

Life Resilience

Yunnan Bletilla orchid (*Bletilla formosana* (Hayata) Schltr.) is a unique native orchid species of Taiwan. It blooms again in the limestone terrain of the mountains at over a thousand meters after being carefully restored by TCC and Dr. Cecilia Koo Botanic Conservation Center (KBCC). The orchids on the rock walls are a response to extreme environments, a result of the ongoing dialogue between the vitality of life and environmental pressures. TCC has long focused on the interaction between humans and nature. Over the past seven years, TCC has been committed to energy transition, low-carbon production, and waste management, as our adaptive response to climate change. Just like the rebirth of Yunnan Bletilla orchid in the mines, the industry is also seeking its ecological position.



ABOUT THE REPORT

This Report is written based on the TNFD LEAP methodology for TCC Group Holding’s (hereinafter referred to as “TCC”) Taiwan cement plants, mines, its subsidiary Hoping Power, and Hoping EcoPort, and also presents content related to the operations in Mainland China and the Dr. Cecilia Koo Botanic Conservation Center (KBCC).

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EDITOR’S ADDRESS

The poetry of Chairman Nelson An-ping Chang: “Water wells in spring; clouds changes in summer; the moon lofts in autumn; mountains delight in winter.” Earth’s beauty changes in seasons unveil the chapter of TCC TNFD Report. Spring, the beginning of the seasons, sowing the seeds of natural restoration; summer, the flourishing and growth of all creatures; autumn, enjoying the colorful world, happily sharing the harvest with companions; winter storing, enjoying the joy and beauty. These seasonal changes reflect TCC’s firm belief in nature, and the business philosophy of nature-based management, in service of life, harmony, and well-being for all.

Chairman's Address

Living in harmony with nature Biodiversity: for Humanity the Bell Tolls

"On the Planet Earth we live today, all species of wild mammals account for only 4% of mammals worldwide in total weight. Among them, more than one-third is our humankind with a population of over 8 billion people, and the other two-thirds are those that domesticated as a primary source of food for humans. Is there still a biodiversity?"

Humans cannot survive in an environment deprived of biodiversity. Notwithstanding, in the past fifty years, 873 species of wild animals have gone extinct. If humans continue to exploit and destroy unwarily, over 26,000 species of wild animals might disappear off the face of the earth in the next twenty years. Humans have attempted to build an insulated Biosphere multiple times, but each time it has resulted in failure because humans were far from knowing how to create a self-reliant ecosystem. Not to mention that the least-known aspect is the underground surface, or the so-called soil ecology, which is also one of the key reasons why TCC Group Holdings resolved to launch the Ho-Ping Ark Ecological Program.

I love diving a lot, among other hobbies. I went scuba diving in the north coastal waters, and such offshore islands as Orchid Island, Green Island, and the Pescadores in Taiwan beginning 1978. At that time, the undersea world was dazzling and crystal-like as felt in a paradise, but no more nowadays. Coral reefs cover only one-thousandth of the earth's surface but they provide habitat for a quarter of marine life. If global temperatures rise to 1.5°C warmer in the future, the number of corals alive will decrease by 70-90%, which could severely impact marine ecosystems.

To date, the world has experienced five mass extinctions. Our generation is the only one in human history to realize that there had been five mass extinctions and that we will probably fall victim the next time. If we are not paying attention, we might be the last generation to witness this massive destruction.

We are facing the dual challenges of biodiversity loss and climate change, caused by the rapid and continuous exploitation of the earth's limited resources. We shall not view these critical conditions as two separate issues. Climate change and biodiversity loss are not only environmental issues but also economic development, security, and social moral and ethical issues.

It is imperative that people should change the way they think from the perspective of "I" to "we." However, the global crisis is not just a natural climate crisis; three other crises ensue.



The first is the cognitive crisis. People doubt whether the sweeping climate crisis will really happen. The answer is positive if the weather conditions keep deteriorating. The second is the ideological crisis. People doubt whether those they do to refrain it from getting worse is useful. We must be confident enough to believe that what we do will help the earth. The third is the imaginative crisis. People cannot imagine how horrible it will be if the climate crisis comes true. We do not know how many of the existing over-8-billion people will survive. These are our crises.

The world is at the most important crossroads in history, facing the most profound systemic changes and challenges.

The crux is how we can get prepared to coexist with nature.

Every human action or behavior will affect the foundation of the natural world.

A handwritten signature in black ink, appearing to read 'Nelson An-ping Chang', is written in a cursive, flowing style.

