

2021 TCC

ESG REPORT

THE FUTURE IS WORTH IT



EARTH HELPER

*is a basic attitude toward life for each one of us
to share commonly the Earth Planet.*

*So many small living beings need to be nourished by nature
or need the helping hand of human beings.*

TCC sees it, and we are doing it!

Nelson An-ping Chang
Chairman

THREE CORE BUSINESSES



TCC GROUP

A green environmental engineering company
dedicated to handling the complex relationship
between human civilization and Nature

Capital
NT\$70 Billion

Market Value
NT\$294 Billion

In 2021
EPS NT\$3.3

Ranked
in the world
No. 12¹
A cement
production of
**76.94 Million
Metric Tons**

¹ Source: <https://www.ccement.com/> (2021/12/04)

GLOBAL OPERATIONS

🎯 Taiwan Cement Corp.

🔗 TCC's Joint Venture

⚡ New Energy

Netherlands
Taiwan Cement
(Dutch)
Holdings

Amsterdam
Operation
Headquarters

Portugal
Cimpor
Portugal
Holdings

Italy
NHQA

Cameroon
Cimpor
Cameroun
Kribi

Côte d'Ivoire
(Ivory Coast)
Cimpor
Côte
d'Ivoire
Abidjan

Türkiye
OYAK
Çimento

Canada
E-One Moli
Energy
(Canada)

Operation
Headquarters

MAINLAND
CHINA

TAIWAN

Cement Plant 

- ① Liaoning ② Jurong ③ Yingde ④ Longshan
- ⑤ Shaoguan ⑥ Guigang ⑦ Huaihua
- ⑧ Jingzhou ⑨ Baoshan ⑩ Anning ⑪ Gangan
- ⑫ Kaili ⑬ Anshun ⑭ Guangan ⑮ Xuyong
- ⑯ Huaying ⑰ Chongqing ⑱ Dai County
- ⑲ Suao ⑳ Hoping ㉑ Hualien

Grinding Station 

- ① Fuzhou ② Liuzhou ③ Naxi

RMC Plant 

- ① Taipei ② Tucheng ③ Guishan ④ Taoyuan ⑤ Taoyuan 2
- ⑥ Bade ⑦ Zhongli ⑧ Zhongli 2 ⑨ Hsinchu ⑩ Yilan ⑪ Taichung
- ⑫ Shengang ⑬ Dadu ⑭ Taiping ⑮ Caotun ⑯ Chiayi ⑰ Shanhua
- ⑱ Anping ⑲ Xinshi (operational till April 30, 2021) ⑳ Tainan
- ㉑ Luzhu ㉒ Kaohsiung ㉓ Nanzih ㉔ Siaogang ㉕ Hualien

New Energy 

- ① Changbin Green Energy ② Chiayi Green Energy ③ E-One Moli Energy Corp.
- ④ Moli Quantum Energy ⑤ Changbin Energy Storage ⑥ Vakangan Geothermal
- ⑦ Hualien OTEC



ECO-FRIENDLY CEMENT

Carbon Reduction Verification

The first Carbon Footprint
Reduction Label of cement
Taiwan EPA Gold-rated Green Mark



RENEWABLE ENERGY

Multiple Energy Creation

Combo wind and solar power plant
Fishery and electricity symbiosis,
geothermal and ocean thermal conversion



RMC TRACEABILITY

Transparency / Real-time Traceability

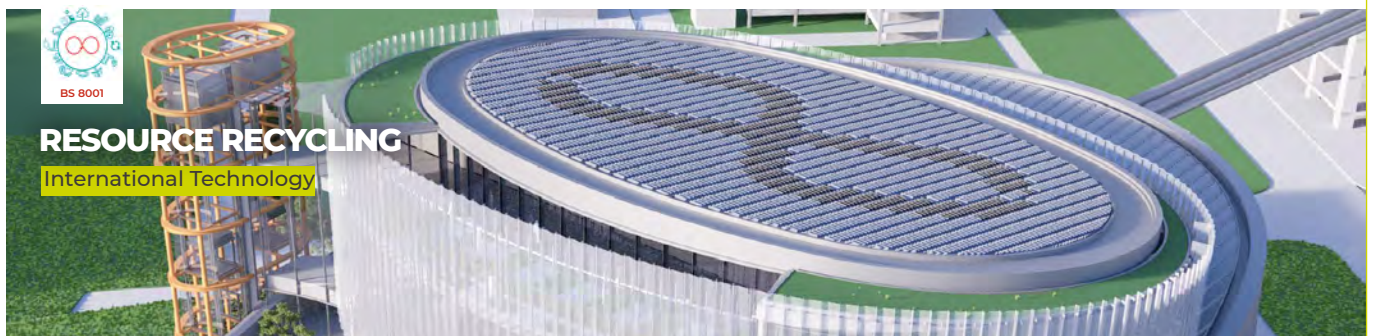
Six quality assurances & third-party
certification by SGS and TCRI



SMART ENERGY STORAGE

Response & Output within Millisecond
Giga storage / Industrial Solutions

GREEN PRODUCTS AND SERVICES



RESOURCE RECYCLING

International Technology



ULTRA-HIGH PERFORMANCE CONCRETE (UHPC)

Green Construction Materials

Extend life span of buildings to 100-120 years
Product application - Energy storage cabinet:
→ High mechanically-compressive strength
→ Fire and explosion resistance
→ 40% reduction of carbon emission

