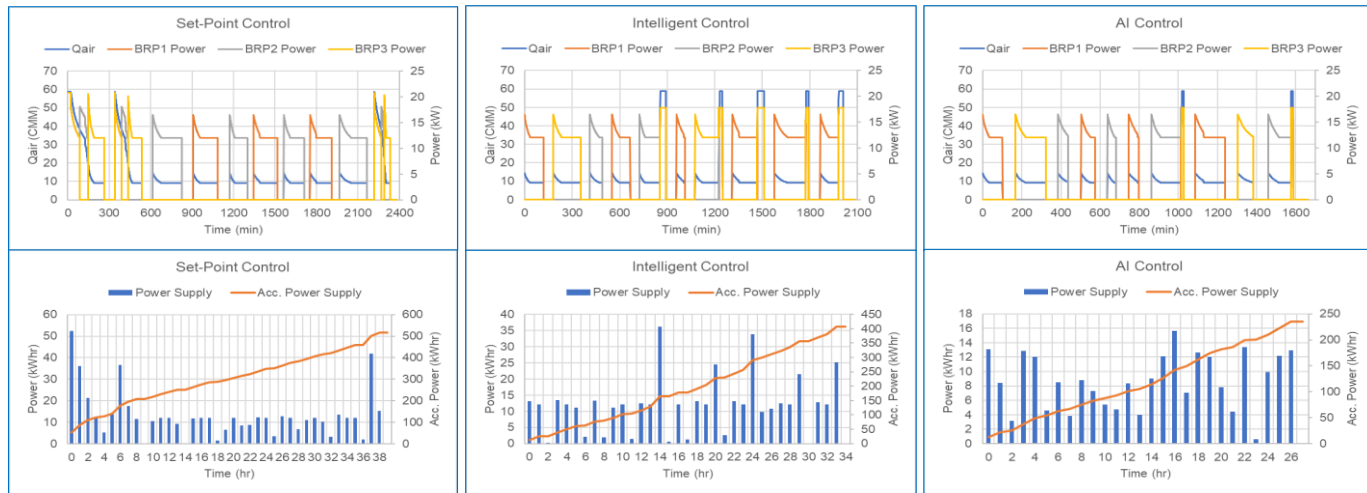
Project B

Energy consumption  **10%**

Before :183.3KW ; After :165.8KW



Green Product



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

By data simulation and analysis, the power saving effect is obvious by AI, Field verification processing.

Green Management



Solar power generation electricity-saving.

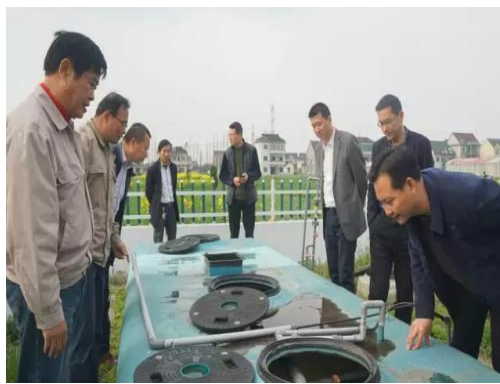
Use environmentally friendly water-based paint.

Focus on carbon reduction from product design.

Construction of sponge factory.

Support Hubei new infectious disease hospital.

Support local river governance.



Green Management

Waste reduction + Environmental awareness + Employee family day

Monthly Environment Day

By parent-child activities, GSD shares resource recycling knowledge and environmental education.