Nelson An-ping Chang
Chairman
TCC Group Holdings

Life | The Most Important Thing

“Management philosophy with nature at the core.”

Cement, integral to civilization, is the world's second-largest consumed resource, highlighting their importance to human development. Sourced from nature, limestone, its main ingredient, ties it to environmental issues beyond carbon emissions. TCC has been addressing environmental concerns since 1980s, prompting early introspection on its relationship with nature and the environment.

“Without nature, the 1.5-degree goal of the Paris Agreement cannot be achieved.”

Both COP27 climate summit and COP15 biodiversity summit called for: Climate action and nature positive are equally important on the net-zero scale. TCC embeds nature and biodiversity in its net-zero strategy, promoting sustainable development and natural harmony. **Please refer to the 2023 TCC Sustainability Report for details.**

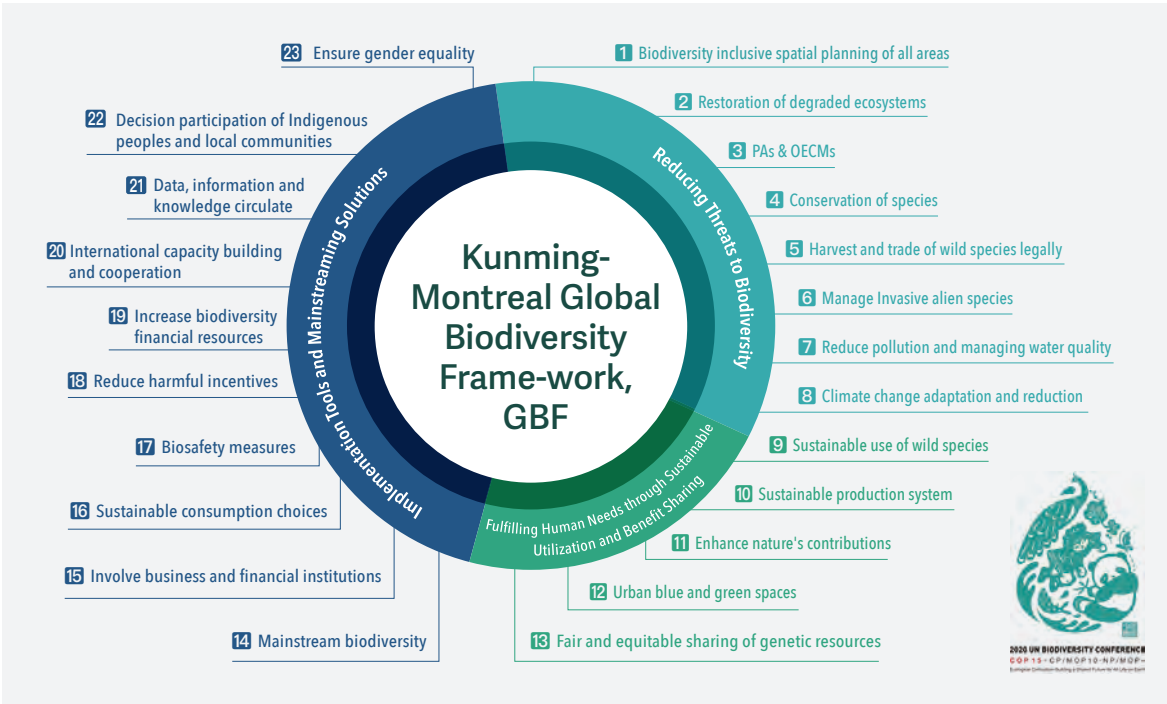
TCC established the world's largest tropical plants conservation base in 2007, initiated restoration of mining areas in 2016, began coral rehabilitation in Hoping EcoPort in 2021, and launched forest carbon sink and soil ecology research in 2022. TCC participated in the pilot program of the Taskforce on Nature-related Financial Disclosures (TNFD) and integrated the official TNFD framework in 2023, becoming TNFD Early Adopter. Additionally, TCC has aligned with the Science Based Targets for Nature (SBTN) and the World Business Council for Sustainable Development's (WBCSD) Methodology for the Net Impact Assessment of Biodiversity in the Cement Sector (NIA), assessing the feasibility of achieving No Net Loss (NNL) and Net Positive Impact (NPI).

In 2024, TCC's environmental efforts were highlighted by Business for Nature in the It's Now for Nature campaign, showcasing the construction materials industry. TCC aims to reverse nature loss by 2030, standardizing its conservation methods and adhering to global standards. Supporting the global 30×30 goal to conserve land and marine areas by 2030, TCC is dedicated to fostering Nature Positive.