HIGH POWER CELLS

Advanced Lithium Battery

4.5Ah high capacity 100W high-rate
discharge

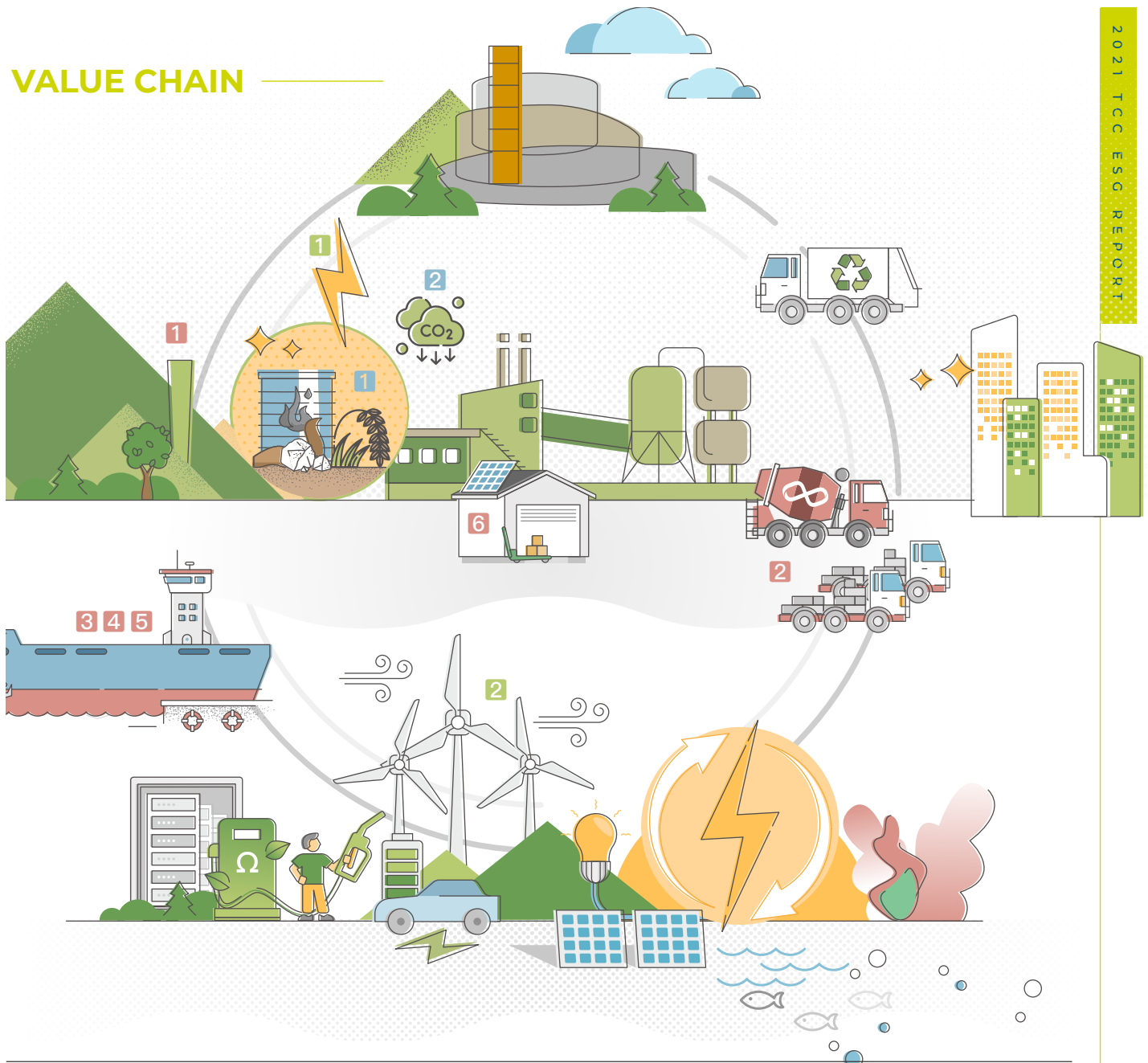


CHARGING SERVICE

New Energy, New Lifestyle

Combined green energy, battery,
energy storage, and EV fast charging
services

VALUE CHAIN



SCOPE 1

1 Alternative Raw Materials/Fuels

21.82% alternative materials used

↓ 72,841 metric tons CO₂e

- 22% alternative raw materials
- 11% alternative fuels

10% of fuels from biomass in 2025

2 Carbon Capture

100,000 metric tons /year by 2030

SCOPE 2

1 Power Generation by Waste Heat Recovery

31% reduction of the purchased electricity

↓ 70,373 metric tons CO₂e

2 Renewable Energy

Estimated by the end of 2023

— 7,644 kW installed capacity for self-consumption
↓ 4,500 metric tons CO₂e/year

— 190 MW installed capacity, 288 million kWh renewable electricity generation
↓ 144,000 metric tons CO₂e

SCOPE 3

1 Vertical Shaft Mining

↓ 23,000 metric tons CO₂e/year

2 140 arrangements of return vehicles

— 297 fifth-phase environmental vehicles
↓ 3,929 metric tons CO₂e

3 Alternative Maritime Power (AMP) System

↓ 4,486.4 metric tons CO₂e/year

4 1,486 arrangements of return ships

↓ 37,825 metric tons CO₂e

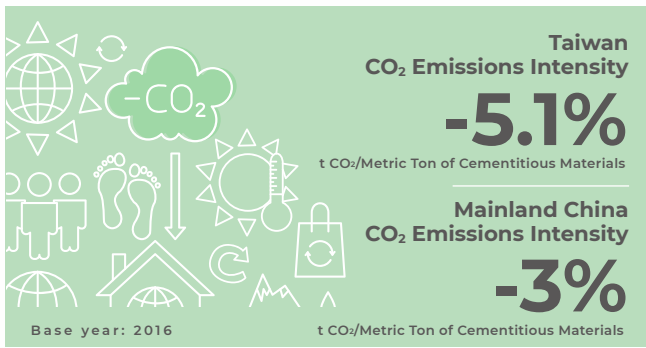
5 11 environmental vessels

↓ 20% of CO₂e/year

6 Smart Warehouse

↓ 6.37 metric tons CO₂e/year

ESG HIGHLIGHTS 2021



Reused Cement (Alternative Materials Used)
per Metric Ton

21.82%



Waste Recycling
Taiwan

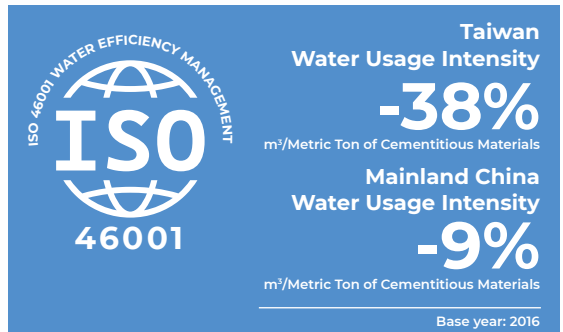
1.141 Million
Metric Tons

Mainland China

8.069 Million
Metric Tons

	Taiwan	Mainland China
NOx	-26%	-47%
SOx	-3%	-66%
TSP	-56%	-61%

Base year: 2016



Energy Storage

Global Energy Storage
Capacity by 2024

2.9GWh

Energy Transmission

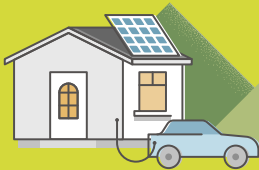
Advanced Lithium Battery Production
Capacity by 2024