环保家庭日



Green Management

Cleaning plate activity

Festival activity

Team building activity

Working skill competition

Support for rural schools

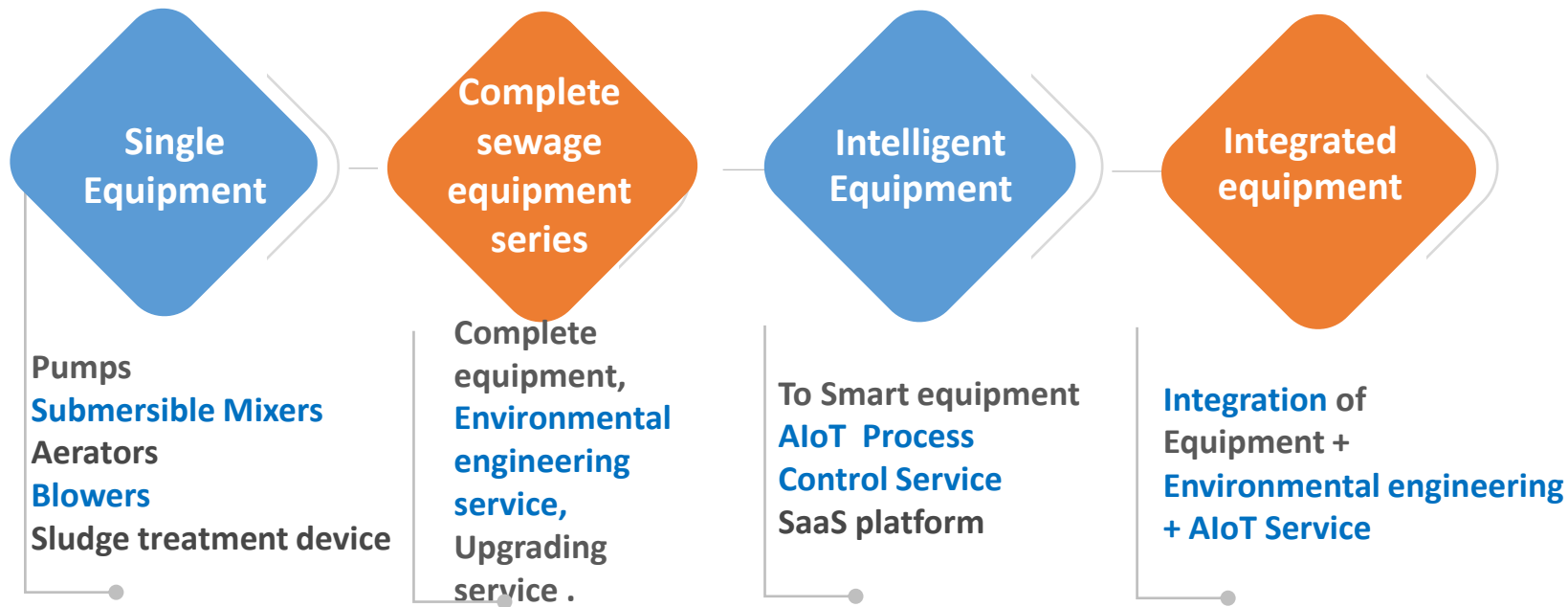
Financial aid for poor students

Business culture activity



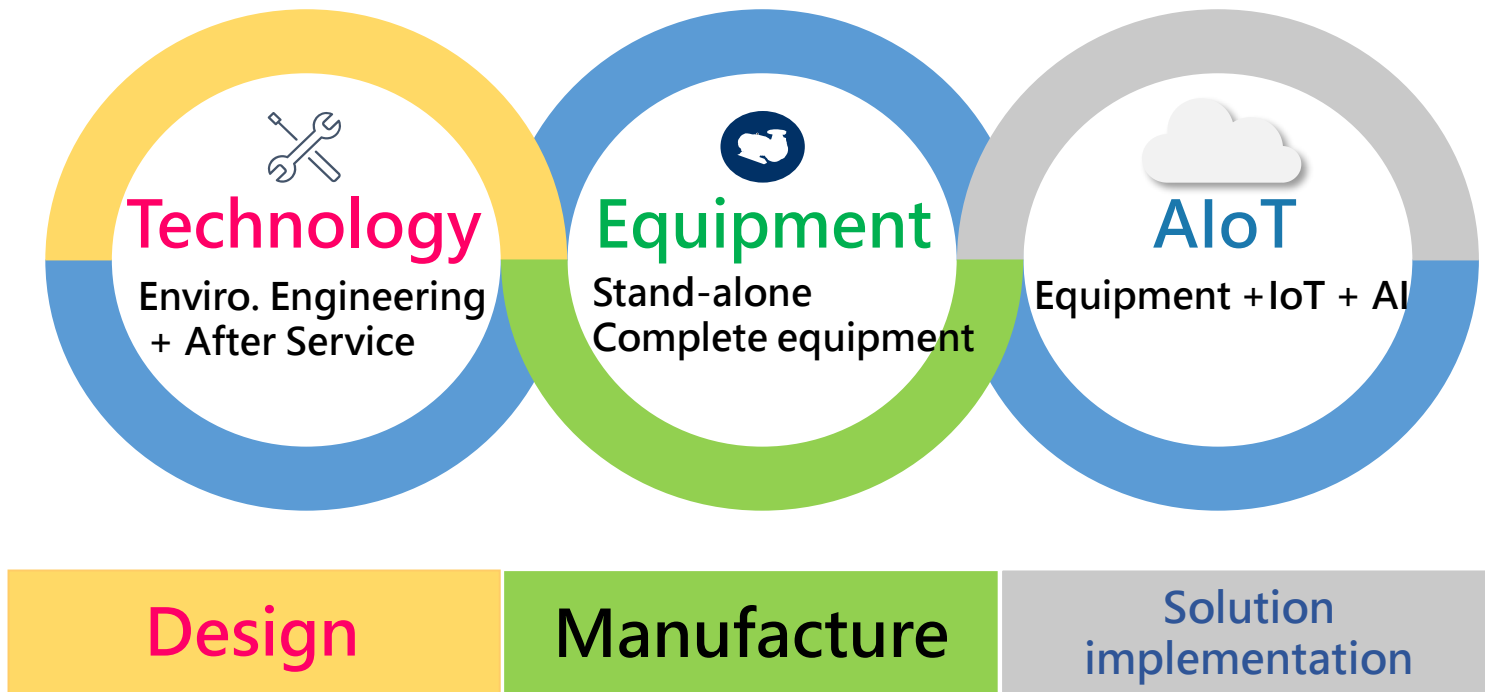
Product Scope

Comprehensive service provider of environmental governance



Product Scope

Comprehensive service provider of environmental governance



Invest Taiwan



2019 GSD Taiwan Branch established.

2021 GSD Enviro Tech (Taiwan) established..

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

June,2021 GSD acquired shares of Yuh-Shan Co. .

2021.Oct Cash capital increase NT 150 millions.

2022.

Launch smart water service platform with Water Affairs Organization · Pioneered use of SaaS to provide convenient AI operation modeling services for water treatment in Taiwan.

Build smart water demonstration sites and participate public construction in Taiwan.

Participate in government tender

In 2021, GSD obtained the professional construction industry license for environmental protection engineering.

Tenders obtained in 2022:

Project : Odor prevention project of sewage treatment plant
Amount : NTD 3,746,400 (completed)
Tender date : 2021-12-20

Project : Replacement of trash rack of sewage treatment plant in
Minxiong Industrial Zone.
Amount : NTD 2,005,494 (wait for approval)
Tender date : 2022-04-20

Project : Sewage treatment turnkey project of cleaning team in
New Taipei city.
Amount : almost NTD 40 million (construction in 430 days)
Tender date : 2022-08-18

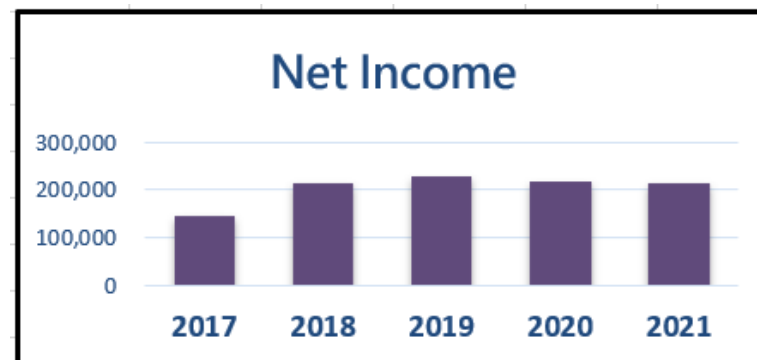
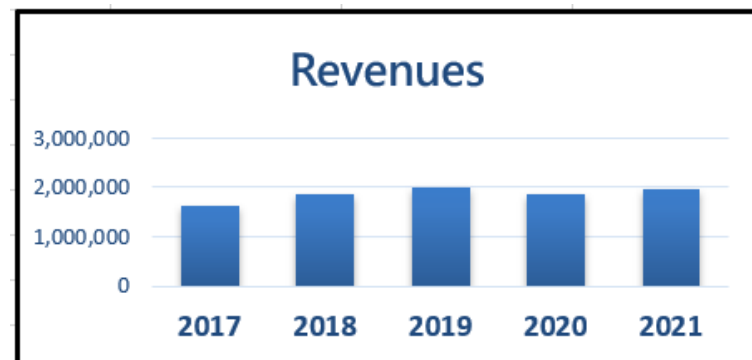


