Presented at

TAIWAN INTERNATIONAL WATER WEEK 2022

Enhancing the positive benefits of corporate water consumption from ESG perspective

Water Security for Texas: Ensuring Water Supply with a 50-Year Horizon

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SAN ANTONIO

Dr. Walter Den

Institute for Water Resources Science and Technology

Texas A&M University-San Antonio

Snapshot of Texas

The second-largest U.S. state by both area (to Alaska) and population (to California).

- Area: 695,663 km^2
- Population (2020): 29.1 million (42.9/km^2)
- 4/5 of Texans live in urban areas
- About 1/3 of the population lives in the metropolitan areas of Houston, Dallas, and San Antonio, all 3 of which are among the 10 most populous metropolitan areas in the United States.
- Major industries: Energy, agriculture, high tech, healthcare, aeronautics.

Source: Wikipedia, cited in: https://en.wikipedia.org/wiki/Texas (September 30, 2022)

History of Water Rights?

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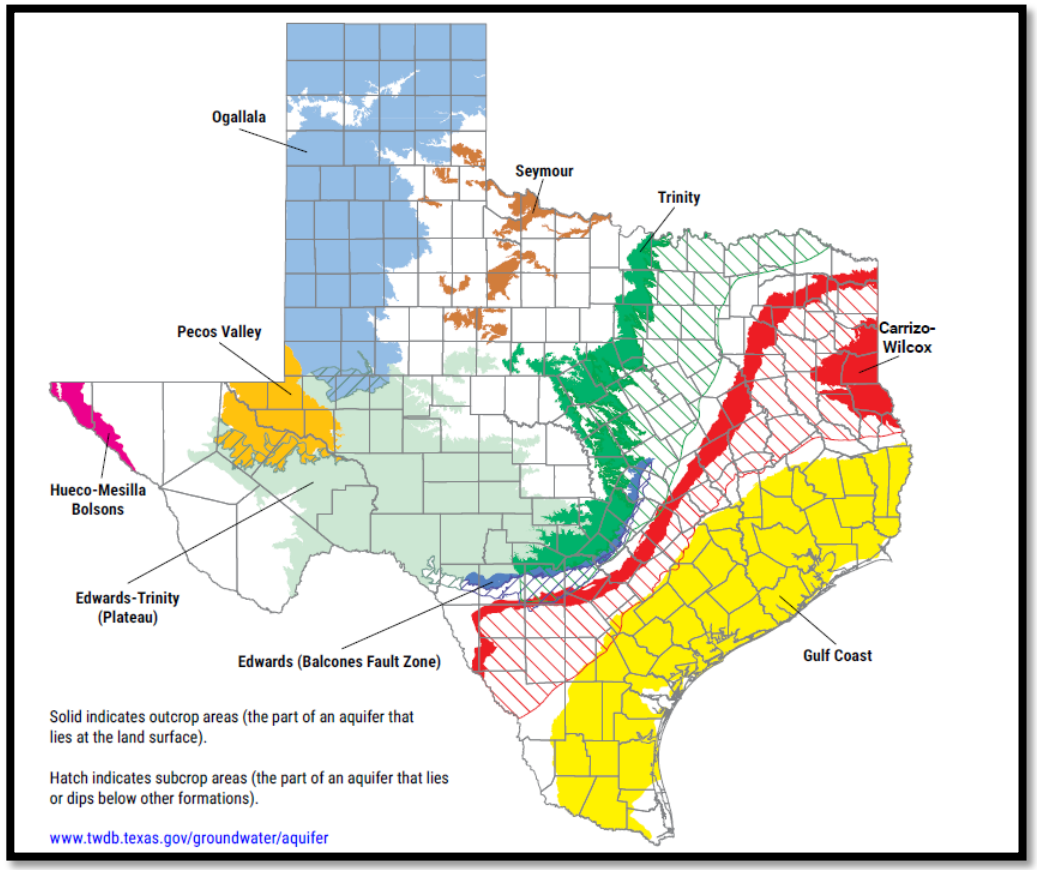
Historical customs of “water rights”

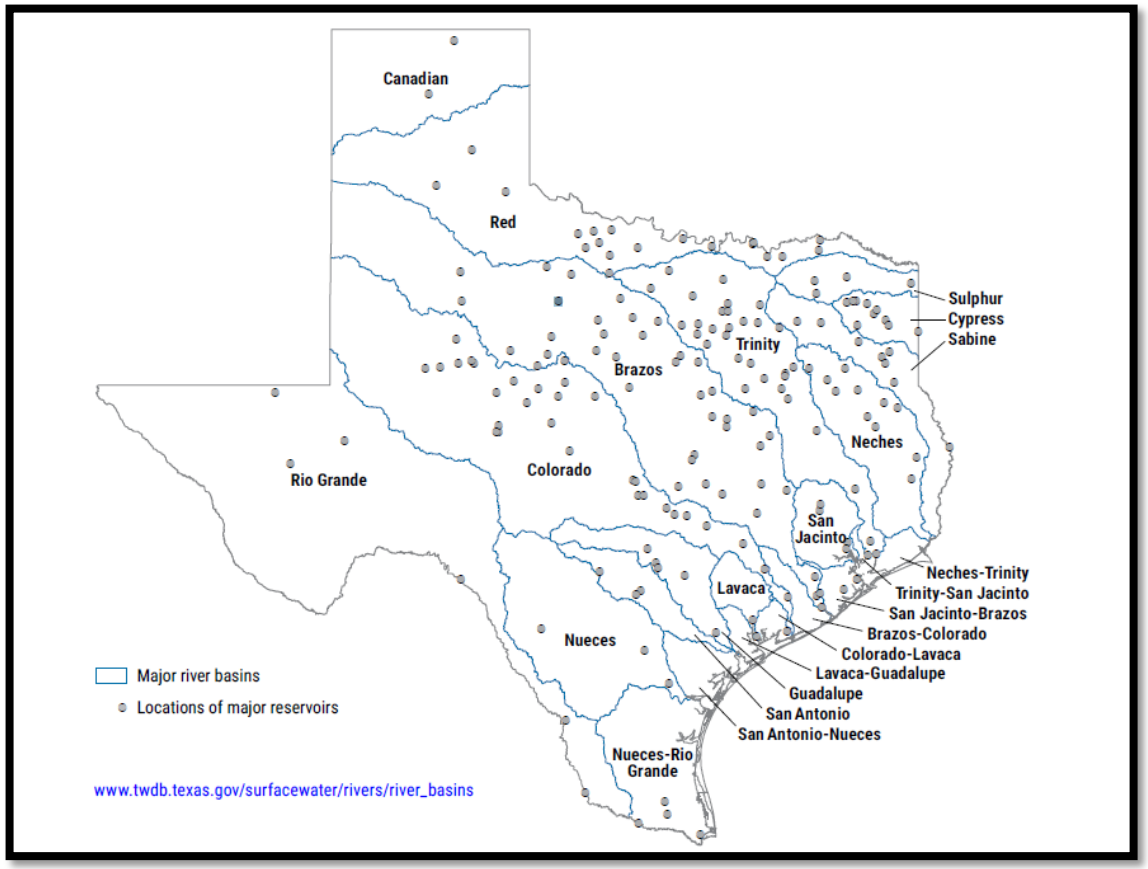
- “Rule of capture”- Landowners have the right to capture the water beneath their property, regardless of the effects of that pumping on neighboring wells.
- “Prior Appropriation Doctrine” – Water rights are determined by priority of beneficial use. This applies to surface water and drainage water. Permits are required to allocate surface water right.

Texas is BIG

- Each water planning region has its own characteristics (urbanized vs. rural; municipal/manufacturing vs. mining/agriculture)
- Large variations in needs (water availability vs. demand) and the cost of supply to remote area.

Texas Major Water Resources





State Water Planning

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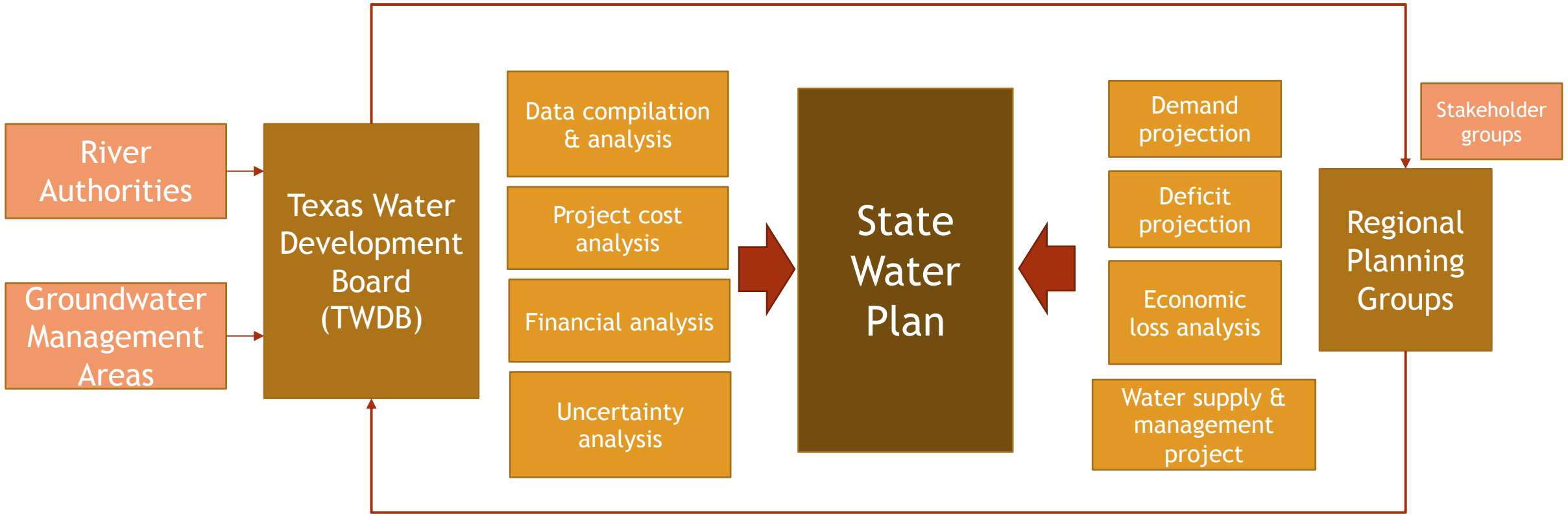
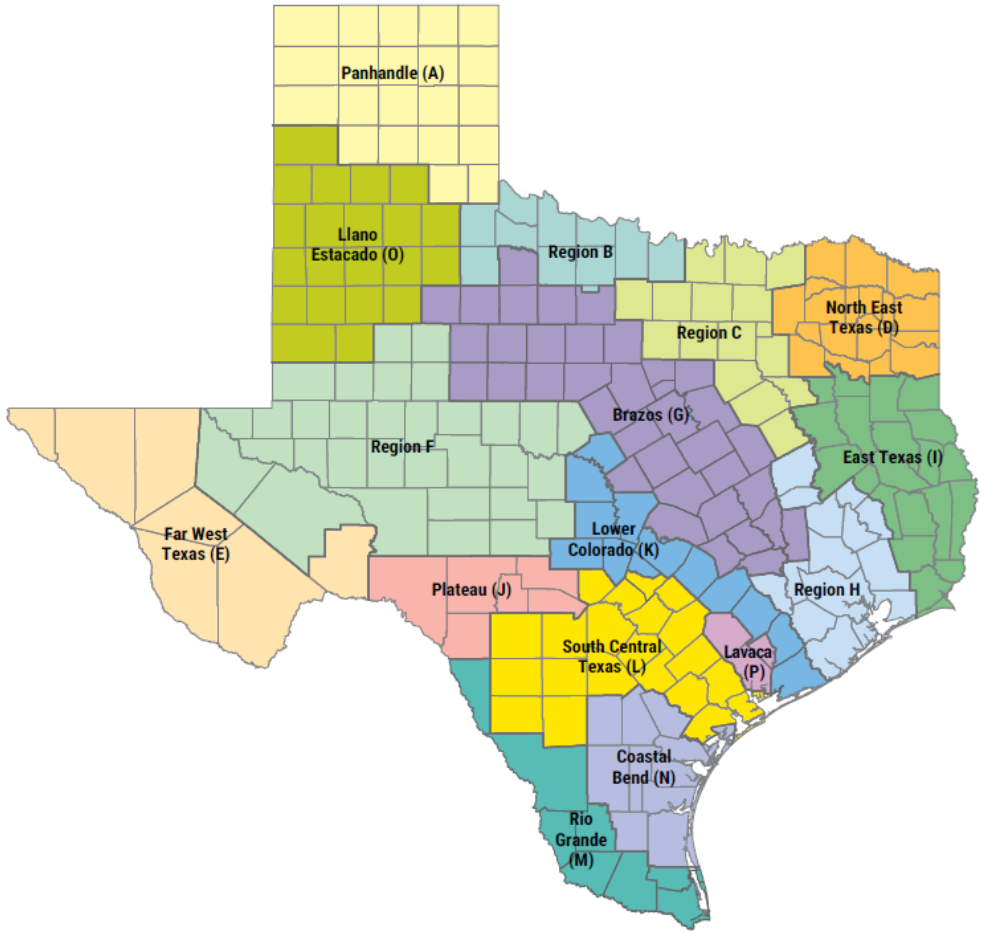


State Water Planning



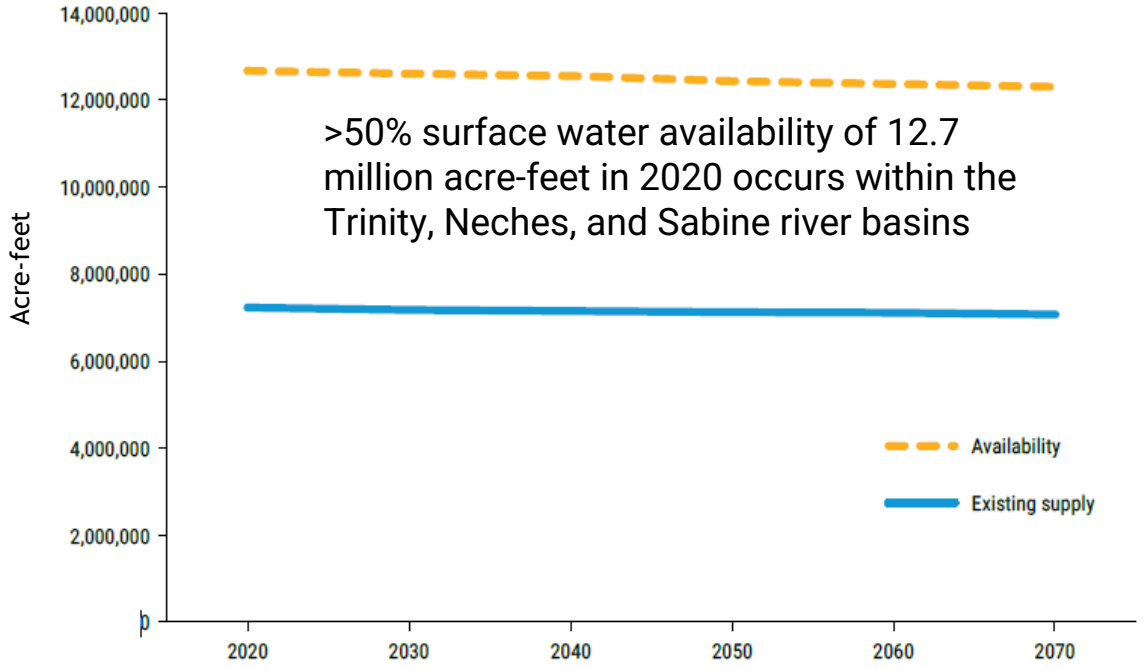
- 16 regional water planning areas
- 5-year planning cycle, 50-year horizon
- Supply – based on "drought of record" statewide and regional records.
- Demand – Each planning area consists of statutory members representing the public, counties, municipalities, industries, agriculture, environment, small businesses, electric-generating utilities, water districts, water utilities, river authorities, and groundwater management agencies.

Source: Texas State Water Plan 2022, cited in: https://www.twdb.texas.gov/waterplanning/swp/2022/index.asp

Surface Water Availability

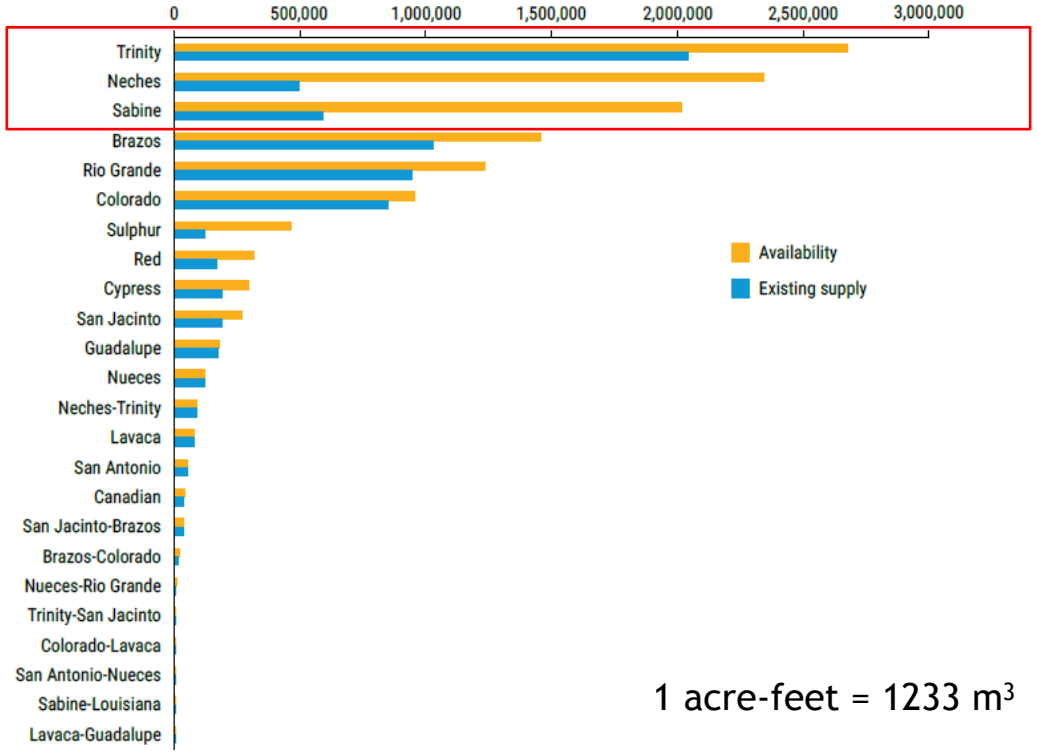
TCEQ's surface water availability models (WAMs)

- Historical inflow data
- No return flow



>50% surface water availability of 12.7 million acre-feet in 2020 occurs within the Trinity, Neches, and Sabine river basins

Breakdown by river basin



1 acre-feet = 1233 m^3

Source: Texas State Water Plan 2022, cited in: https://www.twdb.texas.gov/waterplanning/swp/2022/index.asp

Ground Water Availability

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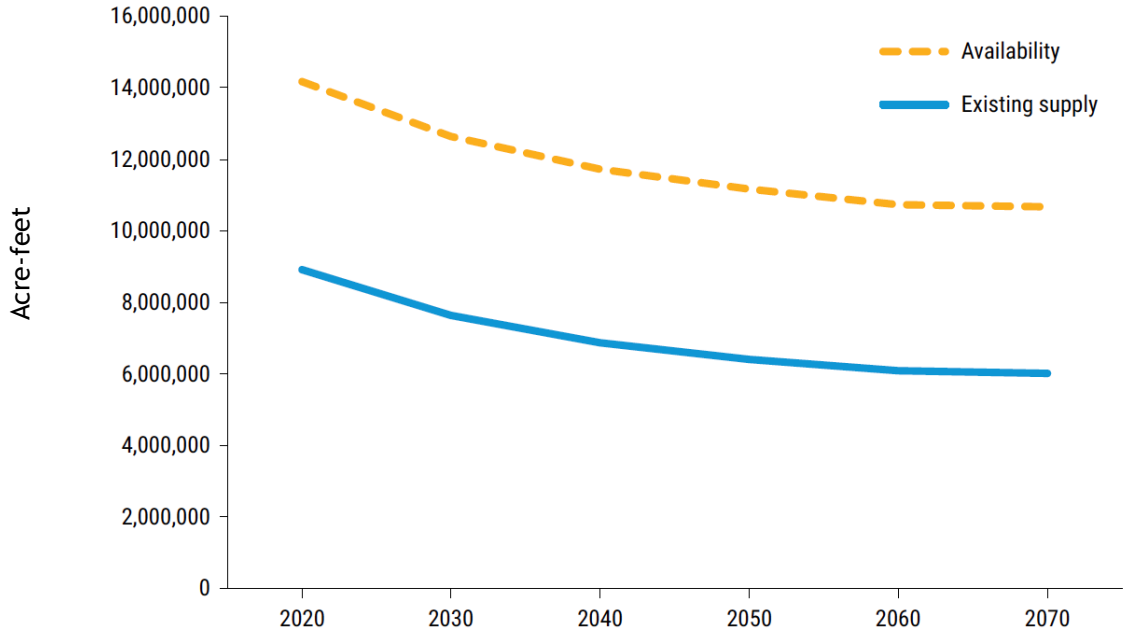
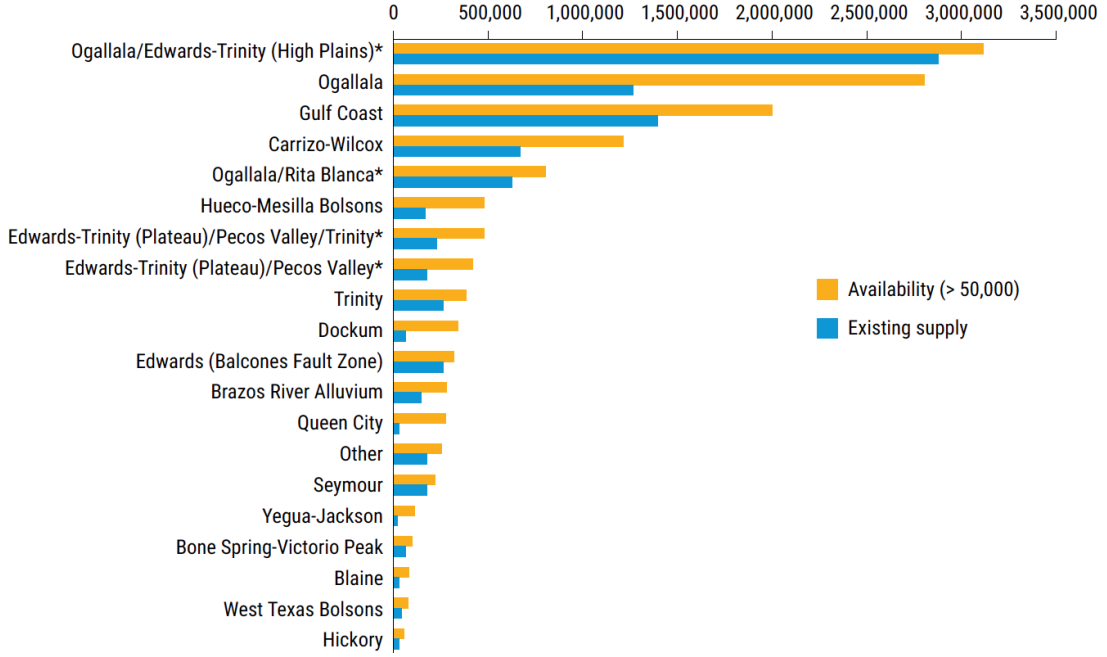
Texas' annual groundwater availability and existing groundwater supplies (Major aquifers)



Annual availability by aquifer

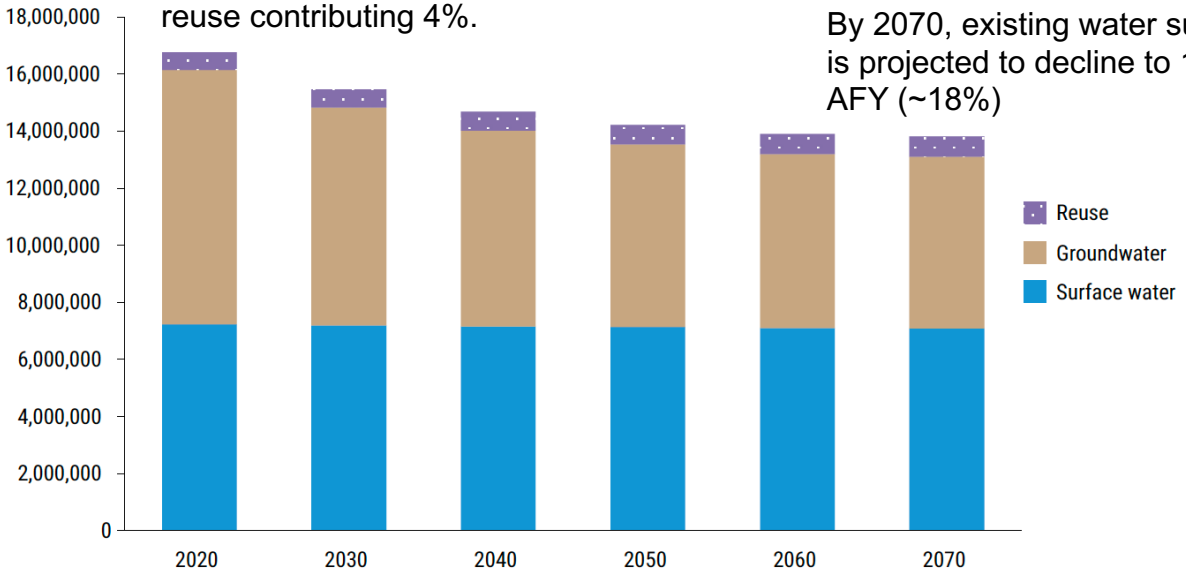


Source: Texas State Water Plan 2022, cited in: https://www.twdb.texas.gov/waterplanning/swp/2022/index.asp

Existing & Projected Water Supplies

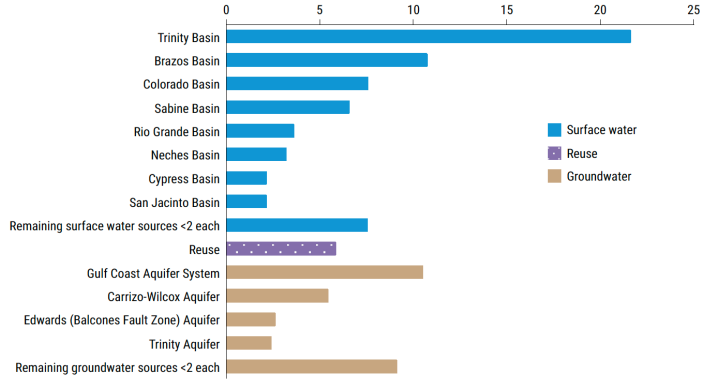
16.8M AFY in 2020 consists 50%GW and 50% SW, with reuse contributing 4%.