3.3GWh/year

Energy Creation

Renewable Energy Installed
Capacity

Accumulated until 2023
Over **190MW**



+86.64%

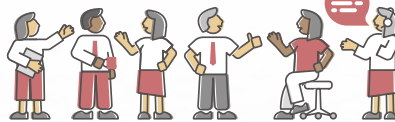
Female
Mangers
+11.5%

Disabled
Employees
Hired
+13%

Employees
with Indigenous
Origin Hired
+5%

0

Work-Related
Fatality



31%

Retirees in the
Medical, Accident,
and Life Insurance
Schemes

2017-2021

Childbirth Subsidies, Childbirth
Bonuses & Maternity Allowance
Over

NT\$ 1 Million

Waste Heat Recovery Efficiency
Compared to 2018



Indigenous Plant
Species at Mining Areas
(Hoping & Suao)

88%

Community
Development
Contributions

NT\$ 1.02 Billion
2017-2021



Social Welfare
Contributions

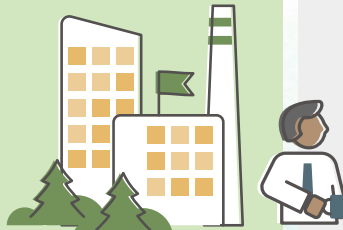
NT\$328 Million

61.5%

Critical Tier 1 Suppliers
GHG Inventory

Products Used on
Green Building

11.2%



Chief
Information Security
Officer Appointed



Trainings on Ethical
and Moral Standards
Covering
100% Employees

ESG TARGETS AND STRATEGIES

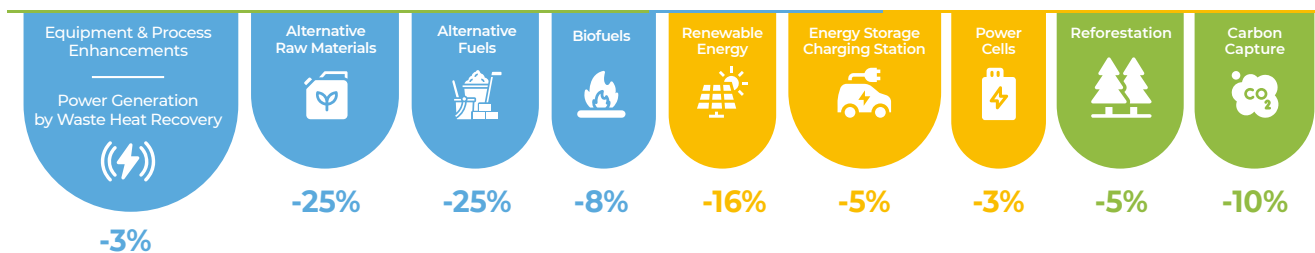
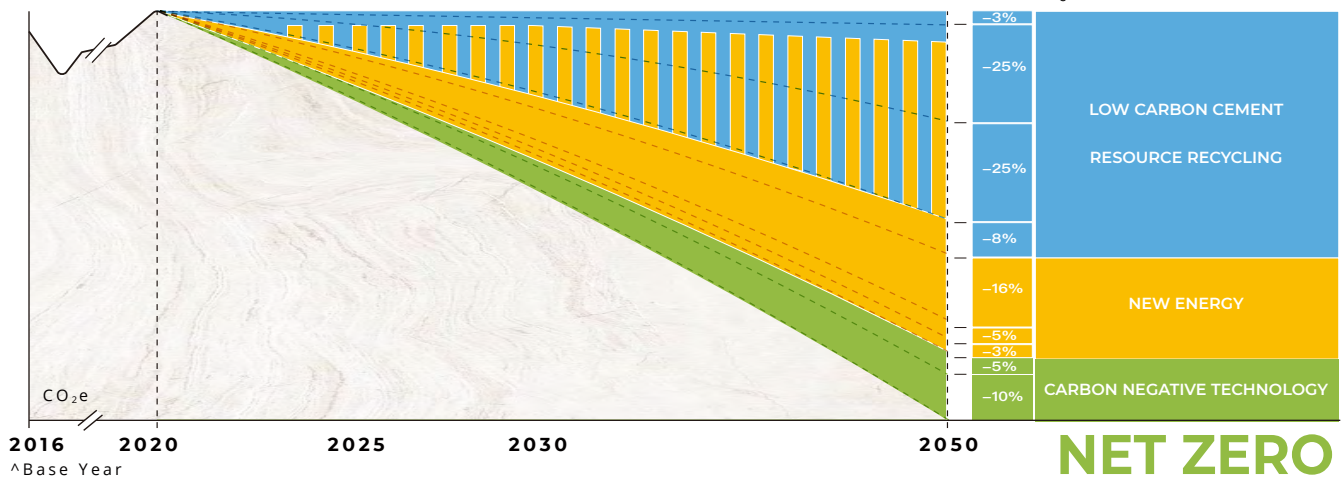
ENVIRONMENTAL