Operating Performance

02

Income statement

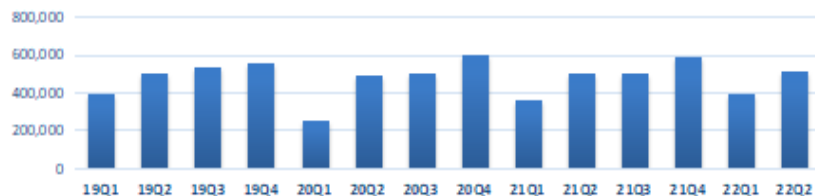
Items	2017	2018	2019	2020	2021
Revenue	1,622,684	1,867,639	1,992,051	1,846,674	1,960,518
Growth Rate	25.70%	15.10%	6.66%	-7.30%	6.16%
Sales margin	635,387	739,292	771,093	739,951	751,949
Op. Expenses	445,830	475,650	530,561	477,846	548,722
Op. Income	189,557	263,642	240,532	262,105	203,227
EBIT	202,756	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



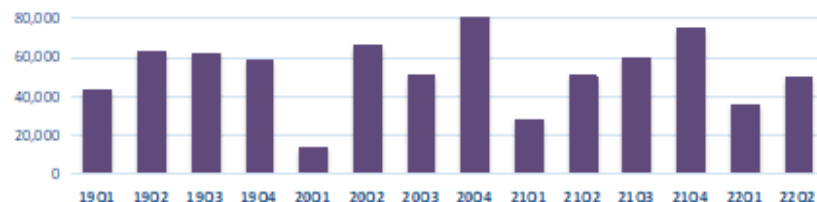
Income statement

Items	2019Q1	2019Q2	2019Q3	2019Q4	2020Q1	2020Q2	2020Q3	2020Q4	2021Q1	2021Q2	2021Q3	2021Q4	2022Q1	2022Q2
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	391,236	509,063
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	127,867	170,944
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	13,659	30,197
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	32,735	58,067
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	35,017	49,698

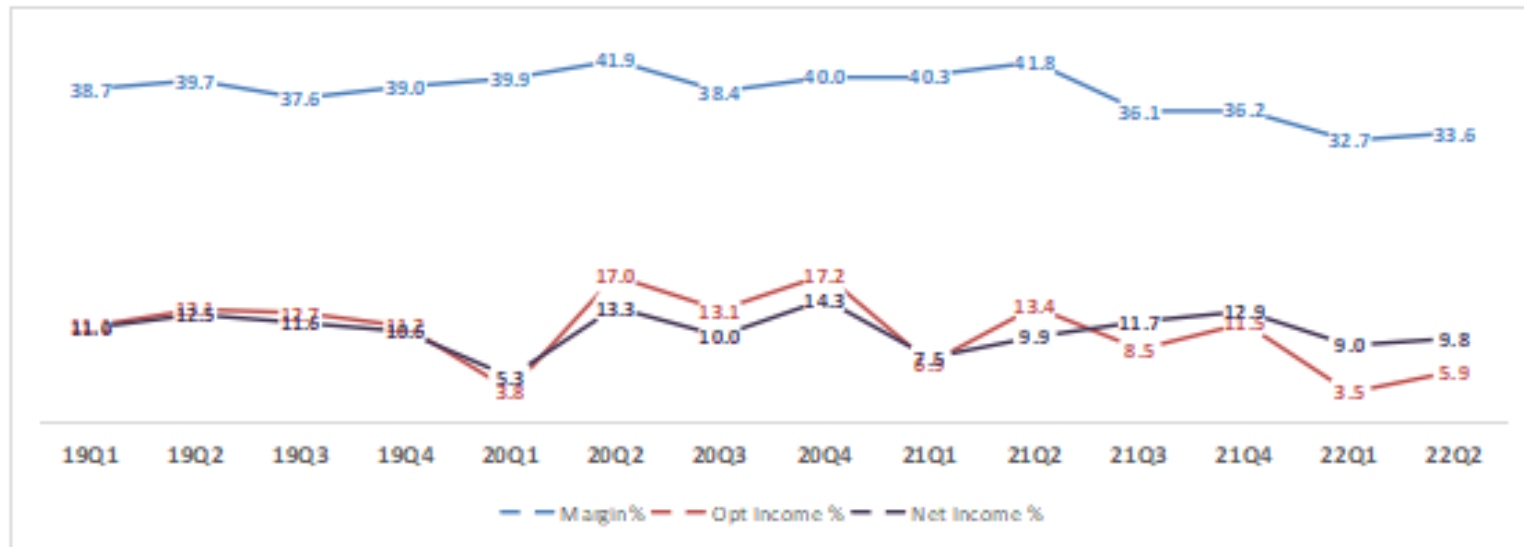
Revenues



Net Income

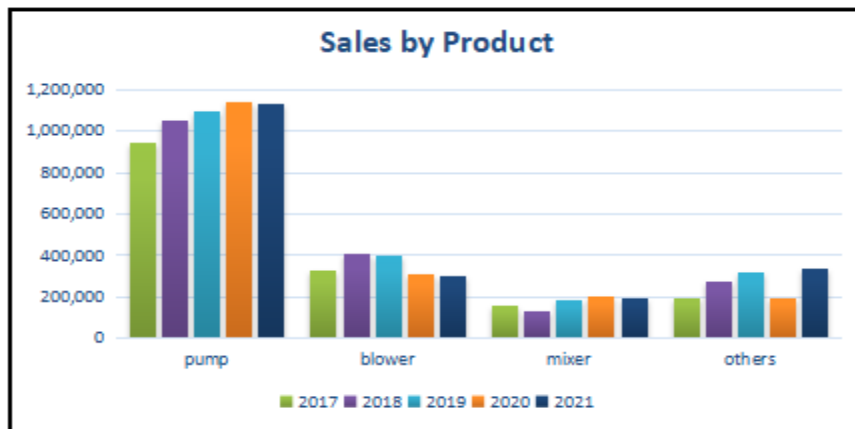


Profitability ratio



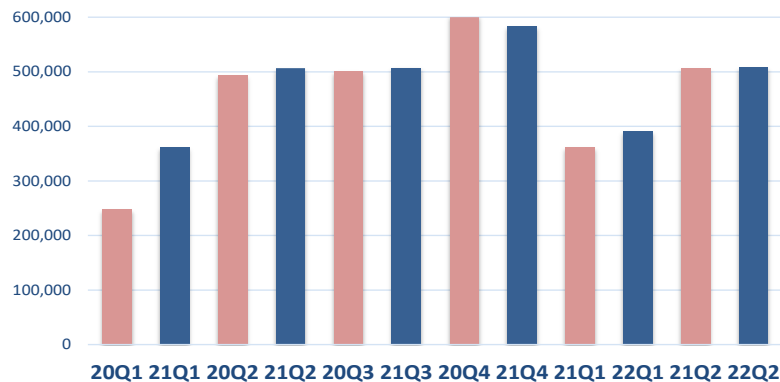
2022Q1 Q2 decrease in gross profit margin:
Due to inflation and the increase in the proportion of revenue in Taiwan.