By 2070, existing water supply is projected to decline to 13.8M AFY (~18%)

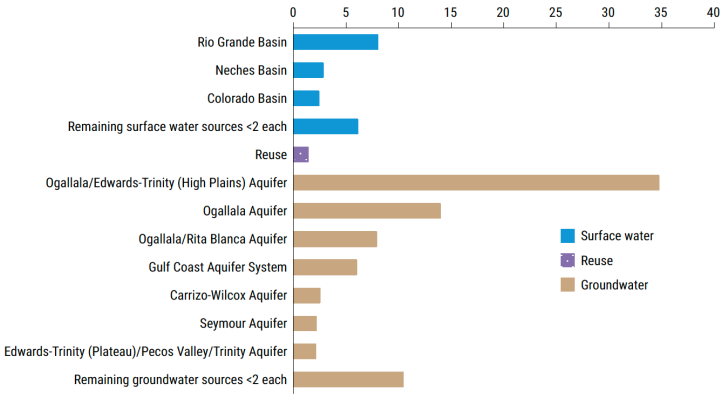


** Does not reflect some portions of existing supplies that are associated with purely saline water sources such as untreated seawater.*

municipal, steam-electric, manufacturing, and mining supply (by %)

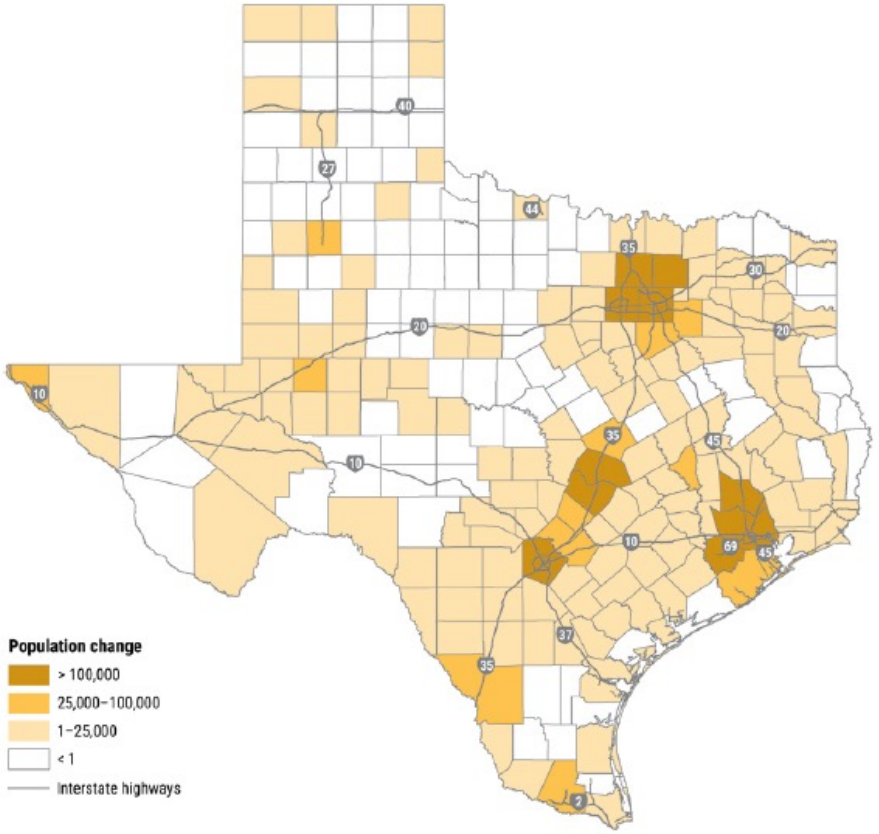


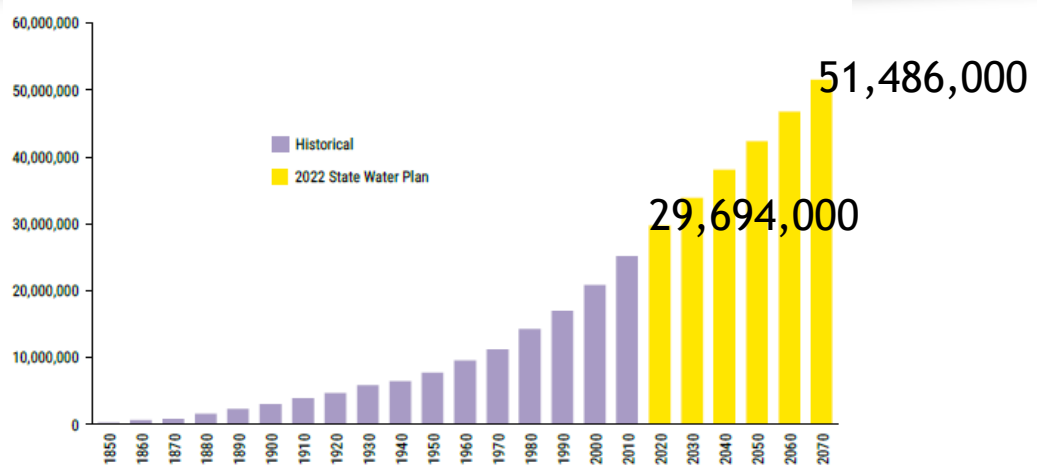
irrigation and livestock supply (by %)

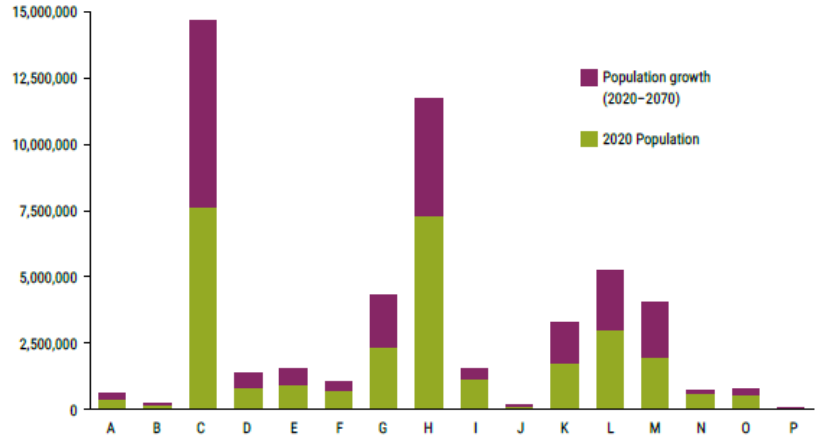


Source: Texas State Water Plan 2022, cited in: https://www.twdb.texas.gov/waterplanning/swp/2022/index.asp

Population Growth Projection

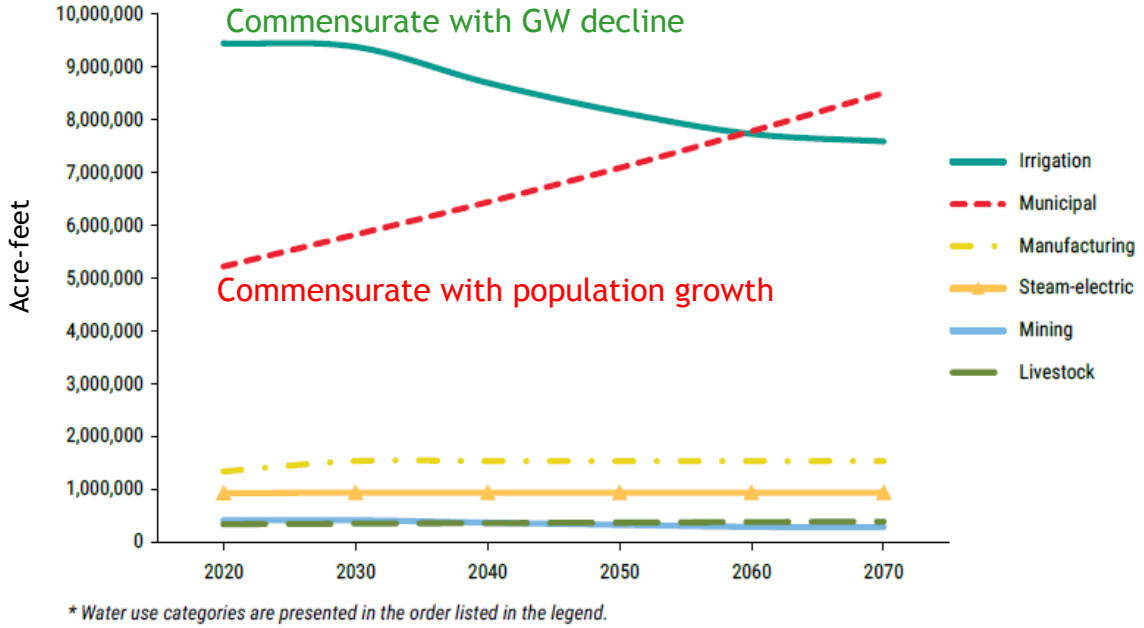




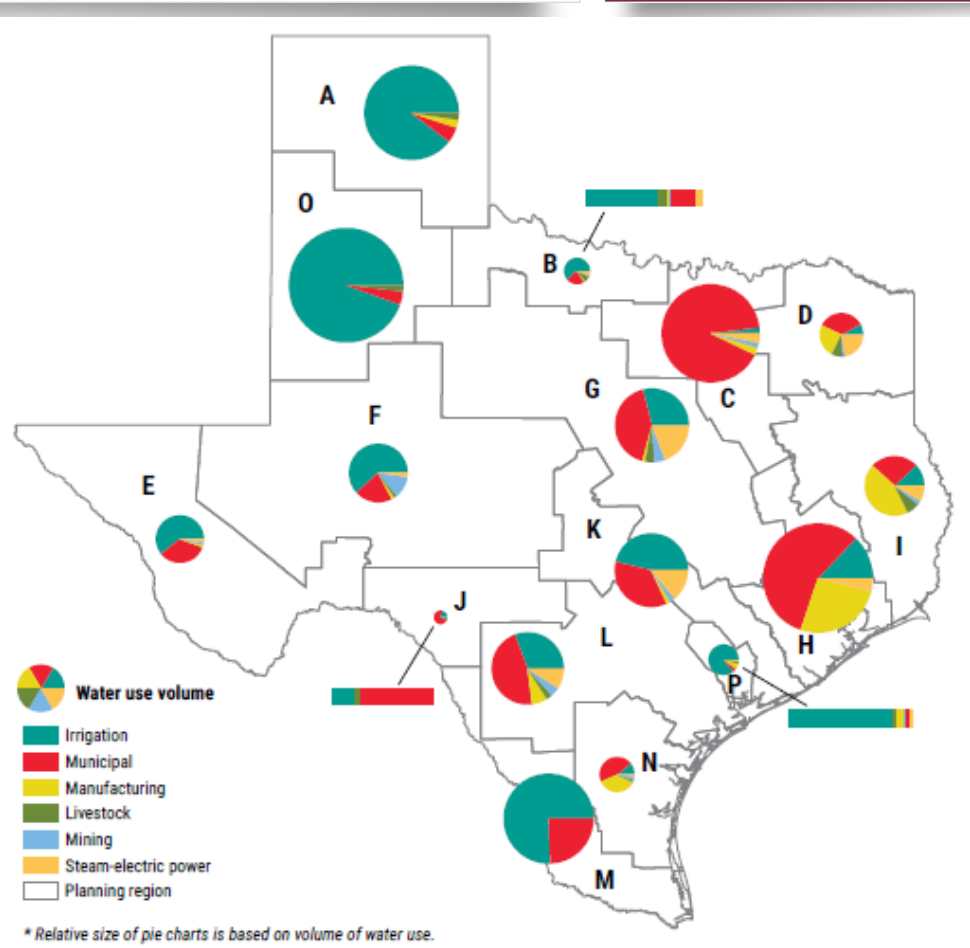


Source: Texas State Water Plan 2022, cited in: https://www.twdb.texas.gov/waterplanning/swp/2022/index.asp

Water Demand Projection



1 acre-feet = 1233 m^3



Source: Texas State Water Plan 2022, cited in: https://www.twdb.texas.gov/waterplanning/swp/2022/index.asp

Projected Water Needs

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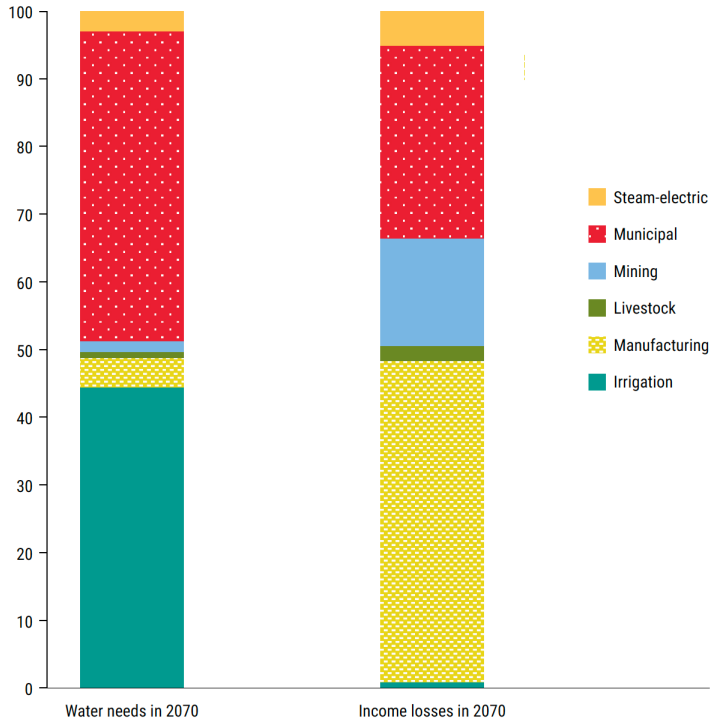
Projected annual water needs by water use category (acre-feet)

Category	2020	2030	2040	2050	2060	2070[b]	Percent change
Irrigation	2,396,000	3,319,000	3,280,000	3,188,000	3,094,000	3,046,000	27
Municipal	215,000	802,000	1,371,000	1,912,000	2,502,000	3,144,000	1,362
Steam-electric	187,000	192,000	196,000	199,000	201,000	203,000	9
Manufacturing	159,000	264,000	275,000	286,000	295,000	301,000	89
Mining	119,000	123,000	111,000	102,000	96,000	101,000	-15
Livestock	40,000	44,000	48,000	54,000	60,000	63,000	58
Texas[a]	**3,116,000**	**4,744,000**	**5,281,000**	**5,741,000**	**6,248,000**	**6,858,000**	**120**

Source: Texas State Water Plan 2022, cited in: https://www.twdb.texas.gov/waterplanning/swp/2022/index.asp

Impacts of Not Meeting Water Needs



Projected annual socioeconomic impacts from unmet water needs

Impact measure	2020	2030	2040	2050	2060	2070
Income loss (billions of dollars)[a]	$110	$128	$128	$132	$140	$153
Job loss	615,000	785,000	883,000	1,019,000	1,179,000	1,371,000
Population loss	113,000	144,000	162,000	187,000	217,000	252,000

** These statewide impacts vary from the impact results presented in the regional water plans (Appendix D) and online dashboards. This is primarily due to a difference in the quantity of water needs used to estimate the impacts. The results included in the regional water plans and online dashboards were from an analysis conducted in September 2019 to allow for public comment in the draft regional plans. Final regional water plans included updated water needs estimates, and the TWDB performed the statewide impact estimates in this chapter based upon the final needs data in November 2020.*

[a] Year 2018 dollars, rounded.

Projected annual water needs that are unmet (acre-feet)

Water use category	2020	2030	2040	2050	2060	2070
Irrigation	1,917,000	2,724,000	2,512,000	2,421,000	2,377,000	2,336,000
Steam-electric	122,000	94,000	94,000	94,000	95,000	95,000
Manufacturing	110,000	1,000	1,000	1,000	1,000	1,000
Mining	52,000	46,000	41,000	35,000	29,000	32,000
Municipal	18,000	1,000	2,000	3,000	4,000	6,000
Livestock	9,000	2,000	3,000	4,000	5,000	7,000
Total	**2,228,000**	**2,868,000**	**2,653,000**	**2,558,000**	**2,511,000**	**2,477,000**

Source: Texas State Water Plan 2022, cited in: https://www.twdb.texas.gov/waterplanning/swp/2022/index.asp

Annual Volume of Recommended Water Management Strategies in 2070
(by Region and Water Resource)

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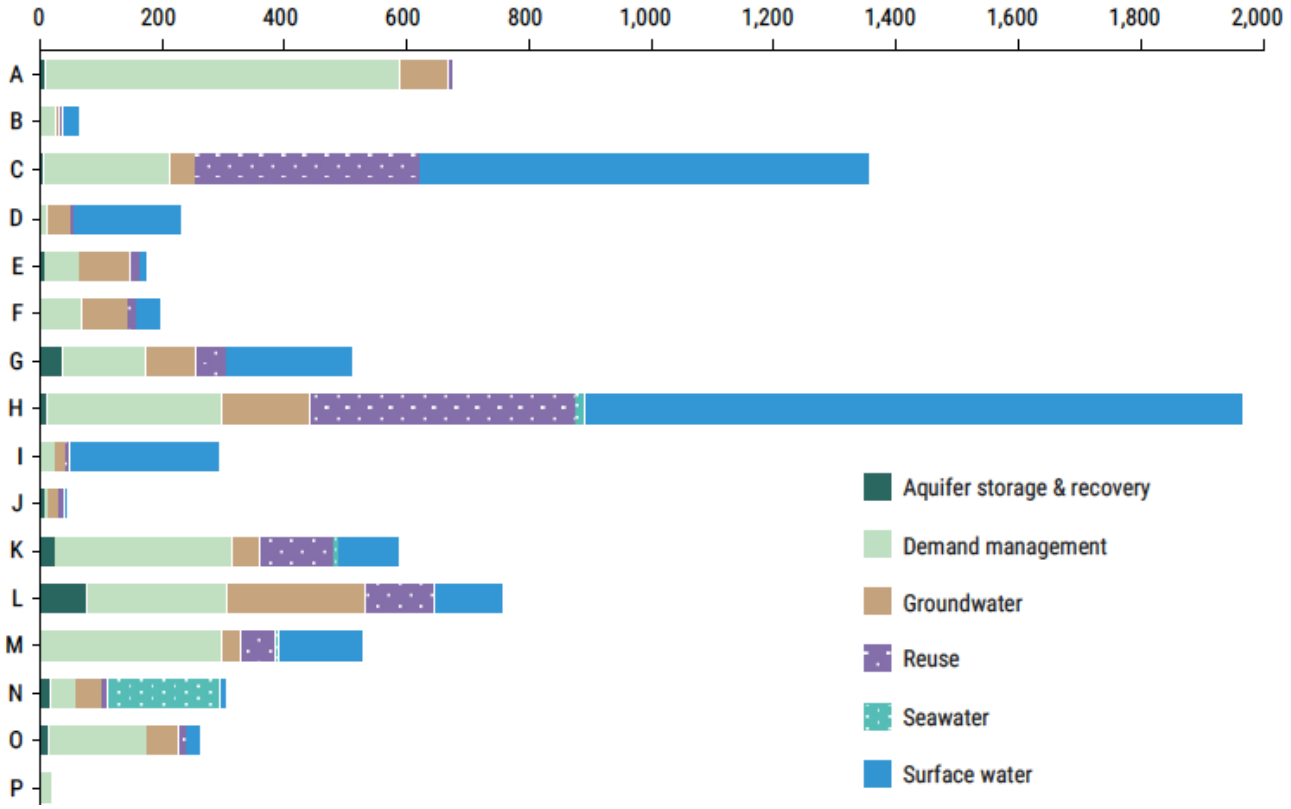

Source: Texas State Water Plan 2022, cited in: https://www.twdb.texas.gov/waterplanning/swp/2022/index.asp

Recommended water management strategies in 2070

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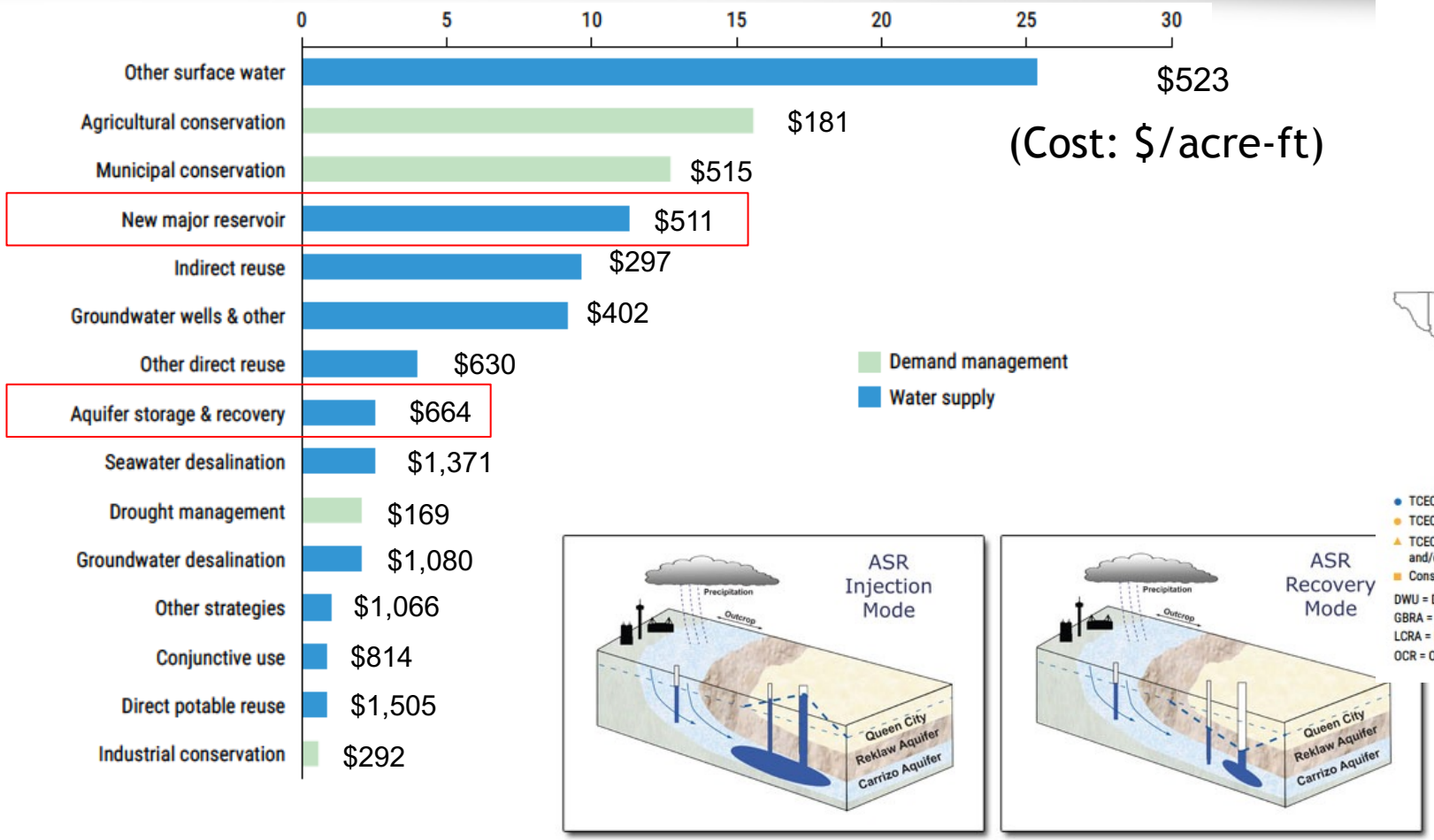

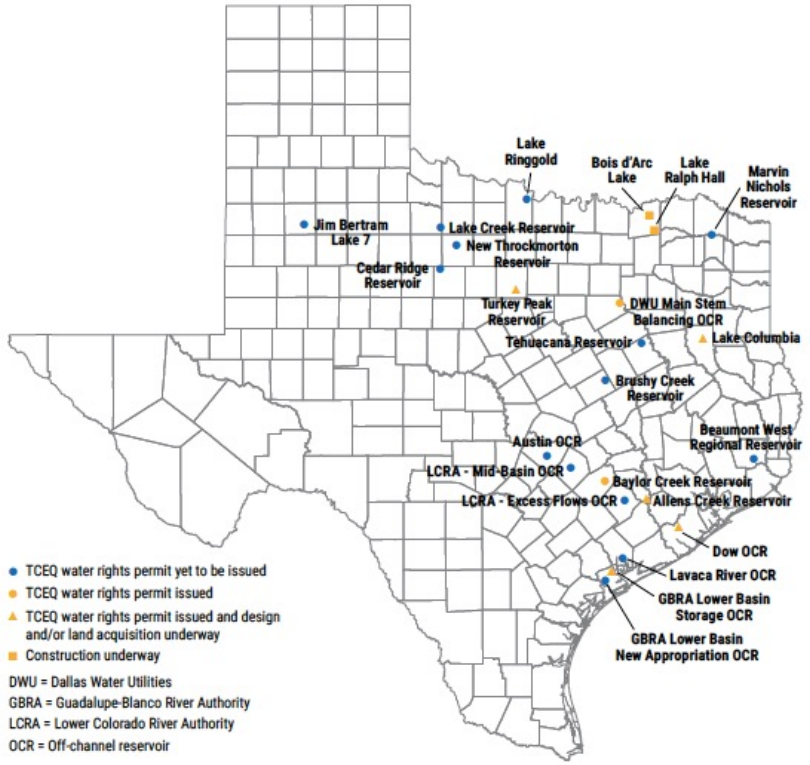

Source: Texas State Water Plan 2022, cited in: https://www.twdb.texas.gov/waterplanning/swp/2022/index.asp

Regional Water Needs and Supplies in 2070

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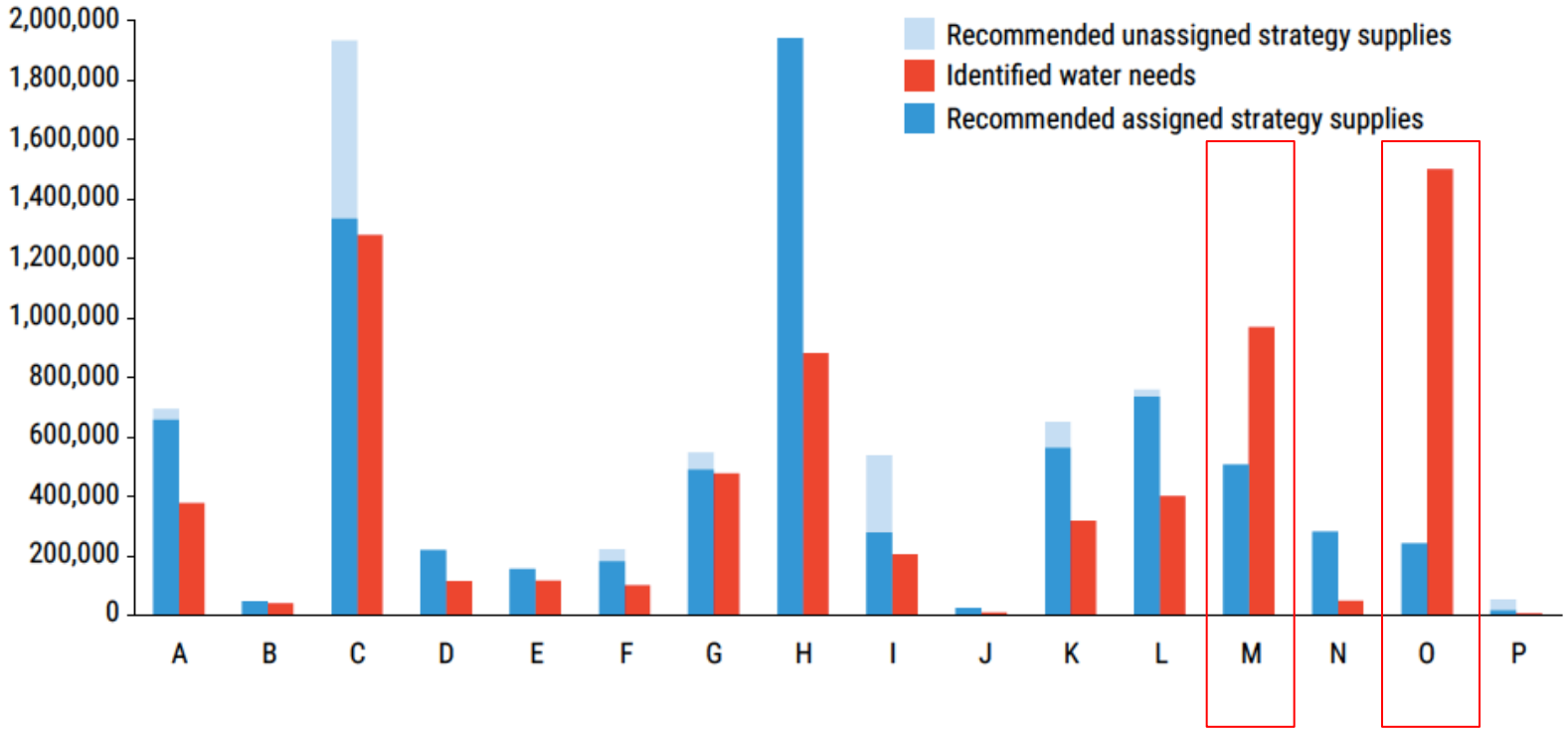
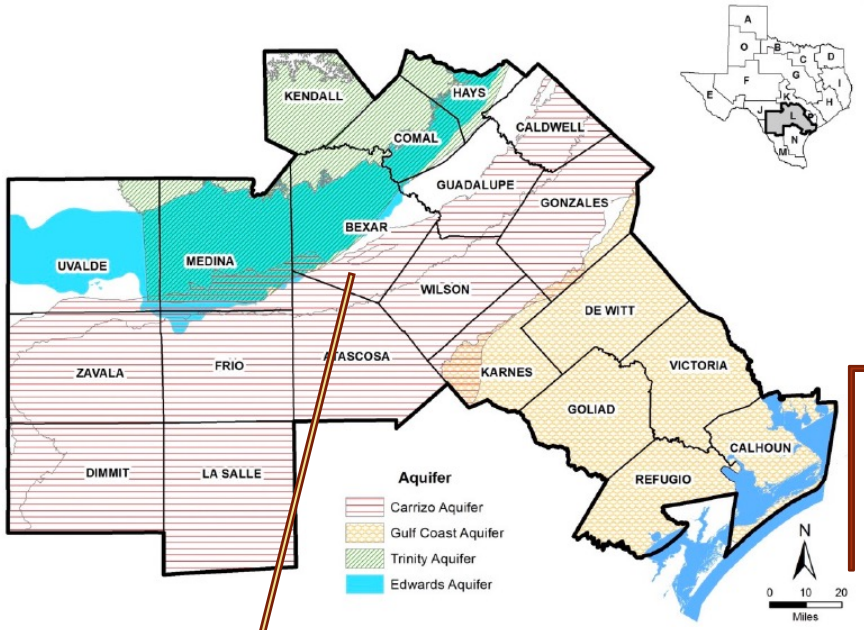
Recommended assigned and unassigned strategy supplies and needs by region in 2070