GHG MANAGEMENT

TCC Group Roadmap to Net Zero by 2050

Source: TCC 3Q21 Investors' Conference



✓ 100% Groupwise GHG Inventory

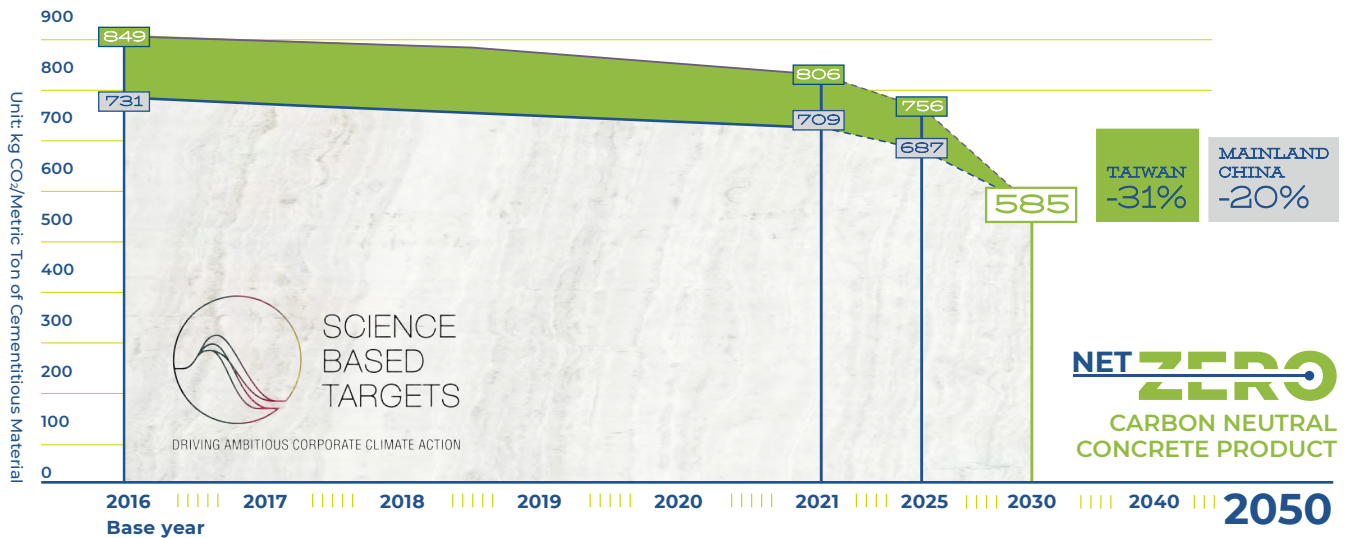
ISO	Cement Plant	RMC Plant	Operation
14001	☑	☑	☑
14064	☑	100% of the factory GHG inventoried in 2022	Headquarters (R&D Department included)
14067	☑	☑ Taichung Plant 100% of the factory GHG inventoried in 2022	N/A

✓ Internal Carbon Pricing (ICP) is Promoted to Optimize Capital Investment for Carbon Reduction

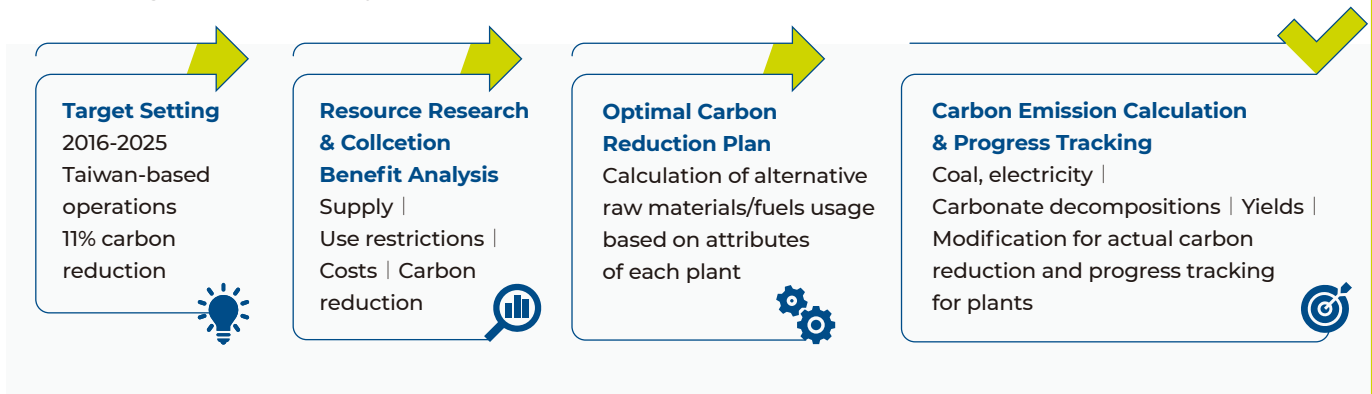
ICP: Carbon prices are stipulated with reference to the laws or regulations internationally, in Taiwan, and areas of operation

Internal carbon trade: In 2022, the carbon credits is allocated based on the respective production capacity, with which the carbon reduction action is taken

Carbon Neutrality of Concrete Product by 2050



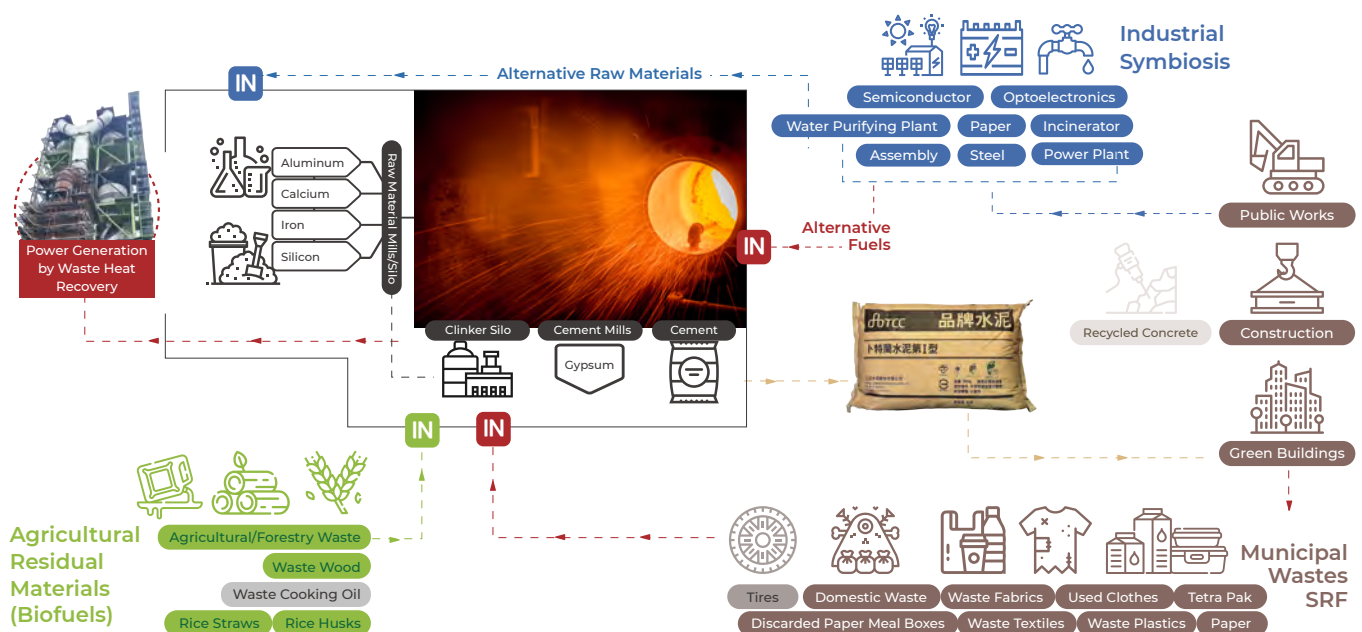
- ✓ **AI Carbon Reduction Management System, combining big data, machine learning and product life cycle assessment**



