



中国三峡
China Three Gorges Corporation



BEIJING 2022™
Olympic rings logo

北京 2022 年冬奥会官方合作伙伴
Official Partner of the Olympic Winter Games Beijing 2022



2021

Sustainability Report

Contents

Message from the Chairman	02
An Interview with the President	04
About CTG	06
CSR FEATURES	18
Feature I: Addressing Climate Change	18
Feature II: Guaranteeing Power Supply	20
Feature III: Contributing to Biodiversity Conservation	22
Excellent Business Management	24
Compliance and Rule of Law	24
Quality and Safety	25
Responsible Supply Chain	25
Technology and Innovation	26



Sustainability Management	30
CSR Organizational Framework	30
Advancing CSR Efforts	31
Stakeholder Communication	32
Materiality Analysis	33

Comprehensive Benefits of Cascade Hydropower Stations	34
Contribution to Clean Energy Development	40
Endeavor in Keeping Ecological Balance	48

Common Growth with All Employees	56
Role as a Good Global Corporate Citizen	62
Public Welfare Efforts to Society	70

Contributions to the SDGs	78
Communicating Key Sustainability Performance	79
GRI Standards	82
Outlook for 2022	83
Third-Party Opinions	84
About This Report	85

Message from the Chairman



雷鳴山

Lei Mingshan
Board Chairman



Forging Ahead Together for a Shared Future

The year 2021 was a milestone in the history of the reform and development of China Three Gorges Corporation (CTG). Chinese President Xi Jinping sent a congratulatory letter on the commissioning of the first batch of generating units at Baihetan Hydropower Station. Over the past year, CTG vigorously carried forward the Three Gorges Project Spirit, took on heavy responsibilities to forge ahead for new progress, achieved significant results in reform and development, reached a new high in pursuing high-quality development and got off to a good start for further development in the 14th Five-Year Plan period (2021-2025).

We remain true to our original aspiration and carry forward the Three Gorges Project Spirit towards a better future. One who wants to stride ahead should not forget the path that was trodden; no matter how far we will travel and to whatever bright future, we should not forget what we have done and why we set out to do it, said President Xi Jinping. While keeping the history of the Three Gorges Project in mind, we inspire every employee to fulfill their original aspirations with the Three Gorges Project Spirit. No matter how far we have traveled and what we have achieved in the past, we have always kept in mind the original aspiration of serving the people. Meeting people's growing needs for a better life has always been our starting point and goal of fostering new opportunities and creating new prospects, so that we can constantly enhance people's sense of fulfillment, happiness and security.

We realize high-quality development through reform and innovation. A significant strategy for promoting high-quality development - China's "dual circulation" new development paradigm featuring domestic and overseas markets reinforcing each other with the domestic market as the mainstay, has been put forward. Grounding our efforts in the new development stage, we have

applied the new development philosophy, served the new development pattern, made good use of reform measures and set an example for the SOE reform during the targeted three-year action plan. Accordingly, we ramp up efforts to improve the market-oriented operating mechanisms, and push ahead with mixed-ownership reform in subsidiaries, which has optimized our systems and mechanisms, and fully activated the vitality of high-quality development. Besides, we have strengthened technological innovation and played a leading role in the modern industrial chain. We have improved the supply chain and developed the innovation chain in response to the development of clean energy and environmental protection industries, demonstrating our sense of responsibility for achieving sci-tech self-reliance and self-strengthening at higher levels. Furthermore, we balance development and security and play our role as a "pillar" in maintaining overall economic and social stability. We always pursue zero quality incidents and zero safety incidents. Moreover, we have effectively defused risks in investment, finance, and overseas operations in a timely manner to ensure stable development.

We prioritize ecological conservation in the pursuit of green and low-carbon development. When we are protecting lush mountains and blue skies, we are safeguarding people's livelihoods and benefiting the people, said President Xi Jinping. While engaging in clean energy development and environmental conservation of the Yangtze River, CTG is protecting the sound ecological environment, which is the most inclusive benefit to people's wellbeing. Committed to green development and green products, we strive to contribute to achieving the carbon peaking and carbon neutrality goals with firm determination and in a science-based and orderly manner. We have worked tirelessly towards our goal

of building the four major corridors, including the largest clean energy corridor along the Yangtze River and the largest green ecological corridor along the Yangtze River, the largest offshore wind power corridor along the coast, and an international clean energy corridor along the Belt and Road, thereby providing cleaner energy and water and creating a more beautiful environment for building China into a modern socialist country in all respects. We have ensured the safe and punctual commissioning of the first batch of generating units at Baihetan Hydropower Station, and completed the subsequent engineering construction tasks of Wudongde Hydropower Station and Baihetan Hydropower Station with high standards and high quality, building high-quality hydropower projects on the Jinsha River and promoting the development of hydropower resources of the river in a science-based and orderly manner. With the leapfrog development of renewable energy, we have facilitated the building of a new power system with renewable energy as the mainstay. As of the end of 2021, our clean energy installed capacity exceeded 100 GW, and our annual renewable energy generation output surpassed 340 TWh, ranking first in the world. We have stepped up efforts to launch the "smart urban water manager" and "smart urban integrated energy manager" modes in a number of provinces and cities and explored new approaches to synergizing the reduction of pollution and carbon emissions. These efforts have benefited 23 million people. We have promoted projects such as the well-coordinated environmental conservation of the Yangtze River in a wider range, in more fields, and at a deeper level to benefit more people.

We pursue sustainable development for the nation and its people. More determined to its mission of bringing benefits to the people, CTG strives to set an example in meeting people's growing needs for a better life and promoting

common prosperity. We have given full play to the role of energy supply as the "stabilizer" and the "ballast stone" of the economy, shouldering our primary responsibility for ensuring energy security for economic and social development and people's wellbeing. We put social benefits first and have continued to expand the role of cascade hydropower plants in the Yangtze River Basin in flood control to ensure safety on both sides of the Yangtze River. We continue poverty alleviation policies and supervision and develop new innovative assistance modes to consolidate and expand the achievements of the battle against poverty and give full support to rural vitalization in the Three Gorges and the Jinsha River reservoir areas. We help improve the development efficiency and quality of the agricultural sector and make rural areas suitable to live and work in and ensure that farmers are affluent and well-off. We firmly uphold the vision of a community with a shared future for mankind, act upon the UN 2030 Agenda for Sustainable Development, and make concerted efforts to build the international clean energy corridor along the Belt and Road. We collaborate with local areas to improve people's livelihood and join hands with all parties to create a more prosperous and better world.

Only vigorous and determined endeavor can lead to new prospects and further progress. 2022 is a pivotal year for the new journey toward the goal of building China into a modern socialist country in all respects. In 2022, CTG will act on the nation's strategy of prioritizing economic stability and pursuing steady progress, and continue the two-tracked approach for advancing clean energy development and the ecological conservation of the Yangtze River. We will better perform our "Six Roles" and pick up the pace in becoming a world-class model enterprise to achieve more efficient, sustainable, secure and higher-quality development.

An Interview with the President



韩君

Han Jun
Director of the Board, President



Q

The year 2021 marked a crucial point in which the timeframes of the Two Centenary Goals converge. What did CTG achieve?

A

Standing at a critical juncture where the timeframes of China's Two Centenary Goals converge, CTG advanced a series of major projects with high quality, overcame all difficulties, raced against time, and succeeded in realizing the commissioning of the first batch of generating units at Baihetan Hydropower Station, all generating units at Wudongde Hydropower Station, and the first generating unit at Changlongshan Pumped-Storage Power Station. We registered increases in both the quantity and quality of our production and business, with both of our total installed capacity and clean energy installed capacity exceeding 100 GW, our total assets exceeding 1 trillion yuan, and key operating indicators hitting a new record high.

Q

Facing the challenge of global energy shortage in 2021, what roles did CTG play in ensuring a stable energy supply?

A

Securing safe and reliable energy supply has always been the foundation and due responsibility of CTG. Due to multiple factors, we faced challenges in 2021. We earnestly responded to the needs of guaranteeing energy supply. With the successful commissioning of the generating units at Wudongde, Baihetan, Changlongshan, and some of our wind and solar power plants, our capability to ensure energy security has been enhanced. We have realized the commissioning of the world's first single-unit gigawatt-level hydro-turbine generators, achieving the goal of generating and transmitting enough electric power as well as securing power supply as required. Our frequency and duration of executing power supply tasks throughout the year both hit record highs. In the second half of 2021, our monthly power generation set new records for four consecutive months. We completed a total of 12 tasks of ensuring electric power supply, including those for fights against cold waves, celebrations for the centenary of the CPC, flood control, and energy consumption peaks in winter, thereby making positive contributions to the secure and stable power consumption of the people.

Q

As China pledged to peak carbon emissions before 2030 and achieve carbon neutrality before 2060, what measures will CTG take to contribute to the Goal as China's largest clean energy group?

A

As the world's largest hydropower developer and operator and China's largest clean energy group, CTG has been leveraging its scale and specialty to explore effective paths for making sustained contributions to China's carbon peak and carbon neutrality goals. We will strive to peak carbon dioxide emissions before 2023 and achieve carbon neutrality before 2040. First, we will expand our current total installed capacity. We have built mega projects such as the Three Gorges, Xiluodu, Xiangjiaba, Wudongde, and Baihetan hydropower stations, and we are also building offshore and onshore wind power, solar power, and pumped storage projects. With these projects, we now boast a total installed capacity of which 96% is from clean energy sources. Second, we will consolidate our strengths by carrying out industrial demonstration, integration and upgrading projects, coordinating source-grid-load-storage projects and multi-energy hybrid business, playing a leading role in the green industrial chain, and developing several replicable and scalable new models and mechanisms. Third, we will keep improving carbon management. We will use financial tools and market-based tools to issue

carbon neutrality bonds, and coordinate the efforts to reduce carbon emissions and increase carbon assets. We will work to improve mechanisms for carbon emission quota and environmental certifications in the hydropower sector, assist key advantageous areas in analyzing and diagnosing problems, and propose carbon neutrality solutions to serve China's carbon peak and carbon neutrality goals.

Q

What did CTG do to provide basic guarantees for the development of the Yangtze River Economic Belt in 2021?

A

With a strong sense of responsibility for the nation as well as its history and people, CTG has played a fundamental role in promoting the development of the Yangtze River Economic Belt. In 2021, the first batch of generating units at Baihetan Hydropower Station, the largest and most technically challenging hydropower project under construction in the current world, were put into operation; all generating units of Wudongde Hydropower Station, a mega hydropower station with double-digit gigawatt capacities, were put into use. The number of our hydro-turbine generator units exceeded 100 and the largest clean energy corridor along the Yangtze River was basically completed. We carried out the "coordinated dispatching of six cascade hydropower stations" in a science-based manner, with the total flood storage capacity surpassing 37.64 billion cubic meters. Throughout the year, the Three Gorges Reservoir successfully withstood five floods with a flow measurement of more than 40,000 cubic meters per second and retained 24.67 billion cubic meters of floodwater in total. We focused on ecological governance and restoration in the Yangtze River Basin, and our efforts in this respect have covered all 11 provinces and municipalities directly under the Central Government across the basin. Our ecological operation for the Three Gorges Project was included in *Listen to the River*, the WWF's global review of environmental flow success stories. We continued to support shipping and tourism. In 2021, the Three Gorges ship lift operated 4,725 times, elevating ships that carried over 100,200 passengers and 146.2 million tons of cargo, ensuring the stable navigation of the golden waterway.

Q

2021 was a crucial year for effectively integrating poverty alleviation with rural vitalization. What measures did CTG take to better leverage its advantages in supporting rural vitalization?

A

In 2021, CTG continued poverty alleviation policies and supervision and worked hard to play an exemplary role in effectively integrating poverty alleviation with rural vitalization. We offered targeted assistance to support rural vitalization through multiple approaches and channels at all levels in Wushan County and Fengjie County in Chongqing, Wan'an County in Jiangxi Province, and Bairin Left Banner in Inner Mongolia. Besides, we stepped up efforts to aid Xinjiang, Tibet, and Qinghai. With the new "Renewable Energy Plus" model, we helped develop local industries to support the prosperity and stability of the border areas at all levels and in all aspects. We continued assisting the people in the Three Gorges Reservoir area and the Jinsha River reservoir area to secure the well-being of local people by boosting the internal forces of economic development. We vigorously gave back to society by engaging in public welfare undertakings, such as supporting the flood control and COVID-19 response in Henan, Fujian, and Shanxi provinces. In 2021, CTG received the Donor Award for Poverty Alleviation and the Donor Award for COVID-19 Response during the 11th China Charity Awards and ranked first in the State-owned Enterprise Philanthropy Index (2021) released by the Chinese Academy of Social Sciences.

About CTG

Company Profile

To build the Three Gorges Project (TGP), China Three Gorges Project Corporation was founded on September 27, 1993. On September 27, 2009, it was renamed as China Three Gorges Corporation. The Corporation was restructured into limited company on December 28, 2017. It is currently headquartered in Wuhan, Hubei Province.

Committed itself to the main business of clean energy, CTG has formed eight business segments, including project construction and consultation, power generation and operation, river basin cascade dispatching and comprehensive management, international energy investment and contracting, ecological & environmental protection investment and operation, renewable energy development and operation management, capital operation and financial services, as well as asset management and base services.

Over the three decades since its establishment, CTG has achieved leapfrog development from the Three Gorges Project to the Yangtze River basin, from Hubei province to the whole country, from onshore to offshore, and from China to the world, becoming the world's largest hydropower developer and operator and China's largest clean energy group. Our business covers 31 provinces, autonomous regions and municipalities in China, with a global presence in over 40 countries and regions.

During the 14th Five-Year Plan period, CTG will strive to implement our two-tracked approach for advancing clean energy development and the ecological conservation of the Yangtze River and spare no effort to build the four corridors - the largest clean energy corridor and the largest green ecological corridor along the Yangtze River, the largest offshore wind power corridor along the coast, and an international clean energy corridor along the Belt and Road. By 2025, we will have basically accomplished our goal of becoming a world-class developer of clean energy and a leading company in environmental protection in China.