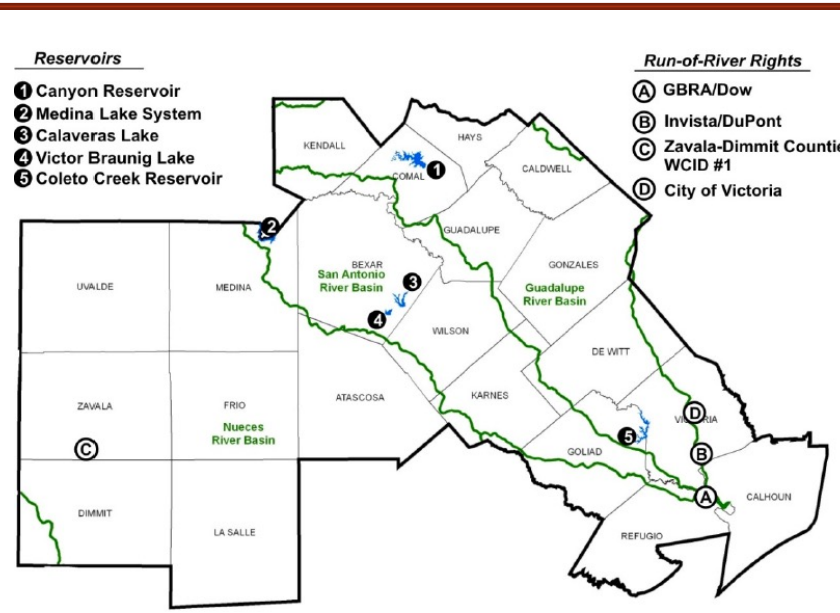
Source: Texas State Water Plan 2022, cited in: https://www.twdb.texas.gov/waterplanning/swp/2022/index.asp

Example: Region L Water Planning Group



Aquifers

- **Edwards** - hard, fresh <500 mg/l TDS
- **Carrizo** - hard, fresh <500 mg/l TDS to slightly saline >1,000 to TDS. High Fe/Mn in parts.
- **Trinity** – very hard, fresh, <1,000 mg/l TDS in SE to 5000 mg/l
- **Gulf Coast** - 500 mg/l TDS in N. but declines to S. (1,000 to > 10,000 mg/l). High levels of radionuclides.



Rivers

- Rio Grande R.
- Nueces R.
- San Antonio R.
- Guadalupe R.
- Colorado R.

River Basins

- Lavaca River Basins
- parts of the Colorado-Lavaca,
- Lavaca-Guadalupe,
- San Antonio-Nueces Coastal Basins

Region L Water Supply Projects

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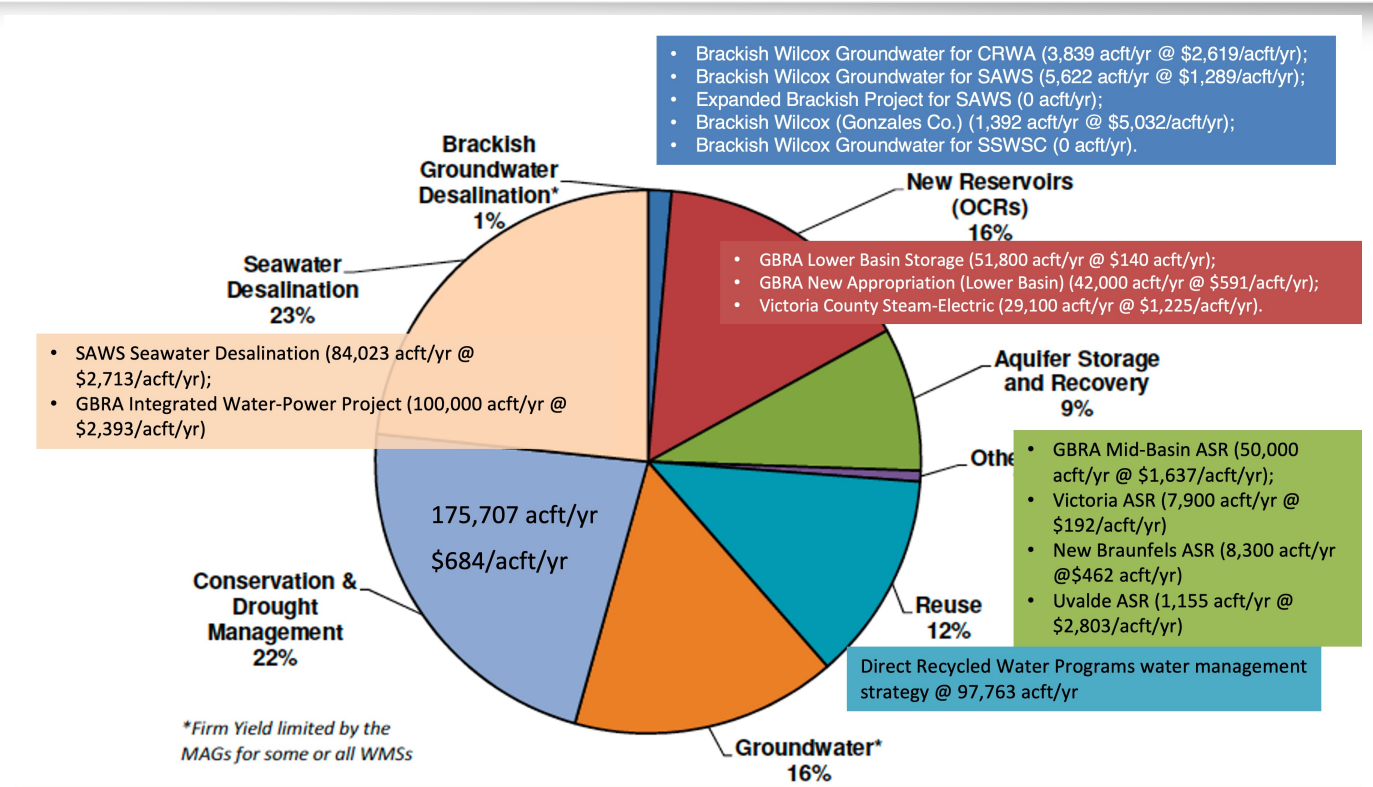


- Brackish Wilcox Groundwater for CRWA (3,839 acft/yr @ $2,619/acft/yr);
- Brackish Wilcox Groundwater for SAWS (5,622 acft/yr @ $1,289/acft/yr);
- Expanded Brackish Project for SAWS (0 acft/yr);
- Brackish Wilcox (Gonzales Co.) (1,392 acft/yr @ $5,032/acft/yr);
- Brackish Wilcox Groundwater for SSWSC (0 acft/yr).

- GBRA Lower Basin Storage (51,800 acft/yr @ $140 acft/yr);
- GBRA New Appropriation (Lower Basin) (42,000 acft/yr @ $591/acft/yr);
- Victoria County Steam-Electric (29,100 acft/yr @ $1,225/acft/yr).

- SAWS Seawater Desalination (84,023 acft/yr @ $2,713/acft/yr);
- GBRA Integrated Water-Power Project (100,000 acft/yr @ $2,393/acft/yr)

- GBRA Mid-Basin ASR (50,000 acft/yr @ $1,637/acft/yr);
- Victoria ASR (7,900 acft/yr @ $192/acft/yr)
- New Braunfels ASR (8,300 acft/yr @$462 acft/yr)
- Uvalde ASR (1,155 acft/yr @ $2,803/acft/yr)

Direct Recycled Water Programs water management strategy @ 97,763 acft/yr

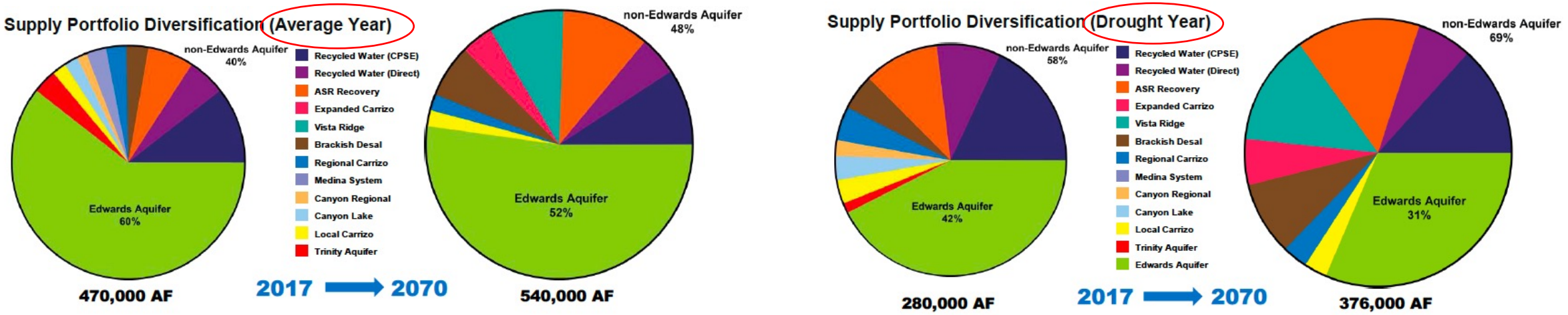
- Local Groundwater Supplies (7,837 acft/yr @ $130/acft/yr - $5,316/acft/yr);
- Hays/Caldwell PUA Project (21,833 acft/yr @ $1,926/acft/yr);
- TWA Regional Carrizo (15,000 acft/yr @ $2,490/acft/yr);
- TWA Trinity Project (5,000 acft/yr @ $613/acft/yr);
- CRWA Wells Ranch Project – Phase 2 (7,829 acft/yr @ $858/acft/yr);
- **Vista Ridge Project (34,894 acft/yr @ $2,177/acft/yr);**
- New Braunfels Trinity (1,090 acft/yr @ $634/acft/yr);
- Victoria Groundwater-Surface Water Exchange (8,544 acft/yr @ $0/acft/yr);
- Cibolo Valley LGC Carrizo Project (10,000 acft/yr @ $1,834/acft/yr);
- Regional Carrizo for SSLGC Project Expansion (6,500 acft/yr @ $1,070/acft/yr);
- Expanded Local Carrizo for SAWS (5,419 acft/yr @ $700/acft/yr)

Summary of Unmet Needs

	2020	2030	2040	2050	2060	2070
MUNICIPAL	0	0	0	0	0	0
COUNTY-OTHER	0	0	0	0	0	0
MANUFACTURING	0	0	0	0	0	0
MINING	11,136	10,837	9,221	5,877	2,529	1,122
STEAM ELECTRIC POWER	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	115,468	107,349	97,957	91,283	84,820	79,606

Source: South Central Texas Regional Water Planning Group (SCTRWPG), cited in: https://regionltexas.wpengine.com/2016-regional-water-plan/

City of San Antonio Water Plan



Source: San Antonio Water System , cited in: https://www.saws.org/wp-content/uploads/2019/02/20171107_SAWS-2017-Water-Management-Plan.pdf

San Antonio Major Water Projects

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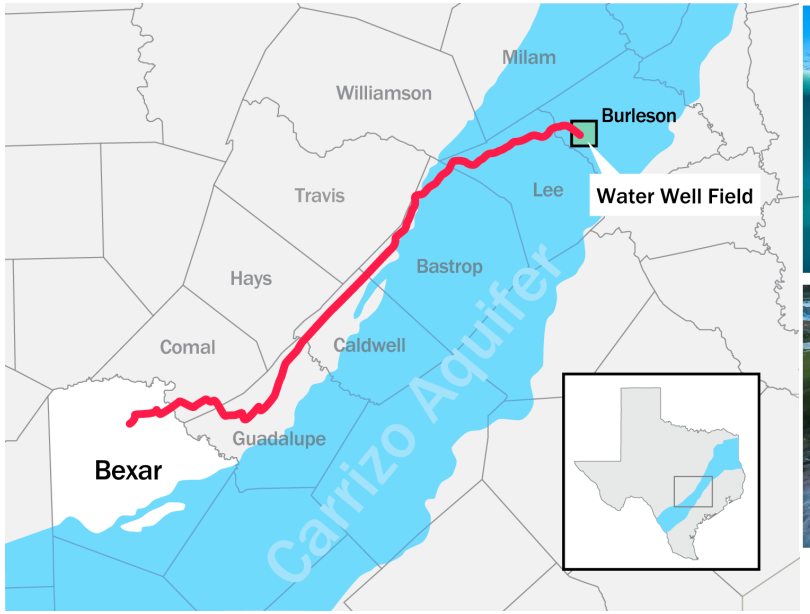
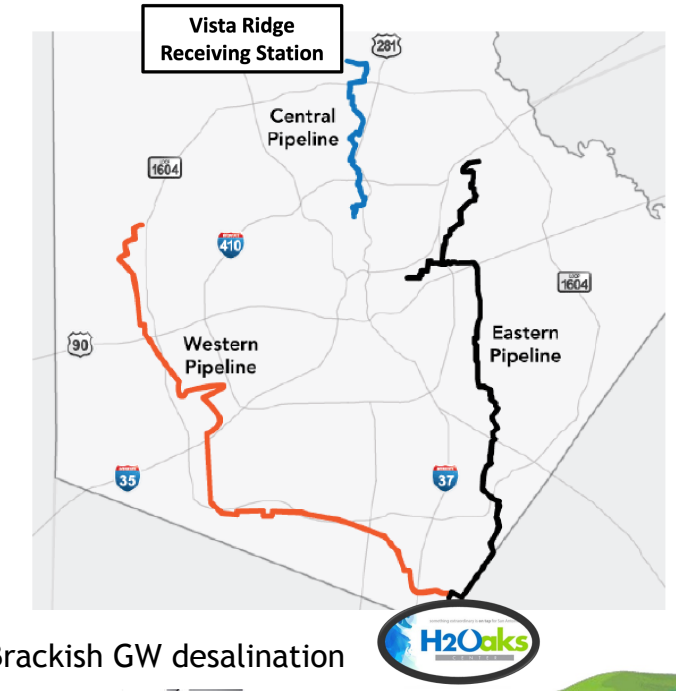
Vista Ridge Project

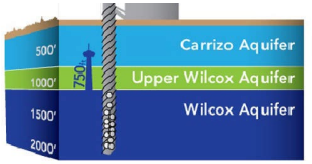


Purchase up to 50,000 acre-feet per year of Carrizo Aquifer. The project will pump the groundwater in Burleson County and deliver it to San Antonio for 30 years.

Integration of Multiple Water Supplies



Brackish GW desalination



Aquifer Storage and Recovery

Costs of Water Supply Portfolio

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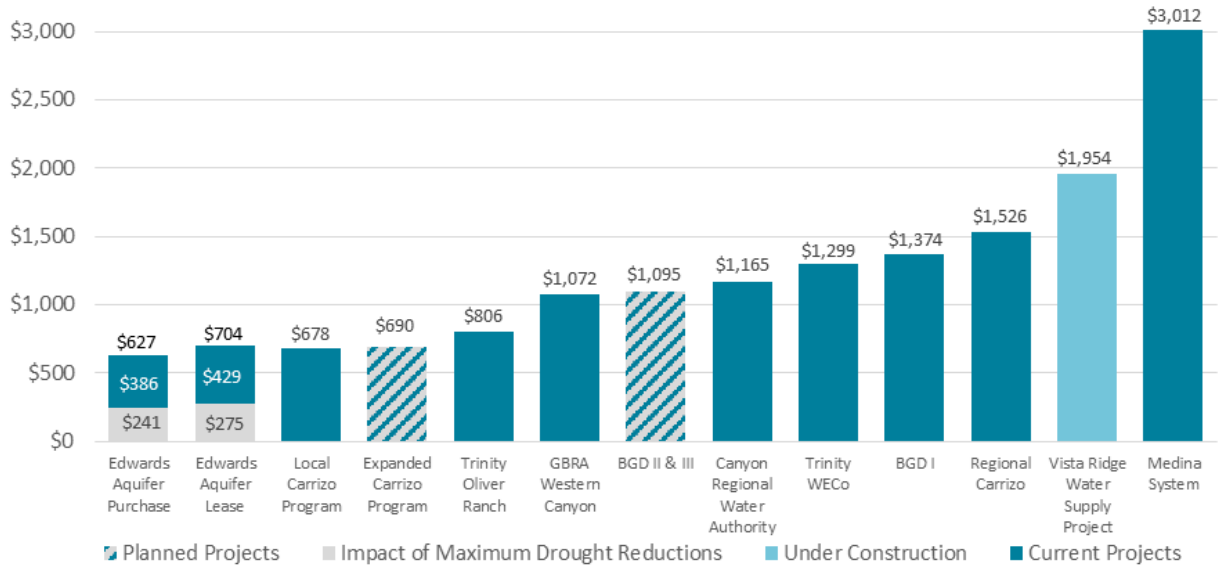

Source: San Antonio Water System, cited in: https://www.saws.org/wp-content/uploads/2019/02/20171107_SAWS-2017-Water-Management-Plan.pdf

Grand Challenges

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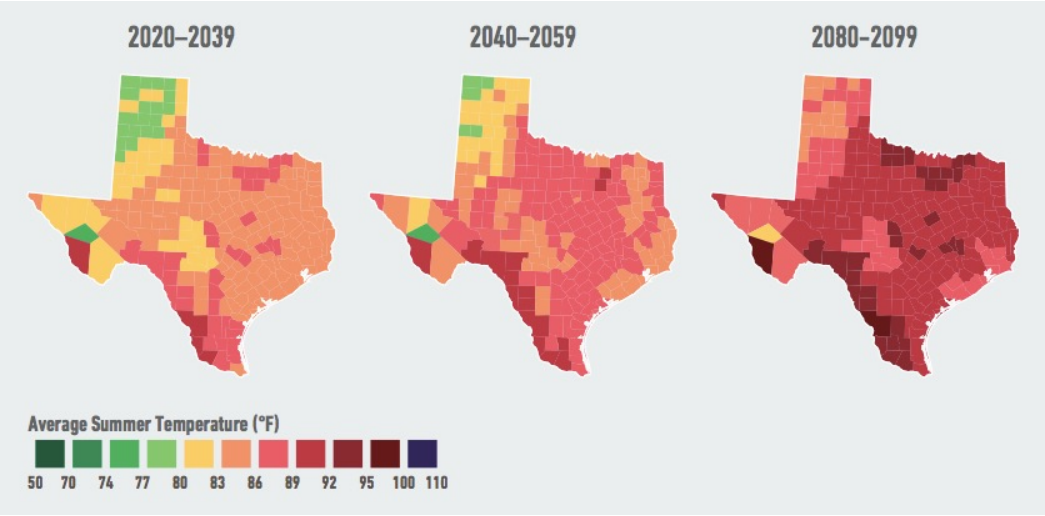
Climate-induced uncertainties



Source: American Climate Prospectus, cited in:
http://riskybusiness.org/report/come-heat-and-high-water-climate-risk-in-the-southeastern-u-s-and-texas/

State funding could contribute just 17% of the projected Texas water funding needed over the next 50 years.

Intensified water-energy-food-health nexus

“One Water” Framework

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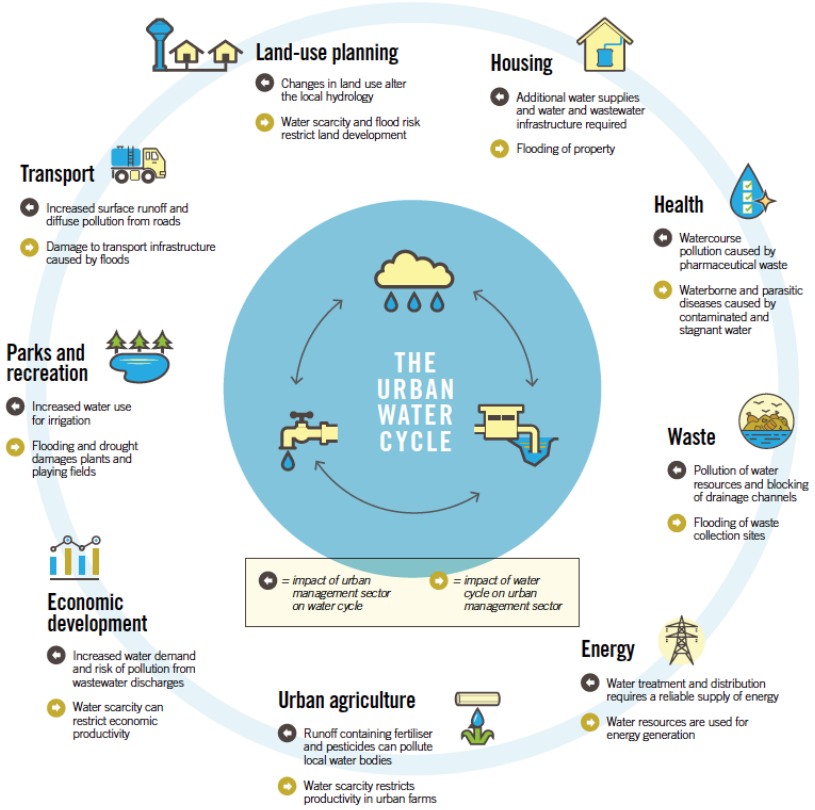
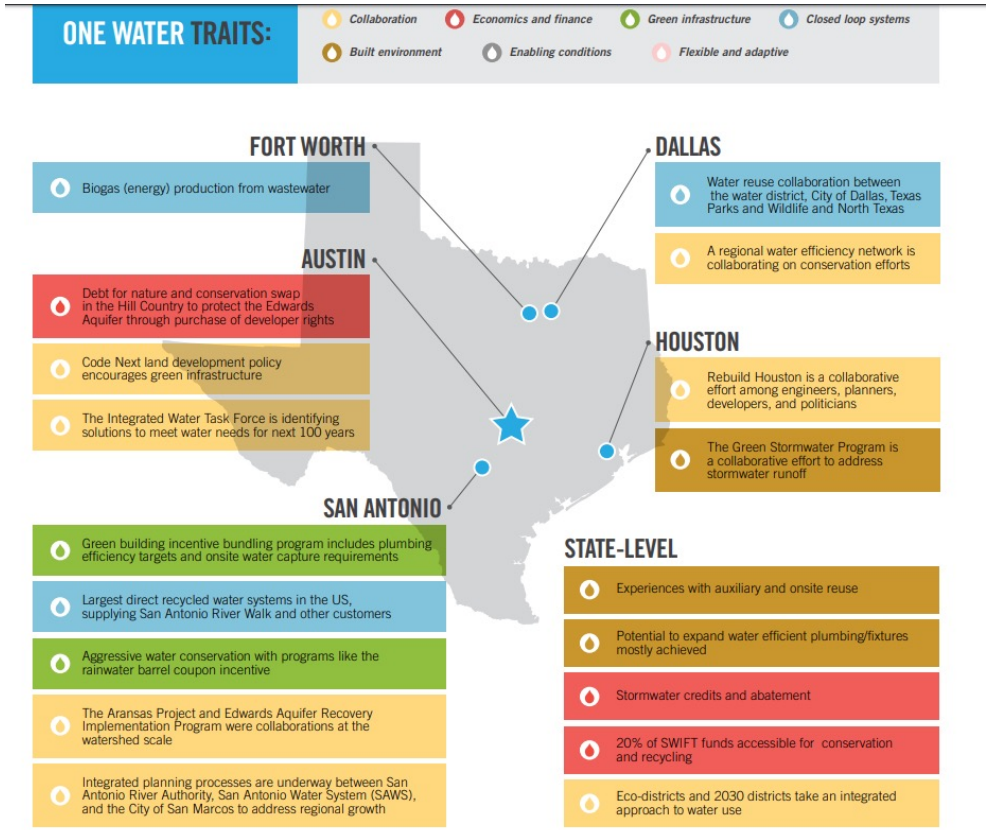
Urban Water Linkages





Source: Advancing One Water in Texas, cited in: https://cgmf.org/graphics/cgmf_one_water_report_02_14_18_final.pdf

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Thank you !!