RESOURCE RECYCLING

Resource Recycling Model

- ✓ **TCC assisted in treating 1.141 million metric tons of wastes, equivalent to 5.5% of the total industrial waste in Taiwan**



ENERGY EFFICIENCY AND GREEN ENERGY DEVELOPMENT

Committing to EP100



CLIMATE GROUP
EP100

- ✓ 100% cement plants obtained ISO 50001 certification

In response to

RE 100

- ✓ Available spaces are inventoried and installed with PV panels
- ✓ For the fulfillment of green power needs of companies in Taiwan

EV 100

- ✓ Company cars are being replaced with EVs

TCC also plans to introduce electric RMC trucks

WATER MANAGEMENT

- ✓ The First ISO 46001 Certified Cement Company in the World

Cement Plants

- ▶ 100% cement plants certified to ISO 14046 and ISO 46001
- ▶ AI water footprint management system

Supply Chain

- ▶ Water Issues added in the 2021 Supplier Sustainability Questionnaire

RMC Plants

- ▶ 100% rainwater and process water reclamation and recycling treatment equipment installed to all RMC plants in order to achieve the goal of zero discharge

Cement Plants in TAIWAN

Water Usage Intensity Target

by 2030

-50%

m³/Metric Ton
of Cementitious Materials
Base year 2016

Cement Plants in MAINLAND CHINA

Water Usage Intensity Target

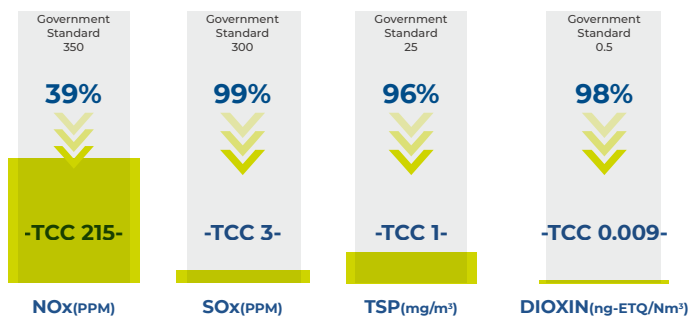
by 2030

-30%

m³/Metric Ton
of Cementitious Materials
Base year 2016

EMISSION MANAGEMENT

- ✓ Air Emissions Way Below Regulations Standards Continuous Emission Monitoring Systems (CEMS) Installed



Regulated Standard for NOx, SOx, TSP and Dioxin is emission intensity

TAIWAN

	NOx	SOx	TSP
2021 Progress on Track	✓	✓	✓
2025 Target	-50%	-30%	-50%
2030 Target	-70%	BACT Minimum	BACT Minimum

MAINLAND CHINA

	NOx	SOx	TSP
2021 Progress on Track	✓	✓	✓
2025 Target	-50%	-60%	-60%
2030 Target	-70%	-70%	BACT Minimum

Compared to the 2016 level

BIODIVERSITY

- ✓ No Deforestation Commitment and

100%
Biodiversity
Management Plan



- ✓ 88% Indigenous Plant Species at Mining Areas (Hoping and Suao), 60 Hectares of Vegetation Restored

- ✓ Hoping EcoPort Coral Eco-Creation with 288 Corals Restored and a 99% restoration rate



ESG TARGETS AND STRATEGIES

SOCIAL



DIVERSITY IN THE WORKPLACE

Female
in Management

+11.5%



Employees
with Disabilities

+13%



Employees of
Indigenous Origin

+5%



24 Nationalities
of the employees
of TCC Group



GENDER EQUALITY

By 2025 Share of Women in

18%	Total Workforce
25%	All Management Positions
25%	Junior Management Positions
25%	Top Management Positions
4.5%	Management Positions in Revenue-Generating Functions
35%	STEM-Related Positions

TALENT CULTIVATION AND DEVELOPMENT

- ✓ **MIT – Industrial Liaison Project**
TCC MA training program, covers contents of digital transformation, big data, AI and IoT, etc. to cultivate a broad and innovative perspective for the talents

Employee Education & Trainings Annual Budget

+14%
Total Hours
80,357.8

for non-fixed term contract employees
Compared to 2020

- ✓ **E&E professional work study program**

Work with the high schools and vocational schools in Hualien

- ▶ Train professionals in E&E
- ▶ Mentor the local youth to obtain professional certificates
- ▶ Offer a priority employment mechanism and create job opportunities

OCCUPATIONAL HEALTH AND SAFETY TARGETS



100% of operating
sites obtained
ISO 45001
certification

**Health & Safety
Efforts and Goals**
**Occupational
Deaths of Employees**



- ✓ 2021 TCC launched the Occupational Safety Monthly report mechanism
- ✓ The Occupational Safety and Health Committee convenes quarterly and monitors the results together with labor representatives

✓ 100% of Employees in TCC Group Entitled to Non-Compensation Benefits

Physical and Mental Benefits

Travel subsidies
Study subsidies
Employee Assistance Program
Club subsidies

Medical Benefits

Medical subsidies
(dental and hospitalization)
Health checkup subsidy
Childbirth subsidy

Family Support Benefits

Maternity allowance
Scholarships for employees' children
Marriage gifts
Retirement benefits
Funeral consolation payments

VARIABLE COMPENSATION

✓ 100% of employees in TCC group are entitled to quarterly and performance bonuses.