Product Sales



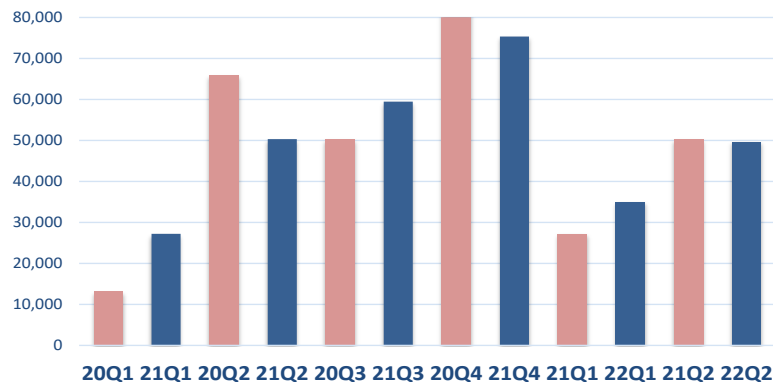
item	2019		2020		2021		2022H1	
	AMT	%	AMT	%	AMT	%	AMT	%
pump	1,097,049	55.07	1,138,671	61.66	1,130,537	57.67	521,815	57.96
blower	395,382	19.85	313,497	16.98	302,771	15.44	115,881	12.87
mixer	182,604	9.17	199,597	10.81	195,171	9.96	84,195	9.35
others	317,016	15.91	194,909	10.55	332,039	16.94	178,408	19.82
Total	1,992,051	100.00	1,846,674	100.00	1,960,518	100.00	900,299	100.00

QoQ Performance



Quarterly REVENUE

Items	20Q1	21Q1	20Q2	21Q2	20Q3	21Q3	20Q4	21Q4	21Q1	22Q1	21Q2	22Q2
Revenue	248,663	361,672	493,929	506,872	501,031	507,774	603,051	584,200	361,672	391,236	506,872	509,063
Net Income	13,171	27,205	65,935	50,316	50,296	59,438	86,109	75,315	27,205	35,017	50,316	49,698



Quarterly NET INCOME

Currency	2021H1	2022H1	Difference
NTD/CNY	4.354	4.426	1.65%

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.

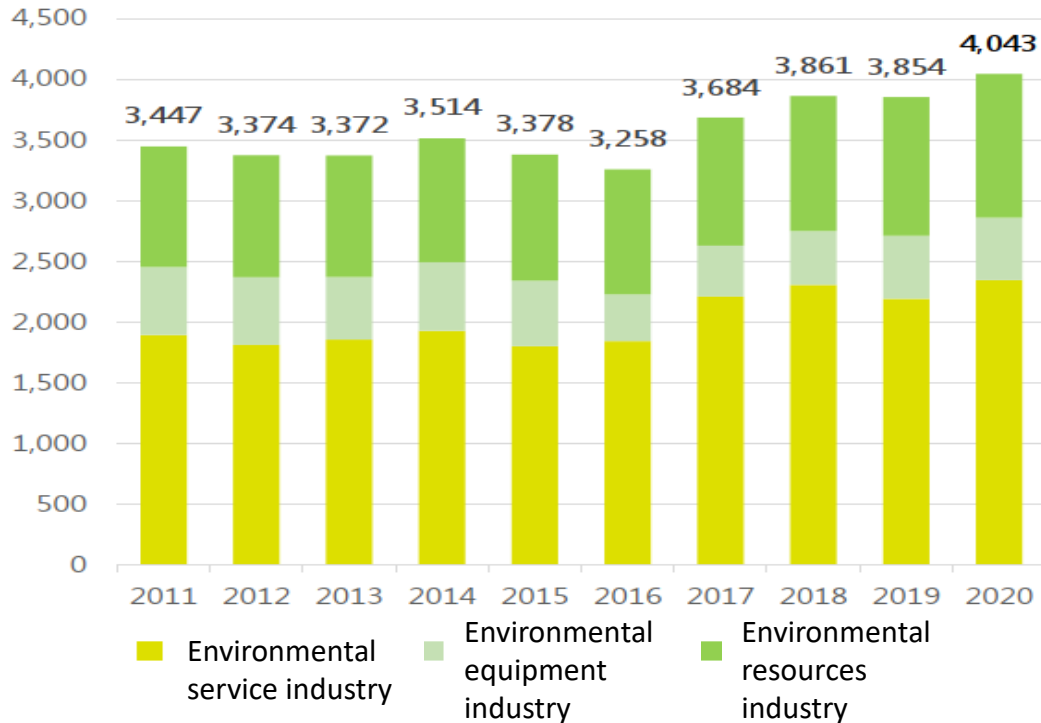


Industry Overview

03

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

Unit: NTD Billion



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

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.**

Function	2020		2019 (100 million)	2020 to 2019	
	Amount (100 million)	Structure ratio (%)		Comparison amount (100 m.)	ratio (%)
Expenditure on pollution prevention and control	1778.3	100	1754.6	23.7	1.4
Air pollution prevention and control	458.7	25.8	464.1	-5.4	-1.2
Greenhouse gas reduction	24	1.3	26	-2	-7.8
Prevention and control of water pollution	438.7	24.7	426.3	12.4	2.9
Waste disposal	619.5	34.8	588.2	31.3	5.3
Noise and vibration control	14.5	0.8	14.6	-0.1	-0.5
Prevention and control of soil and groundwater pollution	17.9	1	16	1.9	11.9
Research development	9	0.5	11.2	-2.1	-18.8
Other	196	11	208.3	-12.3	-5.9

2020 Taiwan's expenditure on pollution prevention and control Source: EPA

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

Key words for the 14th Five-Year Plan

Carbon Neutral

Energy saving &
Emission reduction

Water is
becoming resource

2030 carbon peak
2060 carbon neutrality

Key point: Technology (low carbon, carbon replacement, carbon reduction and carbon fixation)

Low carbon technology: Reducing CO2 emissions in the same process or under the same product or functional conditions.