Financial Policies Driving ESG Practices

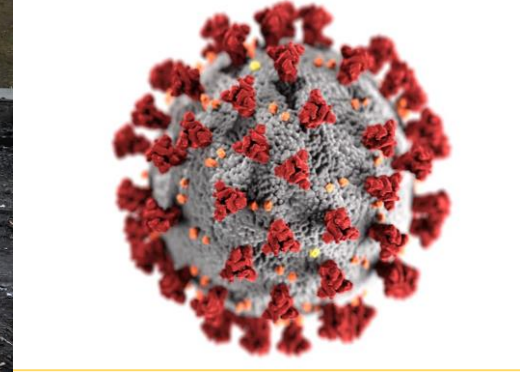
Ms. Brenda Hu
Director-General, Dept. of Planning
Financial Supervisory Commission
111.10.14

Outline

1. Forward
2. Regulations
3. Market mechanisms
4. Recent policies
5. Wrap up

Forward




Our Common Agenda (UN Secretary-General António Guterres)

We will

- ✓ leave no one behind
- ✓ protect our planet
- ✓ promote peace and prevent conflict
- ✓ abide by international law and ensure justice
- ✓ place women and girls at the center
- ✓ build trust
- ✓ improve digital cooperation
- ✓ upgrade the United Nations
- ✓ ensure sustainable financing
- ✓ boost partnerships
- ✓ listen to and work with youth
- ✓ be prepared

Picture Source: Aljazeera.com, adie, vox, WHO, Privacy International

ESG

	Factors	Impacts to enterprises
E	Climate change mitigation/adaptation Water and marine conservation Pollution Circular Economy Biodiversity	Legal risks—cost of compliance Physical risk—asset impairment loss Transition risk—asset impairment loss Litigation and liability risk—reimbursement Market risk—competitiveness
S	Employees Suppliers/customers Consumers/general public Communities/governments	Litigation risk Reputation risk License of operation Examination of regulators
G	Board supervision Management remuneration Financial management Ownership structure	Reputation risk Shareholder activism Litigation risk/Penalty Deteriorate credit

Regulations

ESG related financial regulations

Law

- Company Act, Securities & Exchange Act, Securities Investors & Futures Traders Protection Act
- Authorized regulations

SRO rules

- Best Practices of “Corporate Governance”, “Ethical Corporate Management”, “Sustainable Development”, and “Risk Management”
- Rules governing information reporting, Procedures for Verifying and Disclosing Material Information, Rules for preparing and disclosing ESG reports

Key points

- **Board’s accountability**
- **Shareholders’ rights**
- **Information disclosure**

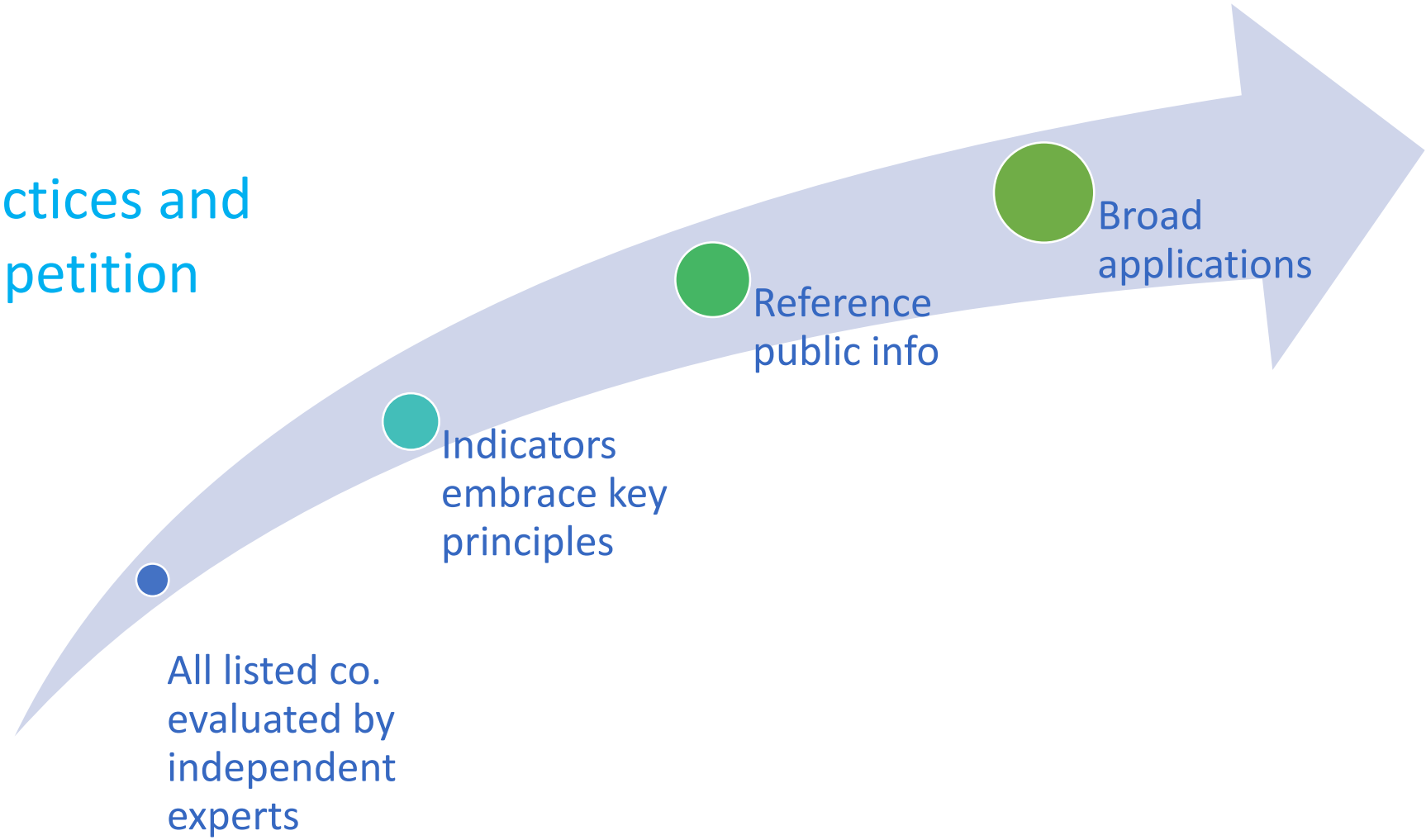
Regulators' Supervision

IPO Review Meeting	Daily Supervision	Verification of Info Disclosure
• Factors in ESG items • Must-asks in chairperson interviews	• Questions on compliance & practices • Enforcement actions	• 3rd party review • Exchanges' review • Physical visits

Corporate Governance Evaluation

Objective

Encourage good practices and induce positive competition



Market Mechanisms

Institutional Investor Stewardship

Stewardship Principles

- Issued in 2016
- Referenced UN PRI and UK Stewardship code
- Signatories(153)：
  - 4 gov. pension funds
  - All SITEs (fund managers)
  - 93% financial institutions

Key Points

- Established and disclosed policies of stewardship, conflicts of interests
- Factored in investees' ESG when making investment decisions
- Engaged and have dialogs with investees
- Established voting policies and disclosed concrete implementation
- Periodically disclose practices to clients

Info Disclosure Ranking

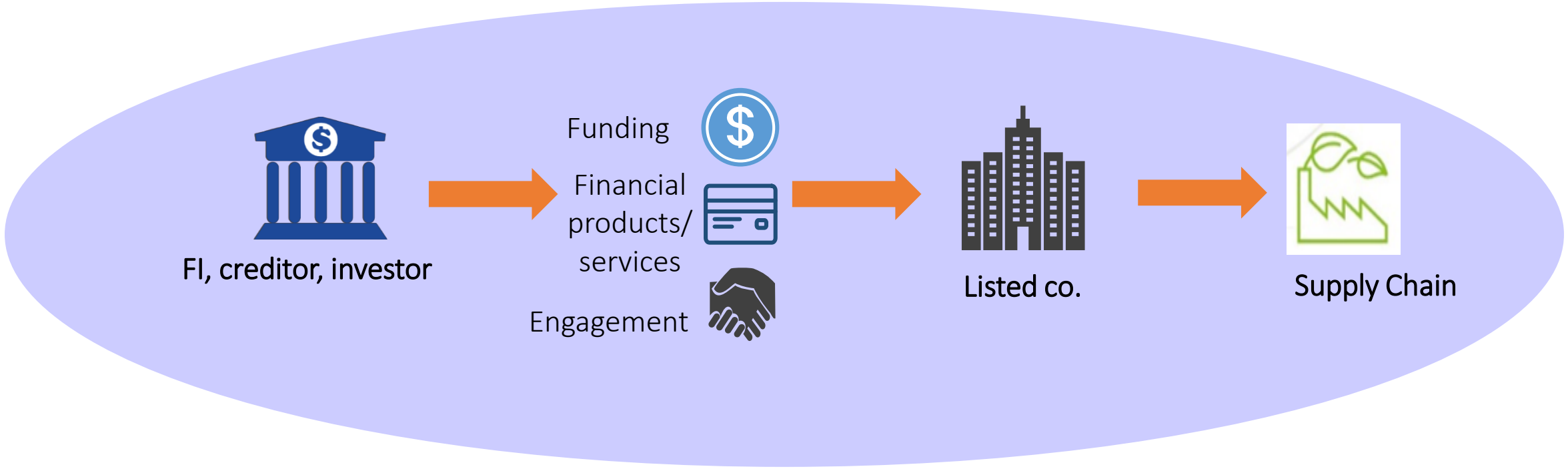
- 30 KPIs in 2021, mainly their "policies & compliance statements" and "practices & disclosure"
- Recognitions to good performers at the end of 2021

Reviews by Stakeholders

SFIPC	Shareholders	Whistleblower	Private ESG Review
• Daily • Annual General Meeting(AGM)	• Companies' IR platforms • Proposals in AGM	• Employees' opinions • Handled by independent directors	• ESG rating agencies • Media, NGO, ratings

Funding Power of Financial Sector

Bank：Equator Principles, Principle of Responsible Banks
Insurance：Principle of Sustainable Insurance, Principle of Responsible Investment (PRI)
Fund manager：PRI



ESG Indices & Products

ESG Indices

- 9 Domestic stock-related
- 10% of total stock indices
- Good for design products or investment decisions

Credit/Loan

- Green Loan
- Sustainability-linked loan

Bond

- Green bonds
- Social Bonds
- Sustainability bond
- Sustainability-linked bond

Fund

- ESG related fund &ETF

Recent Policies

Sustainable Development Guidemap for Listed Companies

Purposes

- Help companies take proactive actions and set carbon emission targets
- Pursue sustainable development through listed companies' supply chains

Objective

- **All listed co. complete GHG inventory by 2027 & complete related verification by 2029**

Main Points

- **Specific industries and larger companies first, and implemented in phases**
  - Industries of steel, iron and cement, starting to disclose info in 2023
  - Larger co. with high paid-in capital amount starting to disclose info in 2023
- **Info to be disclosed**
  - Scope 1 (direct emission) and scope 2 (indirect emission)
- **Disclosure boundaries**
  - Same to parent company only financial statement first, then Same to consolidated financial statement

Parent co. only first, then consolidated

Schedule
(disclosure year)

Larger co. first

	Parent Inventory	Consolidated Inventory	Parent Verification	Consolidated Verification
Steel, Iron, Cement & Capital above NT$10bn	2023	2025	2024	2027
Capital of NT$5~10bn	2025	2026	2027	2028
Capital below NT$5bn	2026	2027	2028	2029

Green Finance Action Plan V3

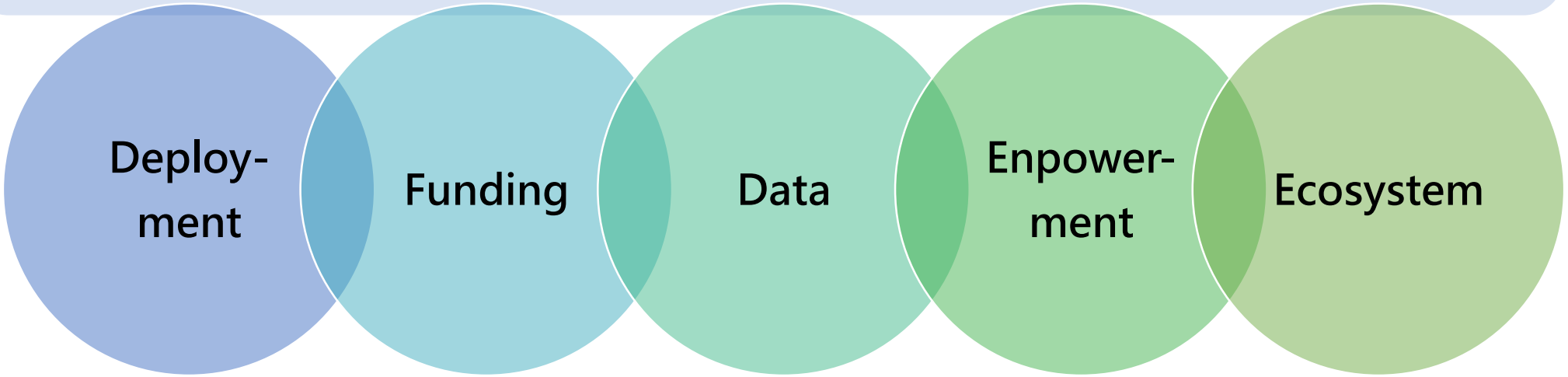
Vision

Integrating financing resources & supporting net zero transition

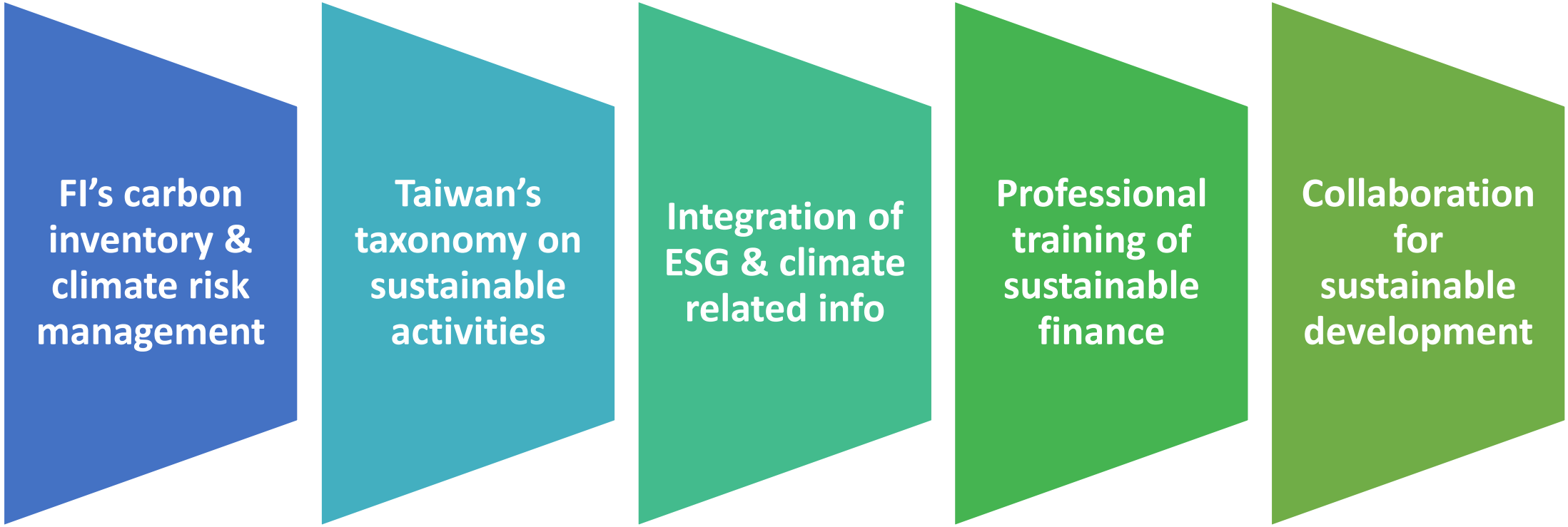
Core Strategies

1. Collaborate to deepen sustainability & reach net zero goals
2. Mobilize funds to carbon reduction in industries
3. Enhance data integration, climate resilience & risk mgt capacity

Approaches



Key Measures



Key Measures (1/5)—
FI's carbon inventory & risk management

Int'l initiatives requesting FI's inventory & disclosure on carbon emission

+

FIs focus on clients' emission together with their own reduction

Steps

Fis conduct carbon inventory, verification, and disclosure (including scope 3)

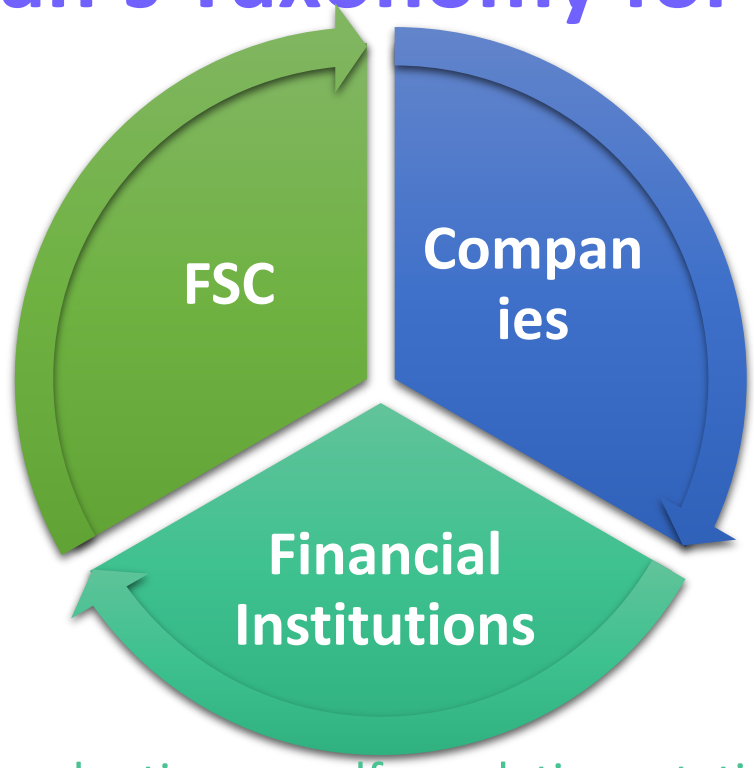
Help Fis establish medium-long term strategies and goals

Objectives

Urge FIs to adjust operations, engagement, earnings & set goals

Key measures(2/5)—
Taiwan's Taxonomy for sustainable activities

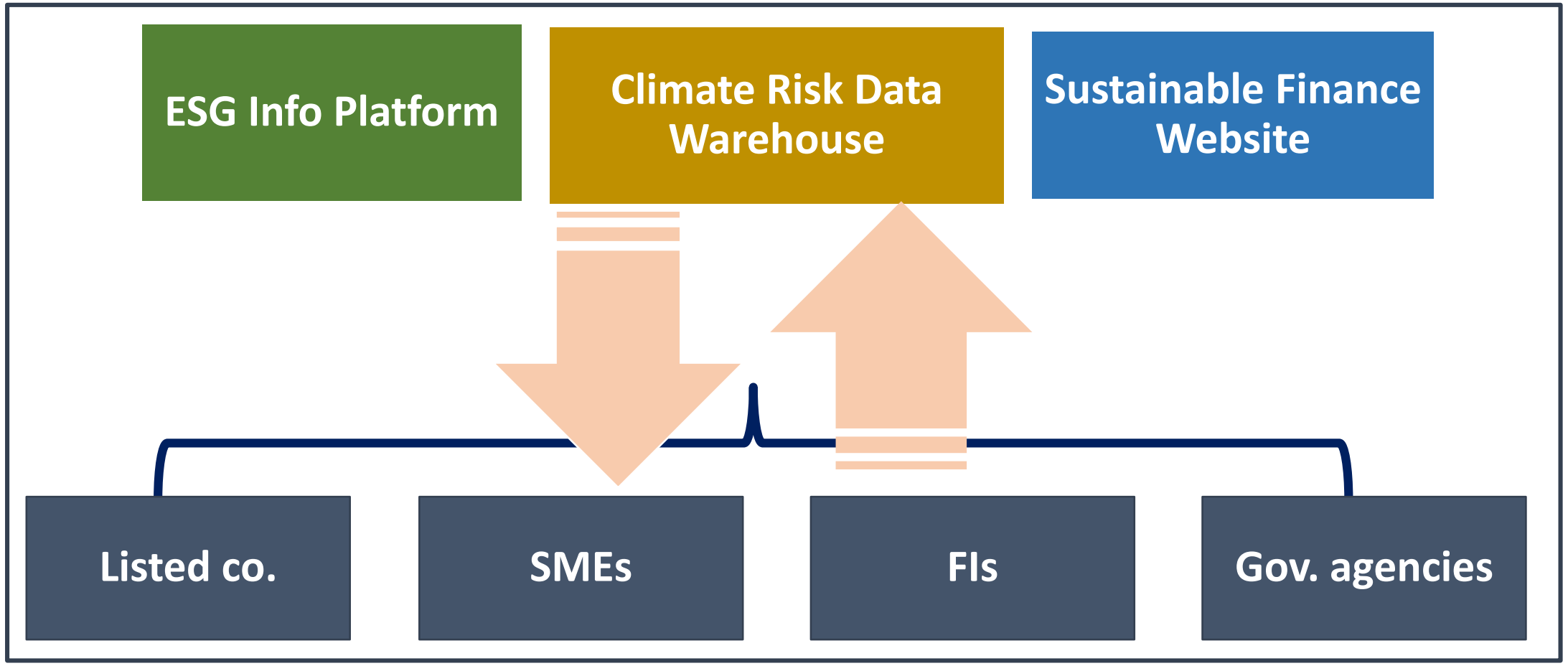
- ✓ Announces 1st phase **taxonomy Guidelines**
- ✓ Releases disclosure templates
- ✓ Studies on 2nd phase taxonomy guidelines



- ✓ Encourages companies to identify **eligible** and **aligned** economic activities through the guidelines
- ✓ Encourages them to disclose info on annual reports, websites, ESG reports, etc.

- ✓ Urges FI's adoption on self-regulations stating that products or services labeling "green", "ESG" or "sustainable" be designed based on the guidelines
- ✓ Urges FIs to use the guidelines as one of their reference sources when engaging with their enterprise customers

Key Measures(3/5)—Integration of ESG & Climate Info



Key Measures(4/5)—
Professional Training of Sustainable Finance

Establish Certificates of Sustainable Finance

- Empower more financial professionals to devote to work on sustainable finance

Enhance Training of Sustainable Finance

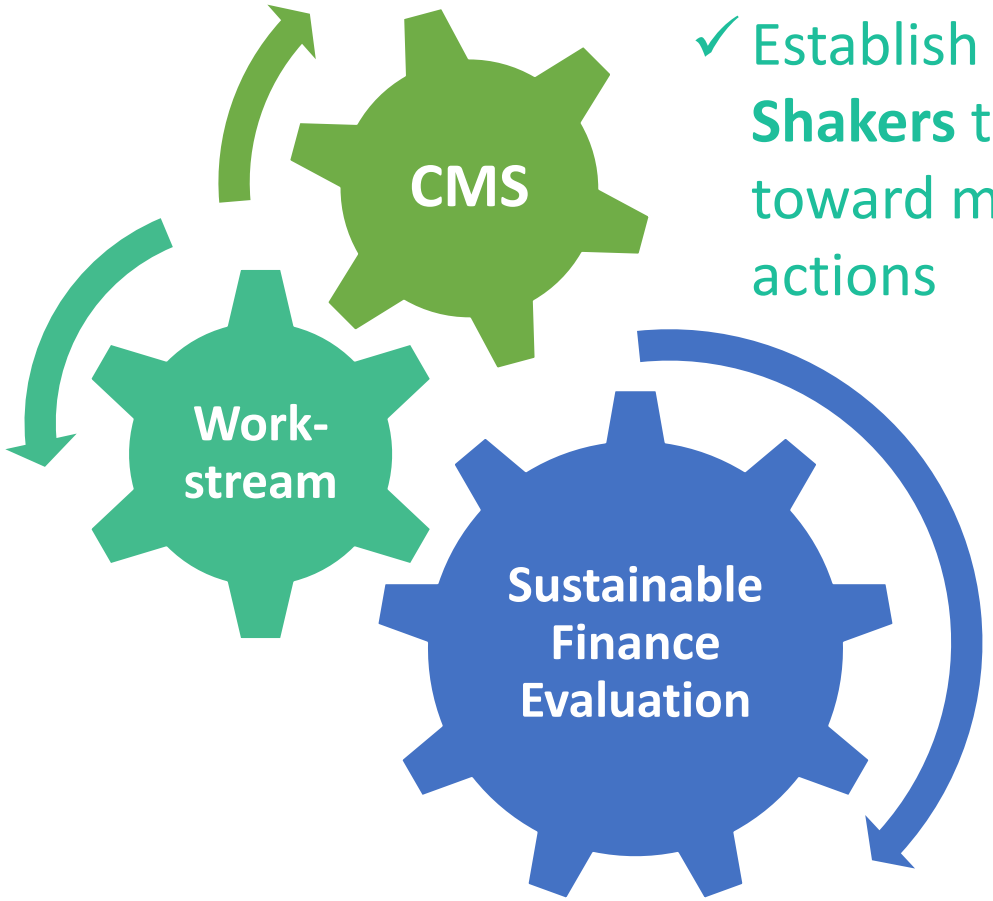
- Empower FI board directors, CEOs, staff to understand and adopt sustainable finance through self-regulations

Facilitate Public Awareness and Dialogues on Sustainable Finance

- Empower the public to value sustainability through financial literacy programs

Key Measures(5/5)—
Collaboration for Sustainable Development

✓ Establish **Workstreams for Financial Sector Net Zero** to pool resources and develop common directives, tools, database, etc.