The largest hydropower developer and operator in the world
The largest clean energy group in China

136.55 billion yuan
Revenue

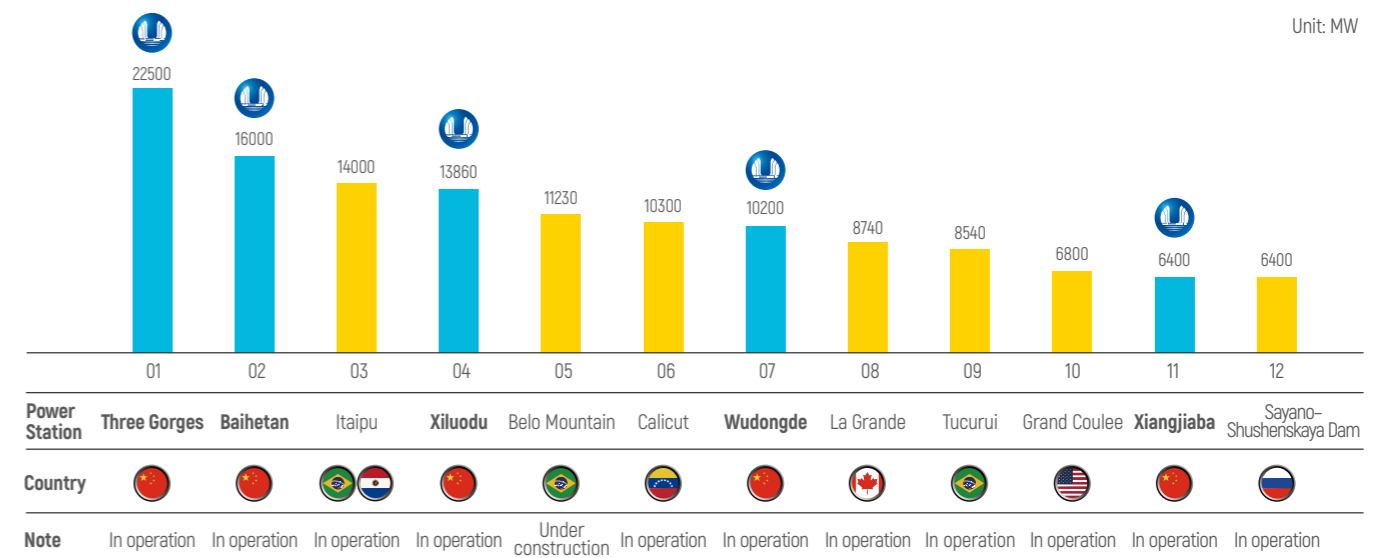
363.3 TWh
Annual gross power generation

A-class enterprise
Rating in the SASAC's annual performance appraisal of SOEs for 14 successive years

109.1 GW
Consolidated installed capacity in operation

96%
Proportion of installed capacity of clean energy

94%
Proportion of electricity generated by clean energy



5 of the top twelve hydropower stations in the world will be built, operated and managed by CTG.

Core Corporate Culture

Our Mission

Harmonizing development with conservation for greater public wellbeing

Our Vision

Striving for clean energy and Yangtze River conservation and building a world-class enterprise

Our Values

Innovation-driven development for a carbon-neutral and win-win future

Our Motto

Empowering a greener world

The goal of being a world-class developer

We aim to become a world-class developer of clean energy and a leading company in environmental protection in China by 2025.

Adhering to a two-tracked development approach

Implementing our two-tracked approach for advancing clean energy development and the Yangtze River conservation

Building the “four major corridors”

The largest clean energy corridor along the Yangtze River

The largest green ecological corridor along the Yangtze River

The largest offshore wind power corridor along the coast

An international clean energy corridor along the Belt and Road

Performing the “Six Roles”

A safeguard in advancing the development of the Yangtze River Economic Belt

A pivotal and leading player in well-coordinated environmental conservation of the Yangtze River

A leader in driving China's hydropower industry to “go global”

A key driver in promoting the upgrade of clean energy industry

A pioneer in deepening SOE reforms

A model in fulfilling social responsibilities



Board of directors



Lei Mingshan, Board Chairman



Han Jun, Director of the Board



Li Fumin, Director of the Board



Wang Yilin, External Director



Xia Dawei, External Director



Qu Dazhuang, External Director



Mi Shuhua, External Director



He Guangbei, External Director



Cai Yongzhong, Employee Director

Board members

Group leaders



Lei Mingshan, Board Chairman



Han Jun, Director of the Board, President



Li Fumin, Director of the Board



Wang Liangyou, Executive Vice President



Fan Xiaxia, Executive Vice President



Zhang Dingming, Executive Vice President



Chen Ruiwu, Head of Discipline Inspection and Supervision Group



Zeng Yi, Chief Financial Officer (CFO)

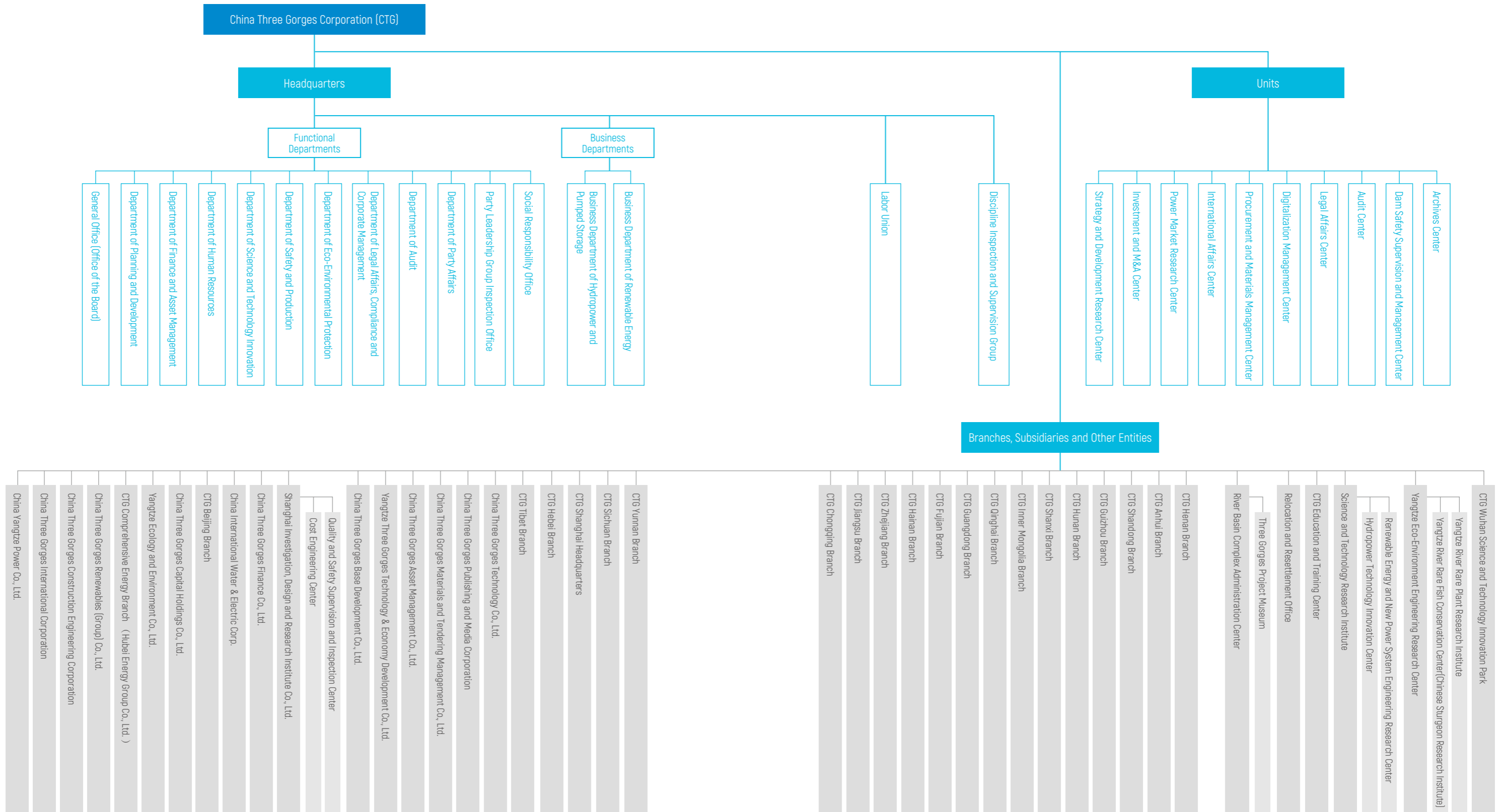


Lv Tingyan, Executive Vice President

Group leaders



Organizational Structure



Global Presence

In China

Our business covers 31 provinces, autonomous regions and municipalities across the country, providing clean energy for the comprehensive green transformation of economic and social development.

In South Asia

Taking Pakistan as the core market, China Three Gorges South Asia Investment Ltd. (CSAIL) makes investments in South Asia, and many of its projects have been included in the framework of the China-Pakistan Economic Corridor (CPEC).

In Europe

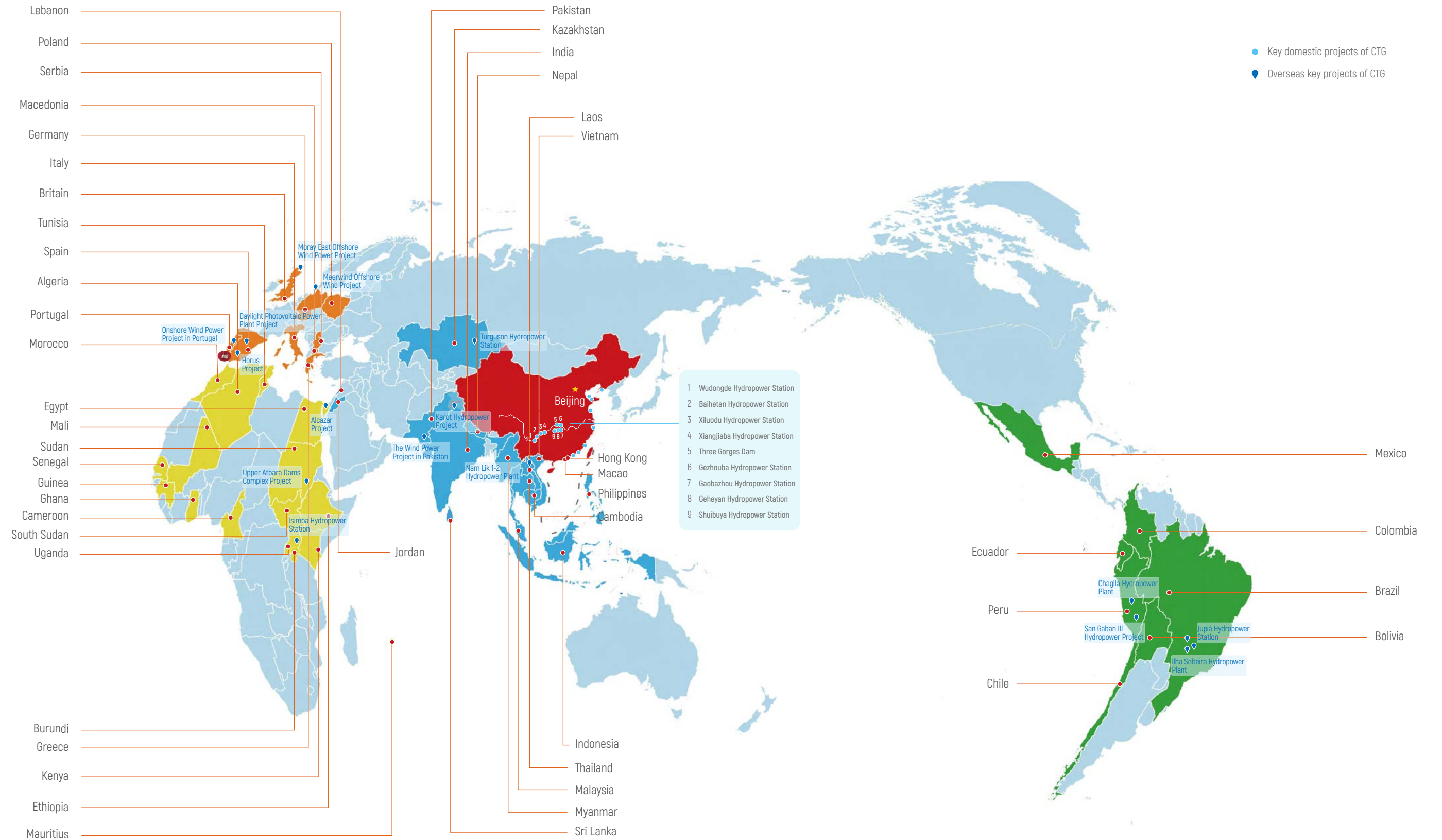
With Europe as its core market, CTG Europe runs business in Europe and North America. It is the largest shareholder of Energias de Portugal (EDP). It set up a joint venture, Hydro Global, with EDP in equal shares to develop small and medium-sized hydroelectric projects in emerging markets, especially in Peru.

In Africa

CTG has contracted business in more than 30 African countries and has forged a profound friendship with the African people. Major state-level projects built by CTG in African countries, such as the Upper Atbara Dams Complex Project in Sudan and the Isimba Hydropower Station in Uganda, have contributed to the improvement of local people's lives as well as local economic and social development.

In Latin America

CTG has invested in the development of clean energy resources in Latin America, where CTG Brasil is the second largest private energy generation company and the largest private hydropower company in Brazil. Yangtze Andes Holding Co., Limited, a subsidiary of China Yangtze Power Co., Ltd. (CYPC), has completed the acquisition of Luz Del Sur (LDS), which is the largest power utility company in Peru. Centered in Colombia, CTG Latin America supplies clean energy for countries and regions in the region, excluding Brazil and Peru.



CTG in Your Life

Across the mountains and rivers, we capture wind and solar energy to deliver green electric power to millions of households nationwide. Committed to ecological and environmental protection, we strive to improve the environmental wellness of the people. We assist those in need, help people overcome difficulties, and facilitate harmony and prosperity in rural areas. We are CTG accompanying your life with energy.

Converting sunlight on the plateau into electricity

In the uninhabited region in Qinghai with an average altitude of over 3,000 meters, a boundless expanse of photovoltaic (PV) panels can be seen on the top of the snow-capped mountains. They generate clean electricity for more than 20,000 farmers and herders.

Creating a better life for resettled residents of Qiaojia

In Qiaojia County, Yunnan Province, 52,011 residents from Baihetan have moved from cottages to buildings in the resettlement sites. They are living a better life.