Aligning 23 targets under GBF, TCC dedicated to halting and reversing the loss of biodiversity.

In 2022, COP15 Biodiversity Summit passed the Kunming-Montreal Global Biodiversity Framework (GBF), setting global action targets for 2030 and long-term global goals for 2050. TCC continues to execute nature actions and planning in accordance with GBF, striving for living in harmony with nature and nature positive.



Reference Table of GBF and Each Chapter of This Report

CHAPTER		Action-oriented Target
0	1 5	Businesses Assess, Disclose and Reduce Biodiversity-Related Risks and Negative Impacts
	1 4	Integrate Biodiversity in Decision-Making at Every Level
	2 02	Restore 30% of all Degraded Ecosystems
	08	Minimize the Impacts of Climate Change on Biodiversity and Build Resilience
2	1 1	Restore, Maintain and Enhance Nature's Contributions to People
	3 19	Substantially and Progressively Increase The Level of Financial Resources
3	2 2	Ensure Participation in Decision-Making and Access to Justice and Information Related to Biodiversity for all
	4 03	Conserve 30% of Land, Waters and Seas
4	04	Halt Species Extinction, Protect Genetic Diversity, and Manage Human-Wildlife Conflicts
	06	Reduce the Introduction of Invasive Alien Species by 50% and Minimize Their Impact
	1 3	Increase the Sharing of Benefits From Genetic Resources, Digital Sequence Information and Traditional Knowledge

Living in harmony
with nature

1 - Water Wells in Spring
TCC & TNFD

2 - Clouds Changes in Summer
TCC & Forests, Soil, Oceans

3 - The Moon Lofts in Autumn
TCC & Society

4 - Mountains Delight in Winter
NbS & Benefit Sharing

5 - The Change of Seasons
TCC is committed to achieving balance between humans and nature

Appendix
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Action | Nature Positive

GLOBAL TREND

1992

The Rio Conventions of the United Nations:

The United Nations Framework Convention on
Climate Change (UNFCCC)

Convention on Biological Diversity (CBD)

United Nations Convention to Combat

Desertification (UNCCD)

2006

UN Principle Responsible Investment (PRI)

2010

CBD COP10 20 Aichi Biodiversity Targets stipulated

2015

17 sustainable development goals (SDGs) of UN released

COP21 Paris agreement

2010-2020

**United Nations declared the Decade for Deserts
and the Fight Against Desertification**

2021

UNFCCC COP26 proposed a strict compliance with
the threshold value of 1.5°C of global warming,
proposal of Net Zero target, phase-out of fossil fuels,
Deforestation Pledge, committed to put an end to
the issues of deforestation and land loss by 2030

2022

COP27 UNEP stated protecting biodiversity
is protecting the Paris Agreement

2021-2023

IPCC 6th Assessment Report

2023

The official version of **TNFD Framework**

2024

IFRS Sustainable Disclosure Standards S1 and S2
standards effected

CBD COP16 in Cambodia

Nature-based Solutions

2021

UNEP released 《Ecosystem Restoration for People, Nature and Climate》

UNEP & IUCN released 《Nature-based solutions for climate change
mitigation》, proposing the carbon reduction potential of NbS

COP28 IUCN emphasized the role of NbS

Nature Positive

2022

CBD COP15

■ UN & G20 jointly launched Taskforce on Nature-related Financial
Disclosures (TNFD)

■ Adoption of GBF, with the target “30 by 30” established, along with an
enhanced promotion of Other effective area-based conservation
measures (OECMs)



→ **Protect and Restore 30×30**

→ **Prosper with Nature**

→ **Share Benefits Fairly**

→ **Invest and Collaborate**

2 0 1 0

2 0 2 0

2 0 3 0

2 0 5 0

TCC ACTION

FOREST



1992

Shoushan Mine terminated

2006-2050

Long-term environmental and ecological monitoring program

in Hoping Mine & Taibaishan Mine

2007

Dr. Cecilia Koo Botanic Conservation Center established

2020

First estimation of ecosystem service value and the survey on the plant restoration efforts

in Jinchang Quarry of Hoping Mine

2021-2050

Implementing biodiversity management plan (BMP) for high-risk mines

OCEAN



2015

Life below water survey launched

2019-2025

Port Environmental Review System (PERS) certified

2020

Identification and distribution survey of the coral species

SOIL



2023

NbS action: Cooperating with government by using advanced cement kiln co-processing technology to convert invasive
Popinac as zero-carbon biomass energy