✓ Establish **Coalition of Movers and Shakers** to lead financial sectors toward more proactive sustainable actions

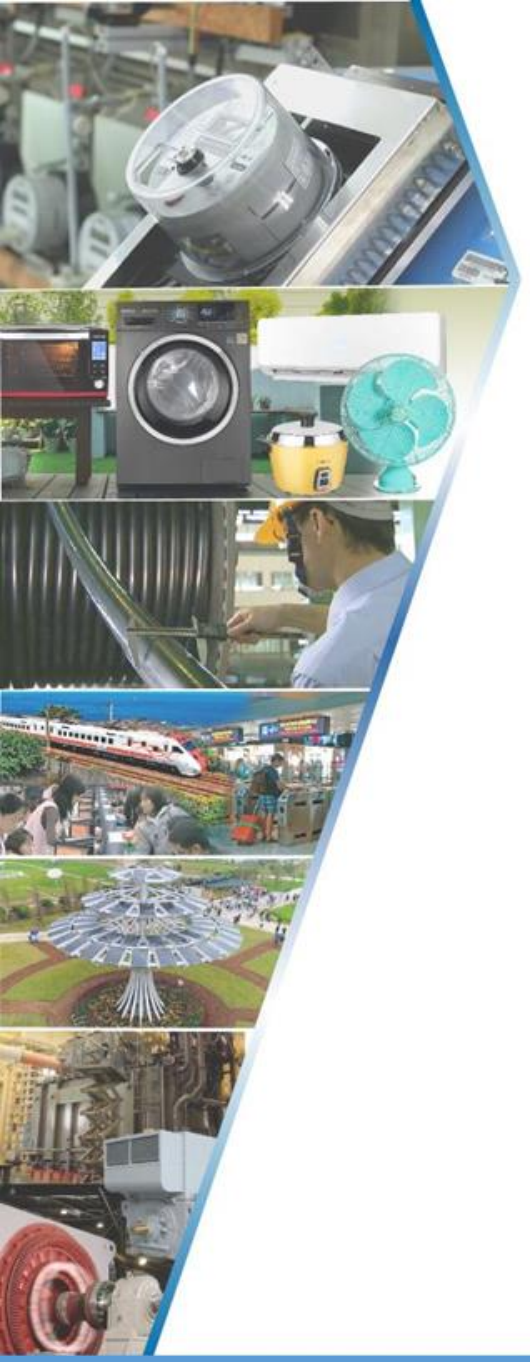
✓ Establish the **Sustainable Finance Evaluation** to review FI's practices of ESG work and recognize good performers

Wrap up


Knowing is not enough;
we must take action

Tatung Company ESG Topics, Vision, and Targets

Chin-Lai Wang
President
Tatung Co.
2022-10-14

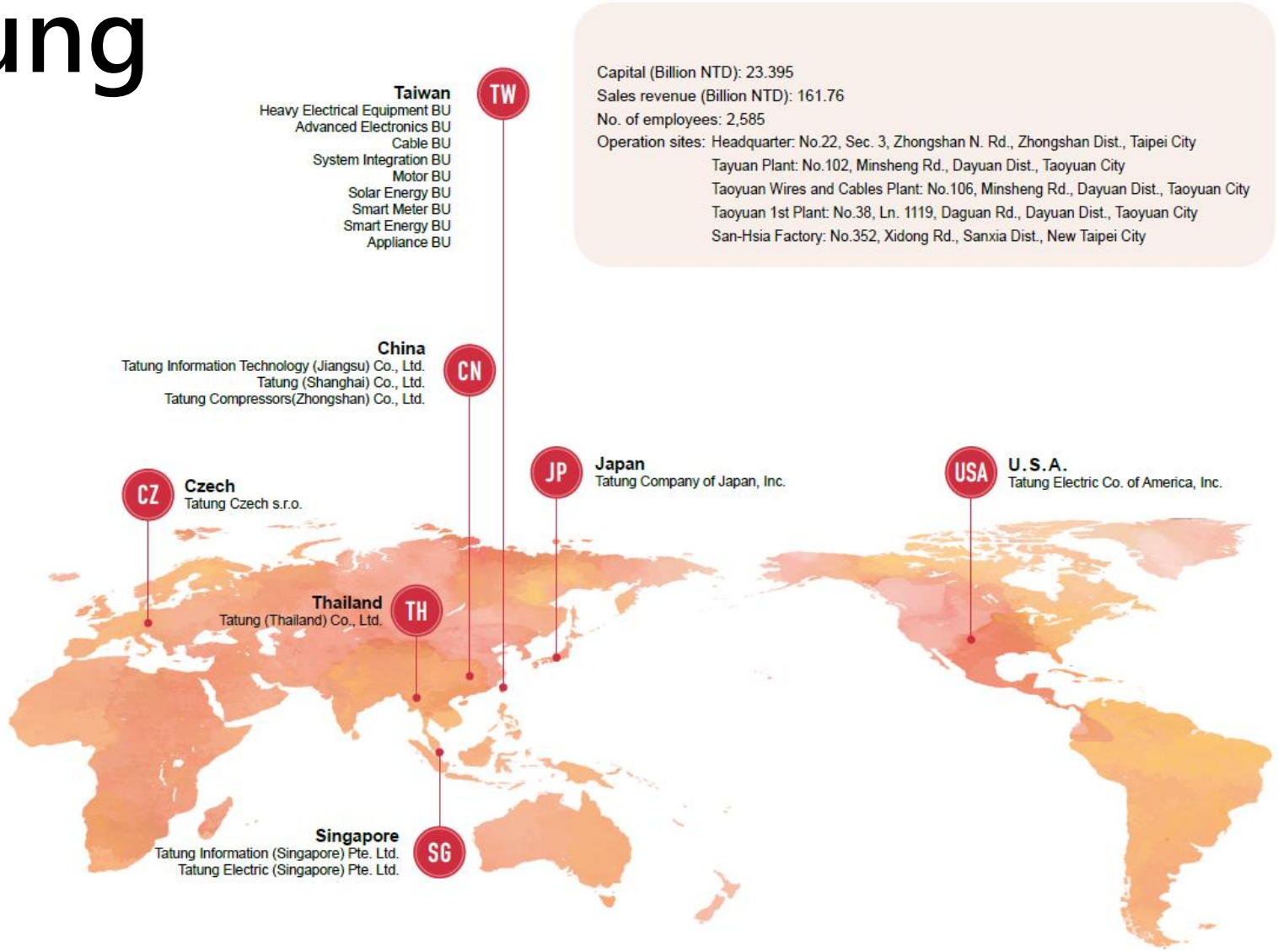


Contents

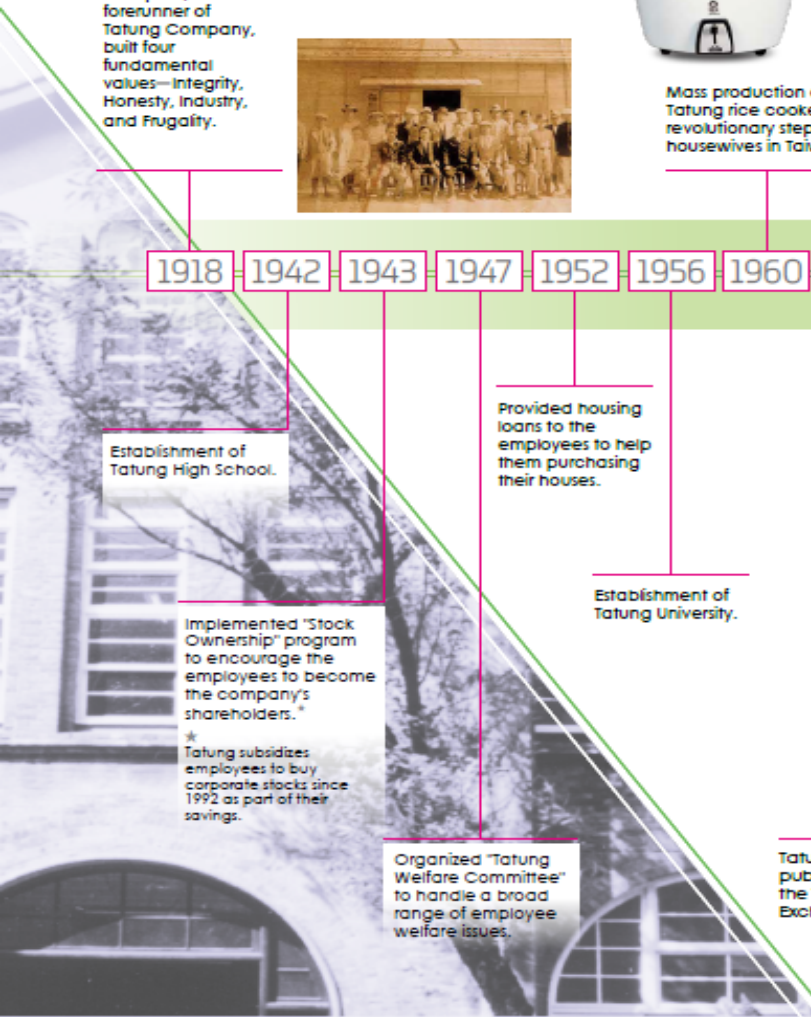
1. Profile of Tatung Co.
2. ESG topics and the responses from Tatung
3. Responding to UN Sustainable Development Goals
4. Visions of Tatung's Sustainable Development
5. Adjust the direction of sustainable development through GRI, SASB and TCFD disclosure indicators

Profile of Tatung

Established in 1918 and headquartered in Taipei, Tatung has evolved into a conglomerate from its substantial heritage. From its inception, Tatung has abided by its founding values of "Integrity, Honesty, Industry, and Frugality. Tatung is selected by the Taiwan media as the brand that best represents Taiwan, and is also synonymous with domestic products in the Chinese world.



ITatung CSR milestone – Honors in a centuryI



1918

Establishment of Xie Chih Business Enterprise, the forerunner of Tatung Company, built four fundamental values—Integrity, Honesty, Industry, and Frugality.

1942

Establishment of Tatung High School.

1943

Implemented "Stock Ownership" program to encourage the employees to become the company's shareholders.*

★ Tatung subsidizes employees to buy corporate stocks since 1992 as part of their savings.

1947

Organized "Tatung Welfare Committee" to handle a broad range of employee welfare issues.

1952

Provided housing loans to the employees to help them purchasing their houses.

1956

Establishment of Tatung University.

1960

Mass production of Tatung rice cookers, a revolutionary step for housewives in Taiwan.

1962

Tatung became publicly listed on the Taiwan Stock Exchange.

1963

Participated in the Ten Major Infrastructure Projects with the construction of a slag treatment facility for China Steel Corp. and provision of the turnkey solution for the CKS International Airport's power control station.

1977

Founded Tatung Soccer Team which is the only team that has long been supported by a private company.*

★ Champions in 2017 and 2018 in Taiwan Football Premier League.

1988

Established the "Pollution Prevention Educational Center" to promote environmental education and to spread correct ideas of pollution prevention.

The Company subsidized employees to buy corporate stocks since 1992 as part of their savings.

1992

■ Implemented ISO 14001 environmental management system to continue improving environmental performances.*

★ All the factories have established and update to ISO 14001:2015.

■ Established the "Industrial Sanitary Laboratory" to provide the company with working environment testing and complying with health and safety regulation.

1993

■ Implemented ISO 9001 quality management system to continue improving quality performances.*

★ All the factories have established and update to ISO 9001:2015.

■ Implemented "Pollution, Prevention, Pays, 3P" program in the corporation to incorporate the concepts of Clean Production and Design for the Environment into Tatung's culture.*

★ 17 factories and subsidiaries participated in 3P program in 2018.

1996

Promoted "Green Supply Chain" to assist the company in establishing a green supply chain and avoiding hazardous substances in product design, procurement and production stages to comply with RoHS, WEEE directives and customer requirements.

2001

Implemented OHSAS 18001 occupational health and safety management system to continue improving health and safety performances.*

★ All the factories have established the system.

2002

■ Established "Tatung Environmental Research Center" to provide the company with the most professional environmental analysis systems and to comply with environment regulations.

■ Started to publish "Tatung Corporate Environmental Report" to disclose environmental information and act as a tool to communicate with the stakeholders.

2004

Established "Electrical and Electronic Equipments Restriction of Hazardous Substances (RoHS) Laboratory" to examine and analysis any hazardous substances existing in electrical and electronic materials, parts and products. The analysis results are able to help the company to meet the requirements from customers and EU, U.S., and Japan regulations.

2005

■ Ranked No.1 in Taiwan by the Environmental Protection Administration as the most proactive corporation for the promotion of green consumption.*

★ 1. In 2018, 31 models were awarded with Green Mark, 33 models were awarded with Energy Label, 9 models were award with Water Label.
2. Currently, 40 Tatung 3C Stores were register in EPA's Green Store Scheme.

■ Introduced its luxury condominium, "Tatung Tomorrow World", a masterpiece of green architecture, to commemorate Tatung's 90th anniversary.

■ Started to publish "Tatung Corporate Sustainability Report".

2007

Carry out greenhouse gases inventory voluntarily in the factories and subsidiaries based on the requirements of ISO14064-1. The emission information is disclosed in the company website and CSR report.*

★ Taoyuan Wires and Cables Plant, Taoyuan 1st Plant, and San-Hsia Factory completed GHG inventory for year 2017 and passed third-party verifications in 2018.

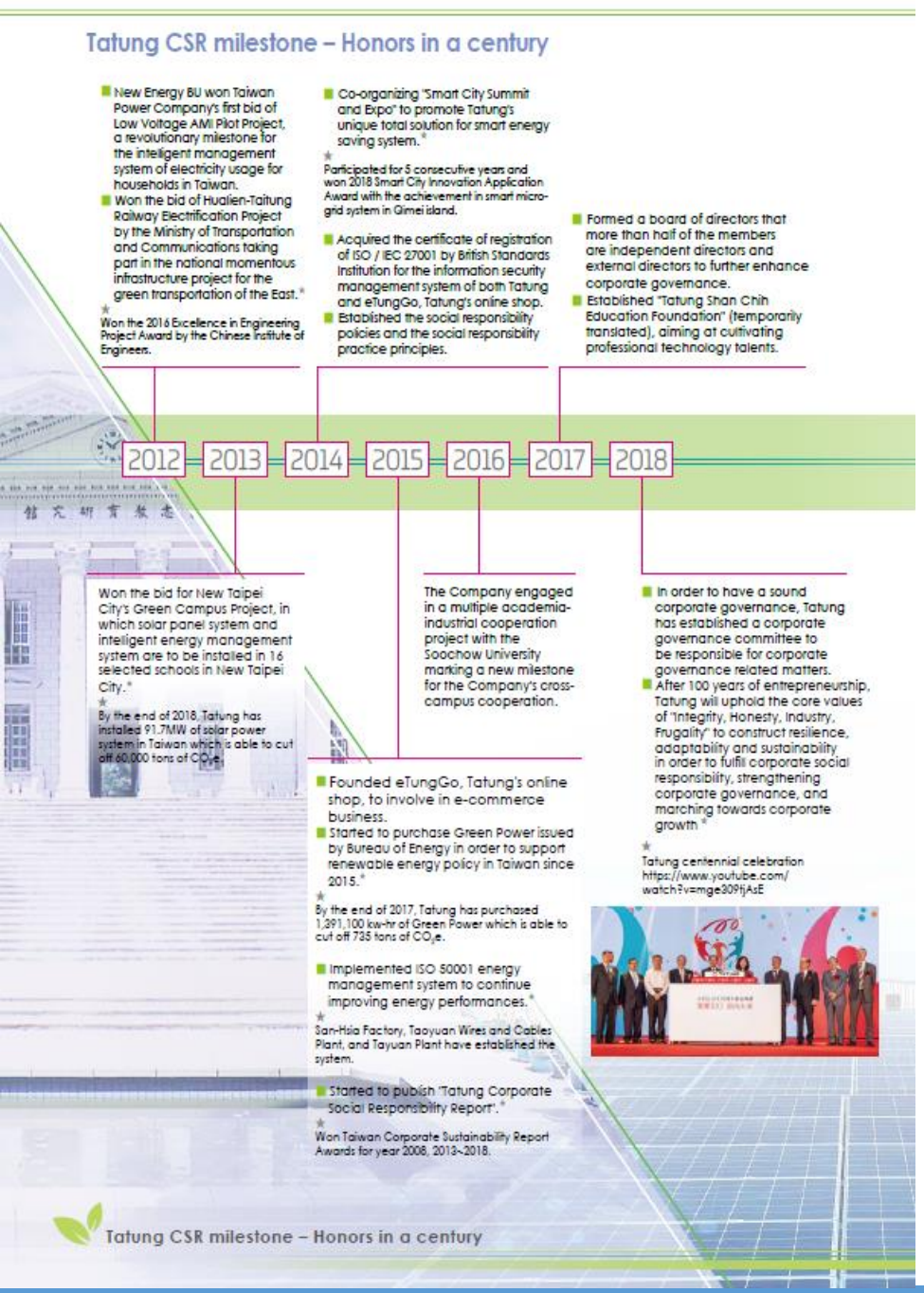
2008

■ Started to carry out product carbon footprint to disclose carbon emission information for products.*

★ 1 model of motors, 1 model of amorphous transformers, and 1 model of rice cookers completed product carbon footprint inventory.

■ Organized "Tatung Charity Soccer Summer Camp" since 2010. In an effort to help the underprivileged children to cultivate a proper and healthy hobby, and also to gain happiness and satisfaction as well as positive attitude.

2010



Major achievements of sustainable development in recent years

Environment	• Tayuan Plant awarded 2021 Bureau of Energy "Energy Conserving Award Gold Award" • H.Q awarded 2017 Bureau of Energy "Energy Conserving Award Silver Award" • Tayuan Plant awarded EPA "2009 The annual Enterprises Environmental Protection Award"
Social	• Tatung 3C won Reader's Digest "2022 Trusted Brand Gold Award" in House appliance after-sales service category. • The Hill of Energy in Taipei city, the first landfill solar power plant in Taiwan, was awarded "2018 Taiwan Real Estate Excellence Awards". • No. 12-14 Ponds of Taoyuan Canal, the first Floating Solar PV plant in Taiwan, was awarded "Top Solar System Awards" by Bureau of Energy, Ministry of Economic Affairs. • Tatung was awarded a silver medal of the TTQS Training Quality System by the Ministry of Labor.
Governance	• 2021 TCSA Taiwan Sustainability Award –Corporate Sustainability Report Gold Award • The 100 most sustainably managed companies in the world selected by The Wall Street Journal ranked Tatung No. 75 overall and No. 1 in Business & Innovation catetory. • Awarded Best Corporate Governance, Taiwan, 2013 by World Finance, a financial magazine by World News Media based in the UK.

Most concerned ESG topics by the stakeholder and the responses from Tatung

Stakeholder groups	Shareholders	Customers	Employees	Local communities and parties	Authorities	Suppliers	Consumers
Concerned topics	Governance and financial performances	Product quality and customer information management.	Labor rights, welfares	Pollutant emissions, interaction with local communities	Compliance	The quality of parts and products, the requirements regarding to hazardous substances	Product safety and labeling, personal information management
Tatung's responses	1. Six major development directions: heavy electricity, asset development, electric buses, Elite Group expansion, 3C product sales promotion, Tatung System Technologies Inc. driving 5G, AI, and big data. 2. Provide all-round solutions for energy creation, energy storage, and energy conservation to assist Taiwan's energy transition and achieve Taiwan's 2050 net-zero goal. 3. Enforcing corporate governance and information transparency.	1. Establishing ISO 9001, enhancing supplier quality management, products that pass related verifications. 2. Establishing ISO 27001 to enhance information management.	1. Complying with labor and health and safety regulations. 2. Organizing education and training courses. 3. Providing reasonable salary and welfares.	1. Installing air pollutant and wastewater treatment facilities. 2. Participating in community development and charities events through commercial activities, non-cash property endowments, volunteer service and other free professional services.	Carrying out internal control and internal audit to ensure conformity.	Establishing ISO 9001, enhances supplier quality management, products that pass related verifications. In addition, we also request our suppliers to fulfill corporate social responsibility together by: 1. Adding anti-corruption and human rights (human rights, freedom of association, child labor, and forced labor) clauses in the contracts. 2. Signing the "Supplier Commitment Letter", which includes health and safety, environmental protection, human rights topics. 3. Issuing "Declaration of Minerals Conflict-Free from Tatung Company" and requesting the suppliers to follow.	1. Complying with product safety and labeling regulations, and establishing feedback and anti-recurrence mechanisms. 2. Establishing ISO 27001 to enhance information management.

Material topics and responses from Tatung

Material topics in 2022	Summaries of Tatung’ s responses	Linked to SDGs
Economic performance	1. Six major development directions: heavy electricity, asset development, electric buses, Elite Group expansion, 3C product sales promotion, Tatung System Technologies Inc., driving 5G, AI, and big data. 2. Provide all-round solutions for energy creation, energy storage, and energy conservation to assist Taiwan’ s energy transition and achieve Taiwan’ s 2050 net-zero goal.	
Disclosure on non-financial information	Proactively disclosing the company’ s ESG information and achievements, and focusing on meeting the expectations of stakeholders to systematically demonstrates the company’ s efforts towards sustainable development.	-
Market presence	1. Optimizing the salary system to provide the best and most reasonable salary for the employees. 2. Reviewing and revising the development of the company’ s business strategy, and recruiting suitable senior executives who meet the manpower needs.	
Corporate governance and ethical practice	Integrity is Tatung’ s basic commitment to shareholders, customers, suppliers and society. By formulating relevant regulations to prevent dishonest behavior, building consensus through education and training, promoting to all employees, shaping the corporate culture of “Integrity, Honesty, Industry, and Frugality”, and moving forward to sustainable operation.	-
Employment	1. Broaden recruitment channels. 2. Optimize the salary and remuneration system. 3. Expand employee welfare measures.	
Customer privacy management	1. New employees need to sign a confidentiality and non-competition agreement. 2. Customer service personnel who contact the customer’ s personal information will be under strictly access control and forbidden to contact customers privately without the authorization. 3. Strengthen the security control management of website information. 4. Strengthen information safety awareness. 5. Set up a contact window to provide the parties with the right to exercise their personal data or file related complaints and consultations.	-

Material topics and responses from Tatung

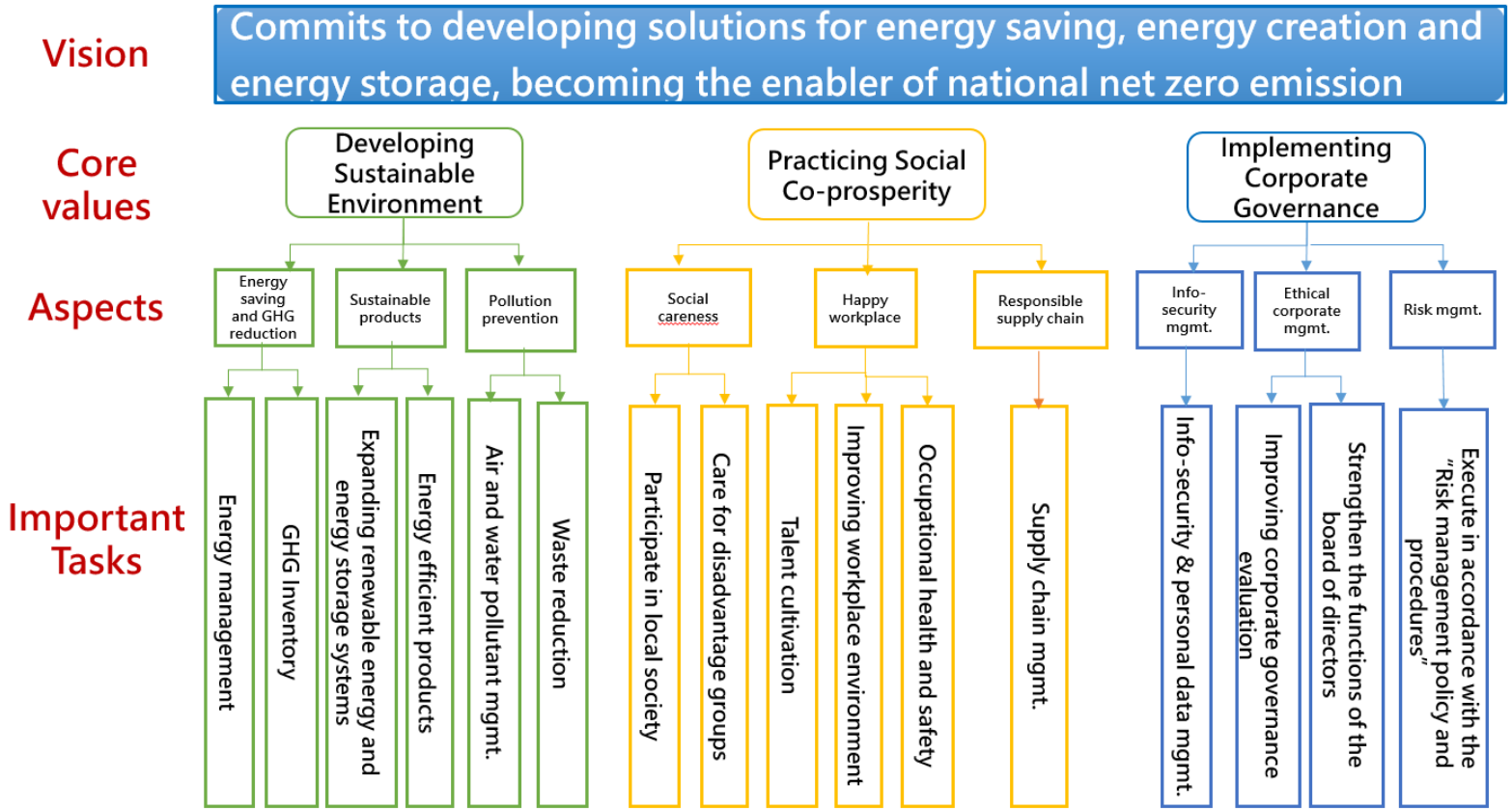
Material topics in 2022	Summaries of Tatung’ s responses	Linked to SDGs
Product quality and safety	1. Each factory holds quality meetings to review internal and external quality issues within the factory. If any defects occur, an improvement plan will be proposed immediately and implemented. 2. Auditing the quality management status regularly of each factory by internal control. 3. Enhancing KPI management methods to set quarterly quality goals every year. Proposes specific methods for achieving the goals for projects that failed to meet the goals.	-
Occupational health and safety	1. Implementing ISO 45001 in the factories. 2. Conducting Accident, Prevention, Pays Program on-site audit to identify any non-conformities. The factories are requested to improve these and ESD will track the improvement results.	
Labor/management relations	1. Tatung has “Chairman Mailbox” and “HR e-mail” for the employees to communicate with management level. 2. Organizing Labor-management Meetings to communicate with the employees and solve the problems. 3. Tatung has “Measure of processing employees’ complaints” and other practices in place for the employees to complain about any dispute and provides a channel to deal with.	
Management on energy and GHG emissions	1. Carrying out GHG inventory. 2. Implementing ISO 50001 in the factories. 3. Setting energy saving target and reviewing the results annually.	
Promotion and management on environmental friendly products	1. Apply Design for the Environment, DfE”, in the design phase to produce environmental friendly products as well as apply for Green Mark, Energy Label, or Water Label. 2. Apply for EPA’ s Green Stores and promote energy saving and environmental friendly products. 3. Respond to green procurement and encourage all units of the company to take environmentally friendly products into consideration when purchasing items. 4. Install solar PV systems and energy storage systems.	

Responding to Sustainable Development Goals

Goals	SDGs descrption	Responds from Tatung
	Ensure access to water and sanitation for all.	Maintain well function of the waste water treatment facilities in the factories to ensure the quality of the effluents are complied with the standards.
	Ensure access to affordable, reliable, sustainable and modern energy for all.	• Expanding solar power systems and having installed 211MWp capacity accumulatively at the end of 2021. • Raising energy efficiency on the products and continually applying for Energy Label, Green Mark, and Water Label. • Strengthen the ability in the field on smart energy management and dispatching by combining with energy storage, smart meters and micro-grids.
	Promote inclusive and sustainable economic growth, employment and decent work for all.	• Ensuring the salary paid to the employees is complied with the regulations or better. • Conducting “Working condition monitoring”. • Establishing ISO 45001 Health and Safety Management System in the factories.
	Reduce inequality within and among countries.	• Complying with human rights regulations, supporting gender equality, and banning discrimination of any form are set in the clauses of “Tatung Corporate Social Responsibility Best-Practice Principles”. • Recruiting only on capability. The starting salary ratio for male and female employees is 1:1.
	Ensure sustainable consumption and production patterns.	• Complying with RoHS and REACH regulations to ensure a green supply chain. • Implementing waste recycling in the factories. • Recycling wasted large home appliances, batteries, and CDs in Tatung 3C Stores.
	Take urgent action to combat climate change and its impacts.	• Carrying out green house gases inventory every year based on ISO 14064-1. • Announcing 2nd stage energy saving target – the products’ energy intensity will be 6% lower in 2023 when comparing to 2018. • Having environmental education courses opened to the employees, and GHG management course to the specialties.

Sustainable Development Vision

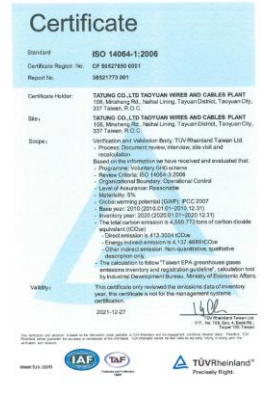
- Tatung has set a vision of sustainable development based on "benefiting others" and committed to developing solutions for energy saving, energy creation and energy storage, becoming the enabler of national net zero emission, and making contributions to the mitigation of global warming.



Energy Saving and Carbon Reduction-GHG Inventory

- According to Sustainable Development Roadmap issued by Financial Supervisory Commission (FSC), the listed companies with capital larger than NT$ 10 billions are requested to carry out GHG inventory since 2023 and carry out GHG inventory for it’ s subsidiaries since 2025.