Supporting flood control in the Yangtze River basin by the Three Gorges Dam

Since the Three Gorges Project was put into operation, safety risks caused by dam failures in Hubei Province have dropped sharply under the scientific scheduling and joint prevention and control mechanism. The Three Gorges Dam is protecting the people downstream.

Supporting education in the mountainous areas

At Liangshan Minority Middle School in Liangshan Yi Autonomous Prefecture of Sichuan Province, 50% of the students of the first CTG Inspirational Class passed the senior high school entrance examination, and 81% of the class enrolled at universities after passing the college entrance examination. More and more local children are embracing a better future because of education.

Driving development of Wushan by supporting local tourism

In the Wushan region of Chongqing, the number of tourists on the "CTG-Assisted Tourism Route" under the "tourism + assistance" model has multiplied. More than 700 local agri-tourism owners have welcomed a tourist season.

Vitalizing the Yangtze River through fish proliferation and release

In Wuhu, Anhui Province, millions of fry of rare species have been released into the Yangtze River, laying an ecological foundation for increasing the beauty of the Yangtze River.

Powering Beijing 2022 with wind energy from northern Zhangjiakou

In Shangyi County, Zhangjiakou, Hebei Province, huge wind turbines generate megawatts of green electricity, which is then delivered to the venues for the Winter Olympics under the green electricity trading mechanism, empowering the green Beijing 2022.

Protecting the Yangtze River by improving sewage treatment

In Jiujiang, Jiangxi Province, the "plant-network-river-lake" integrated water management model has made the mountains lusher, the waters more lucid, and the cities more livable.

Dams printed on foreign currencies

Along the Belt and Road, some special banknotes are circulating. The dams constructed or reconstructed by CTG have been printed on the banknotes of countries such as Laos, Sudan, and Guinea. These dams deliver a steady stream of clean electricity to local communities and residents. The dams printed on those banknotes not only symbolize the local recognition for the "QTG Quality", but also make the story of the Belt and Road more fascinating.

Contributing to China's carbon peak and carbon neutrality goals with the "blue generators"

In the offshore wind power project in Rudong, Jiangsu Province, hundreds of mega wind turbines translate wind power into clean electricity for millions of households, contributing to carbon peak and carbon neutrality goals.

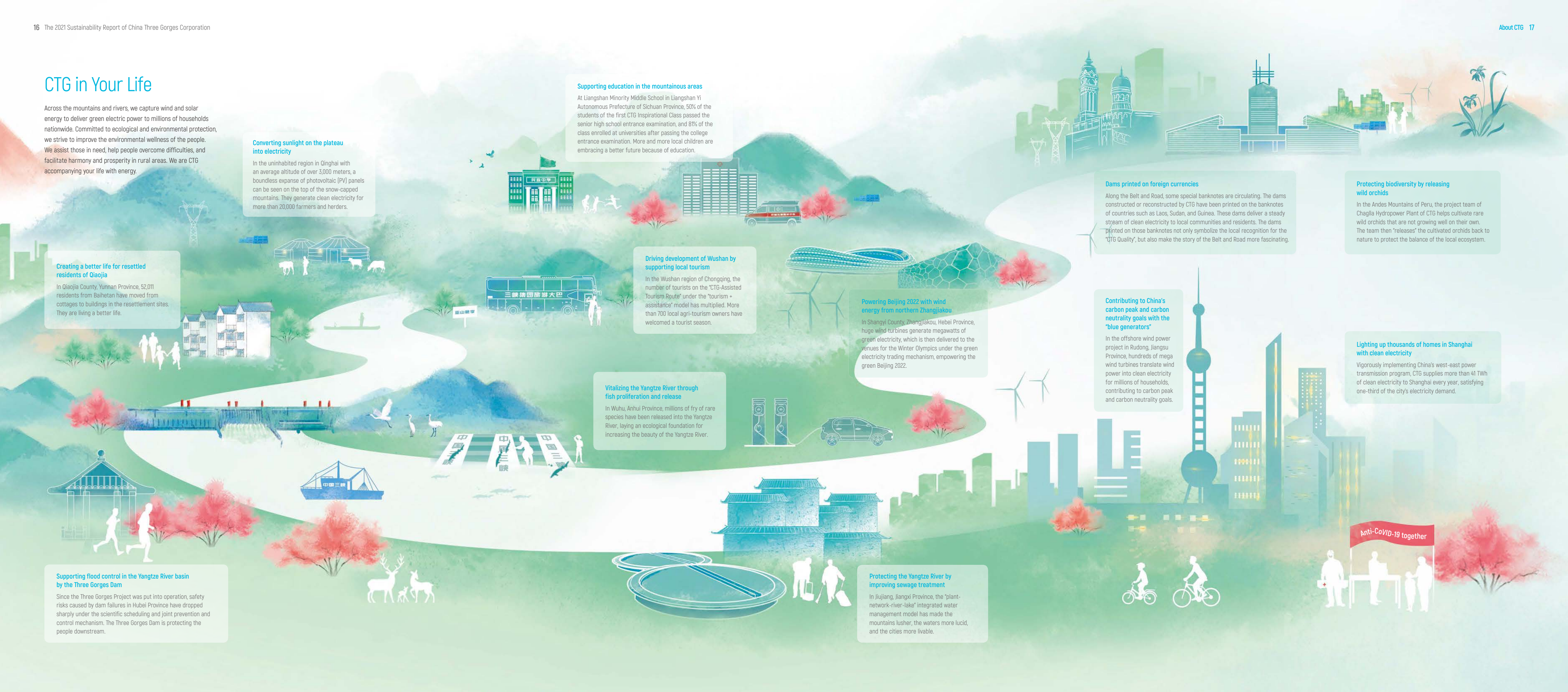
Protecting biodiversity by releasing wild orchids

In the Andes Mountains of Peru, the project team of Chaglla Hydropower Plant of CTG helps cultivate rare wild orchids that are not growing well on their own. The team then "releases" the cultivated orchids back to nature to protect the balance of the local ecosystem.

Lighting up thousands of homes in Shanghai with clean electricity

Vigorously implementing China's west-east power transmission program, CTG supplies more than 41 TWh of clean electricity to Shanghai every year, satisfying one-third of the city's electricity demand.

Anti-CoVID-19 together



Addressing Climate Change

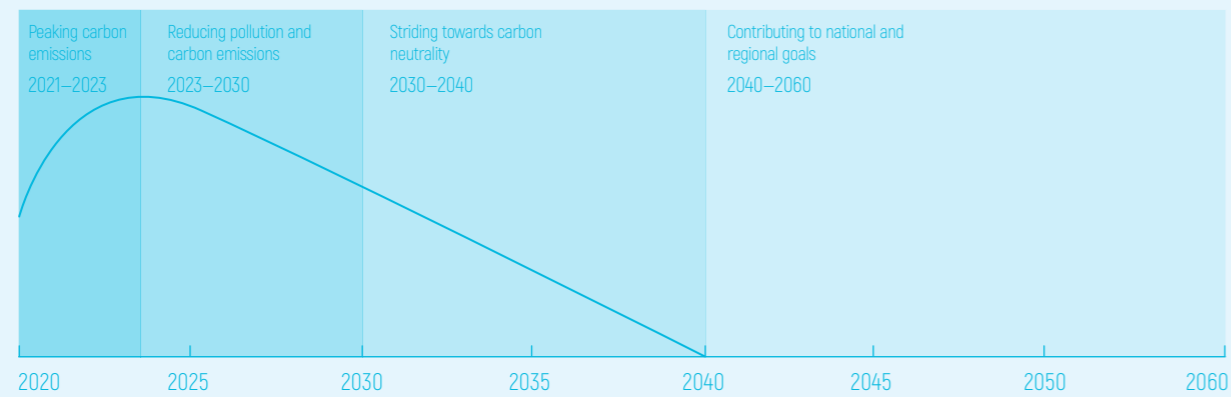
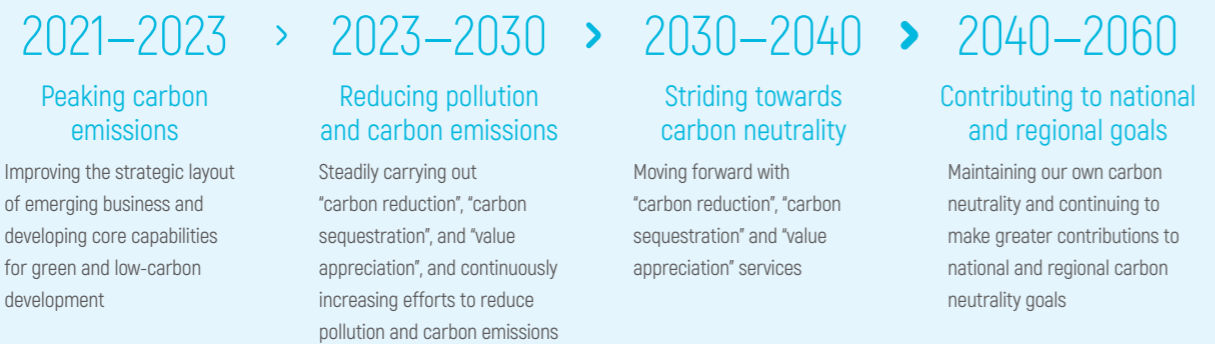
Feature I



Addressing climate change is a shared responsibility of all mankind. CTG, the largest hydropower developer and operator in the world and the largest clean energy group in China, has contributed to the development of clean energy globally. While consolidating our competitiveness in the hydropower sector, we have vigorously developed offshore and onshore wind power in an orderly manner. We keep accelerating the development of photovoltaic power as well as the R&D of clean energy-related technologies, and build pumped-storage power stations, so as to contribute to China's carbon peak and carbon neutrality goals and the global climate action.

Low-Carbon Commitment

Our commitment: CTG will continue to leverage its advantages in the clean energy sector and will accelerate the utilization of other clean energy sources such as wind power and solar power while consolidating hydropower generation. We strive to reach a peak in carbon emissions before 2023 and achieve carbon neutrality before 2040, thereby making greater contributions to national energy security and high-quality development.



Roadmap of carbon reduction towards carbon peaking and carbon neutrality

Low-Carbon Actions

Reducing carbon emissions in business operations.

We advocate paperless office to reduce operational energy consumption, and actively carry out pilot green building projects to strengthen energy conservation and carbon reduction. Hubei Energy Group Co., Ltd. is committed to reducing carbon emissions from its coal-fired power plants through clean operations.

Providing clean electricity services.

While consolidating our competitiveness in the hydropower sector, we vigorously expand pumped-storage business, step up efforts to develop onshore renewable energy resources, continue to exploit marine clean energy resources, and develop key wind and solar power projects. Based on the needs of the power generation side, the grid side and the user side, we conduct research on the development of "energy storage plus" and hydrogen energy business.

Facilitating emission reduction throughout the industrial chain.

We increase our efforts in clean power generation, electricity power substitution (EPS), energy storage and hydrogen energy, carbon capture, utilization and sequestration, etc., and empower the green industrial chain with technology. Furthermore, we carry out industrial demonstration, integration and upgrading projects, play a leading role in the green industrial chain, and develop a number of replicable and scalable new models and mechanisms.

Supporting regional green development.

We deeply engage in the Yangtze River Economic Belt, and strengthen the coordinated management of mountains, rivers, forests, farmlands, lakes, and grasslands to build the largest green ecological corridor along the Yangtze River.



Guaranteeing Power Supply

Feature II

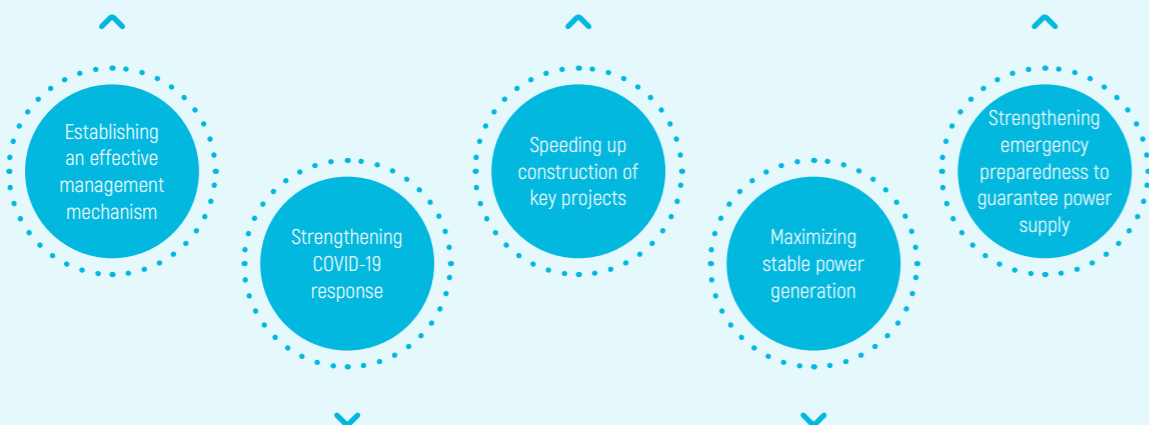


In 2021, China's energy supply remained tight due to multiple factors. Therefore, CTG went all out to secure the stable supply of electricity, heat and natural gas at all costs. We strengthened production management, and gave full play to our installed capacity. Over the past year, we completed the tasks of power supply guarantee for the fights against cold waves, flood control and peak winter season.

We meticulously formulated work plans for power supply guarantee, set up a leading group, and regarded power supply as our most important and urgent task.

While strengthening the release of our existing power generation capacity, we accelerated the construction and commissioning of new power plants. While ensuring quality, safety, and cost under control, we accelerated the construction of key projects such as Baihetan Hydropower Station with higher efficiency, endeavoring to enable them to begin operation and generate electricity as soon as possible.

We strengthened emergency management, and conducted early warning of extreme weather events as well as hidden danger identification and management. Well preparing supplies and rescue for emergency response, we effectively responded to natural disasters such as typhoons and floods to ensure the safety and stability of the supply chain and power stations.



We strengthened the protection of power generation, operation and maintenance personnel to ensure that the task of power supply guarantee was not affected by the pandemic.

We improved the fine management of power generation, equipment availability and precise scheduling, so as to give full play to our power generation capacity.

