



# 2021 CSR Report



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Corporate  
Social Responsibility Report

**GREEN**  
INNOVATION  
HARMONY  
SHARING

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# About This Report

The Board of Directors and all directors of the Company guarantee that the contents of this Report do not contain any false records, misleading statements, or major omissions and that they will bear the individual and joint liabilities for the authenticity, accuracy and integrity of its contents.

China Yangtze Power Co., Ltd.  
2022

## ➤ Time horizon

This Report describes events of the Company during the period from January 1 to December 31, 2021. Some representations and data are appropriately dated back to previous years.

## ➤ Release cycle

This Report is an annual report.

## ➤ Report scope

The whole company (see “About Us” ).

## ➤ Data source

All data used in this Report are derived from the Company’s Annual Report 2021, official documents and statistical reports (The data of previous years shall be subject to disclosure in this Report).

## ➤ Compilation basis

This Report is compiled pursuant to ISO 26000:2010 - **Guidance on Social Responsibility and the GRI Sustainability Reporting Standards** (GRI Standards) of Global Sustainability Standards Board (GSSB).



## ➤ Compilation process

Develop a report compilation plan, and set up a compilation team → Identify stakeholders and important issues, and determine the reporting framework → Write, revise and complete the report → Review by the Company’s management → Release the report, and collect feedback for continuous improvement.

## ➤ Terms of address

For the convenience of expression and reading, “China Yangtze Power Co., Ltd.” is also referred to as “CYPC”, “the Company/it” and “we/us/our” in this Report. Its controlling shareholder, China Three Gorges Corporation, is expressed as “CTG” in this Report.

## ➤ Report access

This Report, written in English, is available in both paper and PDF versions. The PDF version can be downloaded by logging on to the CYPC website ([www.cypc.com.cn](http://www.cypc.com.cn)).





# Message from the Board

## Dear stakeholders

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Welcome to CYPC Corporate Social Responsibility Report 2021. It is a great honor to present to you this Report on what we acted and achieved in promoting environmental, social and corporate governance performance this year.

As the largest listed hydropower company in the world, CYPC is always upholding the values of “wealth creation, dedication to society and green growth”, constantly improving corporate governance, conducting honest and compliant operations, and continuously enhancing its performance and market value. All these actions are to create a good return on investment for shareholders, contribute clean energy to the society, and provide sustainable support for social progress and public welfare. It is devoted to building a world-class enterprise with global competitiveness that creates comprehensive values.

**We guarantee a stable power supply based on our commitment for power generation safety.** CYPC takes the corporate mission of “providing flood protection for the Yangtze River Basin and contributing clean energy to the society”, and gives full play to the comprehensive benefits of six giant cascade hydropower plants in flood control, power generation, water replenishment, navigation and ecological dispatch. Besides, we practice the production philosophy concept of “accurate dispatch, lean operation and meticulous maintenance”, and continue to improve the safety management system suitable for operation management of large-scale hydropower plants. In 2021, CYPC’s four cascade hydropower plants generated an annual cumulative electric power of 208.322 TWh; the Three Gorges Reservoir successfully coped with 8 floods with flow rates exceeding 40,000m<sup>3</sup>/s; the first batch of generating units of Baihetan Hydropower Plant (“Baihetan HPP” for short)





were connected to the power grid and put into operation, and all units of Wudongde Hydropower Plant (“Wudongde HPP” for short) were put into operation on schedule; these units fully ensured the stable energy supply at critical moments such as fighting the cold wave.

**We provide clean energy by virtue of our responsibility for ecological environment.** CYPC tackles climate change vigorously, gives full play to its resource and management advantages to operate and manage the world’s largest clean energy corridor, and spares no effort to create the new development pattern of new energy and pumped storage, supports the low-carbon development of the economy and society with uninterrupted provision of green electricity.

The green and clean electricity generated by CYPC’s four cascade hydropower plants in 2021 is equivalent to reducing carbon dioxide emissions by 173 million tons or planting 690,000 hectares of broad-leaved forest. CYPC has carried out ecological dispatch experiments for 11 consecutive years and made positive contributions to biodiversity conservation.

**We share development achievements out of our pursuit of a harmonious society.** CYPC strengthens its poverty alleviation assistance to designated targets and surrounding areas of power stations and reservoir areas, promotes rural development and revitalization of Wushan County, Fengjie County and its power stations & reservoir areas, actively

participates in undertakings regarding local development and people’s livelihood. Besides, it attaches great importance to the career development of talents, provides practical care for employees by improving the working and living conditions, and strengthening physical & mental health, to continuously enhance the sense of belonging and happiness of employees. In 2021, CYPC invested RMB 237 million into corporate social responsibility programs, paid taxes of RMB 16.091 billion, and participated in public welfare activities with more than 1,000 employees of CYPC involved. The Company has always been enhancing social well-being and creating extensive social values.

In 2022, CYPC will continue working with stakeholders, keep on enhancing its ability to create value for its shareholders, customers, employees and communities, and contribute to the global energy transition and economic and social development.



# About Us

## Company profile

China Yangtze Power Co., Ltd. (hereinafter referred to as “CYPC”) is a limited liability company established by China Three Gorges Corporation (“CTG”) as the main sponsor. CYPC, founded on September 29, 2002, was listed on the Shanghai Stock Exchange in November 2003 with its IPO stock code of 600900. It currently has 22.74 billion shares. On September 30, 2020, the Global Depository Receipts (GDRs) issued by CYPC under the “Shanghai-London Stock Connect” mechanism were listed and traded on the London Stock Exchange.

CYPC is mainly engaged in hydropower generation, electricity distribution and sales, smart integrated energy, investment and financing and other businesses in China, Portugal, Peru, Brazil, Pakistan and other countries. CYPC currently owns all the power generation assets of four hydropower plants in the mainstream of the Yangtze River, namely the Three Gorges HPP, Gezhouba HPP, Xiluodu HPP and Xiangjiaba HPP, with 82 installed hydro-generating units. The Company’s total installed capacity is 45.595 GW (excluding Wudongde HPP and Baihetan HPP under entrusted management), of which the domestic installed hydropower capacity is 45.495 GW, accounting for 11.6% of the total installed hydropower capacity in China. Its attributable installed capacity is 10 GW. CYPC has become the largest listed electric power company in China and the largest listed hydropower company in the world.

## values

### Mission

Providing flood protection for the Yangtze River Basin and contributing clean energy to the society.

### Vision

Strive to create a world-class clean energy listed company with hydropower as its core business.

### Business philosophy

Honest management, standardized governance, information transparency and excellent performance.

### Sense of social responsibility

- ▶ **Wealth creation:** Actively respond to the demands and expectations of stakeholders to maximize comprehensive value.
- ▶ **Dedication to society:** Sustainably support social progress and public welfare by relying on our advantages, and share the achievements of development.
- ▶ **Green growth:** Form resource-saving and environment-friendly production modes, and provide clean energy for the growth of green economy.

# CSR Management

The Company advocates and upholds the concept of responsible development, where the Board of Directors reviews annual CSR plans, and comprehensively considers economic, social and environmental factors in all business decision-making processes, supporting more robust governance and operations.

**Board of Directors:** Review annual CSR plans.

**Management Group for Fulfilling CSR:** Coordinate tasks concerning CSR, and ensure that corporate resource distribution and daily operations follow CSR plans.

**CSR Office:** Coordinate and advance tasks concerning CSR; prepare annual CSR plans and budgets; supervise and inspect the progress of CSR programs and the use of CSR funds; prepare the Company’s annual CSR reports.

**All departments and affiliated companies:** Carry out practices in CSR plans.



## CSR risks and opportunities

CYPC is fully aware that climate change, water resources stress and energy transition will bring both risks and great opportunities to our business. We regularly identify and assess risks, and comprehensively optimize the resource efficiency through targeted management, so as to enhance adaptability to economic, social and environmental uncertainties and achieve sustainable development.

| Factors of risks and opportunities | Description                                  | Influence   | Management measures  |
|------------------------------------|--|---|--|
| Climate change<br>Extreme events   | <b>Risk:</b> Extreme weather/ Climate events | <ul style="list-style-type: none"> <li>Extreme weather and major natural disasters may damage the Company's infrastructure and power generation equipment, resulting in operation interruptions.</li> </ul> | <ul style="list-style-type: none"> <li>Improve the work safety management mechanism, set up the work safety committee, appoint a safety &amp; quality director, and analyze climate-related risks on a regular basis to ensure the production and operation safety.</li> <li>Innovate the dual prevention mechanism, summarize management experience, and enhance the efforts to build an enterprise with inherent safety.</li> <li>Promote innovation research and application of achievements in work safety, reduce and eliminate safety risks with the help of technological innovation.</li> <li>Optimize and improve the emergency management mechanism, and improve the capability of emergency response to extreme weather and major natural disasters.</li> </ul> |

| Factors of risks and opportunities       | Description  | Influence   | Management measures  |
|--|--|---|--|
| Climate change<br>Temperature change     | <b>Risk:</b> Cold wave/ High temperature                         | <ul style="list-style-type: none"> <li>Electricity demand is affected by temperature. Fluctuations in temperature may lead to a surge in electricity demand, putting pressure on the Company's electricity supply.</li> </ul> | <ul style="list-style-type: none"> <li>Continue to implement management strategies such as "diagnostic operation" and "overhaul &amp; maintenance" based on diagnosis and evaluation, strengthen the management of newly commissioned units, dynamically optimize maintenance plans, and improve the emergency energy supply mechanism.</li> <li>Promote partition forecasting in the river basin, carry out detailed analysis and summary of rainfall and runoff rules for important tributaries in the upper reaches of the Yangtze River, and improve the weather forecasting capabilities for the Jinsha River and Yalong River basins.</li> <li>Carry out on-site inspections on power supply and work safety, and special inspections on quality management for cascade hydropower plants in the basin, and improve the quality of energy supply.</li> </ul>   |
| Climate change<br>Water resources stress | <b>Risk:</b> Uncertainty about water inflow in the Yangtze River | <ul style="list-style-type: none"> <li>Uncertainty about water inflow in the Yangtze River may influence the stability and reliability of the Company's clean power supply.</li> </ul>  | <ul style="list-style-type: none"> <li>Cooperate with the meteorological department to analyze the rainfall and runoff rules of important tributaries in the upper reaches of the Yangtze River, and improve hydrological and meteorological forecasts in the basin.</li> <li>Strengthen the monitoring, forecasting and early warning system for extreme climatic and meteorological events, and explore qualitative and quantitative research on snowing and snow melting of the Qinghai-Tibet Plateau.</li> <li>Carry out integrated operation of cascade reservoirs, develop the Intelligent Changjiang Decision Support System (ICJDSS), and improve water resources management and scheduling capabilities.</li> <li>Based on the construction of an Intelligent Cascade Dispatching Communication Center, build a dispatching system of "Quantitative Intelligent Evaluation" to improve response capabilities.</li> <li>Explore the complementary development model of water, wind, solar and stored energy, and make the layout for smart integrated energy.</li> </ul> |

|                | Factors of risks and opportunities                              | Description   | Influence   | Management measures  |
|----------------|---|---|---|--|
| Climate change | Carbon peaking and carbon neutrality goals and related policies | <b>Opportunity:</b> Incentive policies and measures for renewable energy development, GHG emission pricing and carbon trading, etc. | <ul style="list-style-type: none"> <li>■ Policies related to energy transition and renewable energy development may have a positive impact on the Company's profits and return on investment, etc.</li> </ul>   | <ul style="list-style-type: none"> <li>■ The Company's hydropower is 100% clean energy.</li> <li>■ Grasp the development opportunities of renewable energy, explore the multi-energy complementary development model, and promote the diversified development of the Company's clean energy industry.</li> </ul>   |
| Biodiversity   |   | <b>Risk:</b> Interfere with the inhabitation and reproduction of creatures in the Yangtze River Basin                               | <ul style="list-style-type: none"> <li>■ The Company's operations in the Yangtze River Basin may have an impact on the aquatic ecosystem of the Yangtze River and the inhabitation and reproduction of creatures in the Yangtze River Basin.</li> </ul> | <ul style="list-style-type: none"> <li>■ Fully support the protection of rare plants by the CTG, and take measures such as technological innovation, ex-situ or in-situ conservation to ensure that rare plants are protected after the reservoir is impounded.</li> </ul> <p>The Three Gorges Reservoir monitors ecological dispatch tests for the natural reproduction of the four major Chinese carps, and uses dispatch methods to create conditions suitable for fish spawning and reproduction.</p> <p>Support the rare fish protection activities by the Chinese Sturgeon Research Institute of China Three Gorges Corporation (CTG) and Conservation Area for Rare and Endemic Fish, and participate in the fish reproduction and release activities.</p> <p>Actively support the activities that are conducted by Yangtze River Rare Plant Research Institute of CTG to rescue and protect endemic, rare and endangered plants in the hydropower development basin.</p> |
| Energy supply  |   | <b>Opportunity:</b> Energy transition   | <ul style="list-style-type: none"> <li>■ Clean energy will play an important role in the energy transition, bringing opportunities for the Company's development.</li> </ul>  | <ul style="list-style-type: none"> <li>■ Develop a variety of renewable energy sources including wind power, photovoltaic power and biomass power.</li> </ul>  |

|                               | Factors of risks and opportunities | Description                                | Influence  | Management measures  |
|-------------------------------|------------------------------------|--|--|--|
| Innovation and digitalization |                                    | <b>Opportunity:</b> Intelligent hydropower | <ul style="list-style-type: none"> <li>■ In the digital age, big data and artificial intelligence have become the key to building intelligent hydropower plants.</li> </ul>  | <ul style="list-style-type: none"> <li>■ Increase investment in science and technology, establish development paths for specialized technical personnel, form dedicated development paths for technical experts, and stimulate the vitality of scientific and technological innovations.</li> <li>■ Develop the online industrial Internet platform and promote the hydropower industry to use and integrate new technologies including laser cladding, graphene, artificial intelligence and digital twin.</li> <li>■ Promote the commercialization and application of scientific and technological innovation achievements.</li> </ul>   |
| Human capital                 |                                    | <b>Risk:</b> Employee turnover             | <ul style="list-style-type: none"> <li>■ The Company's operations in the Yangtze River Basin, may have an impact on the aquatic ecosystem of the Yangtze River and the inhabitation and reproduction of creatures in the Yangtze River Basin.</li> </ul> | <ul style="list-style-type: none"> <li>■ Prepare the <b>2022-2025 Human Resource Demand and Allocation Plan</b>.</li> <li>■ Implement the "Pilot Plan" to promote the steady improvement of leaders' ability to run the enterprise; carry out the "Cruise Plan - Mini MBA Training Program" to improve the management quality and leadership of production and operation talents; practice the "Sailing Plan - Young Talents Training Program" to cultivate a group of reserve talents for operation management and market-oriented new business of the Company.</li> <li>■ Perfect the employee promotion system, increase the allowance standard for operating positions, purchase supplementary medical insurance for all employees, improve the working and living conditions of employees such as office and accommodation, and the physical &amp; mental health of employees in order to attract and retain talents.</li> <li>■ Based on the corporate development strategy, continuously enrich the connotation of corporate culture and enhance employees' sense of identity.</li> </ul> |



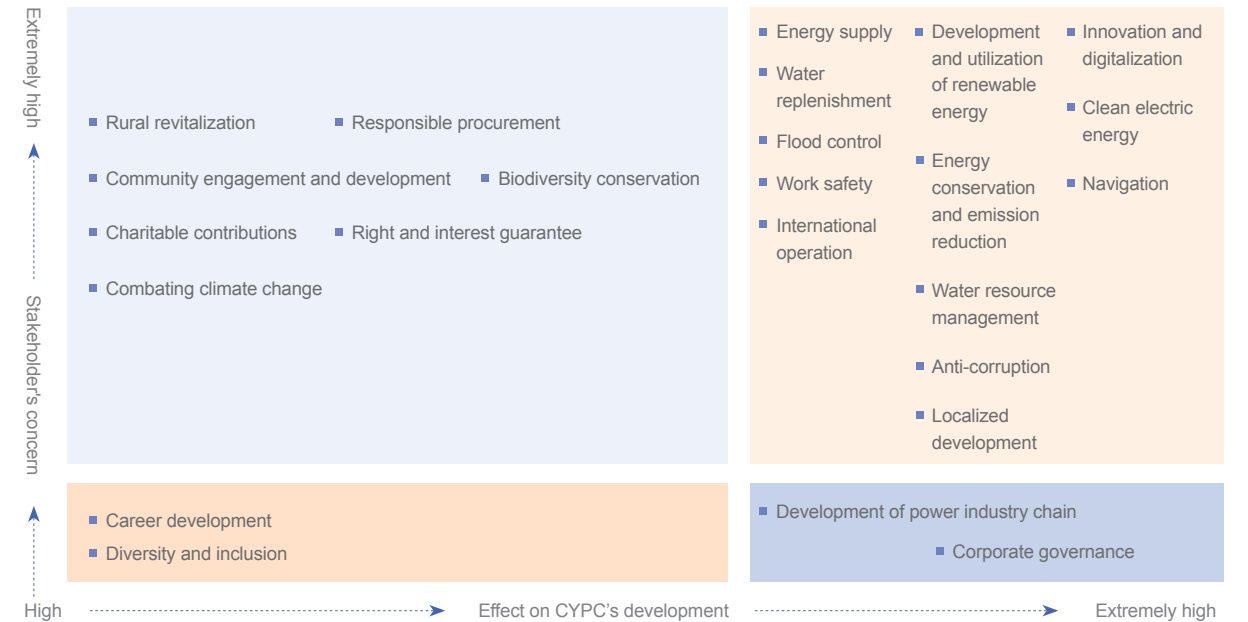
## Material issues

CYPC actively grasps the sustainable development trend, analyzes the challenges and opportunities for its own sustainable development based on industry features and its business characteristics. It has identified 24 sustainable development issues of its own according to the United Nations Sustainable Development Goals, GRI Standards and other stakeholders' opinions.



## Prioritization of issues

Substantive issues that have a significant impact on the Company, economy, society and environment and draw great attention of stakeholders are identified from the two dimensions, i.e., "Effect on CYPC's development" and "Stakeholder's concern". These issues are prioritized according to internal and external opinions and suggestions.