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

10 actions in China of carbon peak

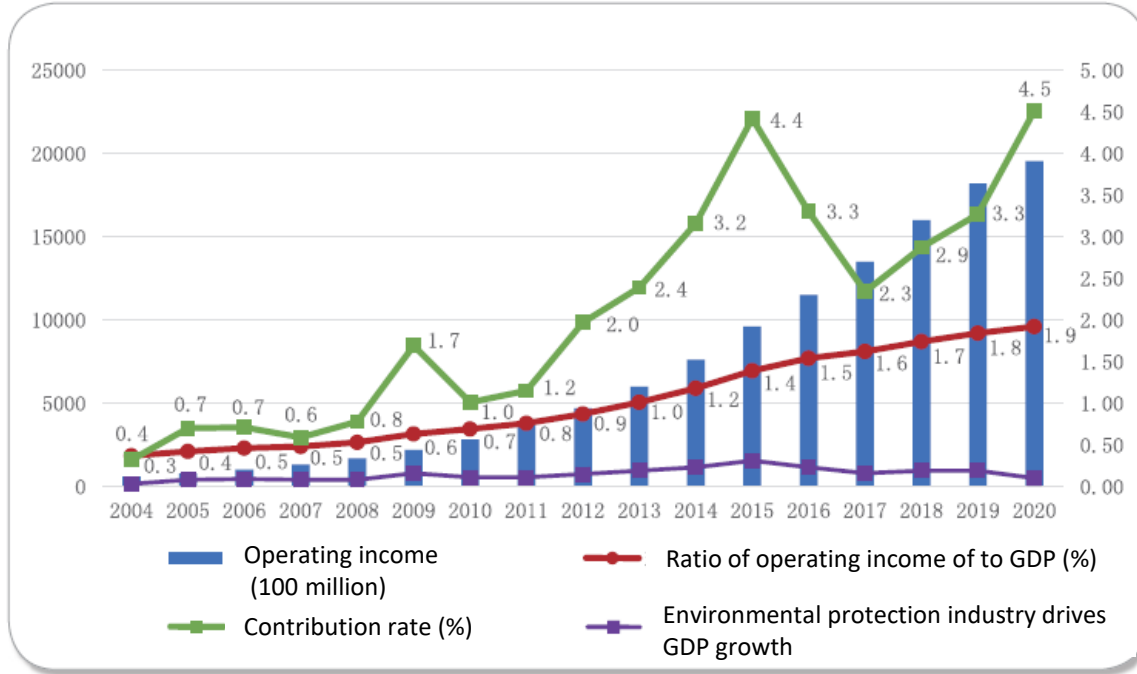
- Green energy
- Carbon-reduced
- Industry filed
- Countryside construction
- Green transportation
- Circular Economy
- Technological innovation
- Enhance carbon capacity
- Low-carbon national action
- Green action in each area



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.

China

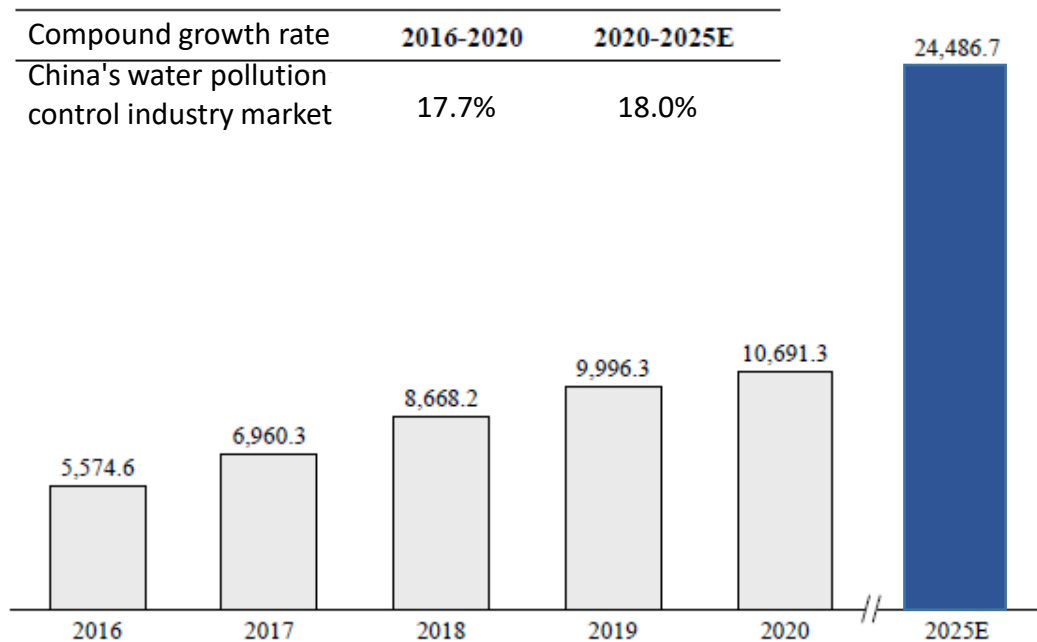


1.9%

Revenue of
environmental
protection to GDP
in 2020

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

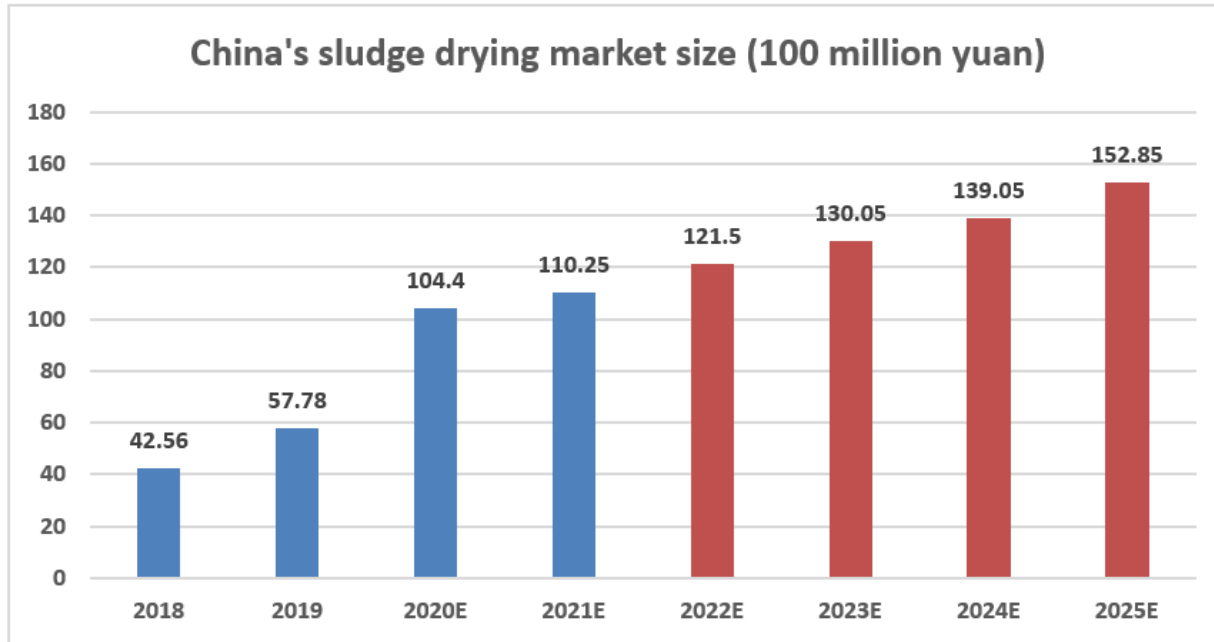
Market scale of China's water pollution control industry (100 million yuan, 2016-2025 forecast)