21.5^{GW}

New installed capacity after generating units of Wudongde, Baihetan, Changlongshan, Xiakoutang hydropower stations and some of our renewable energy power plants put into operation

57.59^{GW}

Electricity generated at full throttle by the six cascade hydropower stations on the mainstream of the Yangtze River during energy consumption peaks in winter

147.2^{TWh}

Total electricity generated from September to December in 2021, during which every month's power generation volume setting a new record for the same period over years



The GIS reverse power flow drill at the right bank power plant of Baihetan Hydropower Station

Contributing to Biodiversity Conservation

Feature III



In October 2021, the 15th Meeting of the Conference of the Parties (COP15) to the Convention on Biological Diversity (CBD) was held in Kunming, Yunnan Province. With the theme of "Ecological Civilization: Building a Shared Future for All Life on Earth", the meeting started a new process of global biodiversity governance. CTG has been committed to biodiversity conservation over years, and has contributed to the protection of endemic and rare animals and plants as well as their genetic resources. We have advanced biodiversity conservation and clean energy projects in a well-coordinated manner with an effort to create a "CTG Model" where man and nature coexist in harmony.

Preserving biodiversity in the Yangtze River basin

Protecting the local flora and fauna

- CTG established the Yangtze River Rare Plant Research Institute in 2017, the Yangtze River Rare Fish Conservation Center in 2018, and the Yangtze Eco-Environment Engineering Research Center in 2019. In April 2021, in order to comprehensively carry out the protection of rare animals and plants in the Yangtze River Basin, the Yangtze River Rare Fish Conservation Center (Chinese Sturgeon Research Institute) and the Yangtze River Rare Plant Research Institute were incorporated into the Yangtze Eco-Environment Engineering Research Center.
- Over **26,800** endemic and rare plants of 1,300 species in 140 families and 419 genera were under our ex-situ conservation.
- A total of **116** fish proliferation and release activities were carried out, with **8.75** million fry of rare fish species released in total.

Protecting genetic resources

- The living germplasm resources of **1,300** endemic and rare plant species have been collected and preserved in the Yangtze River basin.
- We preserve germplasm of rare plant species and update the electronic archives. In 2021, **1,284** specimens of endangered, rare, and endemic plant species were collected and produced.



Releasing the second generation of artificially breeding Chinese sturgeon into the Yangtze River

Promoting harmonious development of the economy and environment

PV projects for desertification control

- **The 100GW Wind and Solar Power Base Project (Phase I)** – the Kubuqi Photovoltaic Desert Control Project in Inner Mongolia Autonomous Region started construction, marking a new stage of the "PV projects + desertification control" ecological governance model.
- **The 100GW Wind and Solar Power Base Project (Phase I)** – the 2.1GW PV Project located in Hainan and Haixi Prefectures, Qinghai Province, started construction. This project is expected to effectively promote desertification control and ecological restoration in local areas.

Aquaculture-PV hybrid projects and agriculture-PV hybrid projects

- The world's largest floating PV power plant that spans across the largest area of water surface in a coal mine subsidence area started construction in Fuyang, Anhui Province.

Marine ranches

- The 300MW offshore wind farm in Changyi, Shandong, is piloting the new model for the integrated development of "offshore wind power + marine ranching".

Contributing to global biodiversity conservation

- **In Pakistan**, CTG encourages local communities and school children to participate in biodiversity conservation.
- **In Laos**, CTG has carried out fish proliferation and release activities for 10 consecutive years, releasing a total of 390,000 fish fry.
- **In Germany**, CTG regularly assesses the environment where its offshore wind power projects are located, and monitors marine life, birds, and fishery resources.
- **In Brazil**, CTG has cooperated with local institutions in solving the issue of invasive golden mussels by developing an aquatic plant health system and an aquatic plant database.
- **In Peru**, ecological flow tubes are built for the San Gaban III Hydropower Project to facilitate fish migration and release.

Excellent Business Management

Compliance and Rule of Law

We earnestly implement the basic requirements and specifications of the *Compliance Manual* on production and operation, market behavior, business intercourse, business ethics, and social responsibility. Besides, the guidelines for compliance management of renewable energy, eco-environmental protection, and overseas anti-commercial bribery are formulated.

While constantly improving the systems and working mechanisms, we have established the "1+N" risk control system, which is guided by the *Regulations on Risk Management and Internal Control*, and supported by a number of operating specifications on risk event management, internal control supervision and evaluation, risk list, monitoring indicators, etc. Meanwhile, a series of mechanisms have been developed, including the key risk assessment mechanism, the reporting system, the working mechanism for supervising the handling of major risks, and the monitoring and evaluation mechanism.



We have formulated the guiding opinions on the establishment of the law-based working system, and issued the implementation plan for building a company based on the rule of law during the 14th Five-Year Plan period. We have made every effort to provide legal services for project construction, and comprehensively promoted the modernization of governance systems and capabilities.

We have consolidated the leadership system and management mechanism for internal audit, established the audit task force under the Party Leadership Group, and optimized the relevant institutional system. Moreover, we have further promoted the full coverage of audit-based supervision, intensified audit-based supervision in key areas, and carried out the quality assessment of internal audit, with an effort to build a centralized, unified, comprehensive, authoritative and efficient audit-based supervision system. A total of 104 audit projects were carried out in 2021.

Quality and Safety

0 Annual employee fatalities

0 Annual major equipment accidents

The quality management model driven by "quality engineering + intelligent construction" developed by the Engineering Construction Department of Baihetan Hydropower Station won the **4th China Quality Award Nomination**

Promoting the establishment of a standard system for quality projects

Following the guiding principles of President Xi Jinping, CTG has issued the standard system framework for quality infrastructure projects.

Intensifying safety management

We ramp up efforts to advance the three-year action plan on work safety. We focus on the identification and elimination of hidden safety hazards to guarantee power supply.

Deepening comprehensive quality management

We have completed the re-certification of the "QEOMS" system (Quality, Environment, Occupational Health & Safety), and carried out comprehensive quality management activities, such as QC team building, innovation in quality technology, and the building of quality-trustworthy teams. In 2021, we received nearly 70 national and industrial commendations, which have further motivated all employees to participate in quality improvement and innovation.

Consolidating the dual prevention mechanism

We continue to strengthen the dual prevention mechanism comprising hierarchical risk control and hazard screening and management, and carry out quality and safety risk identification and prevention at different levels for key projects. This mechanism enables us to eliminate quality and safety hazards in a timely manner, and effectively forestall and defuse major risks.

Responsible Supply Chain

Forming a responsible supply chain

We reform the material management to establish an intensive, standardized and specialized full lifecycle management system of materials. Meanwhile, we carry out the planning and construction of spare parts reserve bases, and improve key material reserve and key technology management. We strive to build a smart supply chain management platform while ensuring the supply chain security.

Facilitating a win-win industrial chain

We actively engage in strategic cooperation with the government, universities, and enterprises to achieve mutual benefit and win-win development.

Government-enterprise cooperation: Having signed a strategic cooperation framework agreement with Gansu Province, CTG fully integrates into local renewable energy development to support rural vitalization in Gansu.

University-enterprise cooperation: CTG signed cooperation agreements with Nankai University and Dalian University of Technology respectively, so as to leverage their respective strengths to develop national R&D platforms of major technologies and carry out joint scientific and technological research projects.

Enterprise-enterprise cooperation: CTG established strategic cooperation with China Unicom, CATL, Chinalco, CNOOC, Harbin Electric Corporation, etc.

Exchanges across industries: CTG participated in the China 5G + Industrial Internet Conference 2021, joining hands with all parties to accelerate the building of a digital China and smart society.

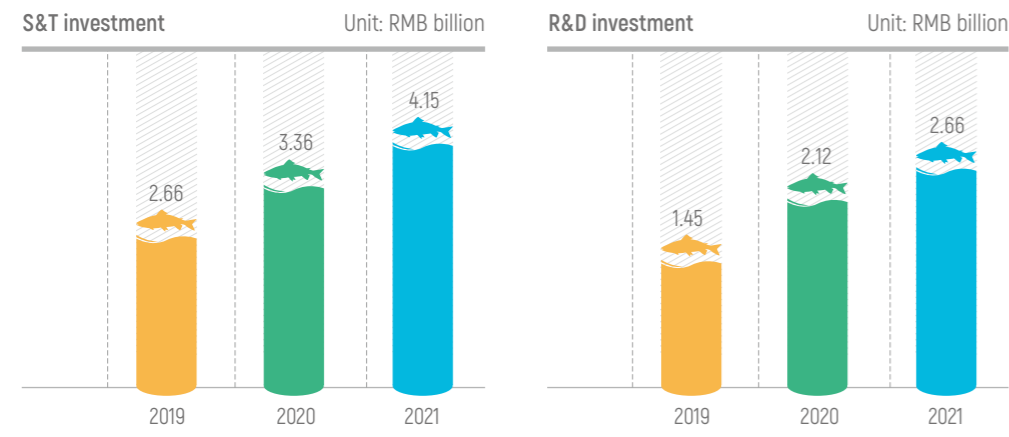


Technology and Innovation

CTG actively implements the innovation-driven development strategy, and optimizes scientific research management. We have deepened the reform of the S&T system, and stepped up efforts to build R&D teams and technological innovation platforms for making breakthroughs in key technologies. We have increased investment in R&D projects, and comprehensively strengthened the application of technological achievements and the protection of intellectual property rights, with fruitful technological results yielded.

Improving the scientific research management system

In order to strengthen scientific research management, we have made comprehensively planning for technological innovation during the 14th Five-Year Plan period, specifying the key tasks, the guidelines on advancing technological innovation and management innovation in parallel, and the main contents of system and mechanism reforms. We have formulated plans for technological innovation and intellectual property rights during the 14th Five-Year Plan period, and revised the *Management System for Technological Research* and the *Measures for the Management of Technical Standards*.



Deepening reform of the S&T system

We have improved the incentive mechanism to encourage the application of technological advances and motivate employees to get involved in technological innovation. For example, we introduced "open competition" and "horse racing" mechanisms and a mechanism where those who have fulfilled their duties for innovation are not held accountable. We also input more resources for key scientific research projects, and offer more support to subsidiaries' strategic research projects, thus further unleashing their ability to innovate.

In 2021

1,072

S&T achievements rewarded

RMB 7,856,000

Total amount of rewards

Developing innovation platforms

We have stepped up our efforts to develop independent innovation platforms. In 2021, we won approval for building one national-level technological innovation platform, the first of its kind initiated by CTG, and four provincial- and ministerial-level technological innovation platforms. We have established multi-disciplinary technological innovation platforms at the national, provincial, ministerial, and enterprise levels.

By the end of 2021

2

National-level technological innovation platforms

9

Provincial- and ministerial-level technological innovation platforms

9

Enterprise-level technological innovation platforms (including five joint platforms)

2

Academician workstations

2

CTG Postdoctoral Research Stations

2

Platforms for the application of scientific and technological achievements



Tackling key technological problems

While fully leveraging our innovation capability, we strive to shore up our weakness. Therefore, we roll out research projects to tackle key technological problems and have made significant breakthroughs in the construction, production and operation of hydropower projects, renewable energy development, and the protection of the Yangtze River, with many major achievements.



Testing for moisture in oil



The "key technologies for supporting the decision-making on hydropower dispatching by the mega power stations in the upper reaches of the Yangtze River" won the Special Prize of the first Yangtze River Science and Technology Award.

The "research on mechanical properties of basalt in Baihetan and key technologies for engineering utilization" won the Special Prize of the Scientific and Technological Progress Award from the Chinese Society for Rock Mechanics & Engineering.

The "research on and application of key technologies in construction of ultra-high dams built with low-heat cement concrete in complex environments" won the First Prize of the Scientific and Technological Progress Award from the Chinese Society for Electrical Engineering.

>>> Baihetan Hydropower Station builds the world's first "seamless dam"

On May 31, 2021, the dam of Baihetan Hydropower Station, the world's largest hydropower station under construction, was poured to the top. The low-heat Portland (LHP) cement, a new type of special cement independently developed by China, was used for the construction of the entire dam. The hydropower station also innovated in the construction process by applying CTG's self-developed intelligent water-passing and intelligent grouting technologies. To improve the construction process, CTG formulated technical specifications such as the *Technical Requirements for Concrete Temperature Control of Arch Dams Under Construction*, and successfully prevented the 8.03 million-cubic meter mass of concrete from cracking through temperature control.