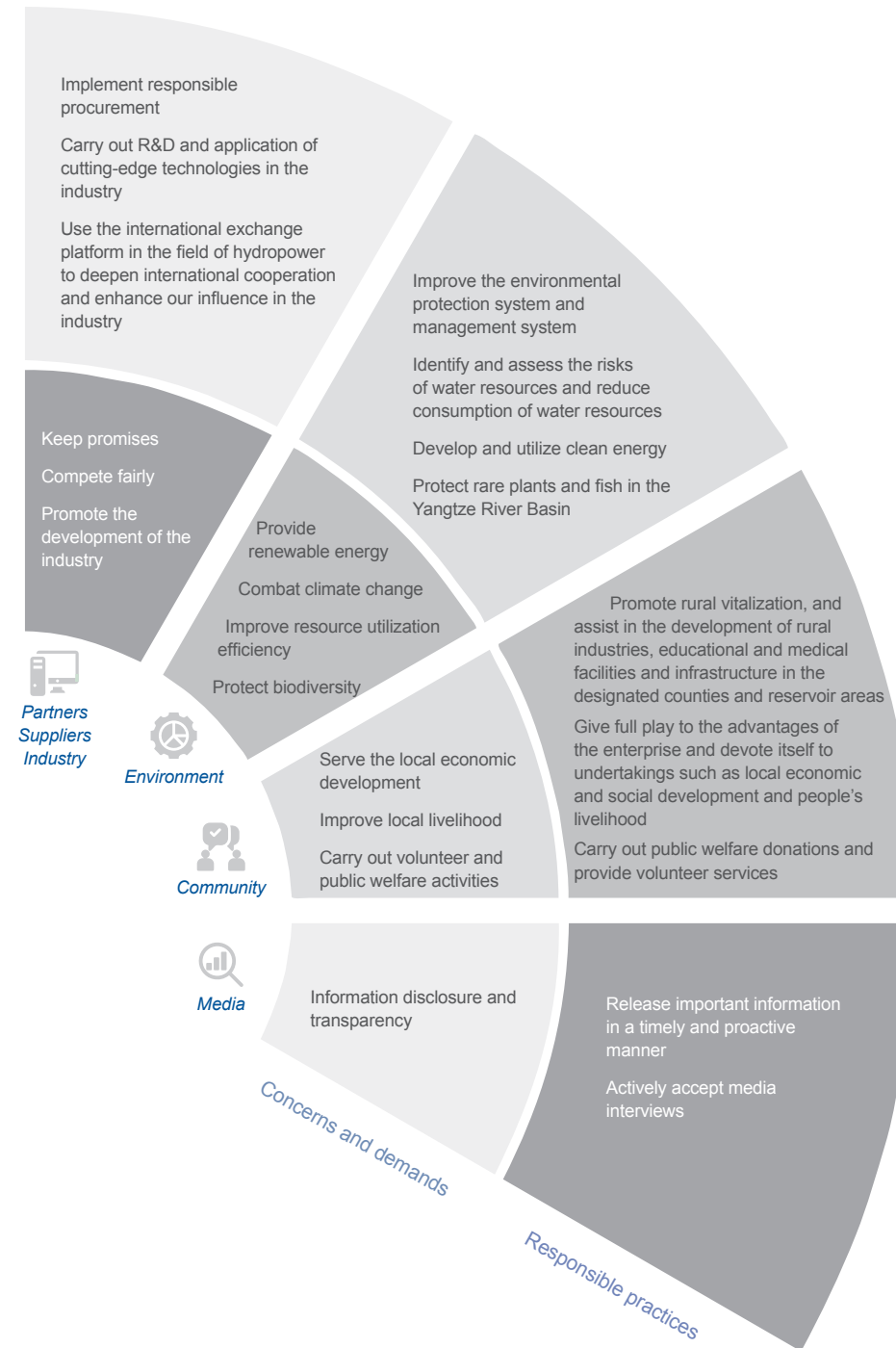
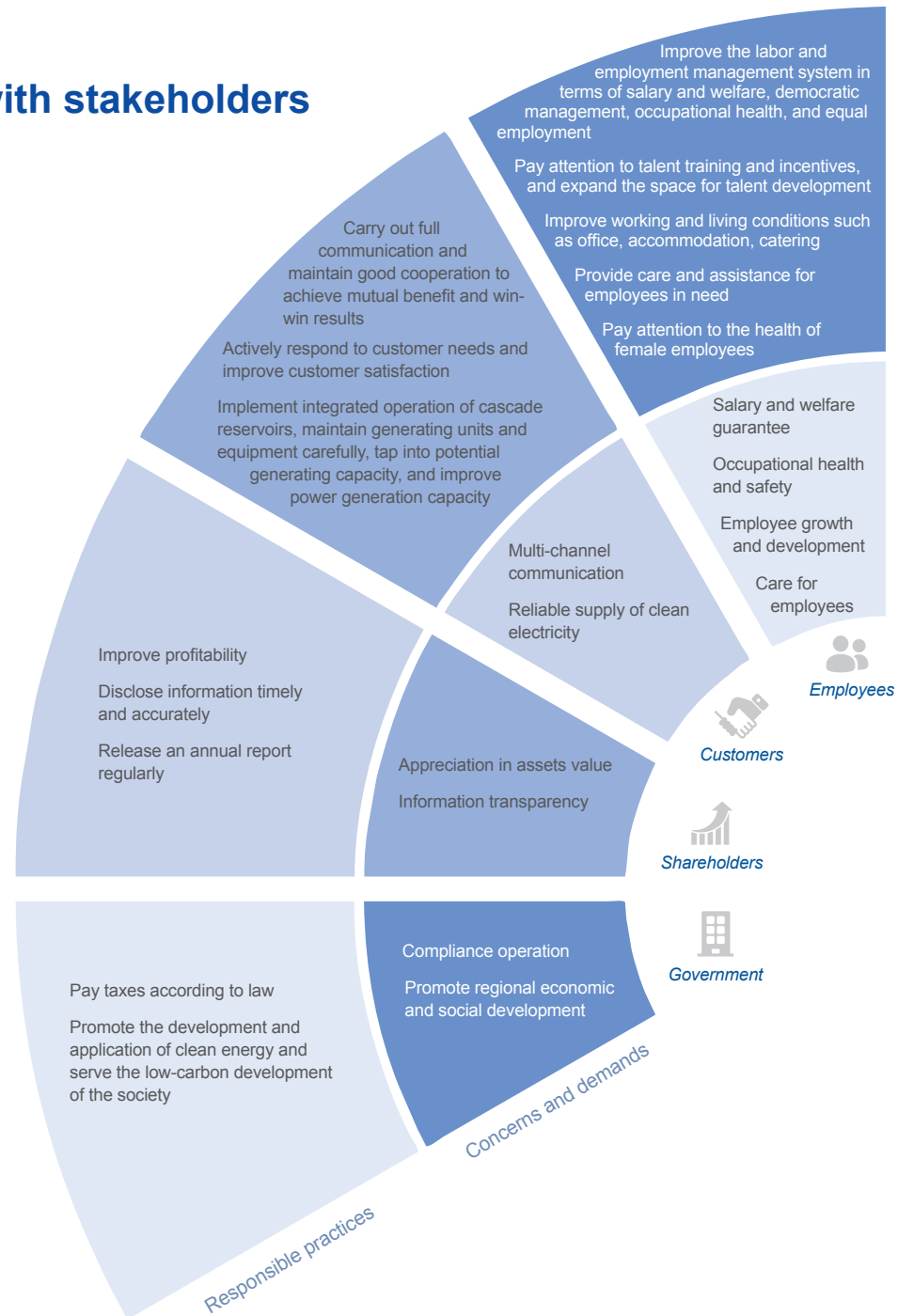
## Review of issues

The key issues that have the most significant impact on the Company's development are reviewed and screened out by internal and external stakeholders, so as to determine the management priorities and CSR report disclosures of the Company.

- Internal**
  - ✓ Company management
  - ✓ CSR management organization
  - ✓ All business departments and affiliated companies
  - ✓ Collection of opinions from employees
- External**
  - ✓ CSR expert review
  - ✓ Participation of third-party organizations
  - ✓ Communication with stakeholders

## Communication with stakeholders

We continue to expand the channels of communication with stakeholders, strengthen the effectiveness, convenience and pertinence of information communication, fully guarantee the rights of stakeholders to know, participate and supervise, and enhance the understanding and support of stakeholders.





# External Recognition

The Company's FTSE Russell ESG rating ranked **No.1** in Chinese power sector in the category of A-share.

The Company's MSCI ESG rating is upgraded to **BB**.

The Company's excellent ESG practice cases are included in the **ESG Practice Cases of Listed Companies** compiled by the China Association for Public Companies.

# Key Performance



## Operational performance

**82**

Installed hydropower generating units in China (unit: pcs)

**545.61**

Annual cumulative power generation of cascade hydropower plants (Wudongde HPP and Baihetan HPP) operated and managed by the Company (unit: 0.1 TWh)

**409**

Authorized patent (unit: Nos)

**98.14**

Average flood peak forecast accuracy (unit: %)

**4549.5**

Installed hydropower capacity in China (unit: 10 MW)

**107**

Software copyright (unit: Nos)

**96.93**

24-hour hydrological forecast accuracy of cascade hydropower plants (unit: %)

**172**

Flood storage capacity of cascaded complexes (unit: 100 million m<sup>3</sup>)

**54.26**

Return on investments (unit: RMB 100 million)

**2083.22**

Annual cumulative power generation of the four cascade hydropower plants owned by the Company (unit: 0.1 TWh)

**64253.92**

R&D investment (unit: RMB 10,000)

**77.71**

Competitive procurement ratio (unit: %)



 Environmental performance

**Annual cumulative power generation of the four cascade hydropower plants owned by the Company**

**6351.74**

Equivalent to saving standard coal (unit: 10,000 tons)

**3.73**

Equivalent to reducing nitrogen oxide emissions (unit: 10,000 tons)

**1.73**

Equivalent to reducing carbon dioxide emissions (unit: 100 million tons)

**69**

Equivalent to planting broad-leaved forest (unit: 10,000 ha)

**3.33**

Equivalent to reducing sulfur dioxide emissions (unit: 10,000 tons)

**100**

Discharge compliance rate of water, gas, sound and other pollutants in the dam area (unit: %)

**100**

Disposal compliance rate of general solid waste and hazardous waste (unit: %)

**100**

Coverage rate of garbage classification management (unit: %)

**92.14**

Increased power generation from water saving of cascade hydropower plants in the river basin (unit: 0.1 TWh)

 Social performance

**2.37**

Investment in CSR programs (unit: RMB 100 million)

**60**

CSR programs implemented (unit: Nos)

**1000**

Number of participants in volunteer activities (unit: person)

**160.91**

Taxes paid (unit: RMB 100 million)

**100**

Labor contract signing rate (unit: %)

**7707**

Total number of employees (unit: person)

**4172**

Total number of employees in China (unit: person)

**0.36**

Employee turnover rate (unit: %)

**9.48**

Proportion of female managers (unit: %)

**0.67**

Proportion of female directors in the Board of Directors (unit: %)

**21.40**

Proportion of female employees (unit: %)

**267**

Total number of ethnic minority employees (unit: person)

**6**

Total number of senior managers (unit: person)

**1070.86**

Total investment in employee training (unit: RMB 10,000)

**8530**

Safety education and training (unit: person/time)

**0**

Number of casualties (unit: person)

**0**

Number of equipment accidents (unit: time)

**Note:** Statistics for employee turnover rate, proportion of female managers, proportion of female directors in the Board of Directors, proportion of female employees, total number of employees of ethnic minorities, and total number of senior managers only cover the employees in China.



# Contributions to SDGs

In 2015, the United Nations adopted the **2030 Agenda for Sustainable Development**, which set 17 Sustainable Development Goals (SDGs), and established priorities for global sustainable development such as no poverty, zero hunger, good health and well-being. This Agenda has become the latest consensus on sustainable development reached by governments, enterprises, and non-governmental organizations (NGOs) around the world. We, based on the needs of stakeholders and the actual situations of our own business development, regard the United Nations Sustainable Development Goals (“SDGs” for short) as the benchmark, and promote the realization of SDGs with distinctive practices.



## Our practices

Implemented many projects to help with the industrial development in the assisted areas, such as support to the development of the honey pomelo industry in Wushan County, training on the employment skills in providing rural tourism services in Fengjie County, and implementation of “Bona Villa” program.

Purchase agricultural and sideline products from the assisted areas including Wushan County and Fengjie County, and help to broaden the marketing channel of agricultural products in assisted areas.

Built startup and employment platforms including an urban employment platform in Fengjie County and a pioneer park for Anping returnees.

## Our achievements

60 CSR programs were implemented.

RMB 237 million was invested in CSR programs.

More than 1,000 persons participated in public welfare activities.

22 assistance projects were implemented in the reservoir areas.



## Our practices

Established an agricultural product distribution center in Niuzhaping Village, Dianjun District, Yichang City to help to improve the quality of life of farm households.

Advocate healthy diet and carried out “Clean plate campaign” to reduce food waste.

Provided healthy diets for children.

## Our achievements

Invested RMB 800,000 in building the agricultural product distribution center in Niuzhaping Village.

LDS provided more than 3,000 lunches for children in Aldeas Infantiles S.O.S. of Peru.



## Our practices

Assisted in the building of Leibo Three Gorges High School and Mabian Junior High School, and trained teachers from assisted areas.

Launched the public benefit activity named “Charitable Sunshine Classes” in Yichang Yiling Middle School, Yichang No. 1 Middle School and Kunming No. 1 Middle School to help more excellent students from poor families to study in key senior high schools.

## Our achievements

Provided training for rural primary, secondary and high school teachers in Wushan County and Fengjie County to improve their ability, with a total of 7,500 teachers trained.

Since the “Charitable Sunshine Classes” were held, more than 500 students had been subsidized.



## Our practices

Carried out the “Same Boat Project” timely assistance action in the assisted areas to help families with difficulties in paying medical expenses and suffering hardship due to illness.

Provided cochlear implants for deaf patients to restore their hearing

Provided the health assistance funds and supplementary medical insurances in Wushan County and Fengjie County to constantly reduce the expenditures of patients in hardship for seeking medical advice.

Worked continually to hold training projects in health system of Wushan County and Fengjie County so as to improve the service level of public health and medical care.

LDS provided support for the Fundación Teletón San Juan de Dios through Teletón, to promote the health of young children.

## Our achievements

The health assistance funds and supplementary medical insurances have benefited a total of 130,000 disadvantaged groups in these two counties.

Cochlear implants were provided for 100 deaf patients in Wushan County and Fengjie County.

Organized 12 training sessions for 1,800 participants from health system to improve their ability

LDS funded the rehabilitation program for about 2,089 children and adolescents.



### Our practices

Treat every employee equally, avoid gender discrimination, and protect the career development of female employees.

### Our achievements

Female managers account for 9.48%.  
Female employees account for 21.40%.



### Our practices

Carried out the safe drinking water testing project in Wushan County, built safe drinking water monitoring infrastructure and equipment, and improve the safety level of drinking water in rural areas.

Launched the children's drinking water equipment project in Pingshan County, and installed direct drinking water equipment and hot water equipment to promote the healthy growth of students.

### Our achievements

Invested RMB 1 million in Pingshan County to install drinking water facilities and hot water equipment for 19 schools, benefiting 5,367 students, including 3,353 relocated children.



### Our practices

Relied on operation of large-scale hydropower plants, focused on complementary development model of water, wind, solar and stored energy, made the business layout for development and utilization of new energy, smart integrated energy and pumped storage energy, and promote the optimization of energy structure.

### Our achievements

Provided 100% clean electricity.  
15 smart integrated energy projects were newly built and put into operation.



### Our practices

Unblock career development paths of employees and fully stimulate the vitality of employees.

### Our achievements

A total of more than 240 managers were adjusted and supplemented throughout the year, of which more than 150 managers at all levels were promoted.



### Our practices

Took the Hubei Key Laboratory for Smart Yangtze River and Hydroelectric Sciences as a platform to carry out scientific and technological research and development, and laid a technological foundation for digital mapping and application from a "Physical Yangtze River" to a "Smart Yangtze River".

Developed and applied key technologies for coupled hydrological and meteorological forecasting for the Three Gorges cascade hydropower plants to continuously improve forecast accuracy.

Explored the smart integrated energy business, and promoted the county-wide distributed photovoltaic power, distributed natural gas and bio-natural gas industries.

Assisted in the infrastructure construction in many places in Wushan County and Fengjie County to improve the development environment.

### Our achievements

The total of Company's R&D investment was RMB 642.5392 million.

409 patents were authorized throughout the year, including 23 invention patents.

107 software copyrights were obtained.

Implemented 17 infrastructure aid projects in 2021.



### Our practices

Treat every employee equally regardless of age, disability, race, nationality, religion or political opinion.

Ensured equal opportunities for employee growth and promotion to reduce inequalities in outcomes.

### Our achievements

Ethnic minority employees account for 6.4%.  
The total investment in employee training was RMB 10.7086 million.



### Our practices

Actively communicate with the communities where the operation is located, made rational plans for the resettlement investment projects, gave resettlement compensation and subsidies to relocated people, ensured the satisfaction of production and living needs of the relocated people.

### Our achievements

Protected resettlement rights of the resident from three cities (prefectures) in Sichuan and Yunnan provinces.



### Our practices

Cooperated with governments at all levels around the operation site, gave priority to localized procurement, implement localized employment, and gave back to local communities.

### Our achievements

Purchased a total of RMB 9.2 million of agricultural and sideline products from Wushan and Fengjie counties and other assisted areas.



### Our practices

Implemented ecological dispatch for natural reproduction of the four major Chinese carps in the middle reaches of the Yangtze River for 11 consecutive years.

Wudongde HPP carried out the ecological dispatch tests of multi-layered intake and base-load power generation for the first time, which created a suitable water temperature environment for downstream fish spawning.

Prepared the Ecological Dispatch Plan for Three Gorges-Gezhouba Cascade Hydropower Plants, created the downstream water level and flow conditions suitable for Chinese sturgeon release activities, and contributed to the CTG's Chinese sturgeon release activities in 2021.

### Our achievements

A total of 8 ecological dispatches have been carried out for cascade hydropower plants.

From May to June, the Three Gorges Reservoir carried out 2 ecological dispatches for natural reproduction of the four major Chinese carps, which cumulatively promoted the total fish spawns in the lower reaches of the Gezhouba Project to exceed 12.4 billion, of which the spawns of the four major Chinese carps exceeded 8.4 billion, the highest in history.

CTG released a total of 10,000 Chinese sturgeons of all ages throughout the year.



### Our practices

Promote the low-carbon transformation of the energy structure, and form the world's largest clean energy corridor composed of the six cascade hydropower plants managed and operated by the Company to support the low-carbon development of the economy and society.

### Our achievements

The green and clean electricity generated by its four cascade hydropower plants was equivalent to reducing carbon dioxide emissions by 173 million tons.



### Our practices

Participated in and implemented the rare plant protection of the CTG, and took measures such as technological innovation, ex-situ or in-situ conservation to ensure that rare plants were protected after the reservoir was impounded.

### Our achievements

The protected plant species have been expanded from 560 to 1,181 species.



### Our practices

Promoted the four-in-one construction of legal affairs, compliance, internal control and risk, and continued to contribute positive energy to the development of the industry with our own sustainable and steady development.

### Our achievements

Various risks of the Company were controllable and under control, and no major risk events occurred throughout the year.