The performance indicators tied with sustainability topics

- ▶ Corporate governance
- ▶ Overall operation
- ▶ Occupational safety
- ▶ Eco-friendly sewage discharge
- ▶ Energy-saving and emission reduction
- ▶ Quality management
- ▶ Information security, etc

HUMAN RIGHT

"TCC Human Rights Policy" in force at TCC in compliance with the human rights conventions of the United Nations and International Labour Organization, regardless of race, gender, religion, or disabilities

100% completion of human rights education/trainings for employees with regulations and grievance channels stipulated

The online reading rate achieved 100% in 2021 with a total of 2,899 readings

SOCIAL IMPACT

✓ EARTH HELPER

With SDG 17 as its core agenda, TCC works to unite partners committed to sustainability across sectors, ushering in a new greener life by collective and concerted actions for common interests



✓ TCC DAKA Open Eco-Factory

SROI 3.54
TCC DAKA Social Impact Evaluation
SOCIAL VALUE
INTERNATIONAL

Empowerment
Up to
NT\$75,000
Per Capita in Average

Earmarked Emergency Aids of Hoping Sustainability Fund: 100% of income of TCC DAKA are dedicated to the "Hoping Sustainability Foundation" as of 2022

EMPLOYEES EQUITY PLAN

100% of Employees Eligible for Employee Stock Ownership Program (ESOP)

- ✓ Where an employee procures shares of TCC with monthly salary, TCC will disburse an equal amount to the dedicated trust account
- ✓ The ESOP participation in 2021 was up to 97.05%
- ✓ The 36.6% of employees with outstanding performance are entitled to Treasury Shares Program

NON-COMPENSATION BENEFITS

✓ Parenting Support Plan Launched & Maternity Bonus Disbursed

- Subsidizes NT\$10,000 for the first childbirth, NT\$20,000 for the second, and NT\$50,000 for the third, to relieve the parenting burden for the employees
- The maternity of NT\$330,000 in total disbursed was disbursed in 2021, and over a million NTD has been disbursed cumulatively thus far (2017-2021)



✓ Pioneering Two-Track Retirement Benefits

- The ESOP bonus contribution are doubled for employees aged 60 or above
- 31% of the retired employees are covered by the three-insurance schemes (i.e. medical, accident, and life insurances)

✓ Hybrid Agility to Work Plan

- Benefits like "Paid Family Care Leave," "WFH Model," and "Cross-time-zone Shift" available
- Initiated in October 2021 with 121 employees benefited and a total of 5,031 hours granted





ESG TARGETS AND STRATEGIES

GOVERNANCE

BOARD OF DIRECTORS

Board Seats

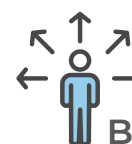
Reduce to 15 from 19

-21%

Independent Directors are

FEMALE 60%

Increase from 25% to 60%

Diverse
Backgrounds

Audit



Remuneration

Risk
ManagementSustainable
Development**ESG**

-related courses

122Hours

Functional Committees

Title	Name	Gender	Age 31-50	Age 51 or above	Time on the Board (Year)	Functional Committee			
Chairman	An-ping (Nelson) Chang	M		●	28				■
Director	Chi-Chia Hsieh	M		●	19				
Director	Chi-Te Chen	M		●	37				
Independent Director	Yu-Cheng Chiao	M		●	10	■	■		
Director	Chien Wen	M		●	4				
Director	Chun-Ying Liu	F	●		4				
Director	Jong-Peir Li	M		●	4				■
Director	Kang-Lung (Jason) Chang	M		●	10				
Director	Kenneth C.M. Lo	M		●	10				
Director	Kung-Yi Koo	M	●		5				
Independent Director	Lynette Ling-Tai Chou	F		●	4	■	■	■	
Independent Director	Mei-Hwa Lin	F		●	>1	■	■		
Director	Por-Yuan Wang	M		●	13				
Independent Director	Shiou-Ling Lin	F		●	>1	■	■	■	
Independent Director	Victor Wang	M		●	9	■	■	■	■

■ Audit Committee ■ Remuneration Committee ■ Risk Management Committee ■ Corporate Sustainable Development Committee

Note : Both Directors Mei-Hwa Lin and Shiou-Ling Lin are new Independent Directors in the 24th Board of Directors with a tenure from 5 July 2021 to 4 July 2024. All members on the 24th Board of Directors at TCC are citizens of the Republic of China (Taiwan).

RISK MANAGEMENT

- ☒ **7 aspects of risk assessment & introduction of TCFD framework**
 - Risk identification regularly/from time to time each year
 - Climate risk scenario analysis completed, with **TCFD Report** to be released in H2 2022
- ☒ **Stipulation of Directions Governing Group Tax Policy and Management**
 - Board of Directors as the highest tax management decision-making/oversight body and the General Administration Division as the tax management body
 - Compliance with tax laws and regulations, truthful tax reporting and payment, information transparency, mutual trust, and honest communication
 - Prudent evaluation of tax risks and impacts, elevation of tax professionalism, and talent trainings

ETHICAL MANAGEMENT



In 2021, TCC became
**the first domestic
Cement enterprise**
that obtained the certification
of ISO 37001 Anti-bribery
Management Systems

✓ **Anti-bribery management system whistleblower protection system established**

- The Reporting Mechanism for Violation of Code of Conduct was amended to introduce whistleblower protection
- The Audit Committee was listed as the additional reporting channel for misconduct involving the senior management if any

✓ **All-round Ethical Management Education & Trainings**



New recruits

part-time and casual employees included

- Sign on “Code of Integrity and Ethics Statement”
- One-on-one policy elaboration
- 100% signing rate of all new recruits was achieved in 2021