Technical standard complied

1

International standards co-edited by CTG

10

National standards co-edited by CTG

In 2021

3

Projects to tackle key technological problems completed

7

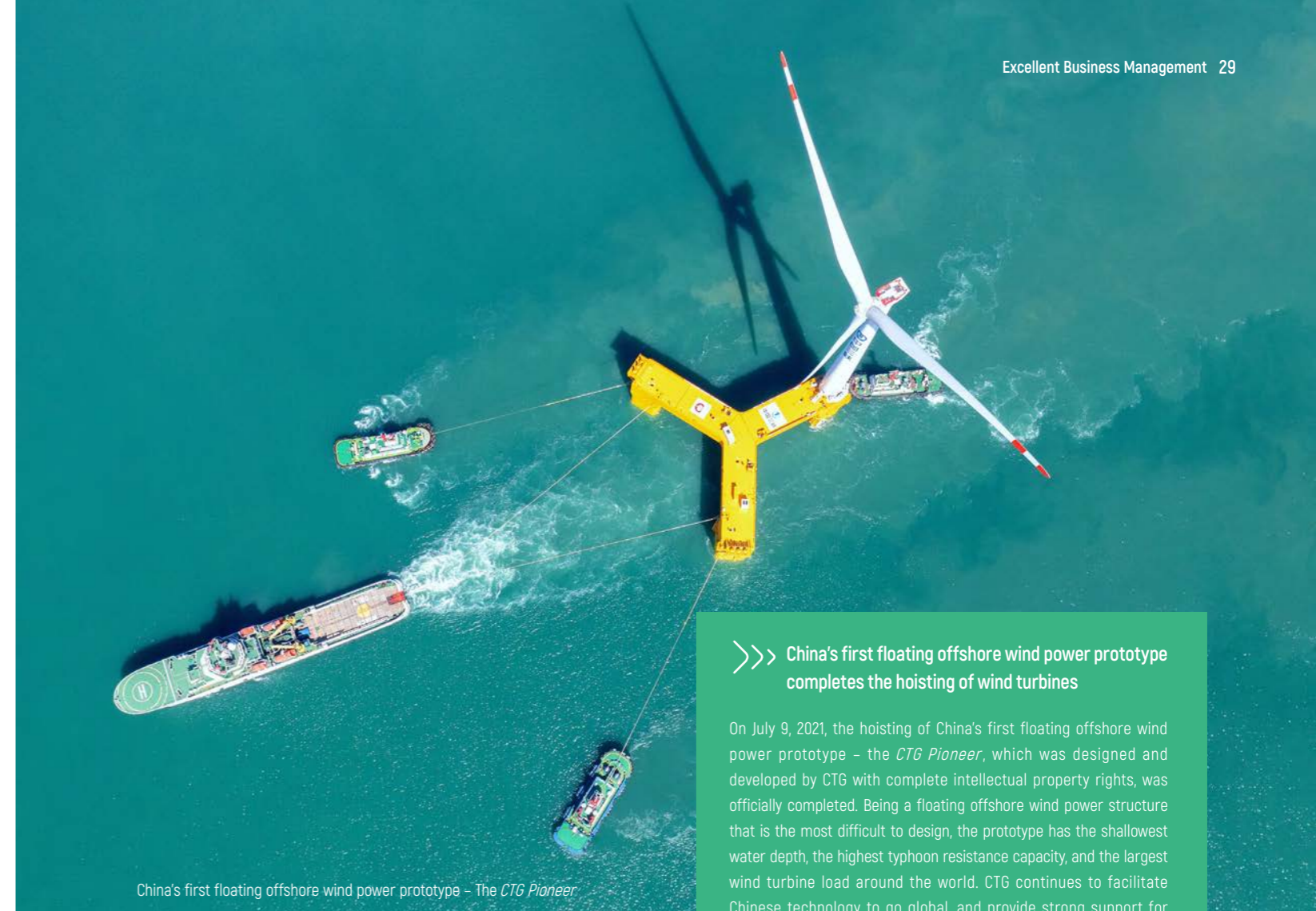
Approved national major R&D projects

3

Recipients of the titles of national, provincial and industry-level talents

2

Provincial- and ministerial-level awards for technological research results



China's first floating offshore wind power prototype - The CTG Pioneer

>>> China's first floating offshore wind power prototype completes the hoisting of wind turbines

On July 9, 2021, the hoisting of China's first floating offshore wind power prototype - the *CTG Pioneer*, which was designed and developed by CTG with complete intellectual property rights, was officially completed. Being a floating offshore wind power structure that is the most difficult to design, the prototype has the shallowest water depth, the highest typhoon resistance capacity, and the largest wind turbine load around the world. CTG continues to facilitate Chinese technology to go global, and provide strong support for national renewable energy development strategies.

Advancing IPRs protection

CTG strengthens the protection of intellectual property rights (IPRs), deepens patent mining, and continuously increases the number and quality of our effective patents. By improving our patent portfolios of core technologies and international patent applications, and compiling the IPR Protection Plan for the 14th Five-Year Plan period, we provide guidance to IPR efforts during the period, unleash employees' ability to innovate and promote the creation of a new development pattern.

1,396

Patent applications filed in China

22

Patent applications filed abroad

951

Patents that have passed domestic authorization

3

Patents that have passed international authorization

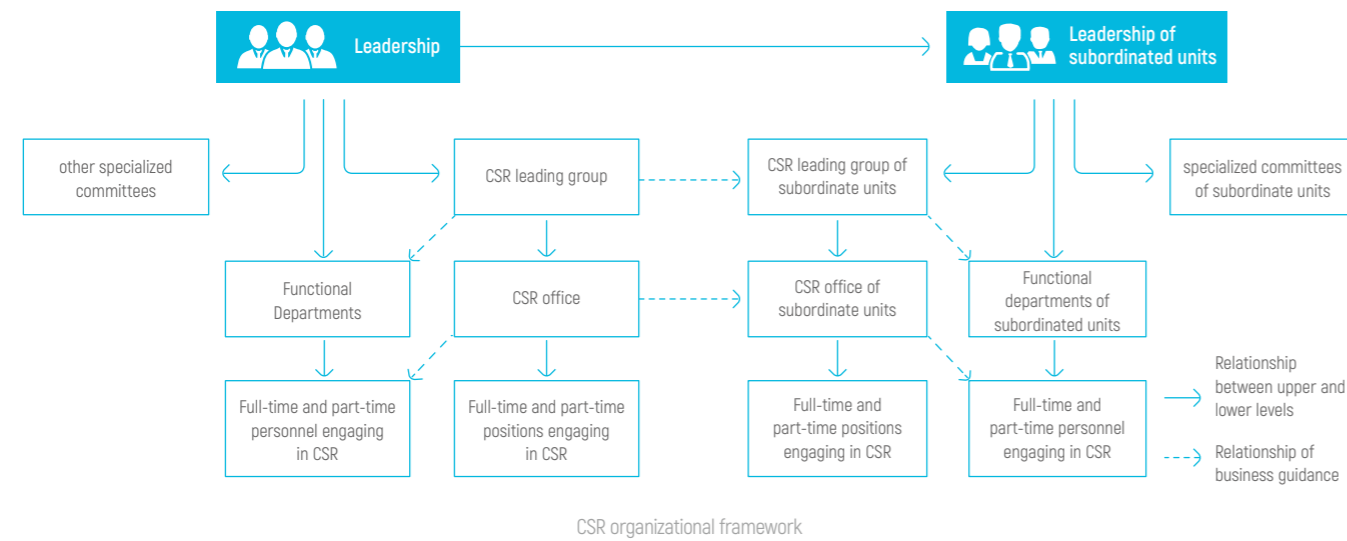
200

Registered software copyrights

Sustainability Management

We have formulated the CSR Plan During the 14th Five-Year Plan Period. By strengthening our CSR capabilities, pursuing innovative project management, and promoting the application of information technology in sustainable development efforts, we continue to incorporate CSR concepts and requirements into our operating methods and paths in innovative ways, thereby laying a solid foundation for sustainability management.

CSR Organizational Framework



Main responsibilities of the CSR leading group:

- Identify the globally recognized standards, codes of ethics and principles that need to be followed
- Provide guidance for the development of systems for CSR efforts and relevant procedures
- Guide and study the formulation of mid- and long-term plans, annual plans, work tasks and budgets for CSR efforts
- Regularly check the progress of CSR projects and the use of funds, evaluate project outcomes, summarize completed tasks, and plan follow-up tasks

Main responsibilities of the CSR Office:

- Make relevant rules and regulations, and work procedures for CTG's CSR efforts
- Organize the preliminary investigation at the initial stage of CTG's CSR projects, and propose project suggestions and budgets
- Organize and implement CTG's CSR projects and coordinate related work

Main responsibilities of full-time and part-time personnel engaging in CSR:

- Communicate and facilitate CSR practices
- Communicate and cooperate with stakeholders
- Develop CSR plans for departments
- Collect CSR topics from departments and submit departments' CSR practices

Advancing CSR Efforts

Improving the CSR management system. To build a long-term mechanism for CSR efforts, we have improved the organizational system for CSR management, with clear responsibilities of positions at different levels. We have also strengthened the systems and thus raised employees' CSR awareness and capacity. At a strategic level, the *Manual for Social Responsibility Index Management* is formulated, and the accountability system and project management measures are revised as the guidance for CSR practices of CTG. The book *Original-aspiration-driven Social Responsibility Management* is also compiled and published, providing reference for the CSR management of CTG and external parties.

Making thorough CSR plans. We have formulated the CSR Plan During the 14th Five-Year Plan Period, which outlines goals and measures for developing model cases in CSR management, practice, and image building, laying the foundation for becoming a world-class CSR model. We undertake a rural vitalization research project of the SASAC under the open competition mechanism, contributing our share to the course of rural vitalization.

Building a CSR brand. We enact unified plans and implement fine management to strengthen closed-loop lifecycle management of CSR projects. Through well-regulated, sustained and transparent

project operations, we endeavor to deliver a batch of targeted, innovative, and influential CSR projects. These include the CTG Seed Fund, CTG-sponsored Kids' Trip, CTG Scholarship Program, CTG Remote Class Program, CTG Inspirational Class, CTG Candlelight Action, and Pakistan Scholarship Program.

Improving the IT-based CSR management. We expand the application of the CSR project information system. By optimizing project management procedures and system functions, and implementing online monthly reporting and progress monitoring systems, we can access to the retrievable, collectable, traceable, and available CSR project information. Thus, the IT-based process management is improved with the help of information technology.

Strengthening CSR information disclosure. By disclosing relevant information in a timely, accurate, and standardized manner, we strive to improve the quality of CSR information disclosure. We have progressively developed mechanisms for regular CSR information disclosure, which will include the publication of annual reports on environmental protection, sustainability reports, and country-specific CSR reports for our operations in foreign countries. We make full use of the Internet and various media channels to disclose information in new forms and expand the reach of our CSR reports.



Scan to read the book *Original-aspiration-driven Social Responsibility Management*



Stakeholder Communication

CTG attaches importance to identifying core stakeholders and their key expectations, and strives to meet their expectations in practice. Besides, CTG continues to enrich channels and carriers for stakeholder communication, guarantees stakeholders' rights to know, participate and supervise, and continuously improves CSR management and practices, thus optimizing the comprehensive value for stakeholders.

Stakeholder	Core appeals	Communication
Investors	<ul style="list-style-type: none"> Maintenance and appreciation of investment Supervision and assessment Compliance management 	<ul style="list-style-type: none"> Published a series of reports, including the <i>Annual Report</i>, <i>Sustainability Report</i>, <i>Belt and Road Sustainability Report</i>, <i>Annual Report on Environmental Protection</i>, and the <i>Informatization Annual Report of CTG</i>, the <i>Yangtze River and Three Gorges Project Ecological and Environmental Monitoring Bulletin</i>, <i>Social Responsibility Report of China Yangtze Power Co., Ltd.</i>, and <i>Social Responsibility Report of Hubei Energy Group Co., Ltd.</i>
Resettled residents from the reservoir areas	<ul style="list-style-type: none"> Arranging resettlement in cooperation with the government Promoting the sustainable development of resettled residents 	<ul style="list-style-type: none"> Invested heavily on the resettlement and follow-up support for relocated residents from the Baihetan Hydropower Station and Wudongde Hydropower Station areas. Invested heavily on the resettlement of residents and their prosperity in the Three Gorges Reservoir area and the Jinsha River reservoir area.
Communities	<ul style="list-style-type: none"> Charity Promoting economic and social development 	<ul style="list-style-type: none"> Supported rural vitalization, provided targeted assistance, and aided the reservoir areas, as well as Xinjiang, Tibet and Qinghai. Attracted a total of 4.6 million page views and visits for CTG's Chinese official website, and 84,458 page views for its English portal. CTG's official WeChat account reached more than 80,000 followers.
Employees	<ul style="list-style-type: none"> Protecting labor rights and interests Compensation and benefits Career development 	<ul style="list-style-type: none"> Carried out activities to foster democracy and held workers' congress. Developed reasonable compensation and incentive plans and pay growth mechanisms. Conducted training and staff support programs to fuel staff development.
Customers	<ul style="list-style-type: none"> Coordinated development Win-win cooperation Stable and safe energy supply 	<ul style="list-style-type: none"> CTG's annual power generation output reached 363.3 TWh. Completed 12 tasks in 2021 to secure the safe and stable power supply.
Environment	<ul style="list-style-type: none"> Ecological protection Energy conservation and emission reduction Addressing climate change 	<ul style="list-style-type: none"> Prepared the 17th Annual Report on Environmental Protection, which objectively demonstrated the environmental performance of CTG and responded to what stakeholders concern in a truthful and comprehensive manner. Released Chinese sturgeons and second-generation Chinese sturgeons to the Yangtze River and the Jinsha River, respectively.
Partners	<ul style="list-style-type: none"> Fair operation Responsible Supply Chain Win-win cooperation 	<ul style="list-style-type: none"> Newly developed and revised the administrative measures for bidding and procurement, contracting, and material management, as well as compiled standard procurement documents. Completed the trial run of the upgraded e-procurement platform. Rated the credit of suppliers and conducted supplier training. Held the 2021 Supplier Webinar.
Provinces and cities in the Yangtze River Basin	<ul style="list-style-type: none"> Flood control and drought relief Improving shipping 	<ul style="list-style-type: none"> Fully leveraged the role of the cascade hydropower stations in flood control, power generation, water replenishment, shipping improvement, and ecological restoration, to contribute to the economic and social development of provinces and cities in the Yangtze River Basin. Facilitated the cooperation between enterprises and local governments to promote well-coordinated environmental conservation in the Yangtze River Economic Belt; signed "Smart Urban Water Manager" agreement with more than 20 cities along the river.
Media	<ul style="list-style-type: none"> Transparent operation Information disclosure 	<ul style="list-style-type: none"> Opened official accounts on multiple new media and self-media platforms, including Xuexi Qiangguo, Toutiao, People's Daily, and The Paper, to post news of CTG, attracting 117 million views. Opened official accounts on TikTok and WeChat video platform to post news of CTG, attracting a total of 23.49 million views. Covered by <i>CCTV News</i> for 36 times in 2021

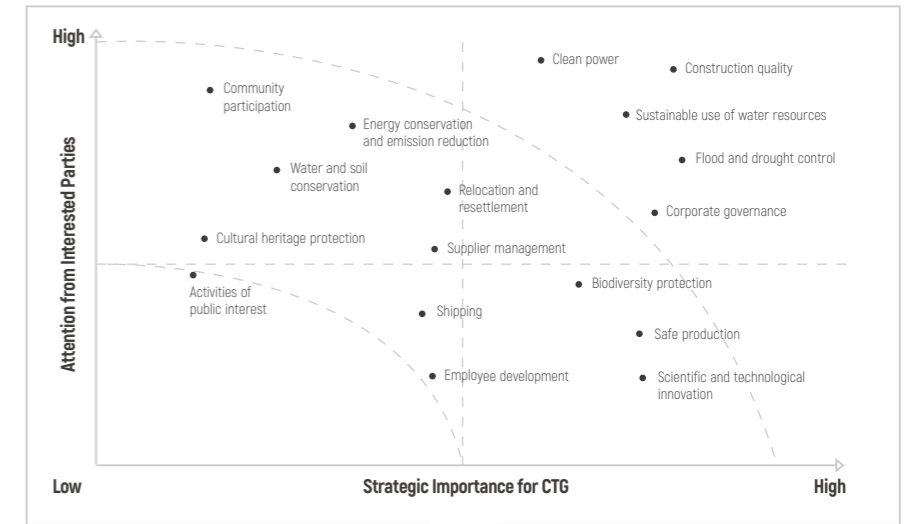
Materiality Analysis

According to the guidelines on social responsibility reporting, CTG has constantly improved the process to define the topics and limits of its CSR reports to address the concerns of stakeholders. We have developed a materiality matrix and defined the disclosure degree and boundaries of each topic from two dimensions – its strategic significance to CTG and the degree of attention from stakeholders, so as to disclose information about its operation and management as accurately and thoroughly as possible.