18%

Compound growth
from 2020 to 2025

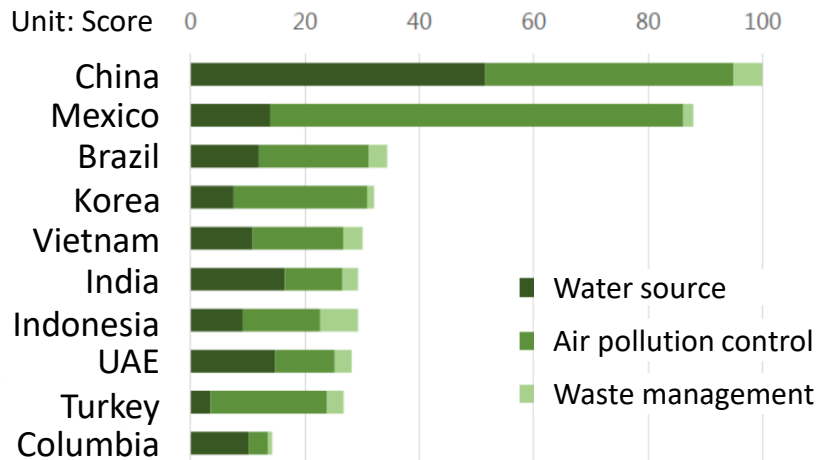
Source: www.leadleo.com



Unit: 100 million yuan (RMB)

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

Vietnam



Source:

International Trade Administration, U.S. Department of Commerce (2020).

2019 Environmental Technologies Top Markets: A Market Assessment Tool for U.S. Exporters.

Source: bioenergy and environmental protection industry website

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% per 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.