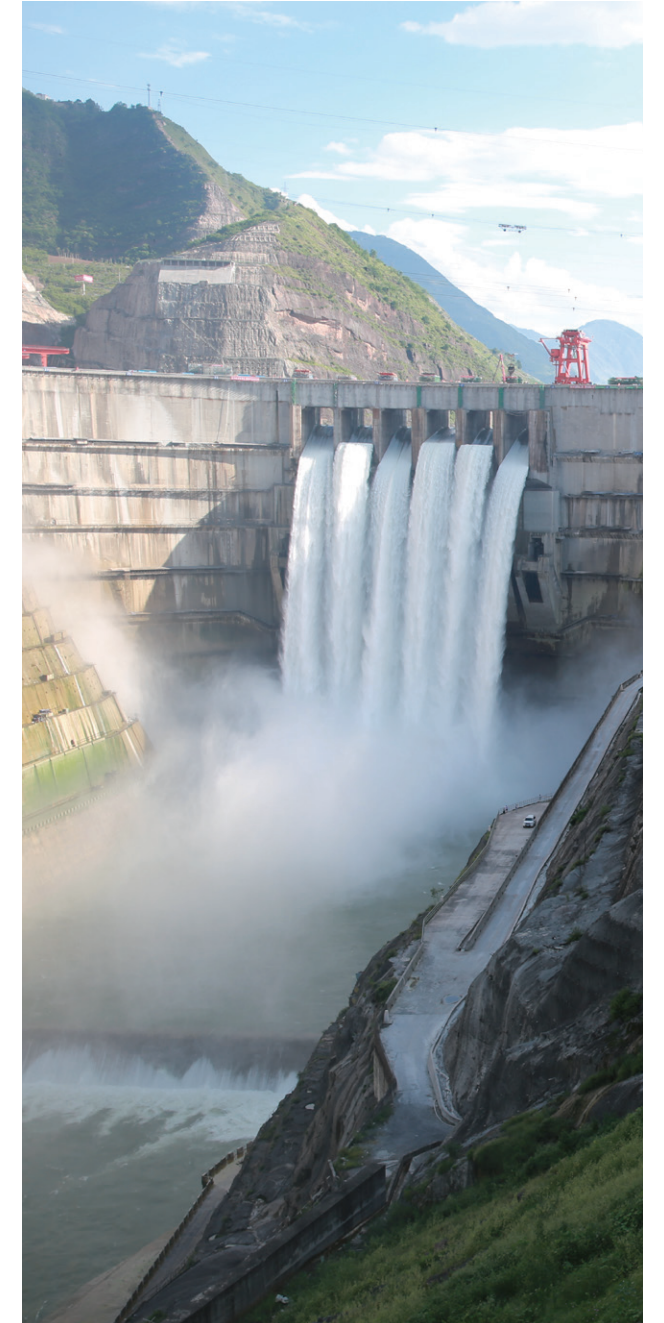
### Our practices

Established good partnerships with the government, universities, enterprises, etc., promoted the complementarity of resources and advantages, shared values and sought common development.

### Our achievements

Competitive procurement ratio reached 77.71%.

8 national and industrial standards were published.





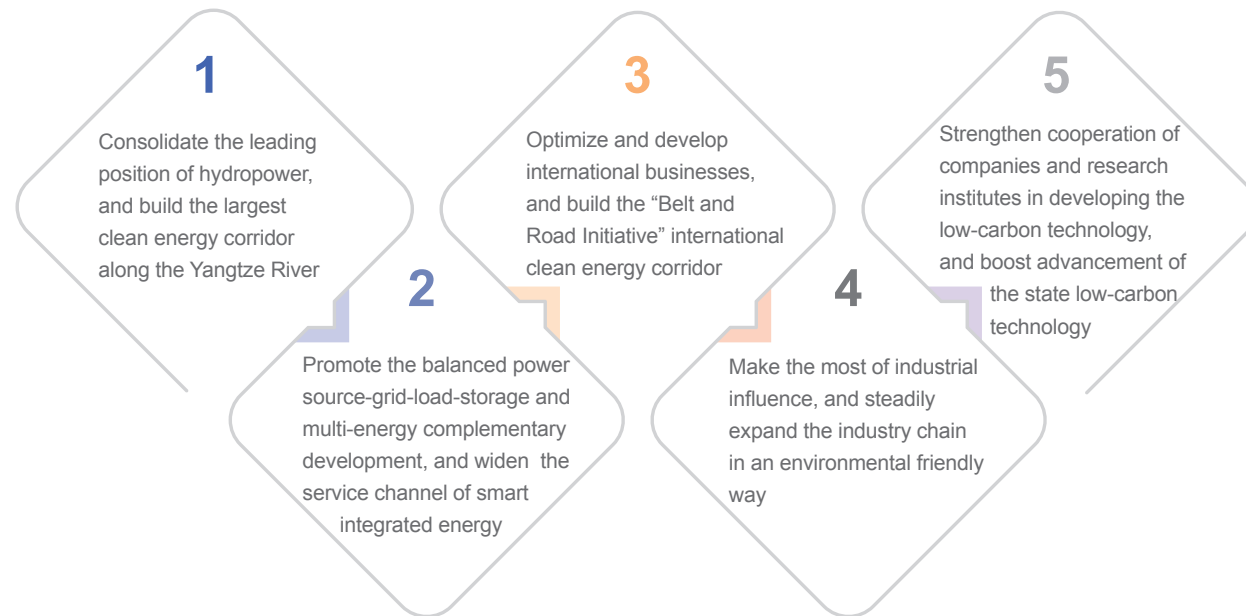
# Focus: Tackling Climate Change and Moving Towards Carbon Neutrality

Climate change has become a global development issue and a severe challenge faced by all mankind. CYPC deeply realized the importance of developing clean energy for tackling climate change, and therefore actively participated in climate actions, and developed resource advantages and core business capabilities based on renewable energy. In addition, it gave full play to its management efficiency, and created a “strong engine” for low-carbon China with uninterrupted provision of green electricity to promote low-carbon economic and social development.



## | Zero-carbon vision

“Achieving net-zero emissions in the second half of this century” is the long-term goal of the *Paris Agreement*. As a clean energy company, CYPC conducts research on carbon neutrality strategies, formulates and implements five key actions, and works with stakeholders to move towards a zero-carbon future.



### Extensive reading

A study showed that the Three Gorges Dam has caused significant drops in greenhouse gas emissions

Based on water quality, environment, and greenhouse gas sampling results from 43 hydrological stations along the 4,300-km reaches of the Yangtze River, it was found that the Three Gorges Dam caused influence on its downstream watershed. The Three Gorges Dam fundamentally altered plant photosynthesis, methane production and denitrification in the lower reaches of the Yangtze. Based on water quality, environment, and greenhouse gas sampling results from 43 hydrological stations along the 4,300-km reaches of the Yangtze River, it was found that the Three Gorges Dam caused influence on its downstream watershed. The Three Gorges Dam fundamentally altered plant photosynthesis, methane production and denitrification in the lower reaches of the Yangtze River, and therefore caused significant drops in the

annual average emissions of carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O), accompanied by remarkable reductions in the annual export of CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O to the sea from the Yangtze River. These findings suggest that the Three Gorges Dam has significantly reduced greenhouse gas production, and that its impoundment has improved both the environment in the reservoir area and riverine habitats downstream.

**Source: *Three Gorges Dam: Friend or Foe of Riverine Greenhouse Gases?* by the team led by NI Jinren, Professor of College of Environmental Sciences and Engineering at Peking University and Academician of the Chinese Academy of Sciences.**



## Clean energy development and utilization

The six cascade hydropower plants in the mainstream of the Yangtze River operated and managed by the Company constitute the world's largest clean energy corridor, and fully display their comprehensive benefits in power generation, flood control, water replenishment, navigation and ecology, etc. While providing clean energy for production and life in the middle and lower reaches of the Yangtze River, the corridor builds a strong ecological defense in the Yangtze River Basin, forms a virtuous circle of ecology and environment, and makes an important contribution to global carbon emission reduction.

### Extensive reading

#### Emission reduction effects of hydropower

Hydropower is a renewable energy source. According to the standard coal consumption of thermal power plants (6,000 kW and above) in China in 2020, the standard coal consumption per unit of thermal power is 304.9 g/kWh, and the carbon dioxide emission per unit of thermal power generation is about 832 g/kWh. Therefore, every 0.1 TWh of clean hydropower is equivalent to saving 30,490 tons of standard coal and reducing carbon dioxide emissions by 83,200 tons.



### Key performance



The four cascade hydropower plants owned by the Company generated **208.322** TWh of green and clean electricity

which is equivalent to reducing carbon dioxide emissions by **173** million tons

and planting **690,000** hectares of broad-leaved forest

On the basis of consolidating the leading position in operation of large-scale hydropower plants, the Company promotes the coordinated development of new energy, smart integrated energy and pumped storage, and actively builds a clean, low-carbon, safe and efficient energy system.

### Response to public concerns

#### Promote clean development

New energy is low-carbon and clean energy. The new energy power generation is also characterized by randomness and intermittency. Therefore, it is necessary to build a large number of peak regulation and energy storage facilities to cope with the volatility for a period of time. On the basis of consolidating its main business of hydropower, the Company uses wind and solar energy as supplementary energy, uses digital technology and energy storage technology to balance supply and demand, and provides the efficient and low-carbon new energy to meet the needs of economic and social development.

## Case

### Pure electric cruise ship "Yangtze River Three Gorges 1" was built and launched trial

In 2021, the pure electric cruise ship with the largest electricity capacity in the world - "Yangtze River Three Gorges 1" was built and tested. The ship, which adopts the DC bus frequency conversion control distribution system to supply power to the whole ship, and equips with Battery Management System (BMS), Energy Management System (EMS), Power Management System (PMS), cruising range monitoring and expert consultation system. It is a pure electric ship that truly realizes "zero pollution and zero emission".



The ship has a 7,500 kWh power battery for ship use. Once it's fully charged, the ship can sail for 100 km. It is estimated that use of this ship can reduce carbon dioxide emissions by 1,600 tons per year.



## Carbon emission reduction action

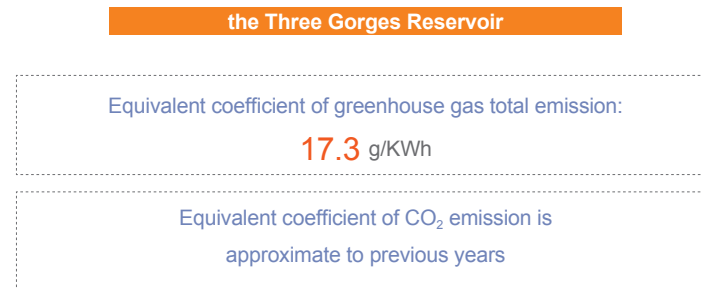
The Company systematically identifies various sources of direct and indirect carbon dioxide emissions, implements carbon reduction actions by category and step by step, continuously reduces carbon emissions from its own operations, and gives full play to the carbon reduction effect of clean hydropower.

### Carbon emission monitoring

In order to calculate the greenhouse gas emission coefficient of the reservoir, the Company carried out the research on greenhouse gas monitoring of the Three Gorges Reservoir (hereinafter referred to as the "research"). Based on the ecological characteristics of the typical waters of the Three Gorges Reservoir, the Company has developed a greenhouse gas monitoring system suitable

for the typical waters of the reservoir, and preliminarily assessed the greenhouse gas emission reduction effects based on the comprehensive benefits of Three Gorges Project in power generation and navigation. Hydropower generation from Three Gorges Project, the representative, played an important role in transforming energy structure and developing a low-carbon economy in China.

### Emissions of greenhouse gas from the Three Gorges Reservoir at present stage as estimated in the research:



### Carbon emission reduction

The Company's hydropower generation does not cause carbon emissions. The Company further identifies the sources of carbon emissions generated by operations, and carries out comprehensive carbon emission reduction actions to reduce its own carbon emissions as much as possible.

|         | Carbon emission sources   | Carbon reduction actions   |
|---------|---|--|
| Scope 1 | Greenhouse gases in the reservoir area mainly generated by underwater anaerobic decomposition of organisms in submerged areas of dams and material deposits in reservoir. | Carried out research on monitoring and analysis of carbon emissions from the Three Gorges Reservoir, and gauge the long-term trend of carbon emissions from the reservoir. It was estimated that the carbon emission coefficient of the Three Gorges Reservoir in 2021 is basically the same as that in the previous research results. |
| Scope 2 | Sulfur hexafluoride in electrical equipment; electricity consumption in power facilities for lighting, air conditioning, etc.   | Sealed up the high-voltage electrical equipment that uses sulfur hexafluoride as an insulating medium, and require 100% recovery of sulfur hexafluoride during the maintenance of related equipment, and made intelligent energy-saving reforming to the lighting system.  |
| Scope 3 | Carbon emissions from employee travel activities.   | Advocated online office, reduced unnecessary offline meetings and activities, and employees' business trips. For inevitable business trips, employees were encouraged to use public transport means for green travel.  |

## Carbon emission reduction services

Under the concept of green development, Chinese enterprises will face huge challenges and changes in production modes and energy use methods. The Company focuses on the carbon reduction difficulties of enterprises in the Yangtze River Delta region, prepares customized “carbon-neutral packages”, and provides energy-saving and carbon-reduction services to help users reduce carbon emissions.

## Case

### Working with Volvo to build a zero-carbon park

In 2021, the Company’s subsidiary Three Gorges Electric Energy Co., Ltd. (“TGEE” for short) launched the unique “carbon-neutral package” in the Yangtze River Delta region, including cooperation with Volvo to build a zero-carbon park. According to the characteristics of Volvo, the Company adopts the package model of “smart integrated energy + market-oriented green electricity + carbon footprint management” to build the demonstration project of TGEE & Volvo Asia Pacific Headquarters Park for Car Carbon Neutrality, and develops a customized carbon footprint management platform for Volvo to effectively calculate the carbon emission data of buildings and facilities of Volvo Asia Pacific Headquarters and help Volvo build a zero-carbon headquarters park.



## Case

### Distributed solar generation contributes to carbon emission reduction of Continental AG

Continental AG is a world-class transportation industry manufacturer and auto parts supplier, with a world-leading market share and an urgent need for energy conservation and carbon reduction. Three Gorges Electric Energy Co., Ltd. takes Continental Shanghai Factory as the first batch of pilot projects to save energy costs and reduce carbon emissions for Continental AG through distributed solar generation and other methods. During the operation period of the project, more than 45,000 tons of carbon emissions are reduced for Continental AG, and the effect of energy conservation and carbon reduction is remarkable.



## Case

### Customized solutions meet BASF’s carbon reduction needs

German BASF Group is one of the world’s largest chemical companies. Three Gorges Electric Energy Co., Ltd. combines electrochemical energy storage with market-oriented green electricity sales, and takes Shanghai BASF New Materials Plant as a pilot to customize smart integrated energy solutions to BASF’s energy saving and carbon reduction needs.





# Corporate Governance

## Governance system

### Governance mechanism

We strictly abided by the **Company Law, Securities Law, Guidelines for Governance of Listed Companies** and other laws, regulations and the requirements of regulatory authorities. We established a corporate governance structure and operation mechanism centered on the General Meeting of Shareholders, the Board of Directors, the Board of Supervisors and management personnel, revised and improved rules of procedure, constantly improved the composition of the Board of Directors, and enhanced the ability of directors to perform their duties. All these were to ensure that all corporate governance bodies would perform their duties in a standardized, efficient and adequate manner, and strengthen the corporate governance capabilities. In 2021, we prepared the **Authorization Management System for Board of Directors**, improved the management system for our external full-time directors, optimized the composition of the Board of Directors of the Company's subsidiaries and continuously improved the corporate governance and decision-making capacity.



## Board of Directors and its committees

The Board of Directors of the Company has 15 directors, including 5 independent directors and 1 female director. The Board has three special committees under its umbrella, i.e., Strategy and Environment Committee, Remuneration and Evaluation Committee, and Audit Committee. Industry experts and professionals (including senior accountants, senior engineers, professorate senior economists and PhD in management) are hired to serve in special committees for enhancing the comprehensive governance capability of the Board.

The Strategy and Environment Committee has 7 members, who research and make recommendations on the Company's development strategy planning, environmental and ecological protection issues and major investment decisions.

The Remuneration and Evaluation Committee has 5 members, who develop the evaluation standards for directors and senior managers, review the performance of the Company's directors (non-independent directors) and senior managers, evaluate their performance on a regular basis, and supervise the implementation of the Company's remuneration system, etc.

The Audit Committee consists of 5 members, who review and supervise the Company's internal control, and perform duties such as related party transaction control and daily management. In 2021, there was no non-operational occupation of funds by the controlling shareholder or its affiliates.



## Board of Supervisors

The Company's Board of Supervisors has a total of 8 supervisors, including 2 female supervisors and 3 employee supervisors. The Board of Supervisors, as the Company's highest supervision authority, is responsible for independent supervision and inspection of the Company's financial and accounting work as well as directors and senior managers' performance of duties, and safeguard the interests of the Company.

## Senior management

The senior management of the Company is composed of a total of 6 senior managers. It is the executive body of the Company and is responsible to the Board of Directors. For this purpose, it organizes the implementation of resolutions by the Board of Directors, company and investment plans, performs its responsibilities in strict accordance with corporate governance documents, and ensures the rational and efficient operation and management of the Company.

*In 2021*

- ▶ We completed the annual work of the General Meeting of Shareholders, Board of Directors and Board of Supervisors, by-election of 2 directors and 1 supervisor, and recruitment of 1 external director of China Yangtze Power International (Hongkong) Co., Ltd. ("CYPI" for short).
- ▶ We organized and prepared 30 meetings of General Meeting of Shareholders, Board of Directors and its special committees, and Board of Supervisors, reviewed and approved a total of 135 proposals with a pass rate of 100%.