Recognition

Main sources	Topics
<ul style="list-style-type: none"> Proposals for the employee representative meetings Attention from clients like power grid enterprises Feedback on the official CTG website Collection of opinions of migrants Communication with local governments and the signing of strategic cooperation agreements Opinions and feedback at the communication meetings for suppliers Collection of opinions of communities Comments on environmental impact Opinions from such NGOs as WWF and TNC Seminars in the hydropower industry Feedback from hydropower experts Participation in the making of industrial standards Participation in international and industrial organizations 	<ul style="list-style-type: none"> Development strategy Corporate governance International operation Construction quality Community participation Supplier management Responsibility purchase Response to climate change Employee rights protection Remuneration and welfare Human rights protection Law observance and compliance Transparent operation Employment management Employee development Energy conservation and emission reduction Biodiversity protection Sustainable use of water resources Water and soil conservation Protection of cultural heritage Flood and drought control Shipping Clean power Relocation and resettlement Scientific and technological innovation Environment management Making of industrial standards Activities of public interest

Sorting

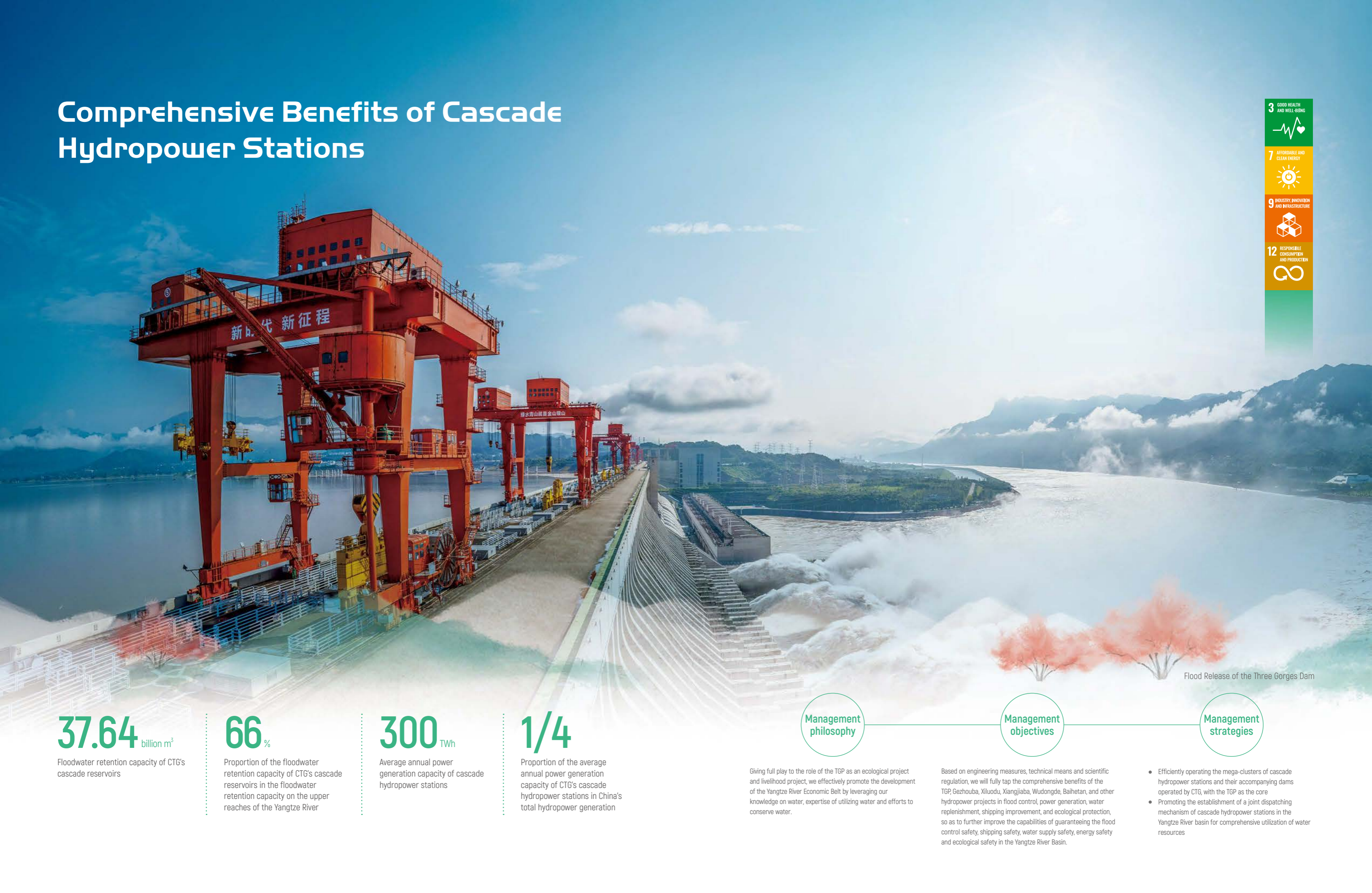


Verification

Internal	External
<ul style="list-style-type: none"> Review by social responsibility management institutions Review by related departments and subordinate companies Examination and approval by company leaders 	<ul style="list-style-type: none"> Participation of NGOs Participation of the third-party consulting institutions Report rating Communication meetings for interested parties



Comprehensive Benefits of Cascade Hydropower Stations



37.64 billion m³

Floodwater retention capacity of CTG's cascade reservoirs

66 %

Proportion of the floodwater retention capacity of CTG's cascade reservoirs in the floodwater retention capacity on the upper reaches of the Yangtze River

300 TWh

Average annual power generation capacity of cascade hydropower stations

1/4

Proportion of the average annual power generation capacity of CTG's cascade hydropower stations in China's total hydropower generation



Flood Release of the Three Gorges Dam

Management philosophy

Giving full play to the role of the TGP as an ecological project and livelihood project, we effectively promote the development of the Yangtze River Economic Belt by leveraging our knowledge on water, expertise of utilizing water and efforts to conserve water.

Management objectives

Based on engineering measures, technical means and scientific regulation, we will fully tap the comprehensive benefits of the TGP, Gezhouba, Xiluodu, Xiangjiaba, Wudongde, Baihetan, and other hydropower projects in flood control, power generation, water replenishment, shipping improvement, and ecological protection, so as to further improve the capabilities of guaranteeing the flood control safety, shipping safety, water supply safety, energy safety and ecological safety in the Yangtze River Basin.

Management strategies

- Efficiently operating the mega-clusters of cascade hydropower stations and their accompanying dams operated by CTG, with the TGP as the core
- Promoting the establishment of a joint dispatching mechanism of cascade hydropower stations in the Yangtze River basin for comprehensive utilization of water resources

CSR Actions

Leveraging comprehensive benefits of cascade hydropower stations

CTG continues to optimize the coordinated dispatching of cascade hydropower stations, and capitalizes on the comprehensive benefits of cascade hydropower stations in flood control, power generation, water replenishment, shipping improvement, and ecological restoration to drive the development of the Yangtze River economic belt.

Flood control in the Yangtze River basin

- We optimized the joint dispatching of cascade reservoirs and conducted rational, coordinated dispatching of six cascade hydropower stations.
- As we continued to develop key technologies, the accuracy of our short-term rainfall forecast reached 98.18%.
- In 2021, the Three Gorges Reservoir successfully responded to five floods of more than 40,000 m³/s, realizing a total flood retention of 24.67 billion m³.

Promoting ecological restoration

- Experimental ecological regulation has been conducted for 16 times for 11 years in a row to promote the natural reproduction of the four major species of Chinese carps in the downstream of Gezhouba Dam.
- Three ecological regulation experiments for the natural reproduction of fish spawning viscid and demersal eggs were carried out, with a total of about 300 million eggs spawned.
- The water quality of monitored sections in the reservoirs managed by CTG was good. A total of 136,000m³ of floating debris was salvaged and rendered harmless.

Drought alleviation and water replenishment

- In 2021, the Three Gorges Reservoir achieved the goal of maintaining a water impoundment level of 175m for the 12th year in a row.
- The Three Gorges Reservoir replenished 22.1 billion m³ of water to downstream regions for 138 days.

Providing clean energy

- We actively promoted overall management of river basins and improved the utilization of water resources.
- We developed power generation plans reasonably and timely adjusted the plans for cascade hydropower stations.

Boosting shipping and tourism

- The Three Gorges ship locks registered 10,100 safe gate operations in 2021, with a total of 40,400 vessels passing through.
- The Three Gorges ship lift ran 4,725 times safely, with 4,803 vessels carrying 100,200 tourists passing through.

24.67 billion m³

Total flood retention of the Three Gorges Reservoir in 2021

34.1 billion m³

Total water replenished to the downstream region by the cascade reservoirs during dry seasons

100

Hydro-turbine generator units

40,400

Vessels passing through the Three Gorges ship locks in 2021

Guaranteeing stable power supply

With the spirit of pursuing perfection, CTG guarantees a stable power supply through precise scheduling, meticulous maintenance, and lean operations.

Strengthening full-process management during power generation:

We develop targeted power generation plans, and dynamically monitor and analyze implementation progress accordingly. Meanwhile, we further improve the power generation management system and standard system to institutionalize and refine power generation management on an ongoing basis.

Enhancing our maintenance capacity for the Yangtze River basin:

Highlighting the coverage and effect of maintenance, we improve the operation and maintenance of power generation equipment, enhance equipment reliability and arrange equipment overhaul properly.

Conducting reservoir dispatching in a well-coordinated manner:

With the support of the decision support system for water resource management, we carry out coordinated dispatching of six hydropower stations to coordinate the water-level fluctuation, flood control and water impoundment of the cascade hydropower stations. On the premise of safe cascade reservoirs, we seek to unleash the maximum capacity of the Yangtze River as a clean energy corridor.

Improving hydropower capacity factor:

In 2021, we generated an additional 9 TWh of electricity through water impoundment by reservoirs, floodwater retention dispatching and optimized operation; we also optimized the dispatching of small and medium floods to reduce the volume of water released without generating electricity.



CSR Cases

Power generation of the world's largest clean energy corridor hits a record high

In 2021, six cascade hydropower stations along the mainstream of the Yangtze River, namely the TGP, Gezhouba, Xiluodu, Xiangjiaba, Wudongde, and Baihetan hydropower stations generated 262.88 TWh of electricity in total, marking that the world's largest clean energy corridor with the TGP as the core broke the historic record for power generation. The strength of the coordinated dispatching of six hydropower stations has been further leveraged, and the comprehensive benefits of CTG as "a pillar of the great nation" fully unleashed. This will enable CTG to contribute more to China's carbon peak and carbon neutrality goals and support China's west-east power transmission program of strategic importance.

Three Gorges Reservoir facilitates the spawning of fish eggs of four major species of Chinese carps on an unprecedented scale

The four major species of Chinese carps, namely Black Carp, Grass Carp, Bighead Carp and Silver Carp, are important freshwater fishes in China due to high economic value. The dynamic resource pool of the four major species of Chinese carps is a key indicator of the health status of the Yangtze River ecosystem. In 2021, the Three Gorges Reservoir carried out two ecological regulation experiments for improving natural reproduction of the four major species of Chinese carps in the downstream of Gezhouba Dam. During the experiments, 8.4 billion new eggs of the four species were spawned, reaching a record high.

The Three Gorges Ship Lift shut down and received overhaul as planned for the first time

The Three Gorges Ship Lift underwent a planned shutdown and overhaul in August 2021 for the first time since its completion on December 27, 2019. The vertical ship lift is the largest and most technically challenging hydropower in the current world. To improve the conditions of the equipment and facilities, the overhaul would ensure the safe, stable, and efficient operation of the ship lift, and maximize the benefits of the golden waterway.



Wudongde Hydropower Stations

Comments from Stakeholders

"Since its completion, the TGP has greatly relieved the pressure on the flood diversion area where we are in. No matter how high the volume might be, the TGP is able to hold the floodwater through scientific dispatching. Though we still need to patrol the embankment in case of an emergency, we are no longer as nervous as before."

—Employee at the North Floodgate Station in Jingjiang River Flood Diversion Area, Hubei Province



Contribution to Clean Energy Development



Yangjiang Offshore Wind Farm in Guangdong Province

11.24^{GW}

Installed capacity of onshore wind power

4.87^{GW}

Installed capacity of offshore wind power

11.95^{GW}

Installed capacity of PV power

Management philosophy

Committed to building a world-class developer of clean energy, CTG will play a leading role in promoting the upgrading of clean energy industry according to the requirements of national energy planning and energy supply-side structural reforms.

Management objectives

CTG strives to be a leader in terms of scale, management, technology, standard, talent and brand, and further promote the large-scale exploration and sustainable development of offshore wind power in China.

Management strategies

- Completing the construction and improving the operations of Wudongde and Baihetan world-class mega hydropower stations
- Implementing our strategic plans for becoming a leader in offshore wind power, to advance the large-scale development of offshore wind power
- Continually optimizing the strategic layout of onshore wind power with a focus on UHV transmission base and large base projects
- Accelerating the acquisition of photovoltaic resources through centralized and distributed methods
- Exploring new business modes and formats that enable multi-energy hybrid, promote collaboration between enterprises and local governments, and deliver win-win outcomes and mutual benefits

CSR Actions

Baihetan Hydropower Station

- The first batch of generating units was commissioned; the total power generation reached 15.6 TWh by the end of 2021.
- 16 hydro-generators independently developed by China, each with a capacity of 1 GW, were installed, leading the way into an era of gigawatt-level generating units.
- The hydroturbines have a maximum conversion efficiency of 96.7%, which is the world's highest performance level for the Francis turbine units.