Locations	Status on GHG inventory
H.Q.	Carry out GHG inventory since 2022
Tayuan Plant	
Meter Center	
Taoyuan 1st Plant	✓
Taoyuan Wires and Cables Plant	✓
San-Hsia Factory	✓



Energy Saving and Carbon Reduction-
GHG inventory schedule for subsidiaries

Type	2023 (voluntary)	2024 (voluntary)	2025	2027
Listed/ OTC/ Emerging market companies	1. TSTI 2. Forward Electronics 3. Tatung Fine Chemicals	These 8 companies starting to carry out third party verification on the emission results.	1. The requirements of GHG inventory for subsidiaries from FSC is enforced. 2. All the subsidiaries must complete GHG inventory for the previous year before end of March each year and report the results and verification statements to Tatung.	The requirements of GHG inventory and verification for subsidiaries from FSC is enforced.
Above certain scale	1. San Chih Semiconductor 2. TCPC 3. Shan-Chih Asset Development 4. Tatung Die Casting 5. Tatung Forever Energy			
Others (domestic)	-	23 companies such as Central Research Technology starting to carry out GHG inventory		
Others (overseas)	-	34 companies such as TOJ, TOA starting to carry out GHG Inventory		

Energy Saving and Carbon Reduction- Product carbon footprint

Year	Products	Product carbon footprint	EPA Carbon Label	PCRs issued by Tatung
2010	AC Motor (4390930663)	✓	-	AC Motors PCR 2010:1.0
2016	Liquid Immersed Amorphous Metal Core Transformer (3φ 60Hz-2000kVA-420/242-6600V)	✓	-	-
2017	Electric Cooker (TAC-10L-SR)	✓	✓	• Electric Cookers v 4.0 • Electronic Cookers v 4.0

▲ Carbon information on each life cycle stage for multi-function cooker (TAC-10L-SR)

Amorphous Metal Core Transformer carbon footprint verification statement

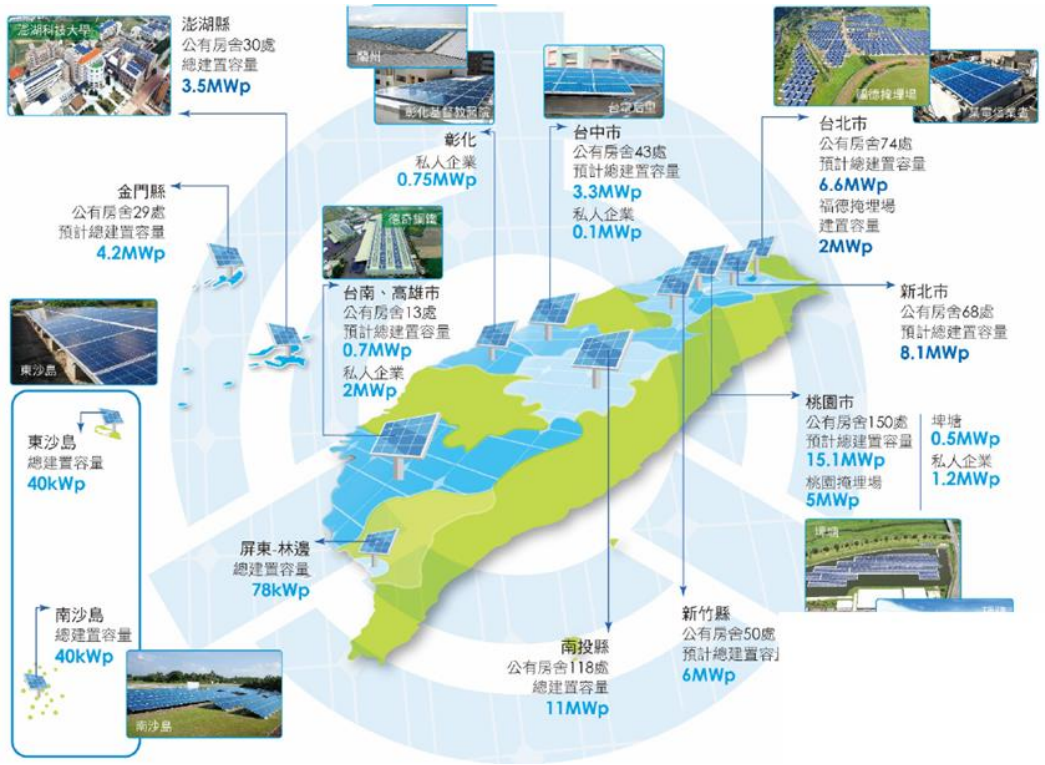
AC Motor carbon footprint verification statement

Energy Saving and Carbon Reduction- Tatung net zero emission roadmap

	2021(baseline year)	2030 (20% reduction)	2040 (50% reduction)	2050 (net zero)
Targets	2021 ~ 2030 2% CO_2 reduction/year	2031 ~ 2040 3% CO_2 reduction/year	2041 ~ 2050 5% CO_2 reduction/year	
Possible Measures	• Optimizing manufacturing equipment • Replacing high GWP coolant with lower GWP coolant for air conditioners (reference) • Building PV power systems for own use (based on regulations and financial status)	• Optimizing manufacturing equipment • Phasing out SF_6 gradually for producing high voltage equipment such as GIS (reference) • Building PV power systems for own use (based on regulations and financial status)	• Optimizing manufacturing equipment • Purchase renewable energy	
* From 2024, the GHG inventories from the subsidiaries will be included into this roadmap				

The Enabler of National Net Zero Emission

- Continue to build more PV power systems and assist lowering national electricity emission factor.
- National target: 20GW PV systems be the end of 2025
  - 2018：0.533 kg CO_2e/kwhr
  - 2019：0.509 kg CO_2e/kwhr
  - 2020：0.502 kg CO_2e/kwhr

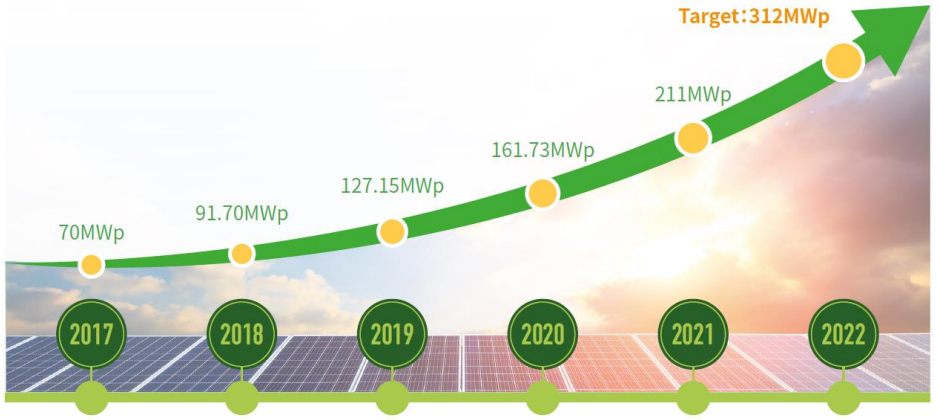


Sustainable Products-PV power systems and energy storage systems

- By the end of 2021, Tatung group has completed over 1,100 solar photovoltaic power systems with capacity of 211MWp, which can generate nearly 246.45 million kilowatt-hours of electricity per year, with a carbon reduction of 123,718 tons/year, which is equivalent to the annual carbon reduction of about 318 Daan Forest Park of carbon absorption.
- Tatung has invested in the field of renewable energy for more than 10 years. Its long-term hard work has gradually gained recognition in the country. In 2021, Tatung Forever Energy Company has won three "2021 Public Construction Commission Golden Quality Award". Sheng Yang Energy Co. has won two "2021 Top Solar System Award by Bureau of Energy, MOEA."

2021 Public Construction Commission Golden Quality Award

2021 Top Solar System Award by Bureau of Energy, MOEA



Total PV solar systems installed and our target in 2022

Sustainable Products-PV power systems and energy storage systems

- In terms of energy storage systems for stabilizing the power grid, Tatung group has accumulatively completed a 1 MW bilateral contract, and the current bid price is 4 MW in 2021.
- In 2022, a 50 MW large energy storage system construction project is being actively planned and implemented, which is expected to become online in 2023.

2019 Zhangbin large-scale Battery Energy Storage System


2021 Automatic Frequency Control (AFC)Project

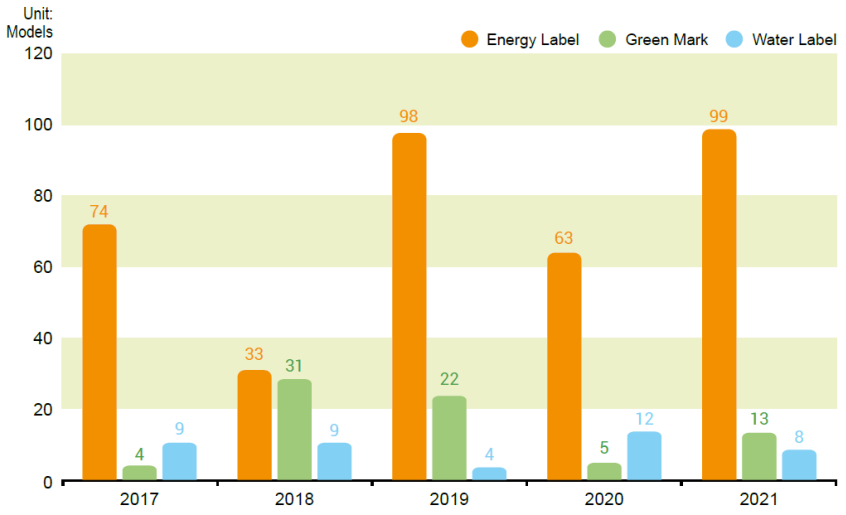
The Enabler of Corporates Net Zero Emission

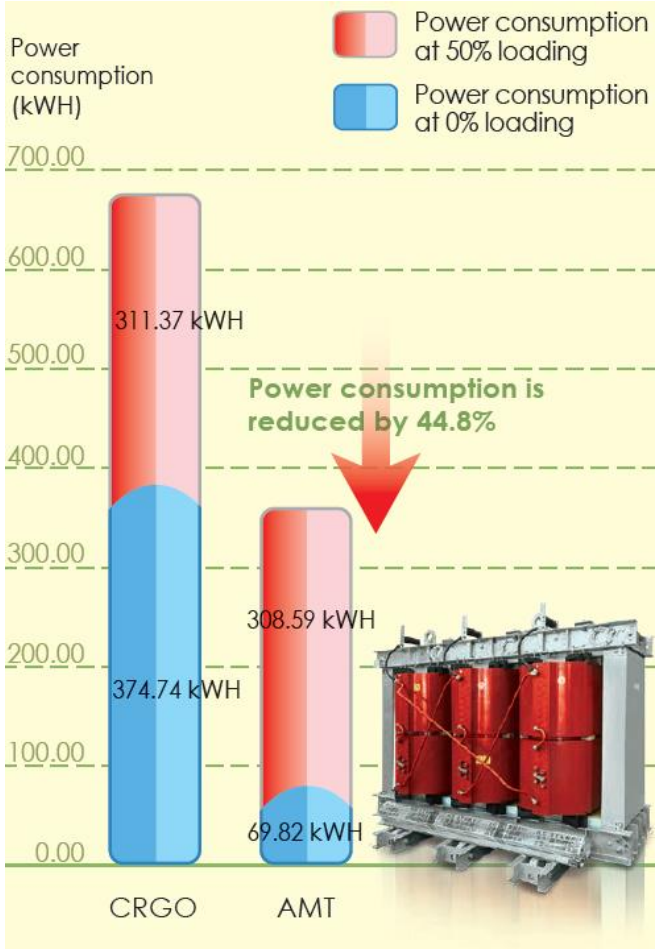
- Assist customers to build PV power systems for their own use
  - Request to use renewable energy: e.g. Apple supply chain, or the requirement from the customers
  - Voluntary respond to RE100: using renewable energy 100% by 2050, with interim steps of at least 60% by 2030, 90% by 2040.
- Provide the product with higher energy efficiency
  - Continue to develop higher energy efficiency electrical products such as IE4 level (or higher) Motors, Amorphous Transformers, Chillers, etc.

Sustainable Products – High energy efficiency products

- Tatung dedicates to the development of green products and many of them have been awarded with Green Mark, Energy Label, and Water Label. There were 13 models awarded with Green Mark, 99 models awarded with Energy Label, and 8 models awarded with Water Label in 2021.

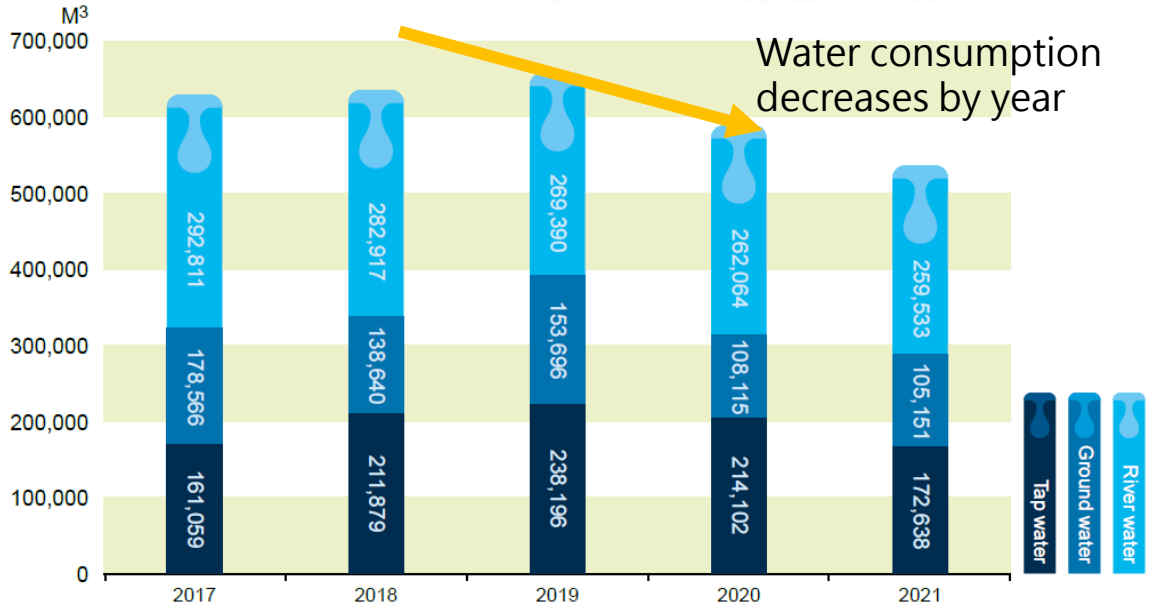
- In addition to household products, Tatung is also committed to developing high energy efficiency industrial products. In 2020, we independently developed the nation's largest capacity 9,000kVA amorphous alloy die-cast transformer. Compared with the same capacity 9,000kVA silicon steel type, the power consumption of this transformer is reduced by 44.8%. If it operates for a year, it can reduce the power consumption by 112,310 kw-hr, which is equivalent to a reduction of 57 tons of greenhouse gas emissions.





Water Resource Management

The sources of water for Tatung are from tap water, ground water, and river water. In view of the long-standing problem of fresh water resources shortage in Taiwan, other than installing water-saving taps for the employee’ s daily usage, we will continue to conduct water saving projects in order to reduce water consumption. For example, in 2020, Tayuan Plant implemented the energy-saving improvement plan of transformer drier, and we also installed with the cooling water circulation system. The cooling water can be recycled and reused, which can save about 5,000M^3 of water consumption every year. We will continue to review the manufacturing processes and promote water saving programs, and reduce water consumption.



GRI Standards, SASB, and TCFD

- GRI Standards are the most commonly used guidelines for writing sustainability reports in the world. GRI Standards create a common language for companies and stakeholders to communicate and understand their economic, environmental and social impacts.
- GRI Standards list sustainable topics that are commonly concerned by the stakeholders in economic, environmental and social aspects. In addition to serving as a framework for disclosure of sustainable information, GRI Standards can also be used as a reference direction for companies to promote sustainable development.

Type	GRI Topic Standards	
Economic	• Economic performance • Market presence • Indirect Economic impacts • Tax	• Procurement practice • Anti-corruption • Anti-competitive behavior
Environment	• Materials • Energy • Water and Effluence • Biodiversity	• Emissions • Waste • Supplier environmental assessment
Social	• Employment • Labor-management relations • Occupational health and safety • Training and education • Diversity and equal opportunity • Non-discrimination • Freedom of association and collective bargaining • Child labor • Forced or compulsory labor	• Security practice • Rights of indigenous peoples • Local Communities • Supplier social assessment • Public policy • Customer health and safety • Marketing and labeling • Customer privacy

Source: GRI Standards: 2021

GRI Standards, SASB, and TCFD

- The disclosure indicators of SASB are based on the opportunities and risks of individual industries, formulate consistent indicators that can reflect the significant financial impact of the industry, and provide investors with data comparability to facilitate analysis and investment decisions.
- SASB divides the industry into 77 categories, considers the sustainable aspects (human, social, environmental, leadership and governance, business model and innovation) that have a long-term impact on the enterprise, and sets different indicators to highlight industry risks or opportunities.
- SASB standards highlight industrial risks and opportunities, which can help companies implement sustainable management, and also assist investors to implement sustainable investment and promote sustainable development.

Source: PWC (https://www.pwc.tw/zh/publications/sustainability-news/sustainability-news-200413.html)

Electrical & Electronic Equipment industry

Topic	Accounting Metric	Code
Energy management	1. Total energy consumed, 2. percentage grid electricity 3. percentage renewable	RT-EE-130a.1
Hazardous waste management	Amount of hazardous waste generated, percentage recycled	RT-EE-150a.1
	Number and aggregate quantity of reportable spills, quantity recovered	RT-EE-150a.2
Product safety	Number of recalls issued, total units recalled	RT-EE-250a.1
	Total amount of monetary losses as a result of legal proceedings associated with product Safety	RT-EE-250a.2
Product lifecycle management	Percentage of products by revenue that contain IEC 62474 declarable substances	RT-EE-410a.1
	Percentage of eligible products, by revenue, that meet ENERGY STAR® criteria	RT-EE-410a.2
	Revenue from renewable energy-related and energy efficiency-related products	RT-EE-410a.3
Materials sourcing	Description of the management of risks associated with the use of critical materials	RT-EE-440a.1
Business ethics	Description of policies and practices for prevention of: (1) corruption and bribery and (2) anti-competitive behavior	RT-EE-510a.1
	Total amount of monetary losses as a result of legal proceedings associated with bribery or corruption	RT-EE-510a.2
	Total amount of monetary losses as a result of legal proceedings associated with anticompetitive behavior regulations	RT-EE-510a.3
Activity Metric	Number of units produced by product category	RT-EE-000.A
	Number of employees	RT-EE-000.B

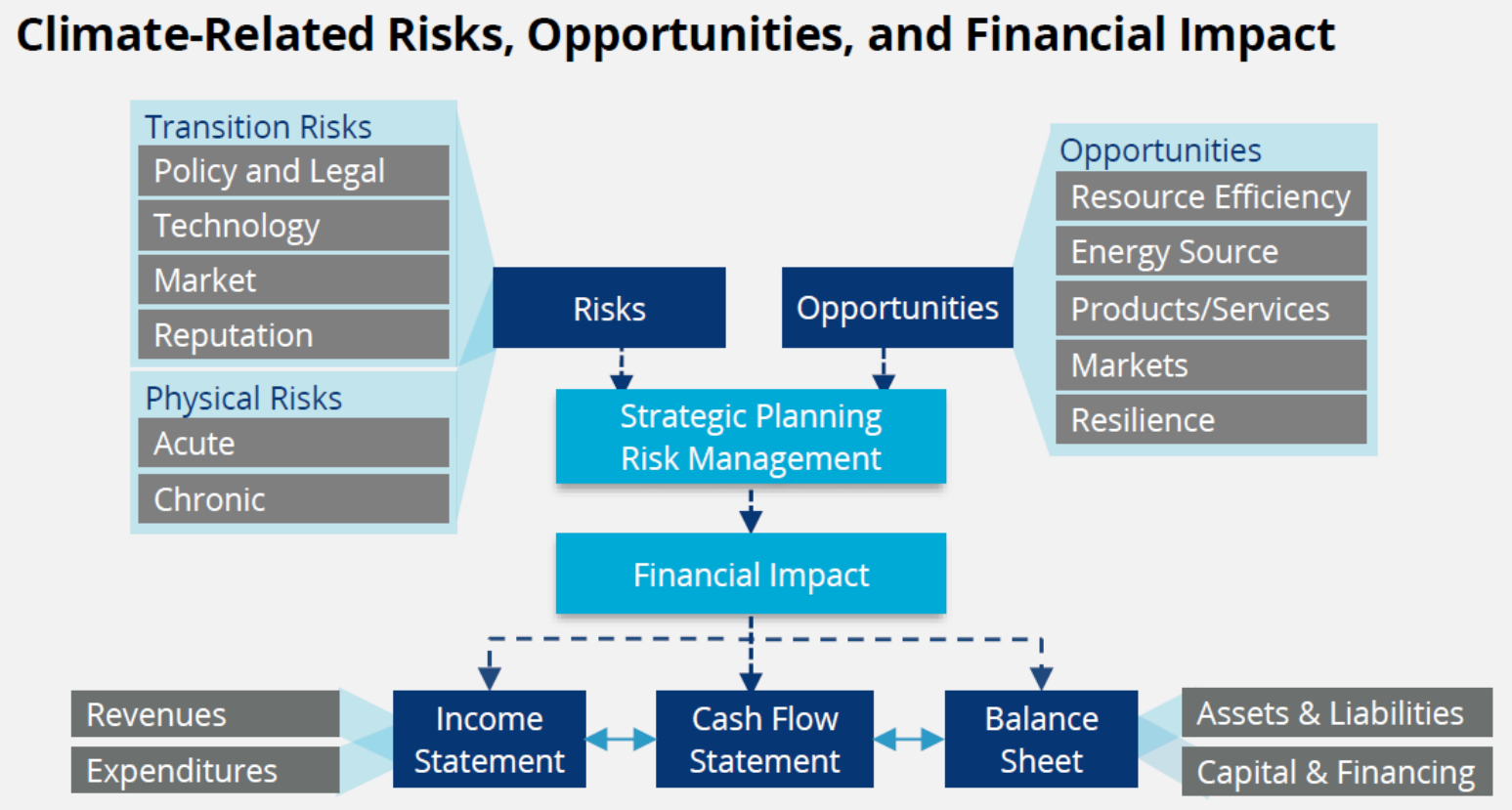
GRI Standards, SASB, and TCFD

TCFD is established by the International Financial Stability Board. The purpose is to develop a set of voluntary climate-related financial information disclosure, and to assist investors to correctly understand the significant risks of the organization, and to enable enterprises to face the challenges of climate change, voluntarily disclose financial-related risks, and make responsible commitments and actions. The disclosure information includes governance, strategy, risk management, indicators and goals, which allowing investors and policymakers to understand climate-related risks and opportunities.

Source: EY TCFD Workshop, 2020

GRI Standards, SASB, and TCFD

Climate-related issues include risks and opportunities. Risks can be classified as transition risks and physical risks. Corporates use strategic planning and risk management to identify the impact of risks and opportunities brought by climate issues on their financial status.



Source: Recommendations of the Task Force on Climate related Financial Disclosures

TATUNG

國家數位轉型推手

CSC's ESG Concept in Improving the Positive Benefits of Water Use

SPEAKER：General Manager, Utilities Dept., China Steel Corp.
Hsu Jung Huang

DATE ： 2022.10.14

Briefing outline

- A UN Sustainable Development Goals-SDGs Overview
- B Current Situation and Development Issues of Taiwan's Water Resources
- C CSC ESG Concept-Sustainable Management of Water Resources
- D Water Positive Benefits Use Practices
- E Conclusion

A. Overview of SDGs - Water-related Core Goals

What are SDGs? Why it matters

- In 2015, the United Nations announced the "2030 Sustainable Development Goals ".
- The SDGs contain 17 Core Goals, including 230 indicators, guiding the world to work together towards sustainability。
- **What are our 17 Core Goals by 2030?**

Source：https://sdgs.un.org/goals

A. Overview of SDGs - Water-related Core Goals

Source：https://sdgs.un.org/goals

A. Overview of SDGs - Water-related Core Goals

What are the SDGs goals for water?

- SDG 6 Clean Water and Sanitation: Ensuring access to Water, Sanitation and Sustainable Management for all。

Source：https://sdgs.un.org/goals

A. Overview of SDGs - Water-related Core Goals

SDG 6 Goals

- The United Nations estimates that if current production and use patterns are maintained, two-thirds of the world's population may face Water Shortages by 2025.
- **Plan to expand water and sanitation-related activities in developing countries, including desalination, water efficiency, wastewater recovery and reuse technologies etc. in 2030**

Source：UN Photo/Unicef Ethiopia/Ayene

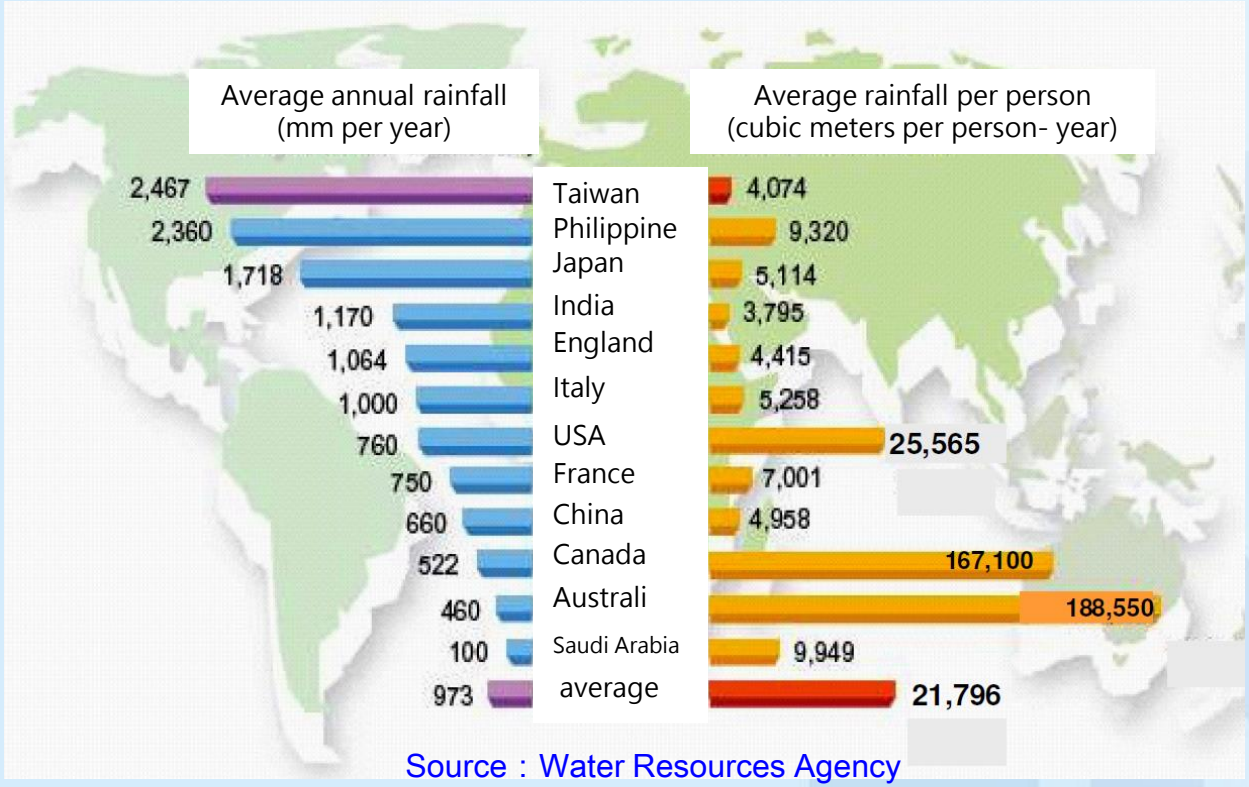
A. Overview of SDGs - Water-related Core Goals

SDG 6.5 Implement Integrated Water Resources Management

- In order to allow water to be obtained, filtered and delivered to us smoothly from water sources, the management of various water resources involves different units, such as government and private units.
- There will be a lot of communication and coordination operations. If the management efficiency and quality are not good, it will increase a lot of time and money costs, and may also cause waste of water resources.