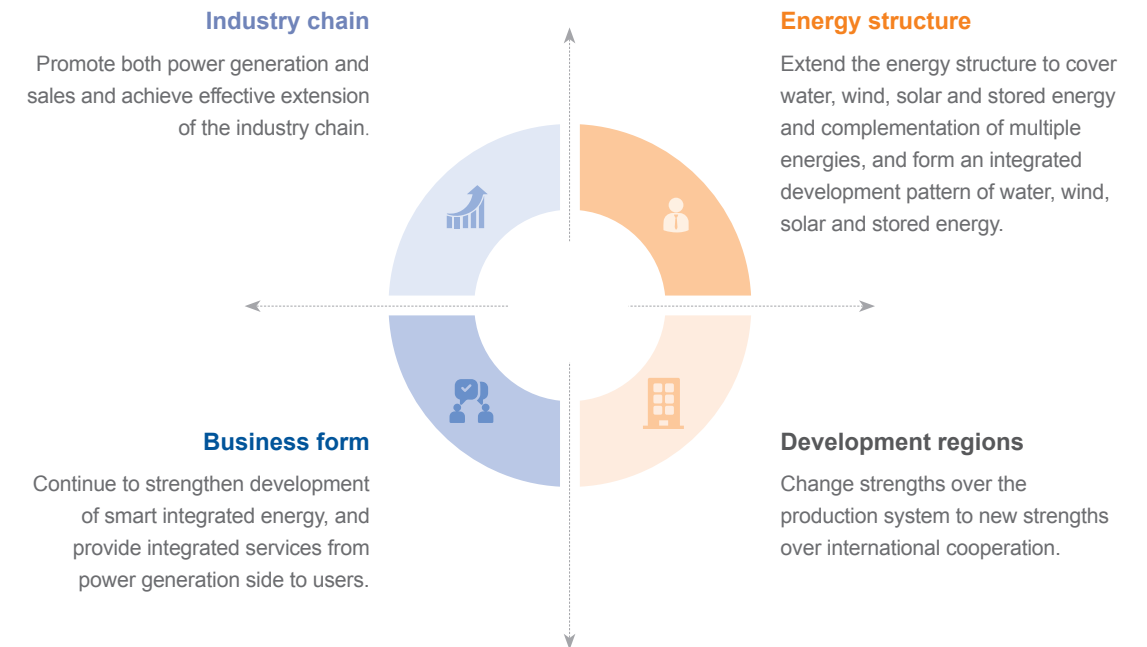
## Remuneration management

The Company formulated the **Administrative Measures for the Evaluation of Operational Performance of Senior Managers** and **Administrative Measures for the Remuneration of Senior Managers**, established an incentive mechanism for the development of new energy business, implemented the differentiated remuneration distribution of senior managers, and paid the remuneration of senior managers according to the results of the annual business performance assessment, so as to improve its operating efficiency and quality. The remuneration

of independent directors was paid in accordance with the standards determined by the General Meeting of Shareholders. The Board of Directors determined the remuneration and rewards & punishments of senior managers, evaluated the annual performance of all senior managers in business performance, safety, environmental protection, business ethics, etc., incorporated key sustainable development performance indicators in environment and safety into the scope of executive evaluation and linked them with their remuneration.

## Development strategy

The Company insists on the concept of innovative, coordinated, green, open and shared development, broadens the new development space of clean energy actively, strengthens scientific & technological innovation, carries out the digital transformation, and improves its ability for international businesses, with an aim to develop into a responsible and respected listed company commonly recognized by the public, and continually create comprehensive values for society, shareholders, employees and partners.



## Risk management

The Company improved the risk management system, carried out risk management activities, strengthened comprehensive risk management, and coordinated the key points of risk management and control throughout the year. Besides, it identified and assessed annual risks, printed and distributed the annual risk list, regularly prepared the risk management reports, and paid close attention to the daily work of risk management. In 2021, all risks of the Company were controllable and under control, and there were no major risk events throughout the year.

A

Revised the **Comprehensive Risk Management System** and **Internal Control Management System**. We highlight the risk control requirements and internal control standards in key areas and stages, and prevent and eliminate risks in production, operation and management.

B

Ensure the monthly monitoring and quarterly analysis of risk management and control, make dynamic adjustments to risk management and control strategies, track and collect new risk information and risk events monthly, and prepare the risk management report quarterly.

C

Issued the risk list 2021 which will be updated according to changes, identified a total of 37 risks in 14 aspects, specified the subject of risk responsibility, management objectives, and critical risk indicators, and established specific control measures in response to each risk.

D

Hold special trainings on risk management to enrich the policy and theoretical knowledge of all the employees, guide them to foster the sense of risk prevention and the sense of bottom line of compliance, and continually improve their ability to prevent and respond to major risks.

A

Released compliance standards such as the **Compliance Management Measures for Overseas Business Operation**, **Management Measures for Compliance Consulting and Review** and **Compliance Manual**.

C

Established the **Work Plan 2021 for Internal Audit, Internal Control and Risk Management**, and carried out IT audit, off-office economic responsibility audit on CTGO leaders., etc.

B

Revised three audit management standards, i.e., the **Internal Audit Management System**, **Management Measures for Economic Responsibility Audit**, and **Management Measures for Project Audit**.

D

Make a systematic evaluation of the design and operation effectiveness of the business flow of our Business Department and secondary subsidiaries to ensure that the business flow is rational and conforms to regulations.

## Internal control compliance

The Company improved the internal audit system, continuously strengthened compliance management, and perfected the compliance management mechanism. It also strengthened daily compliance review, advanced annual key audit projects, enhanced internal control evaluation and audit, and effectively improved the internal control management. In 2021, no major infractions were found in the Company.



## | Business ethics

### Governing body

The Company continues to promote the integrated management of legal affairs, compliance, internal control and risk. The Audit Department, Corporate Management Department and other departments are coordinated to undertake the responsibilities for business ethics supervision and control, formulate and regularly review the Company's ethics compliance policies, identify, evaluate, supervise and regulate corruption risks in the production and operation process, supervise behaviors that violate laws and business ethics, and strengthen regulation capabilities.

### Policies and actions

The Company has formulated the **List of Measures for Corruption Risk Identification, Prevention and Control** and **Measures for Compliance Management of Overseas Operations**. The Measures stipulate that cash payments by overseas business units are strictly limited to the normal business scope and prohibited to be used for illegal purposes such as money laundering or terrorist financing. Besides, the Company strictly implemented the **Administrative Measures for Tendering and Procurement Objections and Complaints**, **Administrative Measures for Supervision of Tendering and Procurement** and other systems. It provided anti-corruption education for key personnel for tendering, procurement and contract management, regarded bribery for winning bids as a serious discreditable behavior in supplier credit evaluation, and carried out anti-corruption practitioner declaration and anti-corruption commitment

activities. Besides, it signed anti-corruption agreements with suppliers to ensure that all its suppliers are honest and law-abiding, required suppliers to make anti-corruption commitments, promoted the incorporation of corruption risk prevention and control measures into business processes and the entire supply chain to ensure its incorruptible operation.



### Protection of whistleblowers

The Company formulated whistle-blowing procedures and administrative measures, which strictly prohibit transferring accusation materials to the accused organization or person, disclosing the whistleblowers' name, and any individual or organization to hinder, suppress or retaliate the whistleblowers. Personal injury and reputation loss of whistleblowers due to retaliation shall be handled in strict accordance with relevant national laws and regulations, so as to fully protect the legitimate rights and interests of whistleblowers in personal health and privacy security.

### Ethics training

The Company has strengthened anti-corruption education and business ethics training, and improved the business ethics awareness of all employees through special training, case analyses, warning reminders, etc. In 2021, a total of 12 anti-corruption education and training activities were carried out with 1,084 participants.

## Case

### CYPI holds training activities on overseas compliance risk management

On December 17, 2021, CYPI trained all its employees regarding overseas compliance risk management, provided detailed information on overseas investment, anti-corruption and anti-commercial bribery, cross-border data protection & transmission, anti-money laundering & anti-terrorist financing, supervision of listed companies at home and abroad, anti-monopoly supervision in Peru, etc. The senior managers, department heads and employees of CYPI, 65 persons in total, participated in training in Beijing, Yichang and Pakistan.





Create  
long-term value

## > Key topics

Developing clean energy, technological innovation and digitization, international development

## > Major action strategies

Strengthen integrated operation of cascade hydropower plants, maintain high-quality and high-level operation and maintenance of the large-scale cascade power plants in the river basin, and give full play to the overall benefits of the river basin.

Accelerate development of smart integrated energy, advance new energy and pumped storage businesses steadily, and continually expand new development spaces.

Manage and control safety risks, improve the safety management system and emergency management mechanism, and guarantee safe, stable, and efficient operation.

Further strengthen the supporting role of scientific & technological innovation and application of scientific and technological achievements, promote the digital transformation of the enterprise, which offers great help to our development of a digital “digital CYPC”.

Further improve the operational efficiency and management level of LDS.





## | Developing clean energy

### Energy business forms

Global energy development has entered a new stage, and the energy transition process featuring high efficiency, clean energy, and diversification is accelerated. As the largest listed electric power company in China and the largest listed hydropower company in the world, CYPC further consolidate its leading position in operation of large-scale hydropower plants. On this basis, it promote an integrated development of water, wind, solar and stored energy, continue to strengthen development of smart integrated energy, and provide better services in power distribution and sales, with an aim to promote the development of renewable energy with all its strength.

#### Hydropower generation

The annual accumulated power generation of the Company's cascade hydropower plants reached 208.322 TWh.

The generating units of Baihetan HPP were connected to the power grid for power generation, and all generating units of Wudongde HPP were put into operation for safe and scheduled power generation.

The annual power generation of Three Gorges Hydropower Plant (TGHPP) exceeded 100 TWh for the third time.

The Company was responsible for the operation management of Wudongde HPP and Baihetan HPP. The Company had 100 hydropower generating units in operation in China, with an installed capacity of 61,695 MW.

The Company signed the long-medium term power sales contract with power grid enterprises to purchase electricity from Three Gorges HPP, Xiluodu HPP and Xiangjiaba HPP.

The optical transmission network for downstream of the Jinsha River was completed and put into service, laying a foundation for effective integrated operation of six reservoirs.

The cascade hydropower plants in the mainstream of the Yangtze River passed the trial of long-cycle and heavy-loaded operation, with zero safety/quality accidents in work safety.

#### Integration of water, wind and solar energy

We established CYPC New Energy Co., Ltd. and strengthened cooperation with Energy Investment Co., Ltd. in Sichuan and Yunnan Province from CTG to promote the construction of integrated water, wind and solar energy base in the lower reaches of Jinsha River.

We started the study of the construction and planning project for water, wind, solar and stored energy corridor from the lower reaches of the Jinsha River to the upper reaches of the Yangtze River, explored the way for complementary development of water, wind, solar and stored energy, and realized differentiated development of new energy businesses.

#### Pumped storage

We actively expanded the development of pumped storage business, and implemented pumped storage projects in Gansu Province, Chongqing Municipality and Hubei Province.

#### Smart integrated energy

We explored to develop an integrated green energy butler model in urban areas, and signed a strategic cooperation agreement for smart integrated energy with multiple governments at city and region levels.

We made a plan to promote coordination of power source-grid-load-storage, and started the construction of bio-natural gas project, energy storage and distributed photovoltaic power generation project, etc.

We established joint ventures with Total and Three Gorges Capital for charging service operation, and planned to install charging stations on a large scale in multiple provincial capitals.

We explored ways for developing carbon assets management, so as to provide professional support for enterprises in terms of carbon footprint verification and carbon assets transaction, and help energy-using entities to achieve the carbon peaking and carbon neutrality goals.

#### Power distribution and sales

We strengthened cooperation with power grid enterprises and promoted the construction of incremental distribution networks by selecting optimal programs.

We strengthened the power supply capacity of existing distribution networks in Chongqing, promoted construction of internal-network power sources, and worked continually to increase the intelligence level of distribution networks, power supply guarantee and service level.

We completed the acquisition of Luz del Sur, boosted development of electricity distribution and sales in overseas business.



## Case

**Annual power generation of TGHPP exceeds 100 TWh for the third time**

CYPC sticks to lean operation and explores potential to increase efficiency with an aim to give full play to the generation benefits of Three Gorges Hydropower Plant (TGHPP). In 2021, the accumulated power generation of the TGHPP reached 103.649 TWh, which meant that it accomplished 111.45% of the year's generation plan. This was the third time for the TGHPP to exceed 100 TWh in annual power generation of since it was put into operation.

## Case

**A new pattern featuring "integrated operation of six reservoirs" comes into being in an all-around way**

CYPC thoroughly implemented the concept of "combining construction and operation management for seamless handover", participated in the engineering construction and grid-connection for power generation of Baihetan HPP and Wudongde HPP, and formed a new pattern featuring "integrated dispatch of six reservoirs". With Wudongde HPP and Baihetan HPP included in the operation of CYPC, CYPC further strengthened its leading position in large-scale hydropower operation and improved its value creation capacity. Six cascade hydropower plants under CYPC, which form the largest clean energy corridor in the world, will play a greater role in energy structure optimization, power grid inter-connection and realization of overall benefits.

## Capital operation

CYPC constantly works to standardize the overseas investment and strengthen market value management. It actively promotes its influence in the capital market, continually expands its capital operations, and makes every effort to guarantee the performance growth and capital gains, so as to bring greater values to shareholders and investors.

### Guaranteeing the return on investment

We highlighted the guiding role of strategies, focused on our main businesses, and provide overseas investment actively and steadily in fields of clean energy, smart integrated energy, and upstream and downstream of the industry chain. The return on investment of the whole year registered RMB 5,426 million.

We continued to strengthen equity management and manage the market capitalization of stock equity. We appointed a specially-assigned person to manage the equity, track and analyze the assets and business conditions of companies holding our shares, standardize overseas investment and stock equity management, and made every effort to guarantee the return on investment.

### Obtaining market recognition

We won Moody's A1 rating for the first time, which was consistent with our sovereign credit rating in China. Our FTSE Russell ESG rating ranked the first in the China power sector in the category of A-share.

We successfully issued the first Sustainability-Linked Bonds in China, cashed overseas dual-currency exchangeable bonds in 2016, and realized the pre-established goal of efficiently using the stock assets and supporting our international business development.



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## Expanding capital operations

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Seizing the opportunities provided by the capital market, we continually reinforced our investments in our target strategic goals such as integrated operation of cascade power plants in the middle and upper reaches of the Yangtze River, regional high-quality energy platforms, and power distribution and sales service platforms, and managed market values with elaborate plans.

We strengthened the long-term strategic cooperation with China Southern Power Grid, and took an active part in the capital increase and expansion of Dinghe Insurance. We paid close attention to the progresses in diversity of equities in the power trading centers of major electricity receiving cities and provinces, and have become a shareholder of Shanghai Electric Power Trading Center and Zhejiang Electric Power Trading Center. We also worked continually to optimize our resource allocation and investment layout.

## Case

### Successful issuance of the first sustainability-linked bonds in China

In May 2021, CYPC issued China's first sustainability-linked bonds in the inter-bank bond market, winning the extensive engagement and enthusiastic subscription of investors. Sustainability-linked bond is an innovative and green financing product issued by National Association of Financial Market Institutional Investors in 2021. CYPC has demonstrated its determination to promote the sustainable development in the field of renewable energy by issuing the first sustainability-linked bonds and setting the sustainable development goals.



## Work safety

CYPC improved its work safety system suitable to operation of large-scale hydropower management in strict compliance with international, Chinese, and industrial safety regulations and policies. It promoted and realized the safe use of hydropower resources of the Yangtze River through improving safety management and control, ensuring emergency responses to safety events, and shouldering safety responsibility. In 2021, we realized “zero personal casualty and zero equipment incident” in ensuring work safety, and Gezhouba HPP has functioned safely for 18 consecutive years.

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### Safety management

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We prepared and released 26 management systems for safety & environmental protection including the **Specifications for Post Work Safety Responsibility** and **Management Measures for Work Safety Responsibility**, and established 5 technical standards for safety & environmental protection, ensuring more standard and effective safety management.

We worked continually to improve the safety management system, evaluated and revise the safety system at specified intervals. In 2021, we prepared and revised the regulations such as the **Management Measures for Risk Management and Control and Potential Accident Elimination and Governance in Work Safety**, and **Technical Supervision Regulations for Environmental Protection**.

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### Major risk control

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We further strengthened hierarchical management & control and hazard investigation & treatment of power safety risks; carried out inspections of hazardous chemical substances, inspections during festivals and holidays, etc.; organized special inspections of annual maintenance & overhaul safety, fire safety, occupational health, special equipment, cybersecurity, traffic safety and so on.

Through further optimization and application of the safety management information system, we achieved level-by-level identification and correction of hazards, classified statistics, timeout reminder and other functions, realized closed-loop safety management and control.

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### Emergency management

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We improved the management system for emergency response. In the whole year of 2021, we revised the **Emergency Management Measures**, finished the revision, review, release and filing of 7 plans, such as the **Comprehensive Emergency Plan**. By the end of 2021, CYPC had established 335 emergency plan system documents.

In order to strengthen the emergency management and response ability, we established the **Special Inspection Plan for Emergency Response Ability Building, Emergency Management Plan 2021**, and **Emergency Drill Plan 2021**, and conducted emergency drills on 21 subjects including personal injury, flood control, flooded powerhouse, plant-wide power cut.

## Comprehensive benefits

We operated and managed well six large-scale cascade hydropower plants at a high level with high quality. We gave full play to the multiple roles of cascade hydropower complexes in the Yangtze River Basin with respect to flood control, water replenishment, shipping, and ecological dispatch, comprehensively utilizing hydropower resources of the Yangtze River.

### Flood control

We established a flood control work plan, took actions to seek out and eliminate safety risks and hazards before the seasonal flood, and conducted drills before seasonal flood including drills on emergency dispatch of super standard flood, flooded powerhouse, black start of hydropower plants.

We prevented and stored floods, reduced and shifted peaks by six cascade hydropower plants, with the flood volume impounded being 17.2 billion m<sup>3</sup>.

The Three Gorges Reservoir successfully resisted 8 floods exceeding 40,000 m<sup>3</sup>/s each, which greatly guaranteed the flood control safety in the middle and lower reaches of the Yangtze River.

Baihetan HPP was formally included in the integrated dispatch system of six cascade hydropower plants from the lower reaches of the Jinsha River to the middle and upper reaches of the Yangtze River, contributing to flood control dispatching.

### Water replenishment

CYPC's cascade reservoirs supplied 31.3 billion m<sup>3</sup> water to the lower reaches in 2021, effectively meeting the production, living and ecological water demands in the lower reaches of the Jinsha River and middle and lower reaches of the Yangtze River.

The Three Gorges Project achieved a normal operating level of 175 m for the first time, and a 175 m water storage level for 12 consecutive years, providing a water level guarantee for water replenishment to combat droughts.



### Shipping

The shipping depths in the lower reaches of Xiangjiaba HPP and Three Gorges HPP were increased by 0.84 m and 0.9 m respectively, which effectively increased the navigation capacity of the waterway and improved the navigation condition of the mainstream of the Yangtze River.

We organized special salvaging and ensured the lockage dispatching of hazardous articles. In 2021, the accumulated volume of freight traffic passing through the navigation lock of Three

Gorges Dam reached 149.9 million tons, and the volume of freight traffic of ship lifts reached 3.655 million tons.

Xiangjiaba HPP optimized and adjusted the equipment operation parameters, improved the operational reliability of ship lifts, and increased the navigation capacity of waterway. In 2021, 3,482 ships passed through the ship lift at Xiangjiaba HPP, with a freight capacity of about 1.48 million tons,



## | Innovation and digitization

### Innovation mechanism

Insisting on innovation-driven development, CYPC worked hard to improve its innovation mechanism, step up the commercialization and application of scientific and technological achievements, and constantly strengthen the internal momentum for development, innovation, and influence via its profound technology and advanced innovation ability. In 2021, CYPC invested RMB 642.5392 million in research & development.

#### Innovation management mechanism

We established a science and technology management plan in 2021 to 2025, where we put forward specific requirements in 15 aspects including establishment of a scientific & technological innovation platform, introduction and cultivation of skilled personnel, increase of investment in science and technology, and management and optimization of scientific & technological innovations.

We optimized the organizational structure and deliberation procedures of the technical committee. The technical committee has played a better role of decision making and supporting in scientific & technological innovation.