Wudongde Hydropower Station

- All generating units were commissioned; the power generation in 2021 totaled 38.97 TWh.
- The 975m impoundment test was successful; the water conservancy project passed fire prevention inspection.
- A proliferation and release station for rare and endemic fishes in the Jinsha River in the downstream of the dam was built, in charge of fish domestication, breeding, proliferation and release.

Being devoted to hydropower projects

CTG strives to develop its two mega hydropower stations with double-digit gigawatt capacities, Wudongde and Baihetan, into high-quality projects with high standards.

Accelerating the "PV Plus" development

Seizing the business opportunities such as agriculture-PV hybrid projects, aquaculture-PV hybrid projects and solar-storage integrated projects, we aim to empower the large-scale PV development through individual projects. In the 2020 benchmarking of PV power generation operation indicators in China's power sector, 11 PV power plants of CTG scored well, with three rated "AAAAA" level.

- **PV + ecological restoration:** The world's largest single-phase floating PV power plant started construction in Fuyang City, Anhui Province, which utilizes the largest area of idle water surfaces within mining sinkholes.
- **PV + photothermal energy:** The 2.1GW PV and photothermal project in Hainan and Haixi bases in Qinghai started construction.
- **PV + fishery:** The 100MW aquaculture-PV hybrid project in Wan'an County, Jiangxi Province was connected to the grid for power generation.

Leading offshore wind power development

We vigorously promote offshore wind power development. Our offshore wind power projects in operation cover four coastal provinces, namely Jiangsu, Liaoning, Fujian, and Guangdong. Five gigawatt-level offshore wind power bases in Guangdong, Fujian, and Jiangsu are taking shape. Our capacity in offshore wind power generation now ranks first in China and third globally.

- **The first VSC-HVDC offshore wind power project in Asia** – Rudong Offshore Wind Power Project in Jiangsu Province was fully connected to the grid.
- **The first gigawatt-level offshore wind farm in China** – Shapa Offshore Wind Power Project in Yangjiang, Guangdong Province was connected to the grid at full capacity.
- **The furthest offshore wind farm from the shore in China** – Dafeng H8-2 Offshore Wind Power Project in Jiangsu Province was fully connected to the grid.

Building multi-energy hybrid bases

We press ahead with the research and development of energy storage technologies and have built the multi-energy hybrid bases to facilitate the local consumption and conversion of energy resources. The wind, solar and hydro integrated base in the lower reaches of the Jinsha River and 10 other projects were selected among the first batch of national large renewable energy bases, and have begun construction successively.

- China's largest integrated wind, solar, and energy storage (IWSES) project – The first batch of generating units of Ulanqab New Generation Grid-friendly Green Power Station Demonstration Project were successfully connected to the grid for trial operation.
- The wind-solar-hydro hybrid clean energy base – The construction of a wind-solar-hydro hybrid clean energy base in the downstream of the Jinsha River was put on the agenda. CTG signed a strategic cooperation agreement with the Panzhihua Municipal People's Government to promote proper and orderly exploitation of wind and solar power resources in the city.
- CTG's first independent energy storage power station – the Qingyun Energy Storage Power Station Pilot Project started construction, laying a solid foundation for developing a renewable energy structure based on multi-energy hybrid.

Advancing onshore wind power generation

Up to now, the onshore wind power resources we have acquired exceeded 30 GW, and our onshore wind power projects in operation have covered 25 provincial-level regions, such as Inner Mongolia, Xinjiang, Gansu, with a total installed capacity of 11.24 GW.

- **The first batch of China's unsubsidized wind power pilot projects** – The 100MW Unsubsidized Wind Power Pilot Project in Kangbao County, Hebei Province was successfully connected to the grid. The power generated was transmitted to venues of Beijing 2022 Winter Olympics through the ±500kV Zhangbei Flexible DC Transmission Project.
- **The world's highest-altitude wind power project** – 10 generating units of Zhegu Wind Farm Pilot Project in Shannan City of Tibet was connected to the grid, marking the successful commissioning of China's model ultra-high-altitude wind project.

Building pumped-storage power stations

We have advanced the development and construction of pumped-storage projects, and made targeted business plans in advance. An early management mechanism for pumped-storage projects has been developed, and more than 10 key projects have launched their preparatory work.

- Half of the installed capacity of the Changlongshan Pumped-Storage Power Station in Zhejiang Province has been commissioned.
- The Tiantai Pumped-Storage Power Station Project in Zhejiang Province was approved by the Zhejiang Provincial Development and Reform Commission.
- The Pingtanyuan Pumped-Storage Power Station Project in Luotian County, Hubei Province received a written approval from the Hubei Provincial Development and Reform Commission.

25 provincial-level regions

Covered by our onshore wind power projects in operation

100+ GW

Total installed capacity of 78 pumped-storage projects tracked and conducted for preparatory work

CSR Cases

The first batch of generating units at Baihetan Hydropower Station commissioned

Baihetan Hydropower Station is the largest and most technically challenging hydropower project under construction in the current world. Six of its main technical indicators rank first worldwide. In June 2021, its first batch of generating units was commissioned. Chinese President Xi Jinping sent a congratulatory letter on the commissioning. Premier Li Keqiang gave instructions on it and Vice Premier Han Zheng attended the inauguration ceremony.

All generating units at Wudongde Hydropower Station commissioned

In June 2021, all generating units at Wudongde Hydropower Station were commissioned. The hydropower station generated 38.97 TWh of electricity in 2021, exceeding the designed average annual power generation capacity of 38.91 TWh. The clean electricity will not only alleviate power shortage in the benefited areas, but also drastically reduce environmental pollution, thus driving economic and social progress and advancing towards China's carbon peak and carbon neutrality goals.

Full-capacity grid connection of the first VSC-HVDC offshore wind power project in Asia

Rudong VSC-HVDC Offshore Wind Power Project in Jiangsu Province realized its goal of grid connection at full capacity on December 25, 2021. A number of major technical challenges, including the construction of the converter station, and the development of DC submarine cables, were overcome during construction. All major electrical equipment adopted comes from homemade brands. In addition to filling several technical gaps in the domestic marine engineering field, the project is of great significance to the development of large-capacity offshore wind farms in China.

China's first gigawatt-level offshore wind farm fully connected to the grid

After overcoming challenges including severe sea conditions, complex marine geology, and COVID-19 impact, the Shapa Offshore Wind Power Project in Yangjiang, Guangdong Province was fully connected to the grid in December 2021. Being China's first gigawatt-level offshore wind power project, it broke several records. It has the largest single-phase offshore substation with the lightest weight for the same capacity in China. Its completion facilitates the manufacturing and upgrading of high-end offshore wind power equipment in China, and also plays an exemplary and leading role for developing and constructing large-capacity offshore wind power projects in the distant and deep seas.

Powering a green Beijing 2022 with clean energy

As the Official Electricity Generation Partner of the Olympic and Paralympic Winter Games Beijing 2022 (Beijing 2022), CTG upholds the vision of green development to contribute its share to delivering a low-carbon Games and net-zero venues.

In May 2021

The Shijing Wind Farm in Shangyi County, Hebei Province signed a deal to provide 30 GWh of electricity to venues of the Beijing 2022, accounting for 40% of all green electricity directly transacted for those venues from June to December 2021.

In November 2021

The 100MW Unsubsidized Wind Power Pilot Project in Kangbao County, Hebei Province was successfully connected to the grid. The project generated electricity for venues of the Beijing 2022.

In December 2021

The Diaobingshan Wind Power Farm Project in Liaoning Province applied to the United Nations Framework Convention on Climate Change (UNFCCC) for writing off its 200,000 tons of certified Carbon Emission Reductions (CER) for offsetting the greenhouse gas emitted by the Beijing 2022.



Baihetan Hydropower Station

Phase I of the 100GW-level wind and solar power bases launched in Qinghai Province

As a part of the 100GW-level wind and solar bases (Phase I) revealed by President Xi Jinping at the Leaders' Summit of the 15th meeting of the Conference of the Parties (COP 15) to the Convention on Biological Diversity (CBD), the 2.1GW PV and photothermal project in Hainan and Haixi bases in Qinghai Province started construction on October 15, 2021. The project will not only make full use of the abundant solar resources of Qinghai Province but also contribute to desertification control and ecological restoration, injecting new momentum into the comprehensive green transformation of economic and social development in the province.

The first batch of generating units of China's largest wind, solar and energy storage integration project successfully connected to the grid

The first batch of generating units of Ulanqab New Generation Grid-friendly Green Power Station Pilot Project was connected to the grid on December 29, 2021. It is the largest wind, solar and energy storage integration project and the first renewable energy base with more than 1 GWh energy storage capacity in China. By collaborating wind, solar and energy storage, and boosting smart and efficient operations, the project sets an example for developing the new types of power systems and exploring the new models of renewable energy development in China.

Phase I of CTG's first independent energy storage power station successfully connected to the grid

The Qingyun Energy Storage Power Station, CTG's first independent energy storage power station and one of the first batch of energy storage pilot projects in Shandong Province, has completed its Phase I and was connected to the grid. The project adopts the globally advanced 1,500V liquid-cooled lithium iron phosphate (LFP) energy storage technology, which can effectively improve the overall utilization of renewable energy resources and the safety and stability of the power grid. Once the project is fully commissioned, green electricity will be available 24/7 throughout Qingyun County. The project will become the first county-level green grid in Shandong Province.

Changlongshan Pumped Storage Power Station ranks first worldwide in multiple indicators with more than half of its generators commissioned

The No. 3 generating unit of the Changlongshan Pumped-Storage Power Station was commissioned on December 30, 2021, marking the operation of more than half of the power station's generating units. Once in full operation, the annual power generation will reach 2.44 TWh. The power station's largest power generation waterhead, unit capacity under 600 rpm and HD value of steel bifurcation pipe all rank first among pumped-storage power plants worldwide.



Changlongshan Pumped-Storage Power Station in Zhejiang Province



Comments from Stakeholders

"The Yangjiang Project will deliver quality electricity to the Guangdong-Hong Kong-Macao Greater Bay Area, driving the high-quality development of the region. We hope the project can be a pacesetter in offshore wind power development and transfer more referential experience."

—Du Xiangwan, Academician of the Chinese Academy of Engineering

Endeavor in Keeping Ecological Balance



Jiangdong Water Ecological Park, Wuhu City, Anhui Province

11

Provincial-level regions covered by the well-coordinated environmental conservation of the Yangtze River as of the end of 2021

Over RMB **187.65** billion

Total investment in the well-coordinated environmental conservation of the Yangtze River

23 million

Beneficiaries of the well-coordinated environmental conservation of the Yangtze River

Management philosophy

Upholding the philosophy of open, innovative environmental conservation throughout the full lifecycle of all projects in the Yangtze River basin, CTG realizes a major historical shift from harnessing the resources of Yangtze River by building the Three Gorges Project to conservation of the river and its natural beauty through sound management of the project.

Management objectives

CTG strives to develop and strengthen the ecological and environmental protection industry in the Yangtze River Economic Belt through marketized, specialized and corporatized operations, so as to play a key role in the deep integration into the development of the Yangtze River Economic Belt and the ecological conservation of the Yangtze River, and better accomplish the new tasks and missions assigned by the State.

Management strategies

- Promoting the "smart urban water manager" and "integrated urban energy manager" modes, with the goal of fundamentally improving the quality of the water environment
- Establishing Yangtze Ecology and Environment Co., Ltd., China Yangtze River Green Development Investment Fund, the Yangtze Eco-Environment Engineering Research Center, and Yangtze River eco-environmental protection industry alliance and special funds
- Pooling technology, talent and capabilities to the Yangtze River Economic Belt through cooperation, mergers and acquisitions, and shareholdings
- Guiding the well-coordinated environmental conservation of the Yangtze River with high-quality development, sustainable approaches, market-oriented operations, and systematic governance; taking measures to promote "high-level construction, high-standard performance, differentiated development, and corporatized operations"

CSR Actions

Well-coordinated environmental conservation of the Yangtze River

We strive to implement the two-tracked approach for advancing clean energy development and the ecological conservation of the Yangtze River, and promote the well-coordinated conservation across a broader spectrum, in more areas, and at a deeper level.

Innovating models and mechanisms for water governance

- We have developed the "smart urban water manager" and "integrated urban energy manager" models for unified planning, construction, operation, management, and dispatch of water-related facilities, such as those for water supply, drainage, pipe networks, flood control, and rivers and lakes.
- We actively promote the "Plus PV" model. The first batch of sewage treatment "Plus PV" projects have been successfully put into operation in Wuhu City.

Advancing "Smart Plus"

- We have basically developed a unified smart platform and a standard management model, which are duplicable, for water management.
- We are promoting the application of the unified platform. Our digital pipe network modules collect data from 41 projects with over 26,000 km of drainage pipelines.

Leveraging "Capital Plus" in the value chain

- We put idle local assets into use and promote local investment in environmental infrastructure.
- With equity investments totaling 34.8 billion yuan, we support outstanding companies to leverage their advanced technologies, equipment, and materials in the well-coordinated environmental conservation of the Yangtze River basin.

Building sound pipe networks

- We use durable and long-lasting pipeline materials to ensure high-quality pipe networks.
- We strive to realize complete collection, total treatment, and standard disposal of sewage in about **10** demonstration cities.

Achieving remarkable results of water governance in pilot cities

- The sewage treatment capacity of the downtown area of Wuhu City, Anhui Province has been raised by 53 percent.
- The actual treatment capacity of sewage plants in the downtown area of Yueyang City, Hunan Province has been increased by 62 percent.
- Direct outlets for urban domestic sewage have been basically eliminated in Jiujiang City, Jiangxi Province.
- The shortage of instream flow in the 478 km² of the Bailin river basin in Yichang City, Hubei Province has been solved.

Protecting biodiversity

We diversify protection measures for rare aquatic and terrestrial animals and plants in the Yangtze River basin to keep the ecosystem stable.

Protecting rare aquatic animals

- We have developed a evaluation system for the biological integrity of aquatic animals in the Yangtze River basin.
- We have mastered key artificial breeding techniques of more than 10 rare and endemic fish species in the Yangtze River.
- During 2021, **10,000** Chinese sturgeons of all ages were released.