Directors

- Receive the training course materials once a year
- Sign on the “Letter of Commitment for Compliance with Ethical Management, Anti-corruption, and Anti-Bribery”
- ALL Directors have finished in 2021



Suppliers

- Sign on the Supplier Code of Conduct, in which items related to ethical management are included



Active employees

part-time and casual employees included

- Participate in the training courses regularly
- 134 hours of anti-corruption education and trainings took place in 2021



Contractors

- Courses are scheduled to be completed by the end of June 2022
- Trainings for outsourcers (e.g., the security guards) are scheduled to be completed in 2022

SECURITY GOVERNANCE



Digital Governance

Chief
Information
Security Officer
Appointed



**Non-conformities
in 2021**

**Products Used
on Green Building**

↑60%

Compare to 2020

Client
Satisfaction

96.67%

SUPPLY CHAIN MANAGEMENT

✓ **AI-powered Procurement Portal
Improvement of Supplier Selection Quality and Risk Management of Materials**



High Risk
Suppliers Blocked

- AI-powered supplier selection, cutting 63 min. per tender on average; an estimated 13,703 work hours or 1,713 workdays saved in 2021
- An estimated 1.9575 million sheets of paper saved, equivalent to 14.094 metric tons of CO₂e reduced

✓ **Supply Chain Sustainability**

	Target	Progress
Locally-procured non raw materials	95%	93.48%
New suppliers that signed the Supplier Code of Conduct	100%	100%
Existing critical suppliers that signed the Supplier Code of Conduct	80%	86.46%
Contractors that signed the Letter of Undertaking for Health, Safety, and Environment (HSE)	100%	100%
Inspections conducted to Critical Tier-1 Supplier (Document review and on-site inspection)	100%	100%
On-site inspections conducted to the Critical Tier 1 Suppliers in three years	80%	65.1%
GHG inventory completed for the Critical Tier 1 Suppliers by 2023	100%	61.5%

“Energy is absolutely the key to the future development worldwide. From energy creation to energy saving and energy storage, TCC embraces the living of new energy and new ecology. The mindset shall be shifted from conquering nature into co-living, co-existing and co-thriving with nature.”

~Nelson An-ping Chang, Chairman

NHQA ESG HIGHLIGHTS

GOVERNANCE

- Creation of the Sustainability Committee
- Supports UN Global Compact
- Adoption of the new Code of Ethics
- Implementation of Ethics mandatory trainings for all employees

ENVIRONMENT

- Servers are hosted in Green Data Centers that use 100% renewable energy
- Partnership with Eden Reforestation Projects to offset CO₂ emissions
- The first 100% zero carbon emissions micro-grid in the world

SOCIAL



Support to
“STEM female scholarship”
 of the University of Milan
 offering the 3-year
scholarship program
 for students

- **20%** variable compensation tied with fitness indicators to encourage employee to exercise
- Target for the ratio of female employees: 10 folds of growth by 2025

- Care for the work-family balance of employees with work reformation in the aspects of technology, flexibility, family, health, and parenting, which is recognized as a best practice by Fondazione Vigorelli



ISO CERTIFICATION

NHQA : The Symbol of a Wonderful Future

NHQA drives its name of “Noah” from the biblical story Noah's Ark. Although the spelling is different, they pronounce the same way. The figure of Noah epitomizes mankind's epoch-making moment after the Great Flood. The line below the NHQA brand identifier symbolizes a new vision. Ω, one of the Greek alphabets resembling the rising sun to take the place of O, is also the unit of electrical resistance in Ohm's law. Facing the new horizon of green energy, NHQA confers on the brand a new beginning and mission, namely to live in harmony with the Earth and create a better future for the generation to come.

NHΩA



TCC SUSTAINABILITY PERFORMANCE

ENVIRONMENTAL PERFORMANCE

Carbon Emissions		UNIT	2018	2019	2020	2021
TAIWAN						
CO ₂ Emissions	Metric Tons CO ₂ e		4,501,739	4,519,991	4,647,231	5,048,912
Scope 1			4,230,680	4,268,620	4,413,285	4,798,945
Scope 1 (Cement Plants)			4,228,688	4,266,390	4,411,086	4,797,296*
Scope 1 (RMC Plants)			1,992	2,088	2,059	1,517
Scope 1 (Operation Headquarters)			-	142	140	132
Scope 2			256,018	229,346	210,612	220,392
Scope 2 (Cement Plants)			247,702	223,096	202,312	212,407*
Scope 2 (RMC Plants)			6,144	5,010	7,101	6,866
Scope 2 (Operation Headquarters)			2,172	1,240	1,199	1,119
Scope 3			15,041	22,025	23,334	29,575
Scope 3 (Cement Plants)			15,041	21,083	22,427	28,761
Scope 3 (Operation Headquarters)			-	942	907	814
MAINLAND CHINA						
CO ₂ Emissions	Metric Tons CO ₂ e		-	32,676,037	32,512,981	26,962,075**
Scope 1			-	31,362,071	31,255,099	25,867,678
Scope 2			-	1,313,966	1,257,882	1,094,397
Energy Efficiency & Renewable Energy						
TAIWAN						
Energy Consumption	GJ		17,497,691	17,824,559	17,889,547	19,329,594
Energy Consumption (Cement Plants)			17,417,060	17,749,292	17,798,487	19,248,118***
Energy Consumption (RMC Plants)			66,944	62,203	78,389	69,422
Energy Consumption (Operation Headquarters)			13,687	13,064	12,671	12,054
Self-consumption Renewable Energy			92.79	166.59	329.97	982.224
Electricity from Waste Heat Recovery			266,738	361,206	428,486	497,725
MAINLAND CHINA						
Energy Consumption	GJ		-	150,154,519	147,378,343	121,363,307
Electricity from Waste Heat Recovery			4,743,115	4,653,785	4,620,139	3,723,552
Alternative Materials and Fuels						
TAIWAN						
Alternative Fuels Used	%		8	8	10	11
Alternative Materials Used			19	19	23	22
Clinker Content in Cement			95	94	93	93
MAINLAND CHINA						
Alternative Fuels Used	%		3	4	5	4.8
Alternative Materials Used			10	17	20	20
Clinker Content in Cement			81	81	81	79.6
Toxic Emissions						
TAIWAN						
NO _x Emissions	Metric Tons		6,744	6,388	6,164	6,473
SO _x Emissions			85	79	106	113****
TSP Emissions			643	305	249	214
Direct Mercury Emissions			-	0.221723	0.27546	0.27876
VOC Emissions			0.00636	0.00616	0.00457	0.00422

*In 2021, based on the cementitious materials yield of 6,215,232 metric tons in Taiwan, the greenhouse gas emission intensity was 0.806 t CO₂/metric ton of cementitious materials, which decreased 5.1% compared to 2016 (base year).