We enhanced the management mechanism of research projects, and explored new ways for organization and management of research projects, to effectively boost key projects such as “Digital Twins and Intelligent Applications of Key Equipment in Hydropower Plants”, “Potential Failure Mode and Impact Analysis System for Key Equipment in Hydropower Plants”.

We established the *Measures for Establishment and Management of Development Paths for Specialized Technical Personnel*, established development access for specialized technical personnel, and formed dedicated development paths for technical experts.

#### Research and application of research results

We finished a series of important scientific researches, including the application of acoustics in state recognition of wind tunnel facilities of generators, and the autonomous flight of UAV in a confined space without GPS, earth magnetism and light in hydropower plants.

With a focus on resolving critical and core technical problems, we vigorously strengthened the research of the industrial control system, and grasped the key technologies including autonomous disintegration overhaul of GCB operating mechanism through research.

The industrial Internet platform of CYPC was put into trial operation.

The comprehensive calibrator of vibration sensor of hydropower units was launched on the market.



### Case

**CYPC grasp the key technology for autonomous flight of UAV in a confined space of hydropower plants**

In May 2021, CYPC Technical Research Center successfully finished the onsite flight test for the “Research on Application of UAV Detection Technology in Confined Spaces of Hydropower Plants” inside the penstock of No. 24 unit at Three Gorges HPP, which meant that its UAVs were capable of the fully independent flight in the environment without earth magnetism, GPS signals and light in hydropower plants and provided fast, convenient, efficient and reliable means for digital detection of tunnels.

## Digital platform

The Company accelerates its digital transformation and focuses on digital capacity building. To this end, it builds a digital platform to provide better support for its production, operation and development and create a new development pattern of “operation of large-scale hydropower plants + Internet” with its unique characteristics.

### Digital management mechanism

We established a Digital Management Center to advance digital transformations vigorously.

We formed relevant data specifications and systems for our information resource management, a system guarantee for building intelligent hydropower plants, to enhance data collaboration and strengthen data fusion.

### Transition to smart businesses

The industrial Internet platform leading in the industry was put onto online service with fruitful results.

We established a micro service and management platform, DevOps platform for integrated development, operation & maintenance, and container cloud platform, which can provide effective support for development and automatic operation & maintenance of the management information system.

Our big data platform realized access and management of multi-source data and was able to store, process, manage, search and analyze massive isomeric data from multi-sources

We established a video and streaming media integration platform. Through the smooth playback of streaming media, the platform can upload and online browse patrol inspection and overhaul videos, and play a positive role in production, training and other business areas.

## Network and information security

Along with the development of informatization and digitization, network information security issues are becoming more and more prominent. CYPC strictly abides by the **Cybersecurity Law of the People's Republic of China** and other laws and regulations to improve its management of network information security, strengthen the prevention of cyber security risks, and ensure cyber space and information security.

## | International operation

### Integrating international business platform

We integrated international business on the basis of CYPI, and worked continually and steadily to advance overseas investment.

- We standardized decision-making mechanisms, adjusted board members of CYPI, and established our special work management department.
- We determined post arrangement, appointed the management team and formed business teams for CYPI.
- We established the **CYPI Work Schedule for System Building**, and set up a preliminary system framework for CYPI.

### Strengthening management of overseas companies

We improved management system of overseas investment companies, to promote upgrading of international operation and management.

- We sent the second onsite management team to Peru for this purpose. We adjusted composition of the Board of Directors, set up another 3 special committees, and assigned another 2 directors of foreign nationality. We also assigned the Chief Financial Officer to ensure more efficient governance and management.
- We summarized experience in the job service project of CTG Brazil and Pakistan wind power operation & maintenance project. Based on this experience, we formed complete and replicable experience in overseas hydropower operation & maintenance consulting and wind power operation & maintenance management, and established an O&M management & control system for overseas hydropower plant.



## Developing international businesses

Through the steady implementation of the international development strategy, CYPC actively expanded its international businesses and contributed to the development of the worldwide hydropower industry, aiming to become a world first class listed company in the field of clean energy with great international influence.

- We won the exclusive commitment letter for Peru Apollo photovoltaic project, and will make in-depth efforts to develop our businesses in power distribution and sales and the new energy field in South America.
- We also provided O&M management and technical consultation services for overseas hydropower plants, including large-scale hydropower plant(Brazil), wind farm(Pakistan), Karot hydropower plant (Pakistan), and Isimba hydropower plant (Uganda).



## Advancing responsible operations abroad

In the overseas businesses in Peru and other countries, the Company strictly abides by the laws and regulations of the host country, insists on localized operations, and listens to the appeals of stakeholders carefully. It also establishes community development plans and actively participates in community building according to its objectives, policies and actions.

- Relying on our advantageous resources, we cooperated with the associations of China-invested enterprises, local governments, think tank companies, media, universities, experts, community residents and other stakeholders to explore diversified ways of communication, and promote communications and exchanges with local communities in a more open and shared way.
- We advanced and implemented the social responsibility projects (such as health care, fish farming, community-level charitable education, etc.) that conformed to our principles of development and the local cultural background, and were highly accepted by the public.
- We launched the CTG Peru Scholarship to support the development of higher education in the local area.
- We issued the **2021 CTG Peru Social Responsibility Report**, and communicated with the public about CYPC's responsible operation and development performance in Peru to expand its international influence.

## Case

### CTG launched a scholarship program in Ricardo Palma University in Peru

The CTG Scholarship funded by CYPIC in 2021, was launched in Ricardo Palma University. This scholarship program planned to grant a scholarship to 10-20 young students from the Department of Civil Engineering of this university so that they can finish their studies. In this way, the communications between Sino-Peru young students were deepened.

## Case

### CYPC held a Sino-Peruvian university cross-cultural seminar

On September 28, 2021, CYPIC hosted the second Sino-Peruvian University Cross-cultural Seminar on the theme of "Clean Energy and Climate Change". A number of renowned experts, scholars from Tsinghua University, the State Grid Institute of Energy Planning and the Catholic University of Peru shared their views on risks and opportunities of clean energy development and climate change. The seminar was viewed by 300,000 people online.



## Awards and honors

The cross-cultural integration short film **HOLA** won the Overseas Popularity Award in the Third Belt and Road Initiative Short Video Competition.





# Protect the natural environment

## > Key topics

Renewable energy, combating climate change, energy efficiency, biodiversity conservation

## > Major action strategies

Reduce consumption of water resources and surplus water from cascade hydropower plants, for the best use of water resources.

Power generation from clean energy register a new record, provide clean, efficient, and green power for regional production and life.

Promote biodiversity conservation of the Yangtze River through ecological dispatch.





## Environment risk management

### Environment management system

CYPC gradually improved its environmental management system. It established an organizational system, institutional system, and assessment system for environmental protection, and formed an environmental protection management network covering the headquarters and subsidiaries. It also developed environment management plans for each project to ensure that the environmental protection policies can be implemented in all operation premises. In 2021, it passed the recertification of company's environmental management system (ISO 14001) by China Classification Society Quality Assurance Ltd (CSQA).

#### Organizational system

Set up an environmental protection management group to manage matters relating to environmental protection.

Establish the Environment Protection Department and appoint full-time environment management personnel.

All subsidiaries under CYPC designate the responsible department of environmental protection and appoint part-time environment management personnel.

#### Institutional guarantee

Establish the **Environmental Protection Management System**, and specify the environmental protection responsibility and management requirements for the CYPC headquarters and subsidiaries, with the system covering all relevant departments and units.

Establish the **Response Plan for Environmental Emergencies** to strictly control environmental protection risks.

#### Assessment system

Establish the **List of Responsibilities for Natural Environment Protection** and **Detailed Rules for Annual Environmental Performance Appraisal**. The Board of Directors organizes annual assessment on the performance of responsible personnel for environmental protection work, and links the environmental performance with senior management's remuneration to ensure that the environmental protection responsibility is appropriately fulfilled.

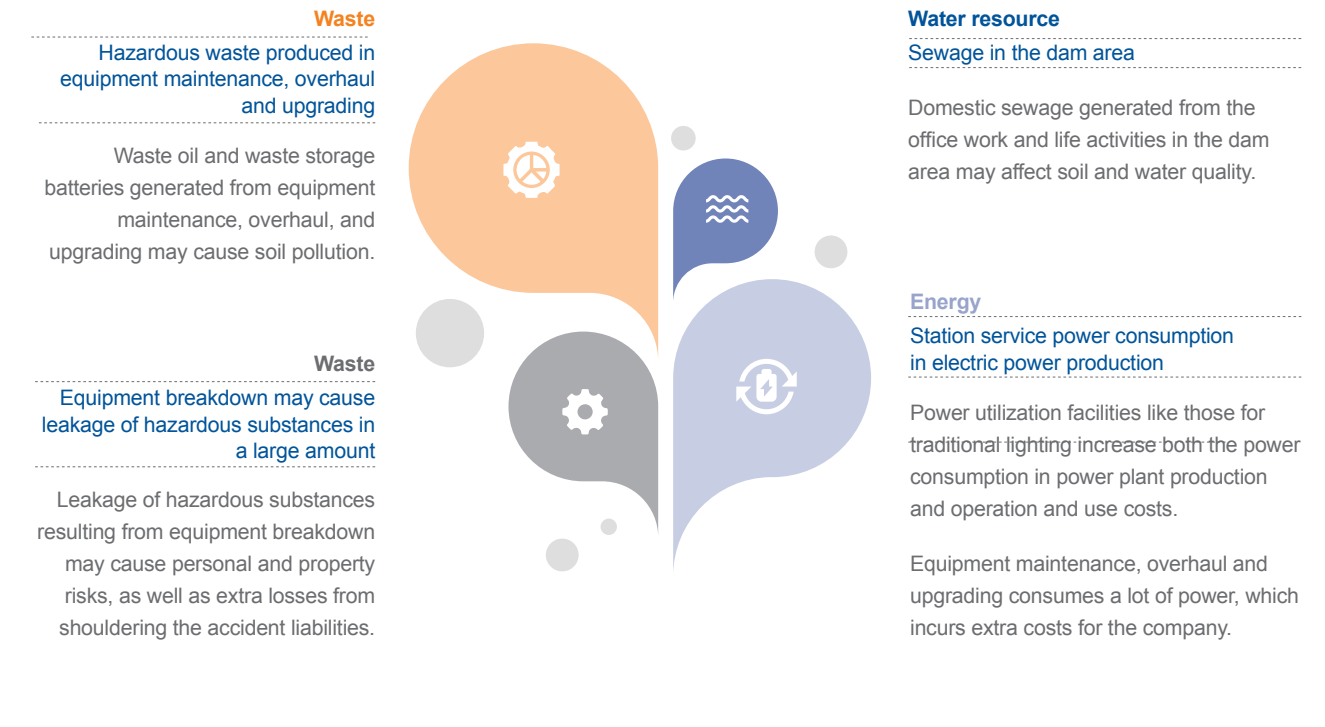


### Key performance

**100%** implementation of the environmental management system (ISO 14001) by all operations.

### Identification of environmental impact factors

We pursue harmonious co-existence with our environment, concern about the impacts of our operation on the natural environment, and identify and evaluate environmental impact factors each year for identifying and managing environmental risks. In 2021, we organized identification and evaluation of environmental risk factors in the headquarters and subsidiaries, during which we identified four important environmental factors including waste, water resources, and energy.



Explanatory text: Identification of important environmental factors in 2021

In view of four important environmental factors identified, the Company managed and handled them through lean production and technological innovation, etc., to ensure that these factors were scientifically and effectively controlled.

## | Use of energy and resources

### Energy management

The Company insists on the whole-process environmentally friendly operation. Through lean production management and innovation in energy-saving technology, it continually reduces energy consumption in each stage including production, dispatch, overhaul, and office work, with an aim to improve the energy efficiency management & control level, and save energy to the greatest extent.



#### Policy

Established the **Management Measures for Energy Conservation** to standardize the Company's energy conservation measures in production, dispatch, overhaul and office work.



#### Measure

Reduced energy consumption and implemented the plant-service power optimization project; upgraded old equipment such as station service transformers in Gezhouba HPP; advanced energy-saving transformation of lighting equipment in Three Gorges HPP, Xiluodu HPP, and Xiangjiaba HPP.

Advanced overhaul of environmental facilities, strengthened the whole-process monitoring of production materials such as oil, and improved the management & control level of comprehensive energy consumption.

Publicized and implemented the energy conservation philosophy, conducted activities themed as energy conservation and carbon reduction to promote environmental protection, and publicized the low-carbon life philosophy to all staff and workers.

### Water resource management

Water is one of the most precious resources in the world, as well as the most important resource for CYPC's production and operation. We innovate hydrological forecast technologies, improve monitoring of water resource risks, and respond actively to the uncertainty of water inflow from the Yangtze River. Meanwhile, we also cherish the water resources for production and operation, and improve the cyclic utilization rate of water resources through technological innovation and publicity and implementation of philosophies.

#### Know about water

Continue to improve the monitoring of water resource risks and know about the condition of the inflow from the Yangtze River. Through real time monitoring of the well-functioning and reliable water/rainfall regimen station network in the upper reaches of the Yangtze River as well as the high-precision forecast of rainfall and reservoir inflow, we can not only monitor the water/rainfall regimen and give warnings to drought and flood disasters in real time, but also provide effective support for the efficient use of water resources. In 2021, the 24-hour hydrological forecast accuracy of cascade reservoirs reached 96.93%.

#### Cherish water

Make continual improvement to the utilization rate of water resources by means of integrated operation of six reservoirs and innovative technologies, which maximizes the value of hydropower as clean energy. We develop the Intelligent Changjiang Decision Support System (ICJDSS) to improve the ability for water resource management and dispatch. In 2021, four cascade hydropower plants in the mainstream of the Yangtze River were all put into operation for power generation as scheduled.

#### Protect water

Carry out **the Research and Application of Key Technologies for Integrated Operation of Reservoir Systems for Improvement of Water Environment of Three Gorges Reservoir**, develop the multi-objective integrated operation technology of reservoir system to improve the water environment of the Three Gorges Reservoir Area, and realize the multi-objective and multi-dimensional regulation and control of the waters, including water volume, water quality, and water bloom, with a total length of 770 km, connected with the super-large-scale reservoir upstream the Three Gorges Dam.

#### Use water

Make the best use of the flood resource at the end of the flood season to impound water and store energy, and conduct integrated operation of cascade reservoirs rationally. We reach a balance between water head and water volume with the efficient use of water resources as an objective. In 2021, we 100% used resources of 5 floods at a rate of over 40,000 m<sup>3</sup>/s from July to August.



## Response to public concerns

### Response to the uncertainty, seasonal fluctuation and variation in water inflow from the Yangtze River

The major resource for production and operation of CYPC is the natural water resource of the Yangtze River. The aggregate water inflow, water distribution law, and variation in water level can all affect operation of hydropower plants. From the perspective of aggregate water inflow, it can be observed from the water inflow sequence of Yichang Station from 1882 to 2021 that the inflow from the Yangtze River featured periodic variation, with obvious alternate high inflow and low inflow.

In order to respond to the possible slightly low inflow and seasonal periodic fluctuations, CYPC has been paying close attention to the impact of climate change on water and rainfall regime, and striving to improve the forecast accuracy to prevent water inflow risks. It has more than 1,400 self-established or shared water/rainfall stations that cover about 1 million km<sup>2</sup> watershed area upstream Three Gorges Reservoir. Based on that, it can collect the data of all observation stations within 10 minutes to monitor water/rainfall regimen in the upper reaches of the Yangtze River and warn drought and flood disasters in the real time. In addition, it also strengthens its technical exchanges and communications with stakeholders and strives for favorable policy support. In addition, it strives for earlier impoundment and later drawdown, reduces unnecessary surplus water, and tries hard to improve the rate of water power utilization to reduce the adverse impact of fluctuations of the water inflow from the Yangtze River Basin on its operation.





## Clean production

### Management of solid waste discharge

CYPC integrates the philosophy of clean production into the whole process of business operation, identifies and sorts out the waste generated from production and operating activities, and takes targeted prevention and management measures to reduce the negative influence of operation on the environment.

|                        | Source  | Management measures  |
|------------------------|---|--|
| <b>Hazardous waste</b> | Waste mineral oil (HW08), waste chemicals (HW06, HW12, HW13, HW49) and waste batteries (HW31) replaced during the operation and maintenance of hydropower plants  | <p>Strengthen the management of scraping and disposal of hazardous solid waste.</p> <p>Strengthen equipment repair and maintenance management; inspect and monitor oil-using facilities; control all leak points on the oil supply pipe and main transformer of units; deal with leakage points timely; reduce consumption of turbine oil and insulating oil.</p> <p>Set special hazardous waste containers at the work site to collect hazardous solid waste; gather the waste oil, waste oil products, waste paint, waste adhesives, and waste oil rags generated in operation and send them to a qualified third party periodically for professional disposition.</p> |
| <b>Waste materials</b> | Optical cables, valves, motors, turbines, electronic components, rubber products, metal structures, office furniture and home appliances replaced and removed during the operation and maintenance of hydropower plants | Waste components and parts, waste materials, waste fixed assets and other industrial wastes generated during the maintenance of generating units, equipment, and facilities will be scrapped together.   |

|                               | Source  | Management measures  |
|-------------------------------|---|--|
| <b>Domestic garbage</b>       | Recyclable garbage, non-recyclable garbage, kitchen waste and other garbage generated from office and living activities in the dam area | <p>Set up classified garbage cans; provide two to four types of collection containers for recyclable garbage, non-recyclable garbage, kitchen waste, and other garbage in densely populated places and specific places; advocate garbage classification.</p> <p>All domestic garbage will be removed and disposed of by the entrusted unit using professional transport vehicles following the principle of daily disposition.</p> |
| <b>Construction waste</b>     | Waste produced during construction  | Construction waste will be disposed of according to the management requirements and regulations of the local government. On one hand, it can be used for subgrade paving as agreed by the local government. On the other hand, waste soil will be backfilled into specified pits for greening.   |
| <b>Waste floating matters</b> | Besides the waste produced in operation, the Company also salvage and clean floating matters in the dam area                            | Floating matters in the dam area will be fished out, piled together and sorted out, and then subject to innocent treatment by a professional agency, or recycled/used for power generation.  |





### Key performance



Compliance disposal rate of hazardous waste: .....  
 Compliance disposal rate of common solid waste: ..... **100%**  
 Coverage rate for classified management of garbage: .....

### Case

#### Waste disposal

CYPC attaches high priority to the harmony between operational activities and the environment. In 2021, its subordinate Luz del Sur conducted chemical treatment to 1.8 tons of oil contaminated by polychlorinated biphenyls through dechlorination. This has reduced the negative influence of operation on the environment, and ensured that the operational activities conform to the *Stockholm Convention*.