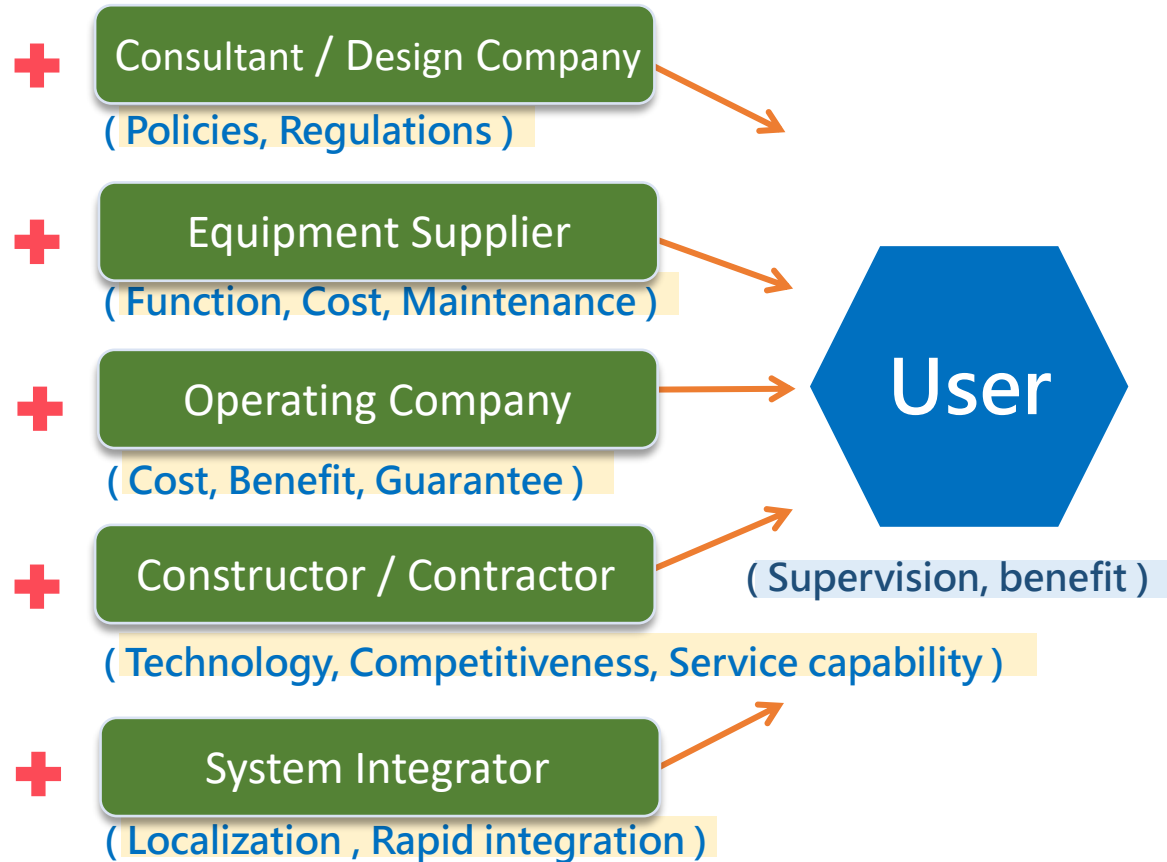
Operating Strategy

04

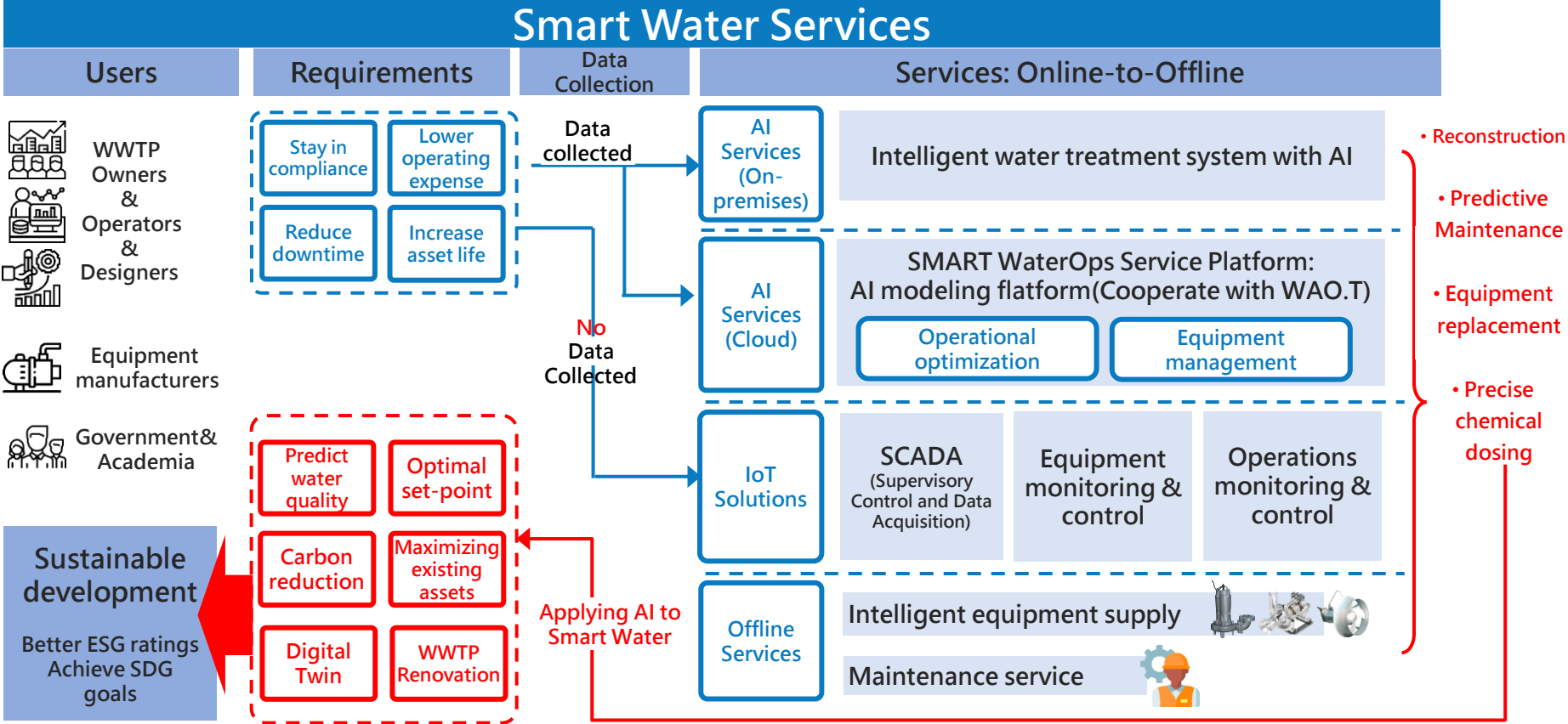
Core Advantage



Business Model



Comprehensive Solution for Smart Water Services



• Submersible pump series
 • On land pump series

• Mixing and flow propeller equipment

• Aerating oxygen input equipment

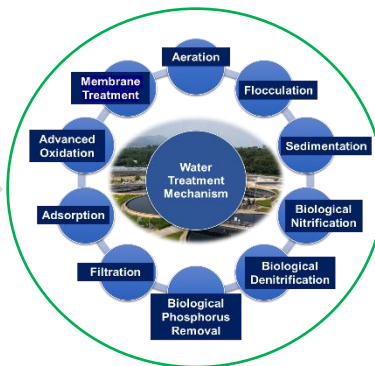
• Blower Series

• Solid liquid separation equipment

• Compact unit of WWTP



- Sensor
- Gateway



- **Edge Data Collecting**
- **Edge Computing**

- Integrated sewage treatment equipment
- Integrated pump station
- River water quality monitoring