2024

Launched Hualien Hoping Industrial Park Nature Conservation Project

2021

Bio Cube Coral Creation Project commenced

2021

Hoping EcoPort certified the APSN Green Port Award System (GPAS)

2022

Hoping EcoPort certified Environmental Education Facility

2022-2050

“Ho-Ping Ark Ecological Program,” the only long-term research on soil species in the world commenced

2023-2050

Hoping Mine Restoration Area Forest and Soil Rehabilitation Project

INITIATIVE



2020

Becoming SBTi partner, using the world’s most rigorous standards to face climate change

2021

Joining membership of Business for Nature

2022

The first manufacturer in Taiwan involved in the TNFD Pilot Program

Founding member of Taiwan Nature Positive Initiative

Signed Business for Nature CBD COP15 initiative: Make it Mandatory, Call to Action

2023

TNFD pilot program released

2024

Formulated TCC Biodiversity Policy

Formulated TCC No Deforestation Commitment

Taiwan’s only major construction material company of TNFD Early Adopters

Representing construction material company joining It’s Now for Nature campaign

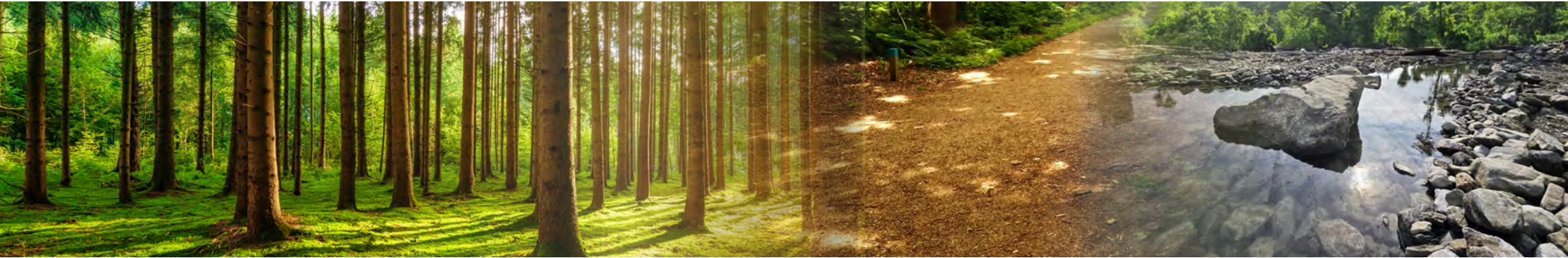
TOWARD

NATURE POSITIVE

No
Net
Loss
NNL

Net
Positive
Impact
NPI
2040

Other
Effective Area-Based
Conservation
Measures
OECMs



Hoping
Mine Reforestation
Project

SEMIANNUALLY

KBCC



Taibaishan
Mine Ecological
Restoration
Project

TIMELY

Sustainable Landscape
Laboratory,
National Ilan University
Professor Ji-Wei Huang



Hualien
Hoping
Industrial
Park Nature
Conservation
Project

TIMELY

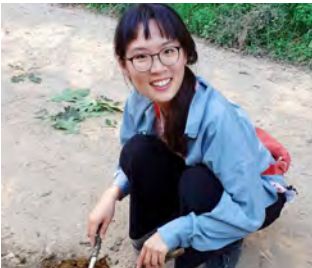
School of Forestry
and Resource
Conservation, NTU
Dr. Chyi-Rong Chiou



Hoping Mine
Restoration Area
Forest and Soil
Rehabilitation
Project

QUARTERLY

Frameless Landscape
Architects, Taiwan Forestry
Research Institute
Dr. Chiao-Ping Wang
(Consultant)