### Management of wastewater discharge

CYPC continues to install more domestic sewage treatment facilities, innovate wastewater treatment technologies, strengthen reclamation of wastewater and minimize wastewater discharge. In 2021, the Company finished transformation of the sewage treatment facilities and pipe networks of four cascade hydropower plants in the mainstream of the Yangtze River, and achieved the goal of “zero direct discharge” of domestic sewage in the dam area.

| Source                          | Objective  | Management measures  | Results   |
|---------------------------------|--|--|---|
| Production wastewater           |  | Domestic sewage in the Three Gorges and Gezhouba dam areas were discharged to the municipal waste pipe network.  |   |
| Domestic sewage in the dam area | Zero direct discharge of domestic sewage in the dam area | Wastewater treatment plants in Xiluodu and Xiangjiaba dam areas were upgraded, so that the wastewater can be recycled for greening after treatment. Ways for reutilization of wastewater are being explored. | Water pollutant emissions in the dam area have 100% met relevant standards.<br><br>Achieved zero direct discharge of domestic sewage in the dam area. |

### Case

#### Xiluodu HPP realized cyclic utilization of non-polluted industrial wastewater

In November 2021, Xiluodu HPP reconstructed non-polluted industrial wastewater disposition project of the water supply plants on the right and left banks, and recycled the sludge water generated from the production of these water plants after processing, which means that it has realized cyclic utilization of non-polluted industrial wastewater.

## Management & control of air pollutants

CYPC strictly implements air pollution control measures, continues to reduce wind-borne dust generated in construction, flue gas, and other air pollutants, and makes joint efforts to protect the blue sky.

### Source

Sulphur hexafluoride generated during equipment maintenance

### Measures

Equipment using sulphur hexafluoride shall be monitored, and any leakage discovered shall be eliminated timely.

When equipment using sulphur hexafluoride is repaired or decommissioned, we will recover all gases.

Wind-borne dust generated during construction, welding and polishing operations

Environmental protection measures (such as sprinkling dust suppression) that can reduce wind-borne dust and smoke dust shall be adopted.

Low volatile organic compounds (VOCs) generated during anti-corrosion coating operations

Paint with a lower content of volatile organic compounds (the proportion of VOCs is lower than 10%) shall be used for anti-corrosion coating.

### Source

Waste gas of motor vehicles

### Measures

Waste gas emissions from motor vehicles shall be tested annually. Vehicles with excessive emissions shall not be allowed to travel on roads.

Cooking fume discharged from canteens

Cooking fume purification facilities shall be installed and operated normally. The maximum emission concentration of cooking fume and the minimum removal efficiency of purification facilities shall meet the requirements of **Emission Standard of Cooking Fume** (GB 18483), and shall be monitored yearly.



## Key performance

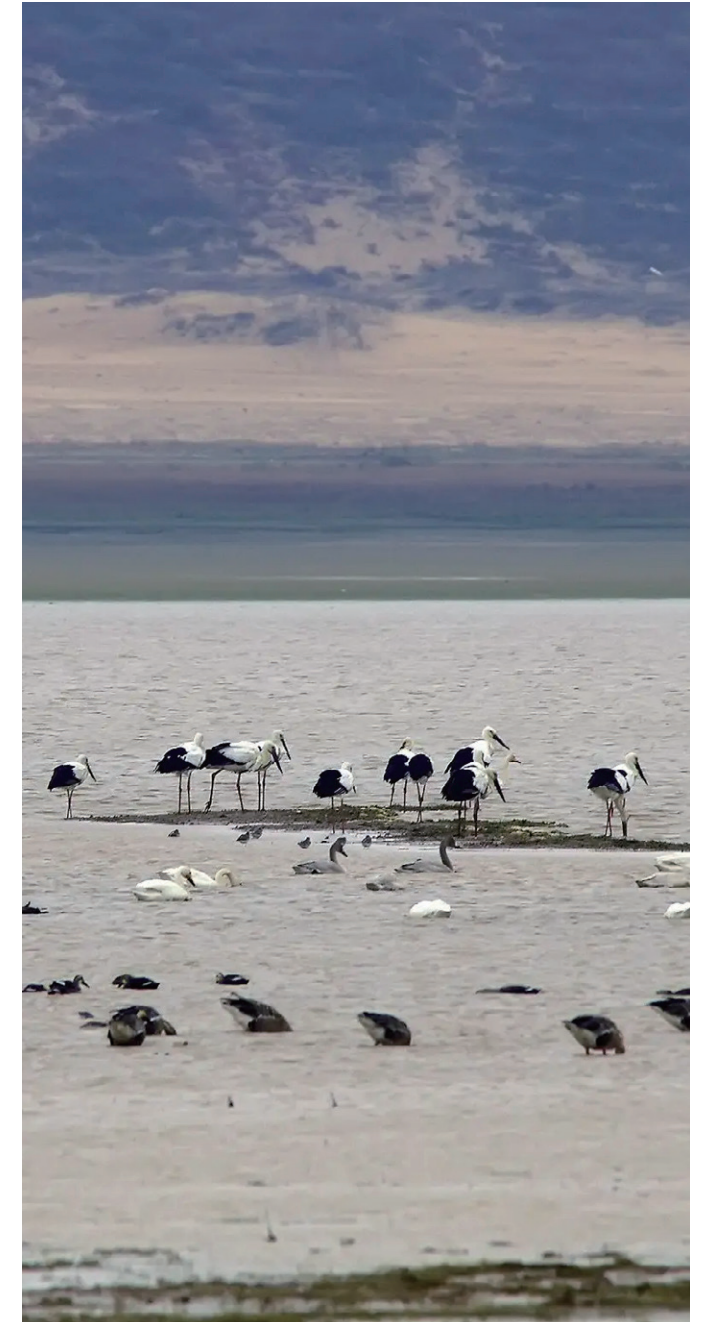
Air pollutant emissions in the dam area have **100%** met the requirements of relevant standards.

## Biodiversity

### Ecosystem protection policy

We attach high priority to protection of ecosystem, and strictly abide by international conventions such as the **Convention on Biological Diversity** and the ecological environment protection policies in the country or region where it operates. We respect legally protected areas in international agreements, including world heritage sites and wetlands of international importance, respect, adapt to and protect nature.

We fully implement the sustainable development policies, and set out express provisions in our **Environmental Protection Management System**: "If there are environmentally sensitive regions within or near the market segment of each affiliated company of CYPC, it shall pay more attention to and strictly protect such regions. The construction projects unrelated to environmental protection shall not be built in environmentally sensitive regions, and production and operating activities that may cause pollution shall not be carried out in environmentally sensitive regions." We also work hard to protect the terrestrial and aquatic biodiversity in the Yangtze River basin to make our contributions to the ecosystem of the Yangtze River.





## 🔍 Identification of ecological impact

Extreme natural disasters such as flood and drought are key factors causing the loss of biodiversity. CYPC realizes integrated operation of six cascade hydropower plants in the mainstream of the Yangtze River in a scientific way, and gives full play to their role of flood control and water replenishment, which provides a powerful ecological barrier for the Yangtze River Economic Belt. As a result, the ecology in the plain lake area has reached a new relatively stable state.

### Identification of impact



Flood

Floods can cause water and soil loss, drain of a great deal of soil and its nutrients, and make the land barren. Meanwhile, increase in the sediment charge of water flow will cause the river functions to be reduced, result in shrinkage of lake area, and impose a strong impact on the habitable environment.

### Response strategies

We give full play to the role of the Yangtze River flood control system, in which Wudongde, Baihetan, Xiluodu, Xiangjiaba, Three Gorges and Gezhouba HPPs play the major role, ensure the effective integrated operation of the cascade reservoir system, protect cultivated land from being flooded through flood retention and peak reduction, and guarantee the safety of the natural environment in the middle and lower reaches of the Yangtze River.



Drought

Drought can severely threaten terrestrial biodiversity. In particular, it has the most significant influence on the species very sensitive to water content.

In the dry period, we replenish water to the lower reaches of the Yangtze River, which can help fish to survive the winter and significantly improve the natural environment in the middle and lower reaches of the Yangtze River. Meanwhile, thanks to the regulating effect of the reservoir, the discharge rate in the dry period is increased, which is helpful to dilute sewage in the downstream channel, improve water quality, and reduce the pollution.

## Case

### Changing the way of flood discharge and energy dissipation for avoiding ecological disturbance

In response to the possible ecological impacts of supersaturation of total dissolved gas in water discharge of high dams, Xiangjiaba HPP changed the way of flood discharge and energy dissipation from ski-jump energy dissipation to falling-sill bottom-flow energy dissipation. This has relieved the supersaturation issue of total dissolved gas in water discharge of high dams, reduced the adverse impacts of flood discharge on downstream aquatic lives, and cut down the adverse impact of flood discharge atomization on the surrounding natural environment.



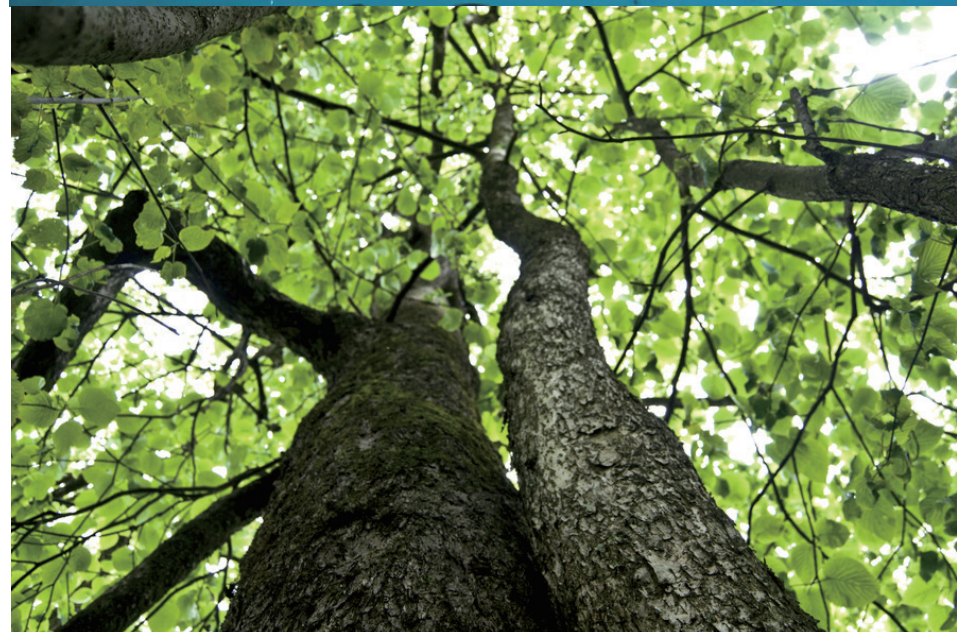
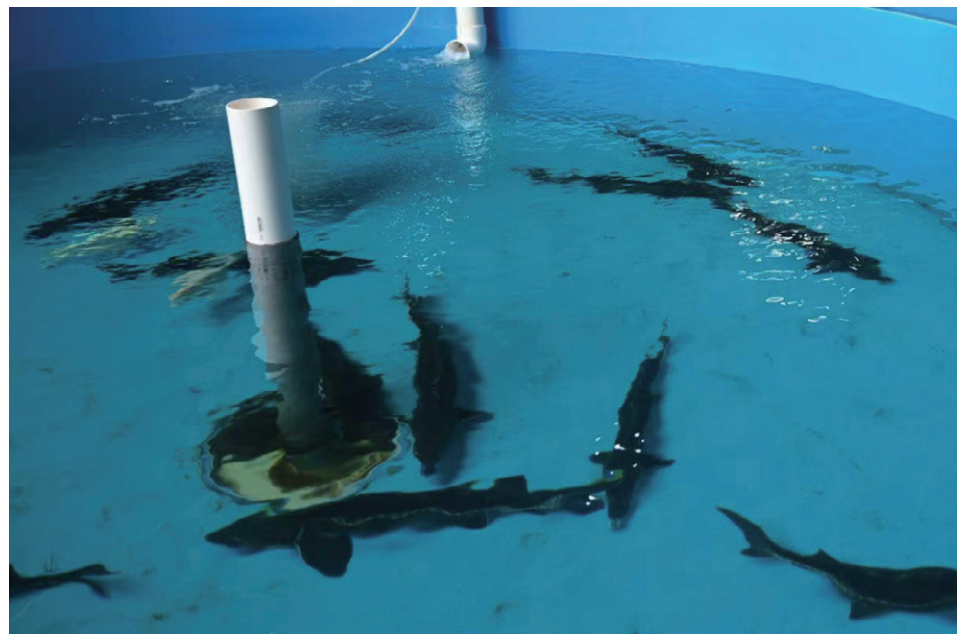
## Species protection

China Three Gorges Corporation (“CTG” for short), with Yangtze River Rare Fish Conservation Center as the major research institute, established several protection bases such as proliferation and release stations along the Yangtze River, which formed a network for protecting fish resources in the whole basin of the Yangtze River. For a number of years, CYPC has been supporting and deeply engaging in protection of terrestrial and aquatic biodiversity organized by CTG. It has been improving the full life cycle species protection system and protect biodiversity of the Yangtze River.

### Animal protection

We support CTG's research on artificial propagation of *Acipenser sinensis*. Since 2011, we have been continually performing ecological dispatch tests and adjusting the reservoir operation mode to make the discharge rate and water temperature match with the water ecology and environment requirements of the upper and lower reaches in time and space, so as to create suitable conditions for fish reproduction.

- ▶ **Supporting artificial propagation of *Acipenser sinensis*:** We support the artificial breeding and technical research on *Acipenser sinensis* of Chinese Sturgeon Research Institute. We establish an *Acipenser sinensis* protection system covering the whole life cycle, including parent fish breeding, induced spawning and reproduction, offspring incubation, echelon construction, proliferation and effect evaluation, migration monitoring, and habitat protection, which has laid a solid foundation for the rejuvenation of the *Acipenser sinensis* population.
- ▶ **Strengthening protection of four major Chinese carps in the Yangtze River:** We implement a multi-objective integrated ecological dispatch test incorporating multi-layered intake, hydrologic process regulation, silt reduction at the head of reservoir, and prevention and control of water bloom, with an aim to effectively improve the aquatic ecosystem of the Yangtze River and create suitable hydrological conditions for fish reproduction. In 2021, during the ecological dispatch in Yichang Section, four major Chinese carps laid 8.4 billion eggs, 100 times more than that in the first ecological dispatch in 2011.



### Plant protection

We take an in-depth part in the protection and research of terrestrial plants by CTG, with rare plants and key state-protected wild plants in the Three Gorges Reservoir Area as the major species. We also conduct the breeding and tissue culture of some plants peculiar to the Three Gorges area, such as *Myricaria laxiflora*, *Adiantum reniforme*, *Plantago fengdouensis*, and *Buxus ichangensis* Hatusima.

- ▶ **Cultivation of dove trees:** Dove trees are rare plants in the Yangtze River Basin. CTG has rescued and protected 10 dove trees by moving them out of the Three Gorges Reservoir Area. It promotes the germination and shoots of dove trees through strict simulation of their former habitat conditions and manual intervention, and further resolves the problems hindering seedlings of dove trees from blooming and bearing fruits in lower altitudes. In March 2021, dove trees bloomed and bore fruits for the first time in Three Gorges Reservoir Area.
- ▶ **Reproduction of *Myricaria laxiflora*:** CTG began with the rescue and protection of *Myricaria laxiflora* from 2002. More than 3,000 *Myricaria laxiflora* were planted in the field on both banks of the Yangtze River. This has not only successfully rescued the endangered species, but also effectively improved the natural environment in the drawdown belt of the Three Gorges Reservoir Area.

### Extensive reading

*Acipenser sinensis*, known as the “living fossil of the Yangtze River” and “panda in water”, firstly appeared in the Upper Cretaceous at the end of the Mesozoic era, about 140 million years from now. Owing to the effect of human activities, the natural population size of *Acipenser sinensis* has been sharply reduced. They were rated as first class national protected wild animals and Critically Endangered species (CR) by the International Union for Conservation of Nature (IUCN) in 1988 and 2010 separately. In 2021, CTG released a total of 10,000 *Acipenser sinensis* of all ages.





## Case

### Three Gorges Reservoir performs ecological dispatch tests to promote natural propagation of fish

During the ecological dispatch in 2021, the Three Gorges Reservoir performed three consecutive ecological dispatch tests on natural propagation of the fish producing adhesive eggs and demersal eggs in the reservoir area from late April to early May. During the dispatch, the total number of eggs produced by carp and crucian carp reached about 300 million. In June 2021, Three Gorges HPP performed two consecutive ecological dispatch tests to promote natural propagation of four major Chinese carps downstream Gezhouba HPP. During this period, the total number of fish eggs produced in Yidu section exceeded 12.4 billion, reaching the highest level in history.

## Case

### Wudongde HPP performs the first dispatch test of multi-layered intake to adjust the water temperature and promote fish reproduction

In 2021, Wudongde HPP performed the first ecological dispatch test of multi-layered intake. It conducted multi-layered intake dispatch by adopting 6 generating units with three layers of stop log gates (108 gates in all) on both banks. After the three layers of stop log gates fell, the discharged water temperature on the right bank was improved for about 0.1°C. It also conducted the base-load power generation dispatch once for fish reproduction under the dam, and the total number of adhesive eggs and demersal eggs produced in the artificial fish nest area reached about 175,000.

## Response to public concerns

### Protection of local terrestrial and aquatic animals and plants during the construction and operation of Three Gorges Project

Among the terrestrial vertebrates in CTG reservoir area, there are 4 types of national first-class protected animals and 22 types of national second-class protected animals, and terrestrial plant species cover 550 species, 358 genera, 120 families. The Three Gorges Project has been devoted to the protection of rare animals and plants for a long time. Through years of efforts, it has grasped various core technologies for the protection of *Acipenser sinensis*. The species of protected plants have grown from 560 to 1,181, and the range of protection has expanded from the reservoir area to the middle and upper reaches of the Yangtze River.

In order to better protect local terrestrial animals and plants, the Three Gorges Project has implemented multiple conservation measures including preservation of germplasm resources, preservation of botanic gardens, ex situ conservation, and in situ conservation. It has finished ex situ conservation of

another 30 rare plants and 73 main dominant plants in Three Gorges reservoir area. In response to the protection of terrestrial plants, it has implemented Yichang Dalaoling Plant Diversity Conservation Project and Xingshan Longmen River Evergreen Broad-leaved Forest Protection Project.

In order to better protect local aquatic animals and plants, measures such as establishment of conservation zones, artificial propagation, special monitoring and research are mainly used in the Three Gorges Project to alleviate the adverse its impacts on aquatic lives. Now, it has set up the Estuary Juvenile *Acipenser Sinensis* and Paddlefish Conservation Area, *Acipenser Sinensis* Conservation Area Downstream Gezhouba HPP, and Rare and Endemic Fish Nature Reserve in the Upper Reaches of the Yangtze River.



## Ecosystem protection

CYPC's clean energy operation is greatly associated with the Yangtze River, the mother river of the Chinese people. With this kept in mind, CYPC strictly implements the measures to improve the ecological environment and alleviate impacts on the same, actively explores new ways to restore the natural environment, and takes an active part in the ecological restoration and environmental protection of the Yangtze River Economic Belt to ensure clean water in the Yangtze River Basin and harmonious environment.