Source：International Centre for the Study of the Preservation and Restoration of Cultural Propertyene(ICCROM)

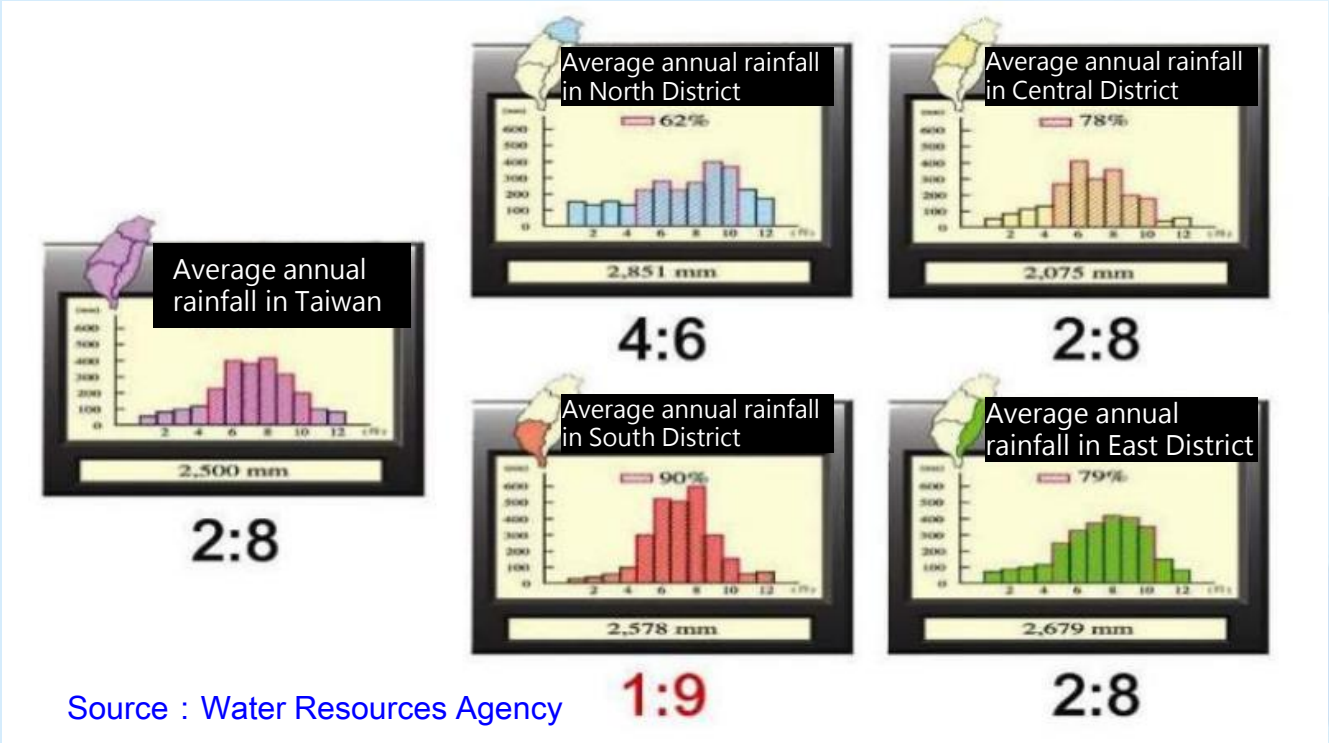
B. Current Situation and Development Issues of Taiwan's Water Resources - Taiwan's Water Environment



Source：Water Resources Agency

- The annual distribution of rainfall per person is only about 4,047m3, which is less than 1/5 of the world average of 21,796.
- Taiwan ranks the 19th water-scarce country in the world.

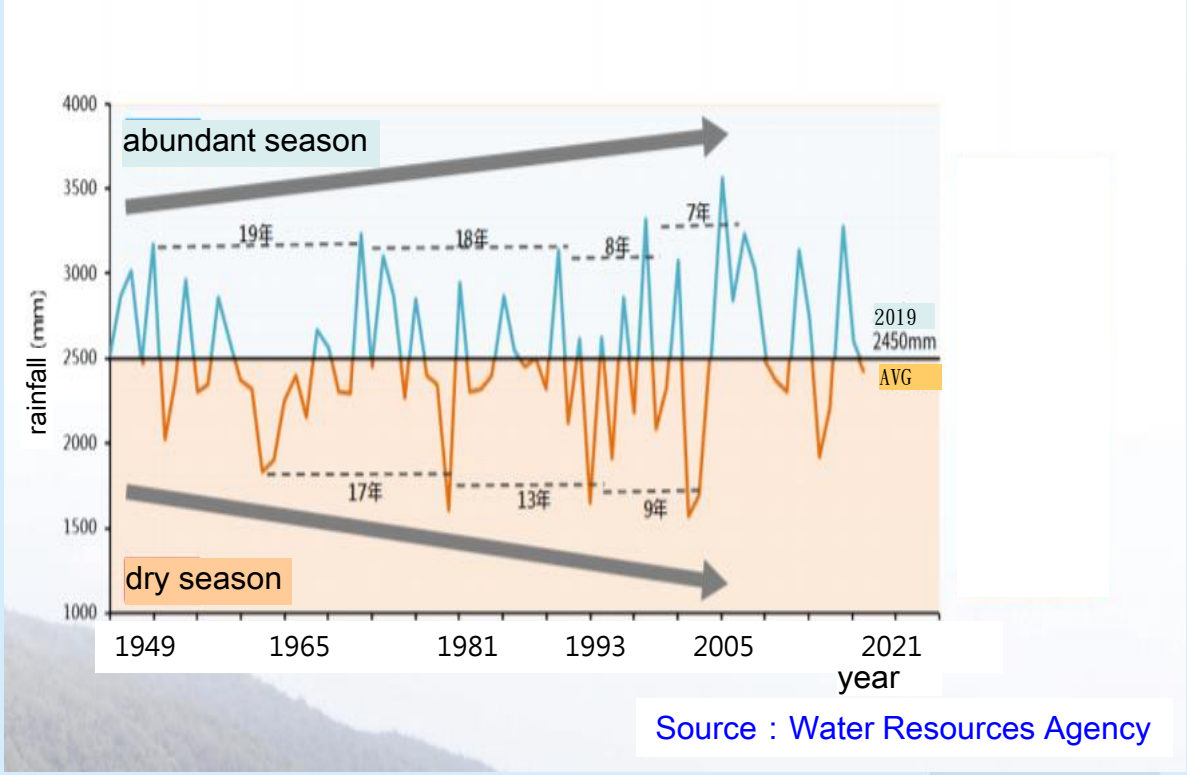
B. Current Situation and Development Issues of Taiwan's Water Resources - Taiwan's Water Environment



Source：Water Resources Agency

- Rainfall ratio between the dry season from November to April and the wet season from May to October。
- Taiwan: 2:8; Northern Region: 4:6; Central Region: 2:8 Southern Region: 1:9
- The dry season is as long as 6 months

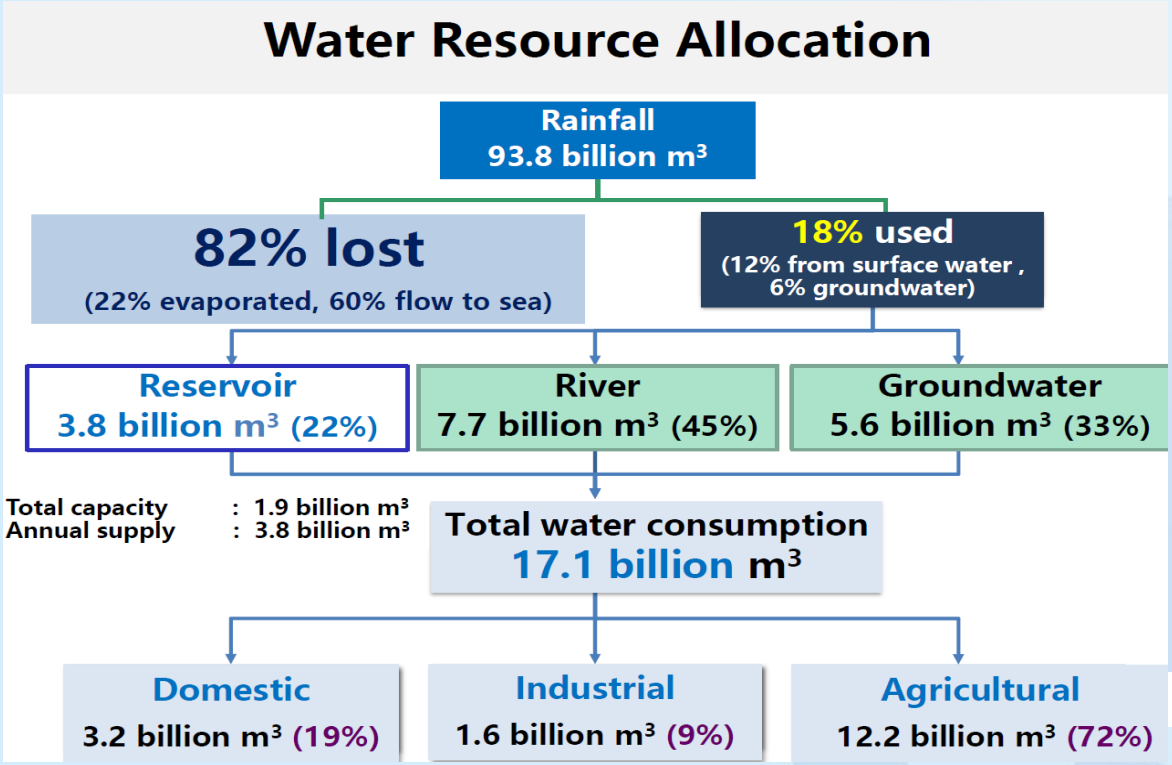
B. Current Situation and Development Issues of Taiwan's Water Resources - Taiwan's Water Environment



Source：Water Resources Agency

- The phenomenon of abundance and dryness intensifies
- Rainfall Max: 3,568mm (2005), Min: 1,572mm (2002)
- The Cycle of abundant and dry season is greatly shortened

B. Current Situation and Development Issues of Taiwan's Water Resources - Utilization in Taiwan



Source：Water Resources Agency

- The average annual total water consumption from 1999 to 2020 is about 17.1 billion m^3
- Living: 3.2 billion m^3 (19%); Industry: 1.6 billion m^3 (9%); Agriculture: 12.2 billion m^3 (72%)
- Groundwater pumping: 5.6 billion m^3, exceeding the groundwater recharge in Taiwan

B. Current Situation and Development Issues of Taiwan's Water Resources - Challenges of Taiwan

- Too much water: Instant heavy rain, typhoon causing short-term heavy rainfall.
- Too little water: the dry season is as long as half a year, and the water demand cannot be met.
- Dirty water: pollution problems make the water quality of many rivers unusable.
- Turbid water: The typhoon and heavy rain will cause the turbidity of the raw water to soar, affecting the water supply.
- Soil and sand problems: The reservoir is eroded by special hydrological events, causing serious siltation.
- Ground subsidence: mainly due to the long- term groundwater pumping exceeding the recharge amount.
- Climate change: Great changes in the original rainfall patterns.

C. CSC ESG Concept - Sustainable Water Resources Management

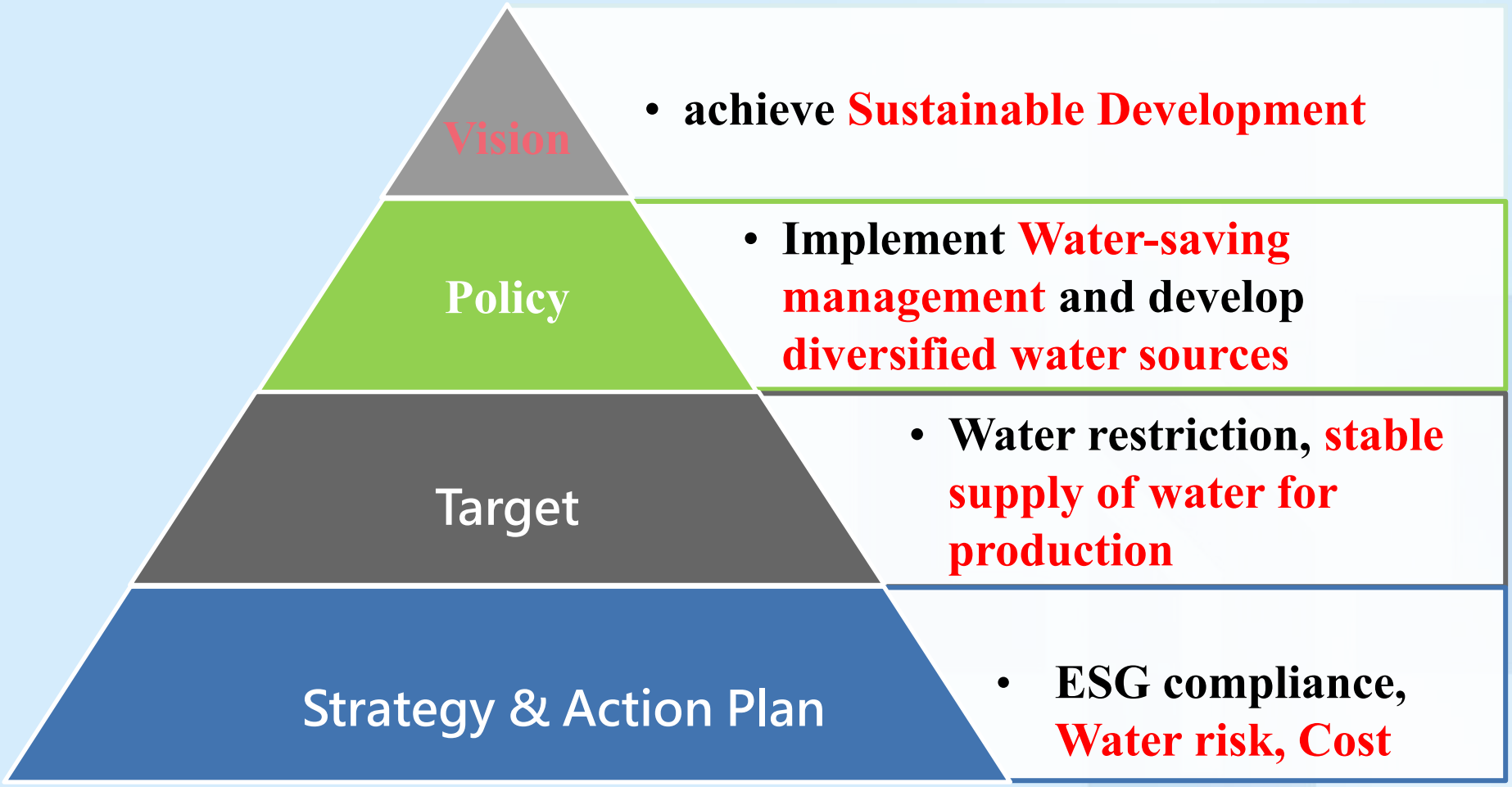
1. CSC ESG Concept
2. CSC Water Resources Strategy and Sustainable Development
3. Current Situation of Water Use in CSC
4. Water Crisis and Challenges over the years
5. Diversified Water Strategies

1. CSC ESG Concept

- In 2012, CSC formulated the “CSC Corporate Social Responsibility Policy (CSR)" in accordance with the spirit of the Charter for Sustainable Development of World Steel Enterprises.
- The United Nations adopted 17 Sustainable Development Goals (SDGs) in 2015.
- CSC continuously reviews CSC's Corporate Social Responsibility policy direction with reference to SDG Selector tool and SDG Compass steps.
- In 2020, CSC set Environmental, Social and Governance (ESG) targets with reference to international steel mills (Posco, Schnitzer, TaTa, etc.) and domestic production companies.
- Take Water Resource as an example

Short-term Goals (2022)	Mid-term Goals (2025)	Long-term Goals (2030)
To reduce new water consumption by 46.9%	To reduce new water consumption by 54.4%	To reduce new water consumption by 64.4%.

2. CSC Water Resources Strategy and Sustainable Development - Vision/Policy



2. CSC Water Resources Strategy and Sustainable Development - Water Saving Management

4R management adaptation strategy：

Recycle --『Process water recycling』

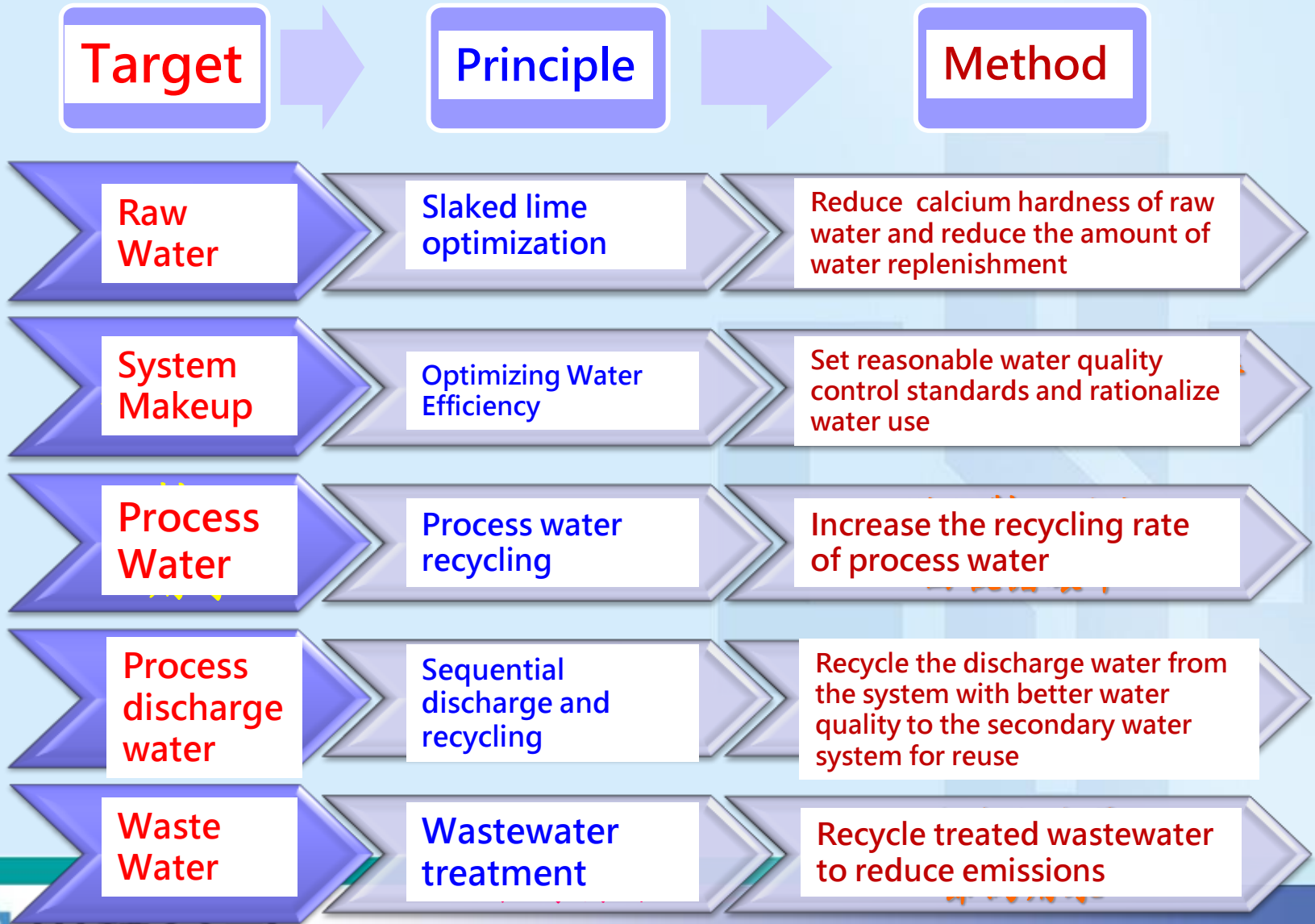
Reuse --『Multi-level emission reuse』

Reduce --『Reduce Waste』

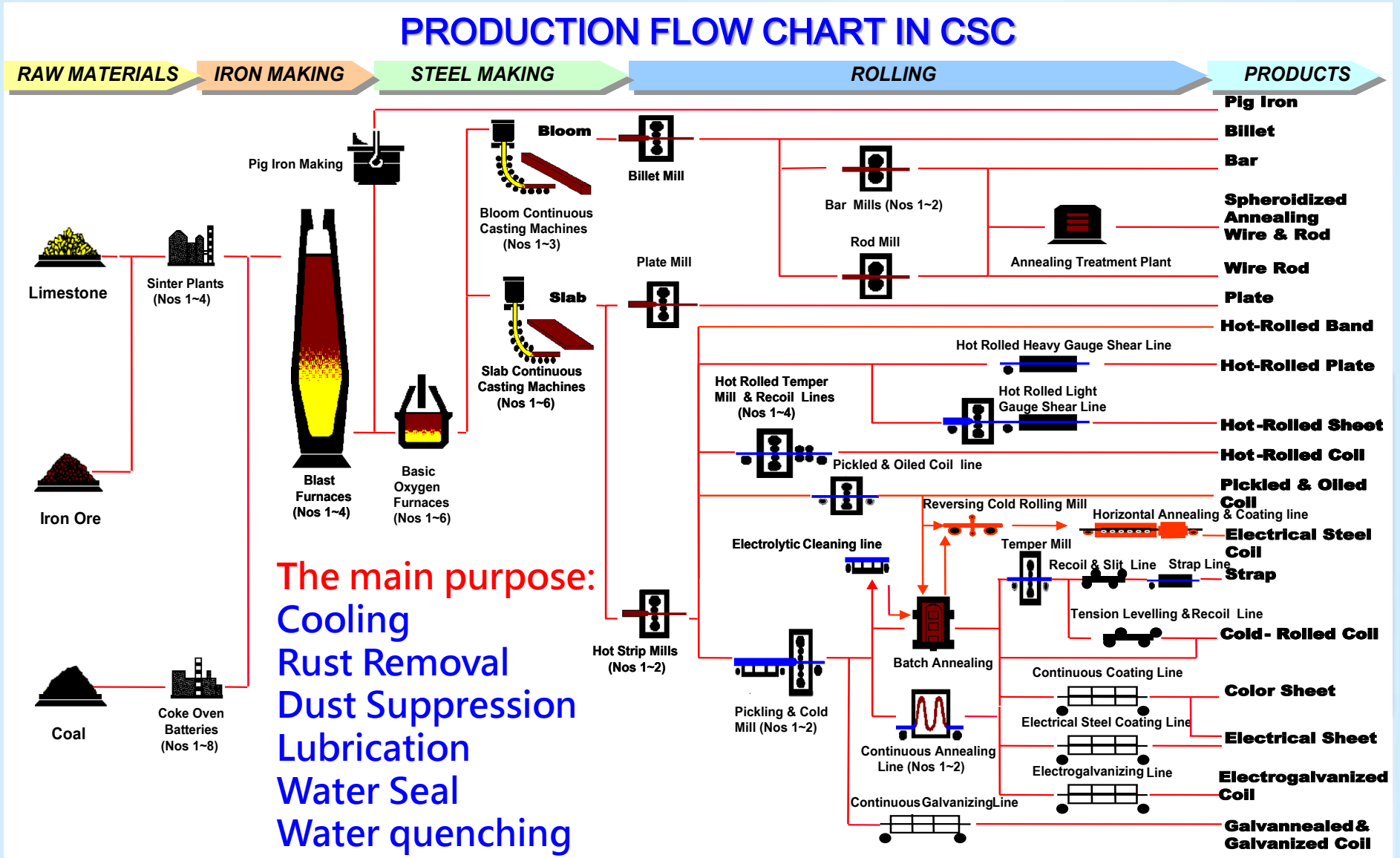
Replace --『Reclaimed water replaces new water』

Industrial Wastewater Recovery

2. CSC Water Resources Strategy and Sustainable Development – Principle & Method



3. Current Situation of Water Use in CSC



CSC's Water use status and Recovery rate

Year Unit：Million liters	2019	2020	2021
Production Process Water Recirculation	2,795,892	2,809,637	2,849,595
Processing Water Recycling Rate(I) (%)	98.4%	98.4%	98.4%
New Water Withdrawal	36,077	31,622	27,842
Urban Reclaimed Water(II) Usage	9,075	12,226	16,205
Water Discharge	15,152	15,133	14,202
Water Consumption(III)	30,000	28,715	29,845

NoteI: Processing water recycling rate = production process water recirculation ÷ total water use in process x100%,

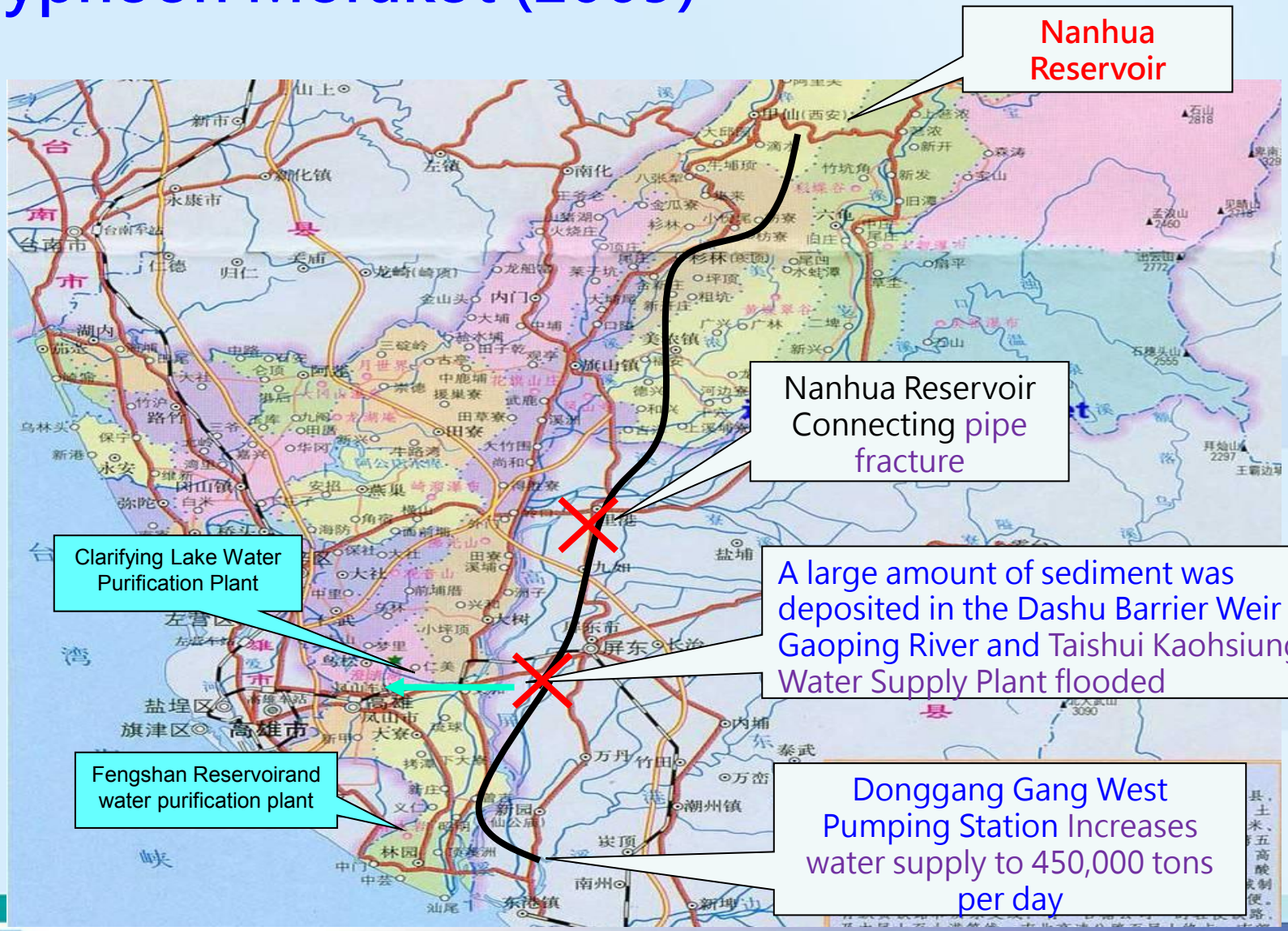
NoteII:The Fengshan Creek Reclaimed Water was implemented in 2018, and the supply of reclaimed water reached 41 million liters per day.