**In 2021, based on the cementitious materials yield of 38,038,645 metric tons in Mainland China, the greenhouse gas emission intensity was 0.709 t CO₂/metric ton of cementitious materials, which decreased 3% compared to 2016 (base year).

*** In 2021, the unit energy consumption was 3.087 GJ/metric ton of cementitious materials, which decreased 1.3% compared to 2020.

**** In 2021, the emission intensity of NO_x, SO_x and TSP per ton of clinker decreased 26%, 3% and 56% compared to 2016.

MAINLAND CHINA		UNIT	2018	2019	2020	2021
NOx Emissions	Metric Tons		-	14,973	12,089	9,908
SOx Emissions			-	1,632	1,293	997
TSP Emissions			-	1,051	827	569
Direct Mercury Emissions	mg/m ³			<0.0001	<0.0001	0.005
Water						
TAIWAN						
Water Usage Intensity	m ³ /Metric Ton of Cementitious Materials		0.43	0.38	0.36	0.30
MAINLAND CHINA						
Water Usage Intensity	m ³ /Metric Ton of Cementitious Materials		0.34	0.33	0.33	0.32
Environmental Investments						
TAIWAN	Million NT\$		64.00	180.00	210.00	212.00
MAINLAND CHINA	Million CN ¥		-	-	384.00	557.00

SOCIAL PERFORMANCE

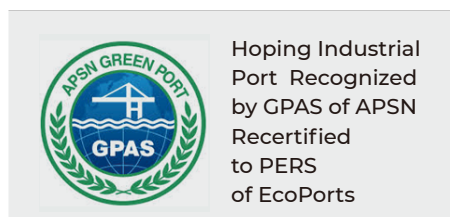
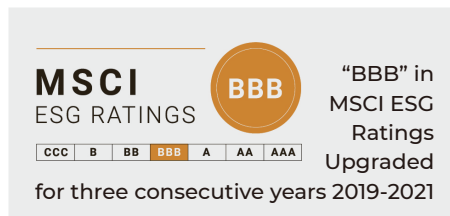
Diversified Workforce		UNIT	2018	2019	2020	2021
TAIWAN						
Share of Employees with Disabilities	%		1.50	1.10	1.50	1.70
Share of Employees with Indigenous Background			4.70	5.20	6.10	6.40
Gender Equality						
TAIWAN						
Share of Women in All Management Positions	%		22.75	23.22	23.49	26.21
Share of Women in Junior Management Positions			23.50	23.02	23.35	26.88
Share of Women in Top Management Positions			15.38	25.00	25.00	20.00
Share of Women in Management in Revenue-Generating Functions			4.14	4.52	3.83	4.37
Share of Women in STEM-Related Positions			33.33	33.87	34.41	35.20
Employment						
TAIWAN						
Turnover Rate	%		11.03	9.28	6.48	8.20
Open Positions Filled by Internal Candidates			14.40	18.40	18.85	22.90
Employee Engagement Rate			-	93.10	94.30	94.30
MAINLAND CHINA						
Employee Engagement Rate	%		-	-	97.50	97.50
Training and Education						
TAIWAN						
Average Hours of Trainings	Hours		130.67	115.97	81.04	70.90****
Average Amount Spent on Training	NT		-	27,525	18,997	20,659
Philanthropic Contributions						
TAIWAN	NT\$		32,829,833	29,297,191	53,855,534	145,341,540
HEALTH AND SAFETY						
TAIWAN						
LTIR	%		0.22	0.18	0.14	0.11
TRIR			0.25	0.20	0.16	0.11
Mainland China						
LTIR	%		0.39	0.28	0.15	0.11
TRIR			0.40	0.30	0.16	0.12

**** In 2021, as affected by the pandemic, in-person lectures were suspended. The online learning platform "TCC Lyceum" was hence launched, offering a wide diverse of contents.

GOVERNANCE PERFORMANCE

Board of Directors		UNIT	2018	2019	2020	2021
Directors	Persons		19	19	19	15
Executive Directors			3	3	3	3
Non-Executive Directors			16	16	16	12
Independent Directors			4	4	4	5
Female Directors			2	2	2	4
Non-Executive Members with Industry Experience			5	5	5	2
Average Attendance Rate of Board Meetings	%		83.46	84.21	87	96
Economic Performance						
Operating Revenue	Million NT\$		124,594.6	122,783.0	114,367.2	107,041.5
Profit before Tax			30,544.4	32,633.4	35,353.3	26,078.1
Income Tax Expenses			7,900.4	7,178.3	7,361.9	5,930.4
Income Tax Paid			4,355.8	6,435.0	7,758.9	7,509.1
Sustainable Construction						
Revenue Share of Concrete Used on Green Buildings	%		3.2	4.4	7.0	11.2
Clinet Satisfication						
TAIWAN						
Satisfaction Survey Results	%		91.4	96.7	95.1	96.8
MAINLAND CHINA						
Satisfaction Survey Results	%		92.0	93.7	95.6	95.0
Policy Influence						
Organization/Association Participation	NT\$		10,951,743	10,936,559	11,832,811	12,286,514

HONORS IN 2021



Taiwan Cement Corporation (TCC) stands for two sustainability commitments: Total Climate Commitment & Total Care Commitment for the mutual benefit and harmony with Earth and life.

TCC ESG report follows the standards of Global Reporting Initiative (GRI), Sustainability Accounting Standards Board (SASB), Task Force on Climate-related Financial Disclosures (TCFD) and includes TCC's material issues which our stakeholders concern.