CTG has been advancing Great Protection of the Yangtze River in a systematic way from 2018. CTG established a scientific water treatment plan which was used in urban sewage treatment at first and has been extensively used in fields of sewage treatment, sludge treatment & disposition, pipeline inspection & repair, and comprehensive improvement of rivers. The Company cooperated with CTG in great depth to strengthen Great Protection of the Yangtze River, continually improved the water ecology quality, and boost the restoration and building of an ecosystem barrier for the Yangtze River.



## Response to public concerns

### Role of Three Gorges Reservoir in reducing sediment load of the Yangtze River

According to characteristics of the Yangtze River sediment, the Three Gorges Project, based on industry experience and lessons, put forward the innovative reservoir operation method by impounding clear water and discharging muddy flow to keep a long-term, effective storage capacity. The basic principle behind this method is that when the sediment charge of water flow in the flood season is high, the reservoir can operate at a lower water level to maintain a high flow rate at the reservoir area, so that silt can be discharged out from the reservoir along with the flood; while when the sediment charge of the water flow is lower at the end of the flood season, the reservoir will begin to impound water.

Since the water impoundment of the Three Gorges Reservoir, the amount of sediment flowing into the reservoir has been further reduced. This fact is mainly caused by three reasons:

first, the upstream water conservancy project can stop and reduce the sediment. Second, the upper reaches of the Yangtze River has been included in the national key area of water and soil conservation. After dozens of years of comprehensive treatment, great progress has been made in water and soil conservation here, so the sediment has been greatly reduced. The third one is manual sediment mining management in the river course. All of them are results of sustainable management.

According to monitoring results after impoundment of the Three Gorges Reservoir, the methods and measures for resolving the sediment-oriented problems in the Three Gorges Project are correct and effective, with better-than-expected results.

## Case

### Increase in the number of cowfish witnesses notable results of water quality governance in Yichang

Cowfish, as a Chinese first-class protected animal, is a flagship species in the ecosystem of the Yangtze River. It is also regarded as the "biological indicator" of the ecological environment of the Yangtze River Basin. The frequent appearance of Yangtze finless porpoise in Yichang Section in recent years is the best evidence of visual restoration of the natural environment in the Yangtze River Basin. CYPC has established a cooperative relationship with Yichang Municipal People's Government. They have cooperated in the project of ecological governance on bank slopes of the Yangtze River for a long time to optimize the water quality of Yichang Section.





# Share the Beautiful Life

## > Key topics

Employee development, community integration, in-depth cooperation

## > Major action strategies

Make great efforts to create a diversified, integrated, and harmonious work environment with mutual assistance, and guarantee employee's basic rights and interests with concrete actions; take measures for managing and controlling employees' health and safety; establish an employee training and promotion system to help employees with their long-term development.

Actively engage in the building of reservoir areas and overseas communities, increase investments in rural development, and continue participation in multiple public welfare and charity projects to promote integration and symbiosis with communities.

Adopt the transparent procurement policy and standardize management of suppliers and deepen cooperation with governments, cooperative enterprises, scientific research institutes, and financial institutions to promote coordinated development and make mutual benefit.







## Employee development

### Guaranteeing employee's rights and interests

In strict accordance with relevant laws and regulations including the *Labor Law of the People's Republic of China* and *Labor Contract Law of the People's Republic of China*, CYPC established sound employee management policies and labor employment systems including the *Management Measures for Labor Contract* and *Management Measures for Employee Attendance and Leave*, to provide rational and lawful provisions on procedures for recruitment and rescission of labor contract, working hours, and promotion conditions. It implements

these laws and systems strictly to protect employee's lawful rights and interests. Besides, it complies with all applicable laws and regulations for human rights protection, including the *Human Rights Action Plan of China* and international human rights conventions, prohibits the employment of child labors and never forces the laborers to work in any form. It also consciously resists any behaviors that ignore and trample on human rights.

### Salary and welfare

CYPC established a gross payroll check and ratification mechanism, and a differentiated distribution method, with an aim to arouse work initiative of employees at all levels, including managers and front-line staff. In addition, it provided all of its employees with settlement for recuperation expenses and medical expenses in places where they occurred, purchase of supplementary medical insurance, and subsidies for employees in need to guarantee employee's health.

### Democratic management

The Company established a democratic management system. It collects and responds to employees' suggestions and complaints through the Staff and Workers' Representative Congress, and guided employees to take part in its operation and development. In 2021, the Company held 1 meeting with Staff and Workers' Representative Congress on which it agreed to register 9 proposals for later disposal. All proposals were implemented as scheduled, with a 100% completion rate and 100% satisfaction rate.



Labor contracts: **100%** signing rate

Proposals by Staff and Workers' Representative Congress: **100%** completion rate and **100%** satisfaction rate

Key performance



## 👥 Fairness and diversification

During recruitment, the Company treats all employees equally, despite their gender, ethnic group, religious belief, and cultural background. It strictly complies with the principle of voluntary principle and two-way selection, signs the labor contract with employees on the basis of equality, voluntariness and good faith in accordance with law, and standardizes the procedures for labor employment management. It also strengthens employee recruitment management and employee background investigation, and attaches great importance to employees' legal identity.

The Company works to create a diversified and harmonious work environment that is helpful for all employees' development. It does not discriminate against any employee owing to their age, gender, physical disabilities, race, religion, marriage or family status, and ensures that all its employees receive fair treatment in terms of appointment, development, evaluation, and reward, so that all of them can unleash the greatest potential in their work freely.

## Key performance



Employee turnover rate: **0.36%**

Proportion of female managers: **9.48%**



### ▶ Gender distribution of employees

| Indicator | Distribution ratio (%) |
|-----------|------------------------|
| Male      | 78.60%                 |
| Female    | 21.40%                 |

### ▶ Age distribution of employees

|                    |        |
|--------------------|--------|
| Under 30 years old | 23.25% |
| 31~40 years old    | 42.74% |
| 41~50 years old    | 18.02% |
| Above 51 years old | 15.99% |

### ▶ Education background distribution of employees

|   |        |
|---|--------|
| Master's degree and above                       | 15.62% |
| Bachelor's degree                               | 39.23% |
| College degree                                  | 40.43% |
| Diploma of technical secondary school and below | 4.72%  |

Note: Statistics of employee turnover rate, proportion of female managers, employee gender distribution, employee age distribution, and employee education background distribution only cover the employees in China.

## Employee health and safety

We strictly abide by laws and regulations and relevant requirements for occupational health and safety, create a safe workplace and provide sound safety protection guarantee for employees. We perform tests of occupational hazard factors in hydropower plants and make improvements to the onsite environment each year. In 2021, we have identified and effectively controlled risks in the management of occupational health and safety.

- We set up occupational health warning signs, and provide employees with a complete set of articles for labor protection including safety helmets, and protective gloves.
- We organized occupational health examinations, made records regarding monitoring of occupational diseases, and carried out publicity and education activities such as the Publicity Week of Law of the People's Republic of China on the Prevention and Control of Occupational Diseases, with an aim to improve the occupational health management level.
- We organized safety education and training in various forms periodically, including trainings on quality and safety management to improve employees' safe operation skills and protect employees' work safety.

## Key performance



**No occupational** disease event happened in 2021.

In 2021, the Company and all operations under its umbrella organized safety education and training with over **8,530** participants.

Employees were organized to receive health examinations once per man-year.

## Employee development

The Company attaches importance to employee development. It is devoted to providing opportunities for employees' career growth and professional improvement, and encourages, supports, and urges employees to fully unleash their potential and realize their values.

### Rank of employees



#### Leaders

### Training measures

The Company cooperated with China Business Executives Academy, Dalian to launch the Pilot Plan. It was the first time for experts in this industry and senior employees of CTG to give lessons together to improve leaders' enterprise governance capacity.



#### Production and operation talents

It cooperated with famous colleges and universities in China to launch the Cruise Plan - Mini MBA Training Program, with an aim to promote integration of education and training resources in universities and the Company, and improve the management quality and leadership of its production and operation talents.

It implemented the Sailing Plan - Young Talents Training Program, which innovated the model for cultivating urgently needed professionals in batches. This plan trained 30 reserve talents for operation & management and market-oriented new businesses.





The Company lays stress on training of skilled talents. It improves the quality of technical personnel and skilled talents through various channels such as skill evaluation, salary incentive, and occupational promotion, and creates a good environment for the development of skilled talents.



#### Talent development

Improved the independent evaluation mechanism of skilled talents, and obtained the qualification for accrediting enterprise vocational skills. We can accreditate the skill level of 12 types of work, and have accredited the skill level of the first 33 employees. By April 2022, we had received the certificate of degree or diploma of 37 employees after finishing the in-service education in 2021.



#### Talent incentive

Established a wage distribution mechanism based on the posts, contributions and skills. Wages include the post wage, performance bonus, allowance and subsidy, and overtime wage. In addition, we also established special remuneration and promotion rules for highly skilled talents to motivate their enthusiasm.



#### Talent promotion

Released the *Management Measures for Dedicated Development Paths of Professionals*, set the posts for professionals rationally, and continually expand the development space of different types of professionals. We established and improved our expert management system. We set four expert grades, namely, chief experts, grade 1 experts, grade 2 experts, and grade 3 experts, with no number limit for each grade, aiming to guide employees to synchronous improvements in various aspects such as their professional competence and remuneration by working hard on professional skills.

## Key performance



The Company invested a total of RMB **10.7086** million in employee training.

The Company won the title of CHINA May 1<sup>st</sup> Labor Award.

The Company was awarded the title of National Outstanding Contribution Award for Skilled Talents Training by the Ministry of Human Resources and Social Security.

## Community participation

### Community building

Following the hydropower development philosophy of “building power plants, developing local economy, improving contact of local communities, and enriching the resettled population”, CYPC actively communicates with local communities about each matter in which communities are involved in all operation premises, and strengthens the connection with local communities to identify the priorities with community participation and promote integrated development with communities.

### Coordinated development with the reservoir area

We develop resources rationally to protect the natural environment. We also work hard to ensure the same or better work and living level of resettled residents, and create conditions for the social and economic development in resident resettlement areas.

### Investment in migration

The resident resettlement project of Three Gorges Jinsha River Chuanyun Hydropower Development Co., Ltd. under CYPC involved three cities (prefectures) in Sichuan and Yunnan. The Company communicated with local communities actively, established a rational plan for migration investment, and made a list of new projects in the affected area. It created a favorable environment for relocated residents by means of traffic restoration, relocation of cultural relics, clearance of reservoir bottom, construction of urban auxiliary facilities, and handling of new geological hazards after impoundment. In addition, it also purchased in local reservoir areas and subcontracted businesses to local businessmen, with an aim to drive the development of local suppliers and promote the economy growth in the migration area.



# Case

## Working hand in hand to help Yichang with its high-quality development

While operating the cascade hydropower plants in the river basins under its umbrella and promoting development of the Yangtze River Economic Belt, CYPC also works actively to provide a better life for the people in Yichang and constantly repay them.

From 2003 to the end of 2021, Three Gorges HPP and Gezhouba HPP had provided 771.736 TWh of clean energy for Hubei people. Calculated on the basis that 1 kWh electricity can produce a GDP of RMB 12, provision of 771.736 TWh electricity means that a green and pollution-free output value totaling RMB 9.26 trillion.

Giving priority to local procurement and employment, so that people in Yichang can share CYPC's development achievement.

We supported Yichang City to shape it into a World Famous Hydropower Tourist City, spread the hydropower culture with the Three Gorges Dam culture acting as a model, and continually gain more benefits from tourism with the Three Gorges Project as the driving force.

We improved the shipping conditions of the 570-650 km long Chongqing-Yichang Section, which can reduce the freight cost, improve the transportation efficiency, and effectively promote the rapid development of river transport and logistics industry in Yichang City.

CYPC grew together with Yichang City and helped Yichang with high-quality development by hardening rural highways, implementing drinking water projects, building water conservancy and irrigation facilities and industry bases around the operation site, and investing in education and people's livelihood, and launching voluntary and charitable activities. By the end of 2021, it implemented a total of 100 public welfare projects in Yichang City, with total donation amount of over RMB 100 million, greatly contributing to better life of Yichang people.



## Economic revitalization of the reservoir area

We give more assistance to the reservoir areas of four hydropower plants (i.e., Three Gorges HPP, Gezhouba HPP, Xiluodu HPP, and Xiangjiaba HPP) to boost the economic development, improve people's livelihood, and strengthen the long-term development. In 2021, CYPC implemented 22 assistance projects for reservoir areas, with regard to assistance to infrastructure, education, healthcare, industry, employment, etc.



### Assistance to infrastructure

We implemented various infrastructure assistance projects, such as building of Yichang Xiba Fire Station, maintenance and upgrading of Yichang Xiba Second Road, restoration of some roads in Taipingxi Town, Yiling District after disasters, emergency treatment after the mountain collapse in the farm communities in Xiluodu Town, Yongshan County, and maintenance of Huangjuebao-Daxichang traffic roads in Leibo County.



### Assistance to education

We carried out the pillar project in Yibin City, advance the building of Leibo Three Gorges High School as scheduled, and finish the paving of plastic facing and erection of devices on the sports ground in Xiluodu Town Central School in Yongshan County. We also carried out education and research activities to diversify the cultural life of students in the reservoir area.



### Assistance to industry

We encouraged employees to take an active part in poverty alleviation through consumption, promote the innovation-driven development of the culture and tourist industry, and also donated decommissioned turbine runners and blades to Dianjun District, Yichang city for display in hydropower culture tourism.



### Assistance to employment

We included Kunming University of Science and Technology into the dedicated colleges of recruitment of Three Gorges Class. In 2021, we recruited 15 students from this university, including 5 students from the reservoir area.

We also provide a preferential policy to lower the English proficiency requirement for students of corresponding majors who are from the Jinsha River reservoir area.



### Assistance to healthcare

We also helped to build projects for health services, including the standard fever clinic in Sandouping Town Health Center.



## Case

### Helping Niuzhaping Village in Gezhouba reservoir area develop the flower industry

Niuzhaping Village, known as the First Village in the Dam Area, which is located in Dianjun District, Yichang City, Hubei Province, has a linear distance of about 1 km from the Gezhouba Water Control Project. In order to boost the development of Niuzhaping Village, CYPC invested RMB 800,000 in 2021 to build an agricultural product distribution center in support of the development of the flower industry in Niuzhaping Village. Now, Phase I Project of Yichang Flower and Tree City has been opened to the public. Forty-six merchants from eight provinces and cities including Guangdong and Fujian have established presence there, selling more than a thousand types of flowers and seedlings. Niuzhaping Village is rated as a Famous Tourist Village by Hubei Provincial People's Government for this reason.

### Response to public concerns

#### Resident resettlement and right protection in the construction of hydropower plants

Resident resettlement is an important part of the construction of the Three Gorges Project. Therefore, proper resolution of resettlement problems in the Three Gorges Area is an important job to ensure the project's success and guarantee its overall benefits. Through the joint efforts of the government and corporations, the lawful rights and interests of project-based relocated residents have been guaranteed, and the reservoir area has developed sustainably.

Protection of relocated residents' employment right: The government and corporations involved organized technical training in the secondary and tertiary industries to help local residents develop featured tourism, planting, and other industries, improved the work environment of relocated residents, and increased their employment opportunities for more income.

For a long time, the Three Gorges Project has been working continually to provide assistance for mountain forest greening, urban infrastructure construction, industrial development, and employment of relocated residents. These actions have effectively improved the natural environment in the reservoir area and living environment of relocated residents, ensured enduring peace and stability in the resettlement communities and sustainable development of the economy, society, relocated residents, resources and environment in the reservoir area.







## Helping with rural revitalization

For a number of years, we have been working hard to promote construction and development of assisted areas. We determine the priorities of community participation according to the different development stages of the county-level economy, and increase our assistance in fields of medical care, tourism, education, industrial development, and infrastructure improvement to help assisted areas to achieve comprehensive development.

### Industrial development

We introduced assistance funds of RMB 7.63 million to Wushan County and Fengjie County, and helped to attract foreign investments of RMB 360 million.

We built a refrigerated warehouse for honey pomelo covering 1,400 m<sup>2</sup> for the industry in Wushan County.

We built startup and employment platforms including an urban employment platform in Fengjie County and a pioneer park for Anping returnees.

We spent a total of RMB 9.2 million in purchasing the agricultural and sideline products from the assisted areas in these two counties.

We assisted to contact marketing channels, helped assisted areas to sale agricultural and sideline products in a total of RMB 34.56 million

### Tourism development

We donated 12 new electric ships to these two counties.

We trained 255 participants for skill improvement in providing featured rural tourism services in Fengjie County.

We cooperated with the professional poverty alleviation institution - China Foundation for Poverty Alleviation, and commissioned the foundation to implement the "Bona Villa" program.

### Education improvement

We built a new teaching building covering 3,033 m<sup>2</sup> for the kindergarten affiliated to Sanxi Primary School in Wushan County.

We trained a total of 7,500 teachers from primary, middle and high schools in these two counties to improve their ability.

### Healthcare

We provided health assistance funds and carried out the supplementary medical insurance project in these two counties, which benefited a total of 130,000 impoverished people.

We also implemented the "Unity Project - Emergency Relief Action" in these two counties to help the families that had difficulties in paying medical expenses or that were returned to hardship because of illness.

We worked continually to hold training projects to improve the ability of health system in these two counties. We organized 12 training sessions for 1,800 participants.

We provided cochlear implants and rehabilitation training for a total of 100 dumb and deaf patients in these two counties.

### Infrastructure construction

In order to improve the living environment in rural districts, we set up 5 rural vitalization demonstration sites in these two counties, including Sanxia Village, Xiazhuang Village and Lianhua Community.

We implemented the safe drinking water test project in Wushan County, and set up safe drinking water monitoring facilities.





## Case

### Providing smart integrated energy to boost rural revitalization

By helping develop distributed photovoltaic, distributed natural gas, and bio-natural gas industries in the whole county, CYPC has enhanced the economic development capacity in rural districts, improved the rural environment, and developed low-carbon, green, and smart villages boosted by energy resources and industries.

- We established and operated the soybean deep processing industry park for soybean products and auxiliary energy stations in Anyang City, Henan Province. In this process, we effectively improve the local environment and help to develop local featured industries through the integrated development of industries, energy supply, and waste disposal in the industrial park.
- We implemented the “Rural Vitalization with Photovoltaics” project in Zhoukou City, Henan Province. In this project, we improved and greened the environment of unused or abandoned pits and ponds, and established an 800 MW distributed photovoltaic power stations covering the whole city to improve the rural environment and promote development of the local tourism industry.
- We implemented the bio-natural gas demonstration project in Leiyang City, Hunan Province. Through centralized treatment of organic waste in the local urban and rural areas, we utilized biogas, biodiesel, and organic fertilizers comprehensively, which can not only greatly improve the living environment in rural districts, but also promote industrial agglomeration and large-scale development of the livestock breeding and crop production industries in the upstream and downstream areas.
- We reorganized and operated Qujialing Biomass Power Plant in Jingmen City, Hubei Province. In this plant, we utilize material waste from the local agriculture and forestry industry, which effectively eliminated widespread pollution from the overuse of fertilizers and pesticides and contributed to the Great Protection of the Yangtze River. Besides, we increased the income and employment opportunities for local farm households.