NoteIII:Water Consumption=Total Water Withdrawal-Water Discharge, the Total Water Withdrawal=New Water Withdrawal+ Urban Reclaimed Water Usage

4.Water Crisis and Challenges over the years -Kaohsiung

- 2009 Typhoon Morakot - Crisis of typhoon power outage and water supply
- 2015 Drought - Kaohsiung Enters Phase 2.5 Water Restriction
- Typhoon Moranti in 2016 - Power failure at Fengshan Water Supply Plant
- In 2017, the 1,750MM water supply pipe of Fengshan Water Plant broke and stopped water supply
- Water salinization of Donggang Creek in 2018
- In 2018, the water supply valve of Taishui failed to stop water supply
- Severe drought in 2021

Crisis of typhoon power outage and water supply - Typhoon Morakot (2009)



(1). The connecting pipe between Nanhua Reservoir and Dashu Barrier Weir was broken

(2). A large amount of sediment is deposited at the inlet of Dashu Weir in Gaoping Creek, and water cannot be diverted into the pumping well.

(3). All 12 pumps and motors in the Taishui Kaohsiung Water Supply Plant were submerged, unable to supply water to the Cheng ching Lake Water Purification Plant.

5.Diversified Water Strategies

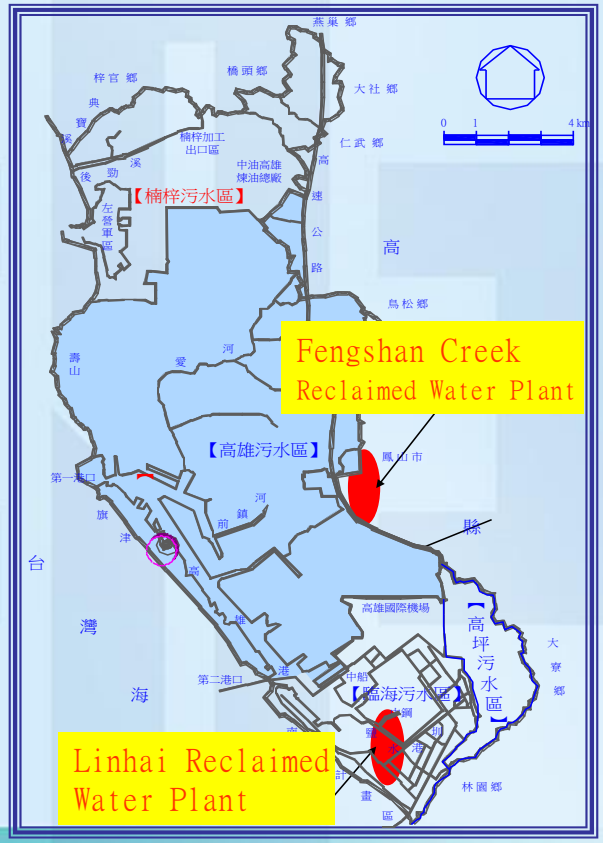
There is no large-scale reservoir in Kaohsiung area, which is an area with a shortage of water supply. In order to alleviate the above risks, CSC has decided to use Diversified Water resources as its development strategy。

- In-plant wastewater recovery

  1.Construction of Wastewater purification plant to produce pure water

- Off-site water sources – reclaimed water from urban sewage

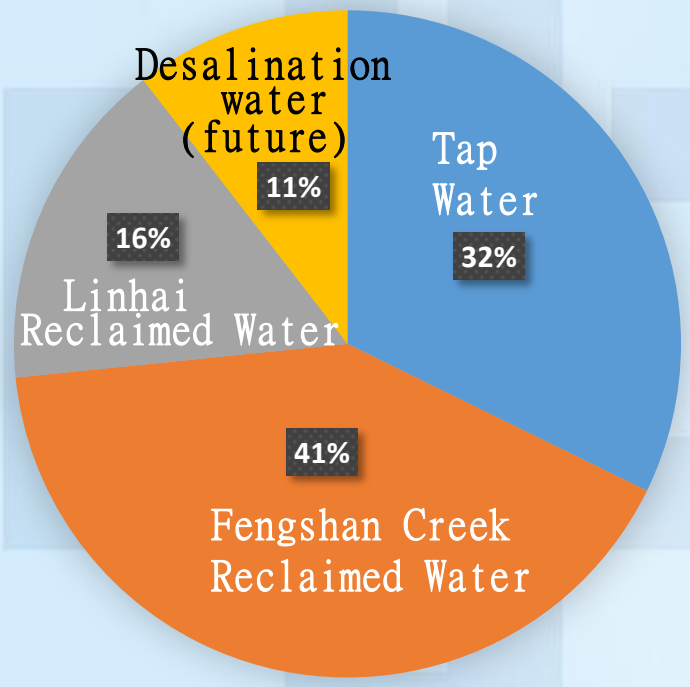
  1. Fengshan Creek Reclaimed Water Project
  2. Linhai Reclaimed Water Project



Diversified Water source policy:
Introduce reclaimed water and desalination water.

Single Source → Multi Water Source

100%
Tap water



D. Water Positive Benefits Use Practices

1. Continuous Process Water Saving and Improved water efficiency
2. Water Saving Management
3. Reduce in-plant wastewater discharge - recycle and reuse
4. Use off-site Sewage Reclaimed Water
5. Drought Response Strategies

What is the Water Positive

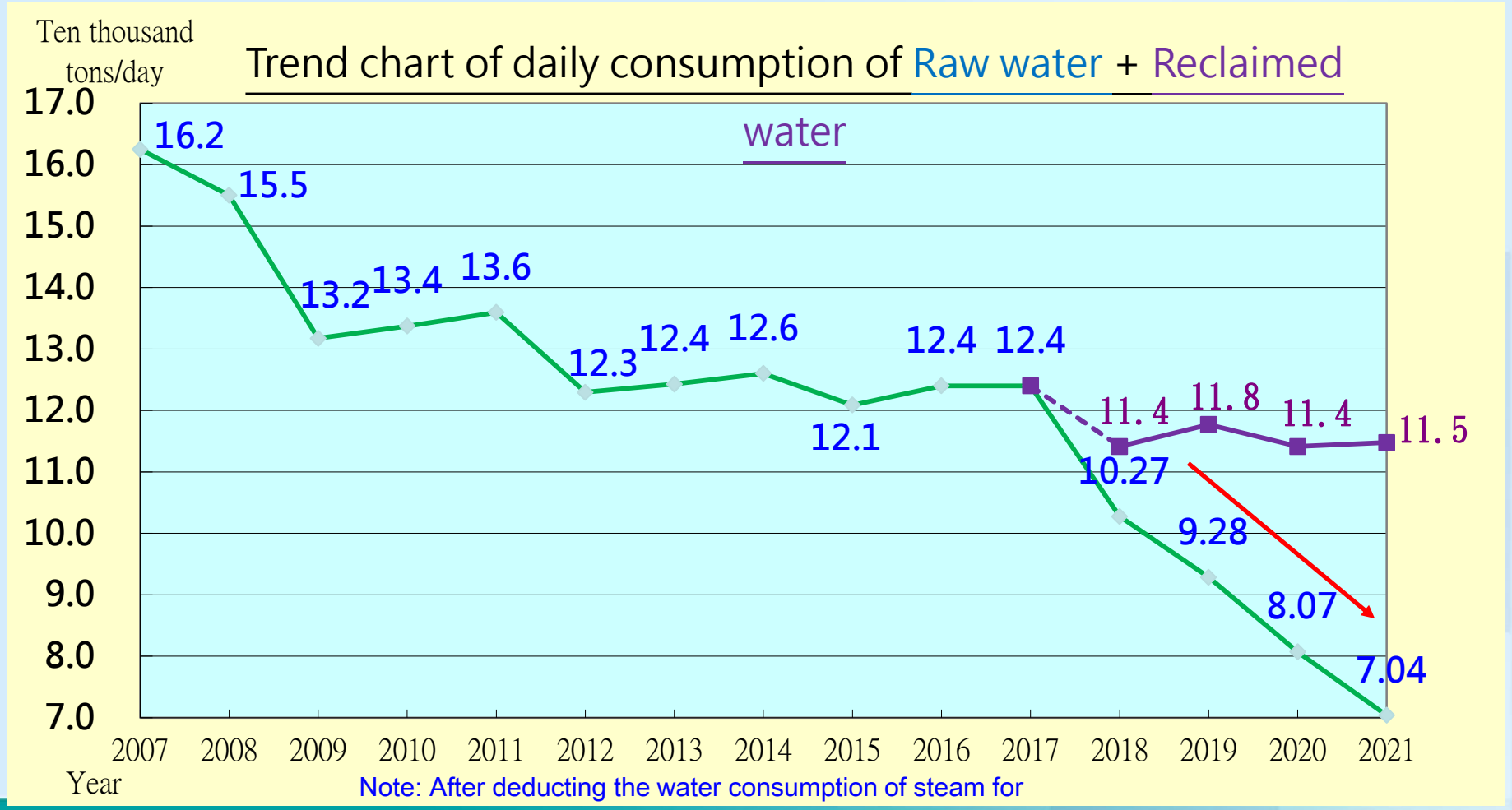
Water Positive ： Water for regeneration, restoration, more water than used.

Towards "Water Positive " in Two Directions

1. Increasing the Water efficiency of facilities and reducing water demand
2. Increasing Water Resources Restoration Projects in areas with water shortage

1.Continuous Process Water Saving

- In October 2021, the reclaimed water from Linhai began to be introduced. reclaimed water from Fengshan River was also supplied steadily in 2021, and the milestone of the use of reclaimed water for 50% of the total water consumption has been reached.



https://www.csc.com.tw/csc/hr/csr/env/env10.htm

Water saving case : Rainwater recycling

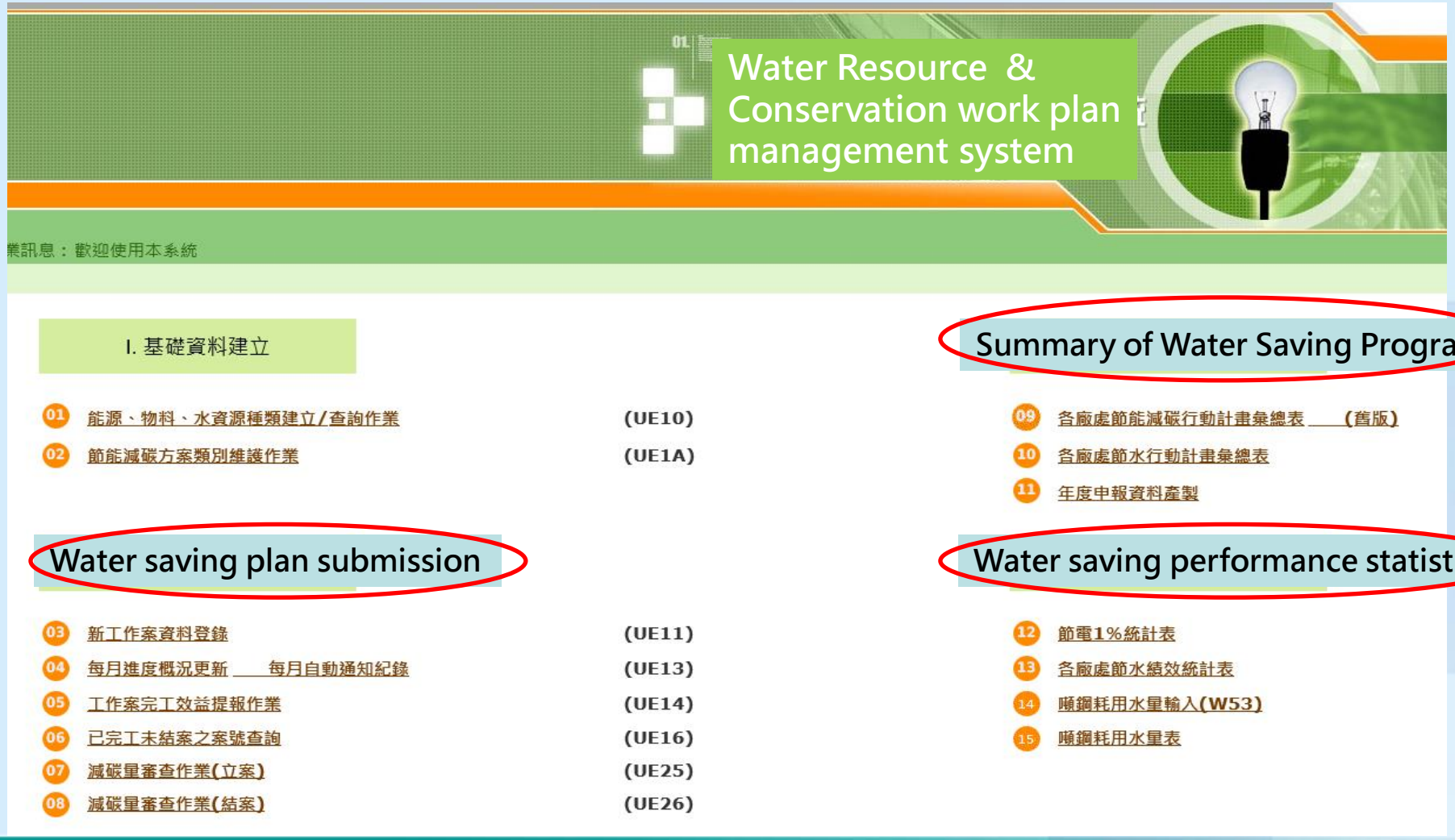
Hot rolling mill roof rainwater recycling to direct water system

The water collection area is about 11,200 square meters, and it can collect 17,640 cubic meters of rainwater every year.

1.Improve Water Efficiency

Water-saving benefits of the cold-rolled pure water system:
From May 2019 to the end of December 2021, a total of 2.575 million tons of pure water has been used from reclaimed water, effectively increasing the efficiency of pure water production and reducing the consumption of water resources

2. Water Saving Management - water resource work plan management System

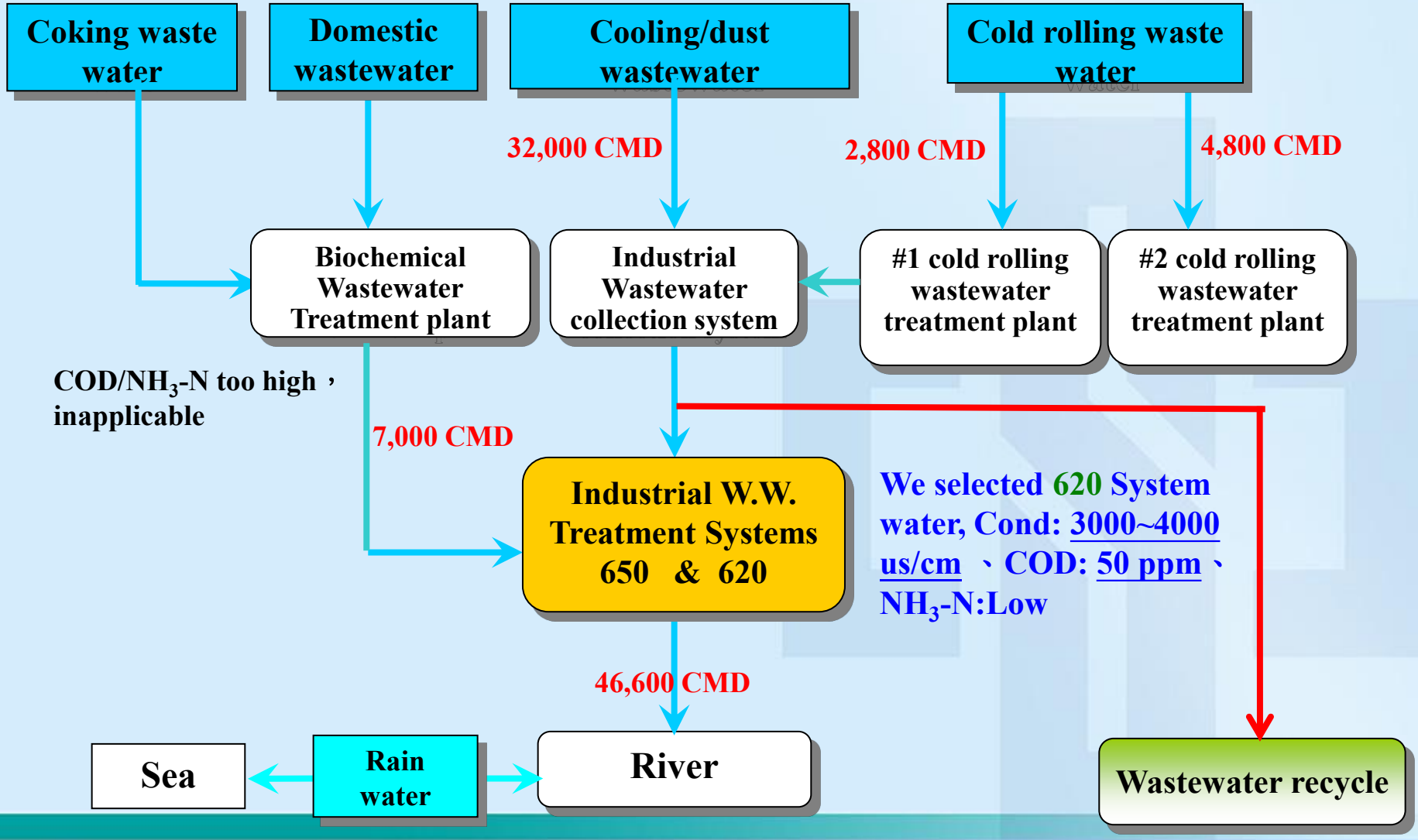


The Award for Water Saving Performance of WRA

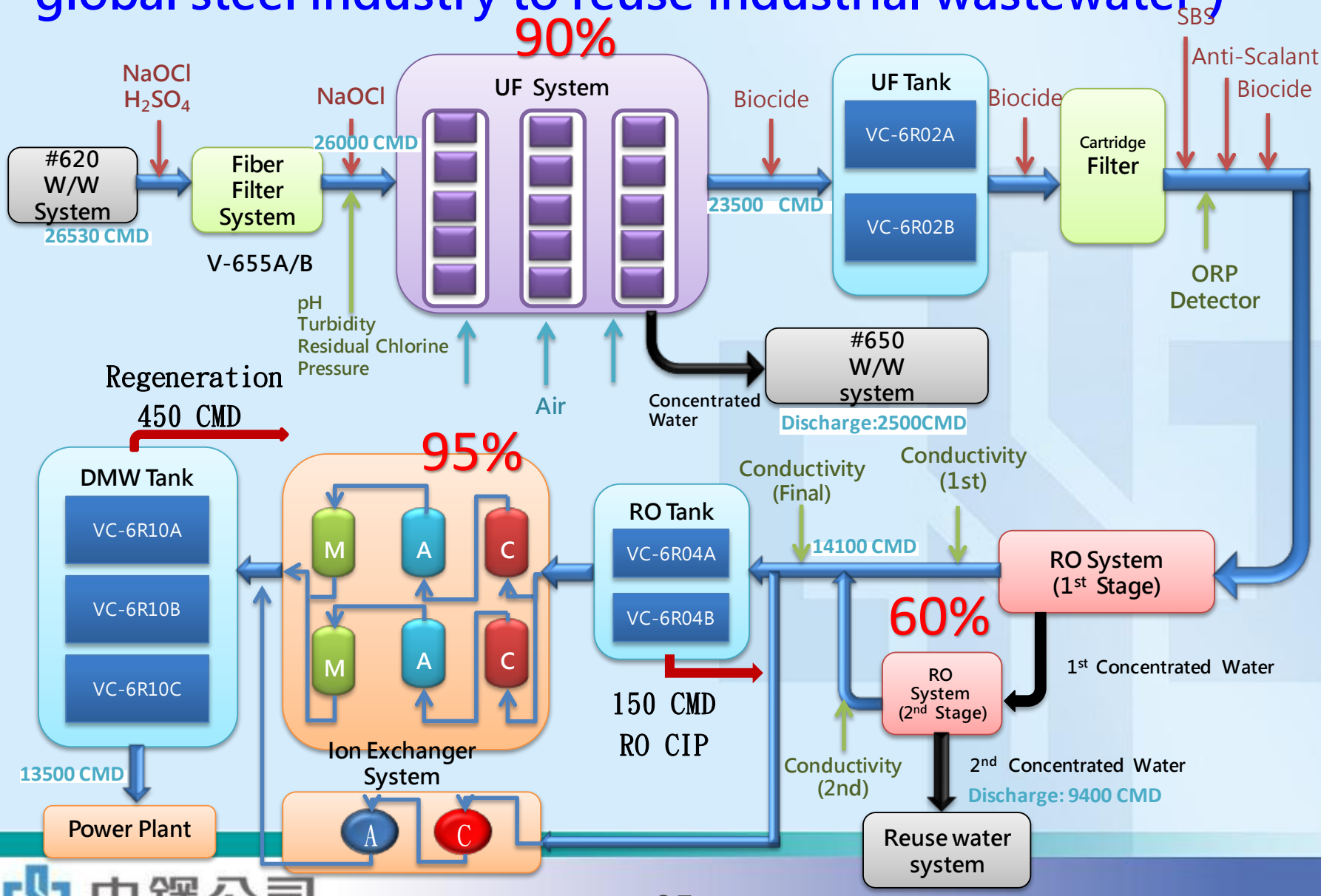
Year	Organization and group awards	Individual awards
1998	W53 water treatment plant	W53 Director Wu Lianfang
1999	NA	W53 Engineer Lin Kuncheng
2000	W53 Water treatment plant	NA
2001	W52 Power plant	NA
2002	W53 Water treatment plant	W5S Engineer Fang Jinzhong
2003	W25 Coal Plant	NA
2005	W53 Water treatment plant	W6M Engineer Zhu Guozheng
2006	W52 Power plant	NA
2007	NA	W25 Engineer Hong Moo-in
2008	W3 Steel Plant	
2009	W4 #1 Rolling Plant	
2010	W53 Water treatment plant	
2012	Y4 #2 Rolling Plant	
2013	Y5 #3 Rolling Plant	
2015	W53 Water treatment plant	
2016	W52 Power plant	
2017	W3 Steel Plant	
2018	NA	
2019	W53 Water treatment plant	NA
2021	Y4 #2 Rolling Plant	

17 times
Water Saving Award of WRA

3. Reduce in-plant wastewater discharge - recycle and reuse

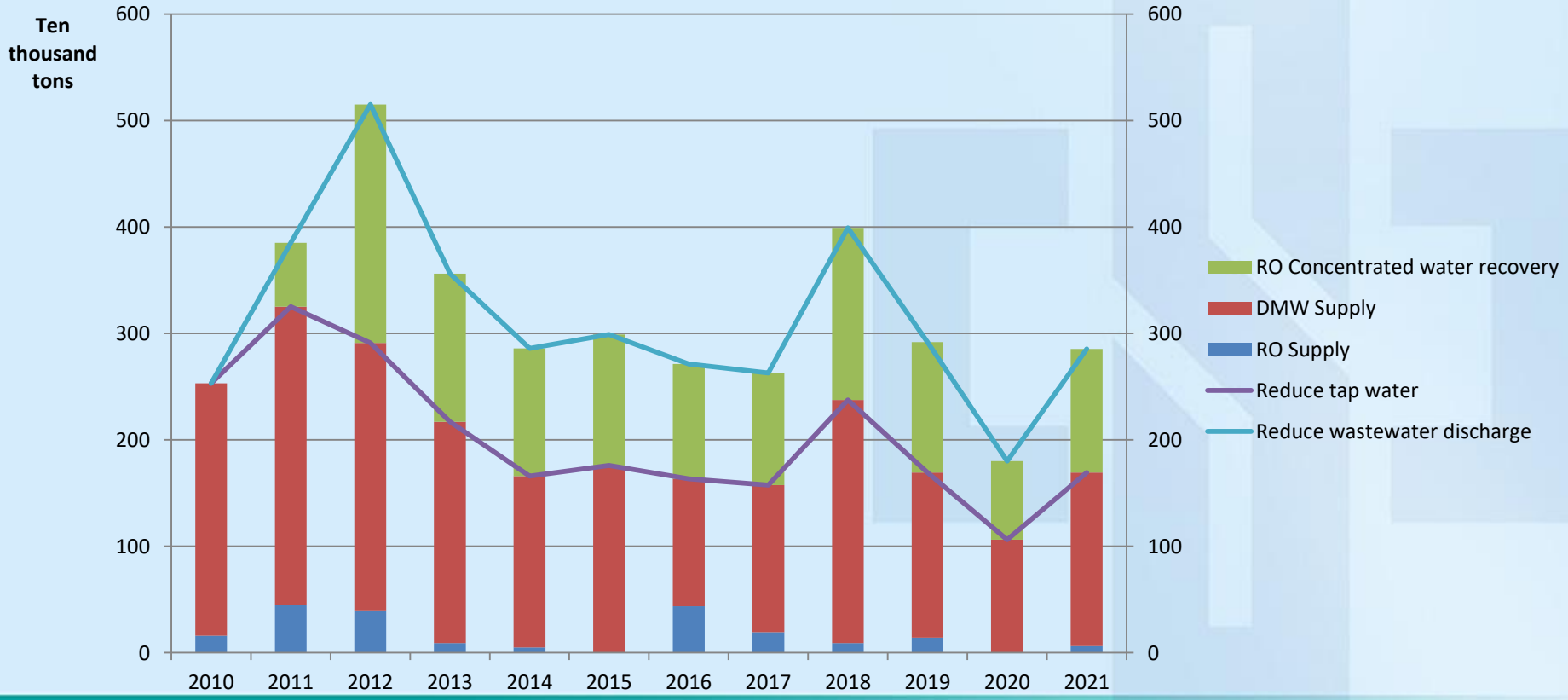


Waste Water Purification plant (The first company in the global steel industry to reuse industrial wastewater)



In-plant Wastewater Purification and Reuse

Water-saving of Industrial WasteWater Purification plants: Statistics from 2010 to 2021, total reduction of tap water consumption: 24.309 million tons, reduction of wastewater discharge: 37.844 million tons.



4. Use off-site Sewage Reclaimed Water

Introduction of Reclaimed Water from Fengshan Creek to CSC Northern Station Raw Water Pool

Introduction of Reclaimed Water from Linhai to CSC Southern Station Raw Water Pool

5. Drought Response Strategies

- Stable supply of water for production

Water Restrictions	Tap water limit (tons/day)	Response Strategies	Save tap water	Cumulative savings tap water volume	Remark
7% water limit	3,932	Stop use non-production water	1,000	3,500	Normal production
		Low pressure water supply	2,500		
11% water limit	6,179	Increase the concentration of circulating water	2,000	5,500	Normal production
15% water limit	8,425	Industrial Wastewater Purification Plant Increases output	2,500	8,000	Normal production
20% water limit	11,233	Increase discharge water reuse for stockpile	1,000	9,000	Normal production
		Reclaimed water supply increased to 43,000 tons/day	2,000	11,000	Normal production
25% water limit	14,042	Reclaimed water supply increased to 46,000 tons/day	3,000	14,000	Normal production
30% water limit	16,850	Start emergency outsourcing water source	(3,000)	(17,000)	Transport water by vehicle

E. Conclusion

(1) CSC to develop from a single tap water source to a strategy of multiple water sources.

(2) CSC's water resources action plan is to improve water efficiency, use sewage reclaimed water to replace tap water, and implement water-saving management to achieve the vision of sustainable development of water resources.

(3) Due to CSC's advanced deployment of the results of the introduction of sewage reclaimed water, large enterprises in other industries, such as TSMC and CPC, will also follow this trend, continuing to move towards the challenging goal of "positive water resources". It is hoped that through the industry's effective management and reuse of water resources, it will become the best model in ESG.

THANKS FOR YOUR ATTENTION