Ho-Ping Ark Ecological
Project

QUARTERLY

KBCC
Professor Chia-Wei Li
and Jian-Fu Liu
Collection Manager



Soil Expert
Dr. Chiao-Ping Wang

NTU IEEB
Professor
Chih-Han Chang



Hoping EcoPort
Coral Rehabilitation Project

QUARTERLY



Eco-Angel
Environment Conservation Association
Secretary-General Ying-ling Chen

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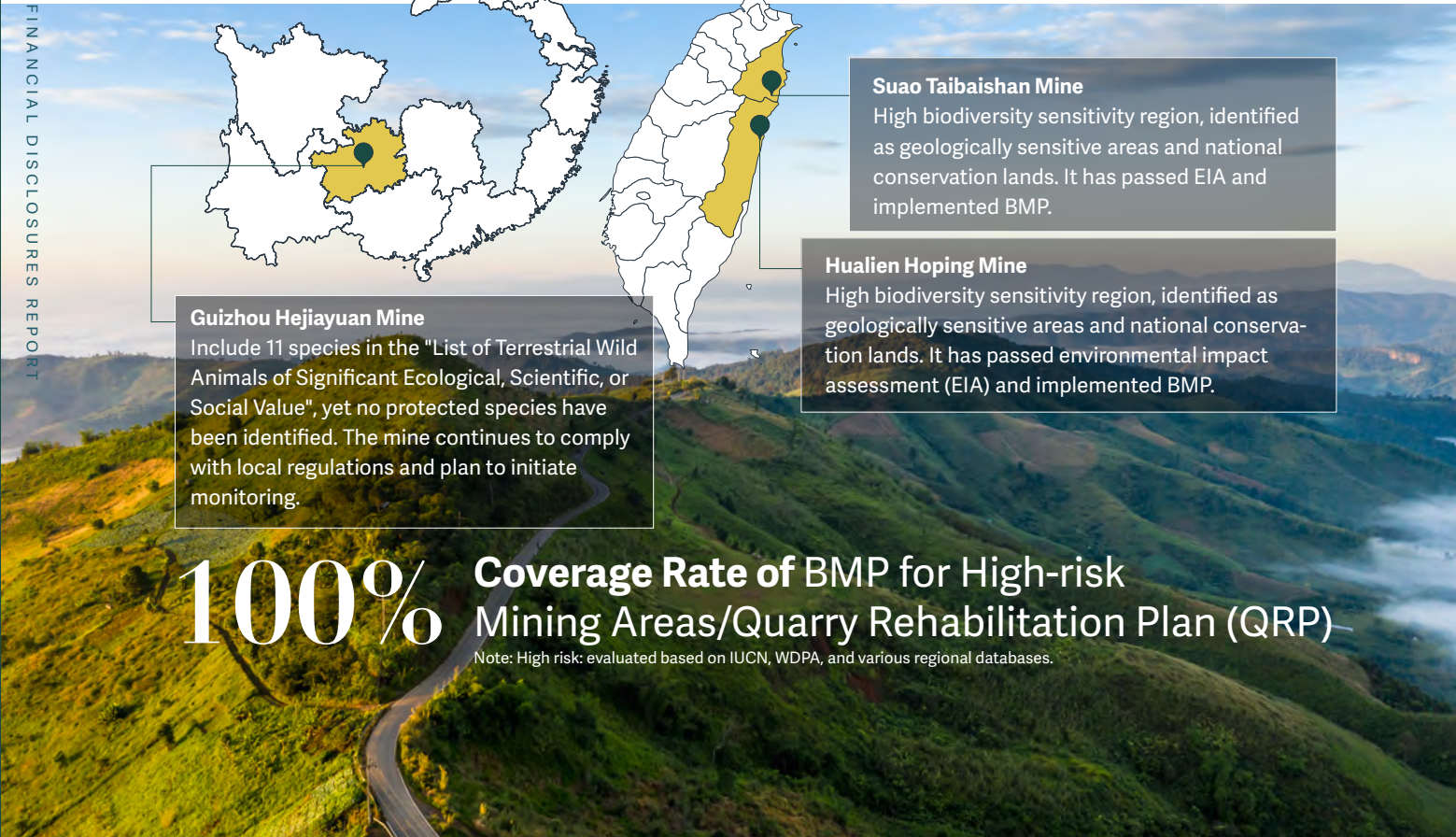
Nature and Biodiversity Assessment

TCC operates 21 mines and 14 cement plants in Taiwan and Mainland China. In Taiwan, biodiversity impacts are assessed using the Ministry of the Interior's Function Zones and the Ministry of Agriculture's Biodiversity Datasets, focusing on IUCN Categories I-IV protected areas and species of concern. In Mainland China, the Biodiversity Impact Assessment Tool (BIA), created by the Shanshui Conservation Center and Peking University, is used. The BIA tool combines data from the China Nature Observation database, the IUCN Red List, the World Database of Key Biodiversity Areas (KBA), and the World Database on Protected Areas (WDPA), covering both international and Chinese criteria.