## Voluntary services

CYPC cares for vulnerable groups, continues to carry out public welfare activities including “Happy Smiles” and “Charitable Sunshine Classes”, encourages employees to participate in voluntary activities, and helps to improve the social well-being.



### Public benefit activities regarding health

We continue to carry out public welfare projects such as “Happy Smiles” project. In 2021, with our donations, 29 children with cleft palate from the families in poverty received charge-free surgeries, helping them change their fate.



### Charitable education

We launch the public benefit activity named “Charitable Sunshine Classes” in Yichang Yiling Middle School, Yichang No. 1 Middle School and Kunming No. 1 Middle School to help more distressed students with excellent performance to study in key senior high schools. Since this activity was launched, we have financed more than 500 students.



## Case

### Bringing more warmth to communities

In the franchise area of Luz del Sur, some communities are located in mountainous areas, where it's very cold in winter. Owing to the poor housing conditions, it's hard for them to resist the coldness, as a result of which, children and the old can easily catch respiratory diseases. In 2021, Luz del Sur cooperated with the nongovernmental organization PROA and provided shelters and safety packs containing food for more than 655 families in hardship in San Antonio de Lurín Human Settlement (a shanty area), San José de Lurín UPIS and Villa Alejandro de Lurín, so that the residents in the mountainous area can enjoy a warm winter.



## Case

### Recovering waste to build a clean and beautiful world together

Luz del Sur implemented the “Eco-Responsible South Light” program to urge employees to know about the important impact of waste recovery on reduction of ecological footprint and environment protection, and raise employees’ environmental awareness. In February 2021, Luz del Sur, cooperating with the association Ayudando Abrigando and Fundación Oli, collected 352.33 kg of plastics, which were transformed into textile fibers and used as raw materials for producing blankets for the needy people in different regions in Peru. Since June 2021, Luz del Sur, through the cooperation with Aldeas Infantiles S.O.S. Peru and Piero SAC, has conducted the plastics recycling program in the “Dale la Vuelta” campaign, and collected more than 330.70 kg of plastics. In addition to this, Luz del Sur also launched the paper and cardboard recycling campaign. In 2021, among the waste recycling companies in Lima, Luz del Sur ranked 5<sup>th</sup> in donating paper, cardboard and plastics. Luz del Sur has been reputed to be one of the greatest contributors of PET and PAD plastics for the fourth consecutive year.

## In-depth cooperation

### Supply chain management

CYPC established and perfected the supply chain management systems including the **Supplier Management Measures of CYPC and Tender** and **Procurement Management System of CYPC**. It insisted on fair, just, open and transparent procurement and evaluated suppliers according to standards to promote the comprehensive ability improvement of suppliers and coordinated development with the industry chain.

#### Supplier selection

Our suppliers are enterprises that meet the following conditions at the same time: have good financial and operation conditions, outstanding contract fulfillment records and performance, and relevant qualification certificates or practice qualification certificates for procurement activities; provide the projects, goods and services conforming to state quality, safety and environmental standards; have not received any criminal penalty or administrative penalty owing to illegal operations in the recent three years.

We carry out a withdrawal mechanism for the suppliers with problems.

#### Mechanism improvement

We organize evaluations after the annual bid-invitation procurement activity, and refer to the supplier evaluation result during tendering to improve supplier management quality.

We establish a dishonest supplier punishment mechanism and implement the one-vote veto system for dishonest suppliers in safety management.

#### Ability growth

We work to know about suppliers’ demands timely, actively strengthen communications and coordination with them, and try hard to help suppliers solve their difficulties.

We include CTG Standard into the management specifications of suppliers to promote the ability of suppliers.



### Key performance

Competitive procurement rate: **77.71%**



## Win-win relationship with partners

The Company works to establish a favorable cooperative relationship with universities and industrial partners to strengthen complementation of resources and advantages. It also cooperates with industrial partners to respond to the opportunities and challenges in energy transition and promote the sound development of the industry together.

### Power grid enterprise »»»

| Demands of partners   | Our response  | Co-creation of value                                 |
|---|---|--|
| Stable and reliable supply of clean, low-carbon electricity | <ul style="list-style-type: none"> <li>Strengthened cooperation with power grid enterprises, implemented the monthly plan coordination mechanism, and provided powerful support for maintaining the balance of supply and demand in the electrical power system.</li> <li>Signed a long-medium term power purchase and sales contract with Three Gorges HPP, Xiluodu HPP and Xiangjiaba HPP, actively promoted new energy consumption, and provided safe and stable green power.</li> </ul> | Promoted low-carbon transition of the energy system. |

### Power generation enterprise »»»

| Demands of partners                | Our response  | Co-creation of value                                    |
|------------------------------------|---|---|
| Technical exchange and cooperation | <ul style="list-style-type: none"> <li>Strengthened cooperation with power enterprises including Guizhou Qianyuan Power Co., Ltd. and Guizhou Wujiang Hydropower Development Co., Ltd., obtained information about upper reaches of the Yangtze River, and expanded the current water/rainfall regime database.</li> <li>Strengthened communications and provided a channel for developing new energy businesses with cooperative enterprises.</li> </ul> | Strengthen complementation of resources and advantages. |

### Regulation cooperation institution »»»

| Demands of partners   | Our response  | Co-creation of value  |
|---|---|---|
| Flood prevention, drought relief and water resource management in the Yangtze River Basin | <ul style="list-style-type: none"> <li>Strengthened consultation with Changjiang Water Resources Commission and other institutions about forecast and dispatch, to adopt an integrated approach to the benefits of flood control and shipping.</li> </ul> | Strengthen efficient use of water resources in the river basin. |

### Scientific research institute »»»

| Demands of partners                                      | Our response   | Co-creation of value   |
|--|--|--|
| Hydropower technology innovation and industrial progress | <ul style="list-style-type: none"> <li>Worked jointly to research hydropower operation technologies and facilities, expanded the application of frontier technologies such as cloud computing and big data, and promoted scientific and technological progress in the industry.</li> <li>Promoted the integrated development of enterprises, universities, research institutes and end users, and provided a powerful technical basis for the digital mapping and application from "Physical Yangtze River" to "Smart Yangtze River".</li> </ul> | Popularize technological achievements and promote industrial and technological innovation. |

### Financial institution »»»

| Demands of partners  | Our response  | Co-creation of value                               |
|--|---|--|
| Stable performance and good development prospect of investee | <ul style="list-style-type: none"> <li>Maintained steady financial policies and capital structure, kept unblocked and diversified financing channels, and actively conducted innovative financing.</li> </ul> | Promote maximization of the value of clean energy. |

### Supplier »»»

| Demands of partners  | Our response   | Co-creation of value                          |
|--|--|---|
| A partnership of fair and open purchase for cooperation and mutual benefit | <ul style="list-style-type: none"> <li>Held supplier meetings to deepen suppliers' understanding of the Company, and helped suppliers to participate in the Company's procurement by invitation to bid more transparently and efficiently.</li> <li>Included CTG Standard into the management of suppliers and promoted the ability of suppliers.</li> </ul> | Promote industrial development and exchanges. |

## Case

**CYPC launched a partner satisfaction survey and deepened communications**

In 2021, CYPC launched an annual customer and stakeholder satisfaction survey. It collected 1,020 questionnaires, analyzed and responded to 41 opinions and suggestions received and made corrections based on these. The survey shows that customers' and stakeholders' overall satisfaction with the Company reaches 99.95%, remained at a high level, which fully demonstrates the partners' recognition of the Company.

## Case

**Integrated development among enterprises, universities, research institutes and end users in the Smart Yangtze River project provides solutions to industry problems**

CYPC made technological research and development with Hubei Key Laboratory for Smart Yangtze River and Hydroelectric Sciences as the platforms, and provided a powerful technical basis for the digital mapping and application in the transition from a "Physical Yangtze River" to a "Smart Yangtze River". In 2021, its *Project of Key Technologies of Decision-making Support for Dispatching and Operation of Hydropower Plants in the Upper Reaches of the Yangtze River* won the one and only grand prize of the first Yangtze River Science and Technology Award. This project was also highly recognized by the experts from famous scientific research institutes worldwide such as the Chinese Academy of Engineering, Norwegian Academy of Technological Sciences, Georgia Institute of Technology, and University of California.







**Field**

**Commitment on responsibility fulfillment in 2022**



**Create long term values**

Maintain “zero personal casualty and zero equipment incident” in work safety.

Actively to obtain new energy resources, and steadily push forward development of the project of integrated water, wind and solar energy base in the lower reaches of the Jinsha River.

Advance asset restructuring of Wudongde HPP and Baihetan HPP steadily to obtain the conditions for assets settlement.

Develop the international businesses steadily, and promote merger and acquisition of high quality assets and investment in greenfield projects.



**Protect the ecological environment**

Summarize experience from the three-year campaign for special treatment of hazardous waste and environment; consolidate and improve the ability for equipment overhaul and reform, upgrade the environmental protection and management capacity of Engineering projects; optimize the dispatch and operation of hydropower plants; promote water conservation, increase in power generation, energy conservation and consumption reduction.

Explore ways for reuse of sewage, and build an environmentally friendly and beautiful dam area.

Promote monitoring and analytic study of greenhouse gases in Three Gorges Reservoir, strengthen information disclosure and work to improve the corporate image.



**Share the beautiful life**

Build an organizational structure suitable to the Company’s new development pattern, optimize the expert selection and management mechanism, and strengthen training of skilled personnel.

Implement the key personnel training project, promoted integration of talent growth with company development.

Provide assistance to the relocated residents in the reservoir area of Three Gorges and Jinsha River, and promote sustainable development of the industrial economy in assisted areas.

Continue providing support for education in the Jinsha River area, and offer assistance to the building of Leibo Three Gorges High School and Mabian Junior High School.

# GRI Content Index

This Report is prepared in accordance with the GRI Standards: Core option

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| 102-44 | Key topics and concerns raised         | P17     |

## Reporting Practice

|        |  |                                |
|--------|--|--------------------------------|
| 102-45 | Entities included in the consolidated financial statements | P10                            |
| 102-46 | Defining report content and topic Boundaries               | P16                            |
| 102-47 | List of material topics                                    | P16                            |
| 102-48 | Restatements of information                                | No restatements of information |
| 102-50 | Reporting Period   | P4                             |
| 102-51 | Date of most recent report                                 | P4                             |
| 102-52 | Reporting cycle  | P4                             |
| 102-53 | Contact point for questions regarding the report           | Back cover                     |
| 102-54 | Claims of reporting in accordance with the GRI Standards   | P4, P114                       |
| 102-55 | GRI content index  | P114-P119                      |

## GRI 200 Economic

|       |  |         |
|-------|--|---------|
| 103-1 | Explanation of the material topic and its Boundary | P16-P17 |
| 103-2 | The management approach and its components         | P51     |
| 103-3 | Evaluation of the management approach              | P51     |

## GRI 201 Economic Performance

|       |  |                |
|-------|--|----------------|
| 201-1 | Direct economic value generated and distributed                                | P55            |
| 201-2 | Financial implications and other risks and opportunities due to climate change | P12-P15        |
| 201-3 | Defined benefit plan obligations and other retirement plans                    | P91            |
| 201-4 | Financial assistance received from government                                  | Not applicable |

## GRI 203 Indirect Economic Impacts

|       |   |          |
|-------|---|----------|
| 203-1 | Infrastructure investments and services supported | P97-P106 |
| 203-2 | Significant indirect economic impacts             | P97-P106 |



### GRI 205 Anti-corruption

|       |  |         |
|-------|--|---------|
| 205-1 | Operations assessed for risks related to corruption                      | P46-P47 |
| 205-2 | Communication and training about anti-corruption policies and procedures | P49     |

### GRI 207 Tax

|       |  |             |
|-------|--|-------------|
| 207-1 | Approach to tax                              | P46-P49     |
| 207-2 | Tax governance, control, and risk management | P9, P46-P49 |

### GRI 300 Environmental

|       |  |                           |
|-------|--|---------------------------|
| 103-1 | Explanation of the material topic and its Boundary | P16-P17                   |
| 103-2 | The management approach and its components         | P32-P36, P67-P71, P74-P86 |
| 103-3 | Evaluation of the management approach              | P67                       |

### GRI 301 Materials

|       |  |                |
|-------|--|----------------|
| 301-1 | Materials used by weight or volume               | Not applicable |
| 301-2 | Recycled input materials used                    | Not applicable |
| 301-3 | Reclaimed products and their packaging materials | Not applicable |

### GRI 302 Energy

|       |  |              |
|-------|--|--------------|
| 302-1 | Energy consumption within the organization                 | P34          |
| 302-3 | Energy intensity   | P34          |
| 302-4 | Reduction of energy consumption                            | P36-P39, P70 |
| 302-5 | Reductions in energy requirements of products and services | P36-P39, P70 |

### GRI 303 Water and Effluents

|       |   |              |
|-------|---|--------------|
| 303-1 | Interactions with water as a shared resource  | P71-P73, P77 |
| 303-2 | Management of water discharge-related impacts | P71-P73, P77 |
| 303-3 | Water withdrawal                              | P71-P73, P77 |
| 303-4 | Water discharge                               | P71-P73, P77 |
| 303-5 | Water consumption                             | P71-P73, P77 |

### GRI 304 Biodiversity

|       |   |         |
|-------|---|---------|
| 304-1 | Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas | P79-P87 |
| 304-2 | Significant impacts of activities, products, and services on biodiversity   | P79-P87 |
| 304-3 | Habitats protected or restored  | P79-P87 |
| 304-4 | IUCN Red List species and national conservation list species with habitats in areas affected by operations                                | P79-P87 |

### GRI 305 Emissions

|       |   |         |
|-------|---|---------|
| 305-1 | Direct (Scope 1) GHG emissions  | P32-P39 |
| 305-2 | Energy indirect (Scope 2) GHG emissions   | P32-P39 |
| 305-3 | Other indirect (Scope 3) GHG emissions  | P32-P39 |
| 305-4 | GHG emissions intensity   | P32-P39 |
| 305-5 | Reduction of GHG emissions  | P32-P39 |
| 305-7 | Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions | P78     |

### GRI 306 Waste

|       |  |         |
|-------|--|---------|
| 306-1 | Waste generation and significant waste-related impacts | P69     |
| 306-2 | Management of significant waste-related impacts        | P74-P78 |
| 306-3 | Waste generated  | P69     |
| 306-4 | Waste diverted from disposal                           | P74-P75 |
| 306-5 | Waste directed to disposal                             | P74-P75 |

### GRI 307 Environmental Compliance

|       |  |     |
|-------|--|-----|
| 307-1 | Non-compliance with environmental laws and regulations | P68 |
|-------|--|-----|

### GRI 400 Social

|       |  |                                   |
|-------|--|-----------------------------------|
| 103-1 | Explanation of the material topic and its Boundary | P16-P17                           |
| 103-2 | The management approach and its components         | P89                               |
| 103-3 | Evaluation of the management approach              | P89-P92, P94-P95, P97, P105, P107 |

#### GRI 401 Employment

|       |  |     |
|-------|--|-----|
| 401-1 | New employee hires and employee turnover   | P92 |
| 401-2 | Benefits provided to full-time employees that are not provided to temporary or part-time employees | P91 |

#### GRI 403 Occupational Health and Safety

|        |   |     |
|--------|---|-----|
| 403-1  | Occupational health and safety management system  | P94 |
| 403-2  | Hazard identification, risk assessment, and incident investigation  | P94 |
| 403-3  | Occupational health services  | P94 |
| 403-5  | Worker training on occupational health and safety   | P94 |
| 403-6  | Promotion of worker health  | P94 |
| 403-7  | Prevention and mitigation of occupational health and safety impacts directly linked by business relationships | P94 |
| 403-8  | Workers covered by an occupational health and safety management system  | P94 |
| 403-10 | Work-related ill health   | P94 |

#### GRI 404 Training and Education

|       |   |         |
|-------|---|---------|
| 404-2 | Programs for upgrading employee skills and transition assistance programs | P95-P96 |
|-------|---|---------|

#### GRI 405 Diversity and Equal Opportunity

|       |  |         |
|-------|--|---------|
| 405-1 | Diversity of governance bodies and employees | P92-P93 |
|-------|--|---------|

#### GRI 406 Non-discrimination

|       |  |         |
|-------|--|---------|
| 406-1 | Incidents of discrimination and corrective actions taken | P92-P93 |
|-------|--|---------|

#### GRI 407 Freedom of Association and Collective Bargaining

|       |  |     |
|-------|--|-----|
| 407-1 | Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk | P90 |
|-------|--|-----|

#### GRI 408 Child Labor

|       |   |     |
|-------|---|-----|
| 408-1 | Operations and suppliers at significant risk for incidents of child labor | P90 |
|-------|---|-----|

#### GRI 409 Forced or Compulsory Labor

|       |  |     |
|-------|--|-----|
| 409-1 | Operations and suppliers at significant risk for incidents of forced or compulsory labor | P90 |
|-------|--|-----|

#### GRI 411 Rights of Indigenous Peoples

|       |  |          |
|-------|--|----------|
| 411-1 | Incidents of violations involving rights of indigenous peoples | P97-P104 |
|-------|--|----------|

#### GRI 413 Local Communities

|       |  |     |
|-------|--|-----|
| 413-1 | Operations with local community engagement, impact assessments, and development programs | P97 |
|-------|--|-----|

#### GRI 414 Supplier Social Assessment

|       |   |      |
|-------|---|------|
| 414-1 | New suppliers that were screened using social criteria        | P107 |
| 414-2 | Negative social impacts in the supply chain and actions taken | P107 |

#### GRI 415 Public Policy

|       |                         |                |
|-------|-------------------------|----------------|
| 415-1 | Political contributions | Not applicable |
|-------|-------------------------|----------------|

#### GRI 416 Customer Health and Safety

|       |   |                |
|-------|---|----------------|
| 416-1 | Assessment of the health and safety impacts of product and service categories                 | Not applicable |
| 416-2 | Incidents of non-compliance concerning the health and safety impacts of products and services | Not applicable |

#### GRI 417 Marketing and Labeling

|       |   |                |
|-------|---|----------------|
| 417-1 | Requirements for product and service information and labeling                       | Not applicable |
| 417-2 | Incidents of non-compliance concerning product and service information and labeling | Not applicable |
| 417-3 | Incidents of non-compliance concerning marketing communications                     | Not applicable |

#### GRI 418 Customer Privacy

|       |  |                |
|-------|--|----------------|
| 418-1 | Substantiated complaints concerning breaches of customer privacy and losses of customer data | Not applicable |
|-------|--|----------------|

#### GRI 419 Socioeconomic Compliance

|       |  |     |
|-------|--|-----|
| 419-1 | Non-compliance with laws and regulations in the social and economic area | P47 |
|-------|--|-----|