Aerator Management System

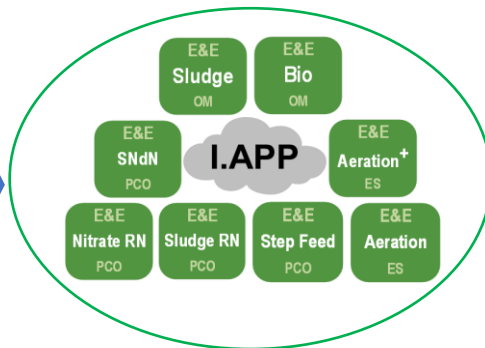
Submersible pump management system

On land pump management system

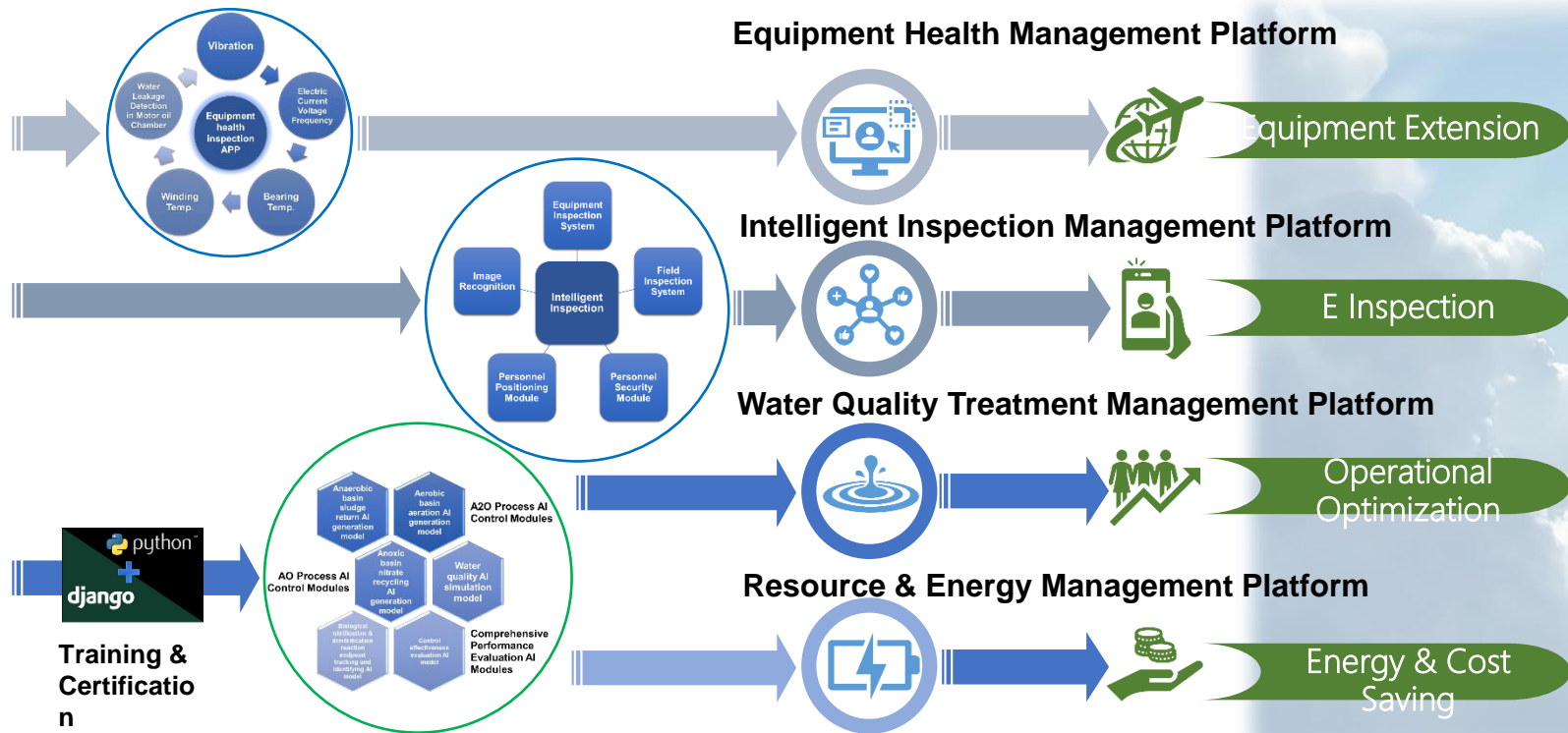
Roots blower management system

Air bearings turbo blower management system

SRP



Intelligent Process Monitoring & Control Modules





Capacity : 4,000 CMD

Process : A2O

**To response to 2050 net zero:
apply smart management module.**

Before AI control

The operating co. lacks experience in operating A2O :

- The treatment facility clearly suffers from insufficient HRT
- Poor sludge return control, resulting in sludge loss
- Inefficient return pump in nitrification solution
- Poor aeration control, resulting in the floating of sludge in the final settling tank

The pollution source has abnormal discharge, resulting in an increase in the pH and COD water concentration of the inflow, and the inclusion of heavy metals.

The water quality of ammonia nitrogen and total nitrogen discharge exceeds the standard.

After AI control

Use the smart water service platform from Sep. 2020 :

- ✓ Establish intelligent precision control AI model for the park, and accurately control the required aeration and return flow in the anaerobic, aerobic and anoxic sections.
- ✓ At present, the entire process operation is continuously maintained and operated, and the AI is used for operation.

Release water up to standard



Case

Water treatment park in central Taiwan

Capacity : 31,000 CMD

Process : AO(MLE)

**To response to 2050 net zero:
apply smart management module.**

Cooperate with customer to introduce smart water solutions and share benefits.

Planned Ao (MLE) program-controlled smart link scheme:

1. Intelligent operation control module for internal reflux of nitrification liquid;
2. Precise aeration intelligent operation control module; And
3. Sludge return intelligent operation control module.



Project is done, relative data is collecting.....



Case

Semiconductor factory, Panel factory

Implement precise dosing module:

To response to 2050 net zero:
apply smart management module.

- ◆ pH adjustment intelligent control module
- ◆ denitrification carbon source supply intelligent control module
- ◆ intermittent aeration intelligent control module
- ◆ intelligent control module of internal return flow of nitrification solution
- ◆ intelligent control module of sludge return flow
- ◆ precise aeration intelligent control module
- ◆ MBR membrane filtration intelligent control module



Reduce medicine amount

Reduce sludge volume

Case

Blower room of Tainan technology industrial zone



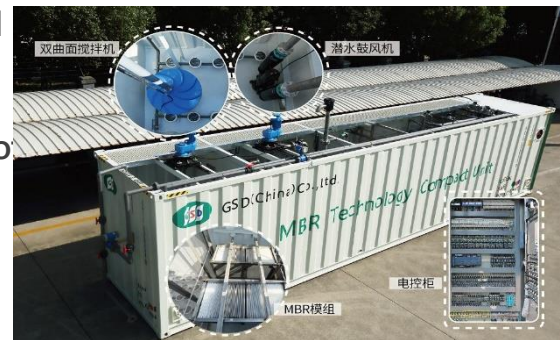
It has successfully assisted Taiwan equipment factory to complete the intelligent system of blowers, filter presser and thermal supports.

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, 2nd tank liquid level, 3rd tank liquid 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.

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 as a group.

- ◆ Established in 1993, the capital is NT \$255 million.
- ◆ In 2021, the turnover 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.

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

To response 2050 net zero: SRF/RDF5 is one of the important options for the government to promote waste-derived fuel .



CPC Kaohsiung plant: the 3rd and 4th 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.

CNCN (Beijing) Enviro Tech Co. Ltd.

- ♦The capital is 10 million RMB and the shareholding is 60%
- ♦The initial operation is sludge drying business and energy management, **expected to start operation in this Q3.**
- ♦Clear sludge treatment route after the 14th five year plan

Policy in China: the harmless and resource utilization level of sludge in cities and counties has been improved, and the disposal rate has reached more than 90%. During the "14th five year plan" period, the scale of new sludge harmless treatment facilities will be no less than 20,000 tons / day.

To response 2050 net zero: Sludge is one of the important options for the government to promote waste-derived fuel .

GSD Enviro Tech Vietnam Co., Ltd.



Advantage in Vietnam

- ♦ The economic growth rate is > 6% in Vietnam.
- ♦ Vietnam participate 17 FTAs.
- ♦ 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.

GSD in Vietnam.

- ♦ Capital: USD 1 million
- ♦ Equipment sales + technical service (integrating agent business)
- ♦ Operation starts in this 2nd quarter, which will integrate GSD's resources and accelerate its development.

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 !