The analysis indicates TCC's operations in the Hualien Hoping and Suao Taibaishan mines are in regions of high biodiversity sensitivity (totaling 300.7 hectares), where long-term biodiversity management plan (BMP) have been implemented. In the Hejiayuan Mine in Anshun, Guizhou, the region potentially includes species in the "List of Terrestrial Wild Animals of Significant Ecological, Scientific, or Social Value", yet no protected species have been identified, indicating it is not a high biodiversity risk area. Other mines and plants are also assessed to have no potential biodiversity risks.

TCC Cement Business Operation Sites	Mainland China		Taiwan	
Location and Area	Numbers	Areas	Numbers	Areas
Cement Plants	12	741.54 hectares	2	68.32 hectares
Mines	19	1323.35 hectares	2	300.7 hectares
RMC Plants¹	1	0.9hectares	23	25.11hectares

Note 1: RMC sites are not located near any natural areas. TCC will evaluate the initiation of biodiversity assessment procedures.



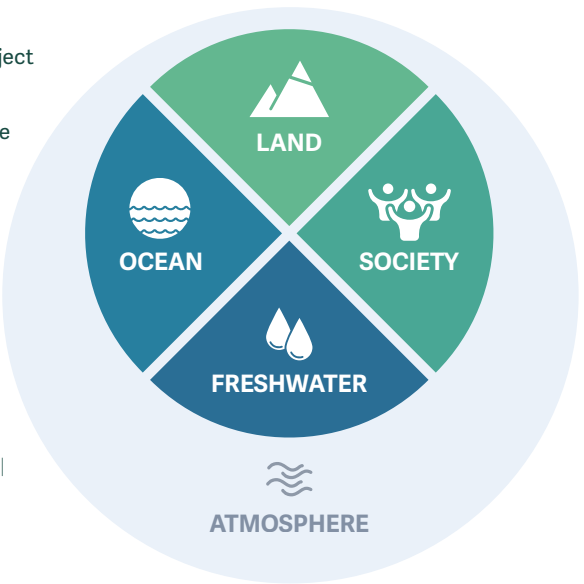
2023 TCC Nature Action Performances

LAND

- The Mines in Mainland China: 19.7% Restoration and Reforestation Rate
- The Mines in Taiwan: 51.2% Restoration and Reforestation Rate. 88% The Percentage of Indigenous Species Conservation in Hoping Mine; 90% The Percentage of Indigenous Species Conservation in Taibaishan Mine
- Hoping Mine Proportion of Soil Organic Matter of Restoration Zone Increased by 1.3 Times/ 3 year restoration
- Hoping Mine (Jinchang Quarry) Forest Carbon Sink 123.21 tons/ hectare, Higher Than Average of Rain Forests in Asia
- Conservation of Plants (Including Endangered Species) of KBCC: 34,646 Varieties

OCEAN

- Coral Rehabilitation Project at Hoping EcoPort
Total of 1,001 Corals Have Been Rehabilitated
- The Area Designated for Rehabilitation Has Been Expanded to Four Times
- Hanben Ocean Station Beach Cleaning | 307 Participants
- Hanben Ocean Station | 77,241 Visitors



SOCIETY

- 85% Approval Rate of The Tribal Consultation and Voting Procedure in Iyo Tribe
- 82.2% Approval Rate of The Tribal Consultation and Voting Procedure in Gukut Tribe
- 97.6% Approval Rate of The Tribal Consultation and Voting Procedure in Knlibu Tribe
- TCC DAKA | 8.44 million Visitors
- Cement Academy Assists Total 1,293 Students
- Hoping EcoPort Environmental Education Courses | 39 Sessions

FRESHWATER

- Hoping Plant Membrane Bioreactors (MBR), -7.34% water withdrawal compared to 2022
- Hoping Power Rainwater Harvesting System | Recycling Estimated 18,000 m³ Annually

ATMOSPHERE

- Hoping Power Plant Total Air Pollution -34% Compared to 2016
- Enhancement and Replacement of Gas-gas Heater and Ammonia Injection Grids



We're a TNFD Early Adopter

We're taking action for nature. Our nature strategy has been published as part of 'It's Now for Nature'.

The 18th CSR and ESG Awards of Global View Monthly in 2022, "First Prize" of Environmental Friendly Project

Taiwan Biodiversity Award, 2023 Golden Prize, 2024 Bronze Award

High Extinction Award, the 9th National Environmental Education Awards

- [Biodiversity Policy](#)
- [No Deforestation Commitment](#)
- [Stakeholder Engagement Policy](#)
- [Risk Management Committee Charter](#)