Protecting rare terrestrial plants

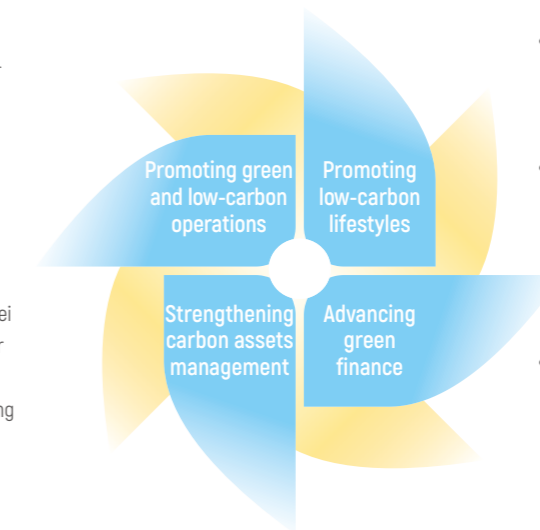
- We systematically conduct breeding research and reintroduction of endangered wild plants, and have developed technical standards and standardized rescue measures.
- We protected **1,200** rare plants through ex-situ conservation in 2021.

Addressing climate change

Upholding China's carbon peak and carbon neutrality goals, we take concrete actions to promote the green and low-carbon transition, making our due contributions to tackling the global climate change.

- We install low-energy and clean energy equipment and facilities in our hydropower stations.
- CTG Offshore Wind Power International Industrial Park in Fujian, the first carbon-neutral industrial park in China, has been completed.

- Three coal-fired power subsidiaries of Hubei Energy Group Co., Ltd., namely Ezhou Power Generation Co. Ltd., East Lake Gas Turbine Cogeneration Company and Xinjiang Chuxing Energy Development Co. Ltd., have been included in the national carbon trading market.



- We encourage the use of renewable energy vehicles instead of gasoline- and diesel-powered ones, and roll out greening and maintenance initiatives in the office area.
- We have organized a series of lectures on "carbon peak and carbon neutrality goals" and "high-quality development of clean energy".
- In 2021, CTG issued 22 green bonds in China and raised a total of 50.9 billion yuan, including 31.5 billion yuan for 14 carbon-neutral bonds.

In 2021

342.3 Twh
Total domestic and foreign clean energy power generation



104 million tons
Equals to saving the use of standard coal

285 million tons
equals to emission reduction of carbon dioxide

Advancing waste management

We proactively promote the management of wastewater, waste gas, and solid waste, and minimize our environmental impact throughout the whole project lifecycle, from construction to operation.

Wastewater treatment

We have improved the wastewater treatment system for sand and gravel processing and concrete production, as well as the domestic sewage treatment system. In 2021, the wastewater treatment rate reached **100** percent.

Waste gas control

We strictly implement air pollution prevention measures, such as sprinkling road surfaces and setting up sprinkler systems in construction sites, to continuously control and reduce dust, smoke, and other air pollutants during construction.

Solid waste disposal

We have delivered the first urban sludge and kitchen waste treatment project, conducted hazardous waste inspections within the Yangtze River Economic Belt, and properly disposed of hazardous waste according to relevant requirements.

CSR Cases

Cooperating with cities and counties in all provincial-level regions for the well-coordinated environmental conservation of the Yangtze River

Starting from the cooperation with the four pilot cities (Jiujiang in Jiangxi, Wuhu in Anhui, Yueyang in Hunan, and Yichang in Hubei), CTG has signed more than 130 cooperation agreements on the well-coordinated environmental conservation of the Yangtze River with cities (districts) and counties in all the 11 provincial-level regions in the Yangtze River Economic Belt, including Shanghai, Jiangsu, Zhejiang, Anhui, Jiangxi, etc. The ever-developing "CTG Model" has kept contributing to the conservation of the Yangtze River.

641

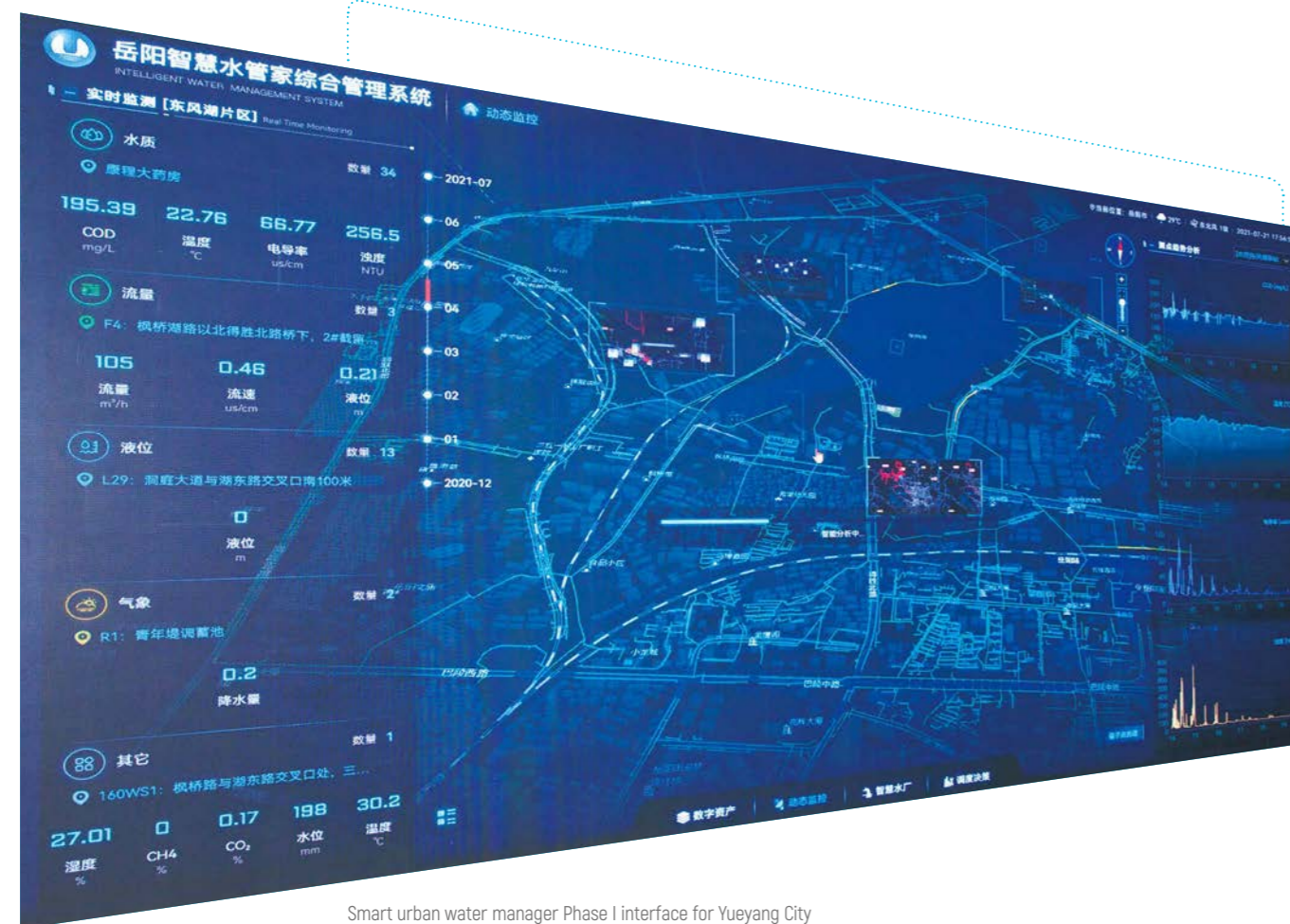
Sewage treatment plants (stations) under construction and put into operation

32,000 km

Total length of the designed sewerage and rainwater network

46,000 km²

Total urban area directly covered by the sewage treatment plants



Smart urban water manager Phase I interface for Yueyang City

National Engineering Research Center for Eco-Environment of the Yangtze River Economic Belt approved

The application for establishing the National Engineering Research Center for Eco-Environment of the Yangtze River Economic Belt, led by the Yangtze Eco-Environment Engineering Research Center, was approved by the National Development and Reform Commission in November 2021. The center will focus on the water environment conservation and water ecological restoration for the Yangtze River Economic Belt, develop key technologies and equipment accordingly, and propose systematic solutions and comprehensive capacity building plans for the whole industrial chain in ecological protection. It will be the first national scientific and technological innovation platform developed independently by CTG, marking our significant breakthrough in high-level research and innovation. The center will effectively promote ecological conservation capacity building across the Yangtze River Economic Belt.

By the end of 2021

88%

approximately of pipelines had been repaired in a trenchless manner.

An innovative trenchless rehabilitation method for repairing pipes

Using trenchless rehabilitation, CTG has repaired pipelines in the Yangtze River basin with no or minimal excavation of the road surface. The method has little impact on the road surface, traffic, environment, neighboring pipelines, and residents. By the end of 2021, approximately 88 percent of pipelines had been repaired in a trenchless manner.

"Smart urban water manager", an innovative water governance model

The "smart urban water manager" is a water system management platform co-funded by CTG and the local government. The local government is responsible for assets verification, cost supervision and targeted assessments of the water manager. The company, which takes on the role of water manager, shall conduct scientific analysis and propose systematic solutions to the fundamental problems troubling urban water environments for local governments. Private capital is also encouraged to join the design, investment, supervision, and operation of the program through bidding, thus building the framework of the well-coordinated environmental conservation of the Yangtze River.

As a third party, the smart urban water manager plans, builds, operates, manages, and dispatches water-related facilities in a unified manner such as those for urban water supply, drainage, pipe networks, flood control, and rivers and lakes. Through intelligent empowerment, specialized management, and internal potential tapping, it defines involved parties, clears liabilities, reduces costs, and boosts efficiency, thus enhancing the long-term stability and continuous improvement of the urban water environment.

The first urban sewage concept plant put into operation

Yixing Urban Wastewater Recycling Concept Plant, the first of its kind in China with CTG as one of the constructors, officially went into operation in October 2021. The plant will significantly enhance the sewage treatment and recycling level while addressing the long-troubling NIMBY issue. It purifies water with low carbon emissions.

Tailwater fish collection and passage system initiated at Wudongde Hydropower Station

At Wudongde Hydropower Station, CTG created a tailwater fixed fish collection and passage system that can collect, lift, temporarily breed, and transfer targeted fish stuck under the dam, and finally release the fish to livable river sections in the reservoir. The system aims to protect aquatic life in the Jinsha River and promote the migration of endemic and rare fish in the Wudongde reservoir area. In 2021, the tailwater fish collection system installed on the right bank was first put into use, with an impressive fish collection effect. The system will play a positive role in enhancing ecological continuity of the river, promoting upstream migration of fish, facilitating gene exchanges between fish groups, and increasing genetic diversity of fish populations.

Tsinghua-CTG Joint Center for Climate Governance and Low-carbon Transformation founded

CTG joined hands with Tsinghua University to establish the Joint Center for Climate Governance and Low-carbon Transformation (JCGLT) in September 2021. The center will conduct a series of comprehensive studies and offer policy suggestions around the carbon peaking and carbon neutrality goals, striving to become a model of university-enterprise partnership and serve China's low-carbon strategy and global climate governance.



Inauguration ceremony of JCGLT



Endeavor in Keeping Ecological Balance 56

Yixing Urban Wastewater Recycling Concept Plant

Comments from Stakeholders

"I'm a Wuhu native. I grew up by the river. The Yangtze River is our mother river. It's meaning to be engaged in the proliferation and release, and ecological conservation. It is a good way to educate and warn people to protect the mother river."

—Ma Benxuan, National Model Worker

"A lot has changed here over the past few years. Before the park was built, it was just a mud beach. Now it's all clean and lush and not far from my home. My friends and I enjoy taking a walk here every now and then."

—A tourist to the Jiangdong Ecological Park in Wuhu City, Anhui Province

"The river used to stink so bad that I had to shut the windows right away as the wind blew. And we never got close to the river. Now, the river is clear, with flowers and trees around, and the wetland park has opened. My home has become a scenic abode envied by my relatives."

—A resident near the Shili River in Jiujiang City, Jiangxi Province

Common Growth with All Employees



Patrol inspection for equipment of Baihetan Hydropower Station

- 100%**
Completion rate of proposals from employees' congresses
- 100%**
Labor contract coverage
- 100%**
Social insurance coverage
- 100%**
Staff included in our health record system
- 0%**
Occupational disease occurrence rate



Management philosophy
To achieve shared growth through joint consultation and collaboration, CTG is an active adherent to the "Going Global" strategy and the Belt and Road Initiative, driving China's entire hydropower industrial chain of China to "Go Global".

Management objectives
By promoting orderly cooperation and transformation, we will engage in global competition as a national team by pooling China's leading hydropower enterprises together, and enhance China's hydropower equipment and technology and industry standards, in order to upgrade the industry and compete globally.

- Management strategies**
- Giving full play to industrial investment capacity and advantages from industrial chain integration
 - Building the "Going Global" platform for upstream and downstream enterprises within the hydropower industrial chain through industrial alliances or joint ventures
 - Establishing a platform for international cooperation with key domestic equipment manufacturers with project development as the carrier

CSR Actions



Protecting the rights and interests of employees

Equal employment

We strictly comply with the laws and regulations of China as well as countries and regions where our projects are operated. We also follow all international conventions, laws and regulations on labor rights, uphold equal employment, respect diversity, and have extended equal treatment to all employees regardless of their background. We eliminate all forms of discrimination, including those related to gender and geographic region.

Democratic management

We actively review proposals submitted by employees, strengthen information disclosure to ensure their right to information, participation and exercise of oversight, and respond to their appeals in a timely manner, working to address issues of their concern.

Remuneration and benefits

We have developed reasonable, scientific, and standardized remuneration incentives and pay rise systems. Besides, we provide social insurances according to national regulations to ensure employees' welfare.

Prioritizing occupational health

Life security and physical and mental health of our employees are always our top priority. To safeguard the health of our employees, we have carried out occupational health awareness programs, provided staff members with counseling services and taken preventative measures for occupational diseases.

Supporting employee development

Sticking to talent-powered development, we strengthen internal training while recruiting outstanding talents to build a strong talent pool. We have carried out a wide variety of labor and skill competitions to provide a platform for employee growth, striving to cultivate a high-level innovative team.

- **Strengthening staff training:** We have organized training programs for young staff and female employees, providing them with more opportunities to share with each other, learn from each other, and grow together.
- **Holding vocational skill competitions:** In 2021, we organized the 10th Employees' Skill Competition and encouraged our staff to take part in industrial-level technical competitions. Our employees won seven individual first prizes and three collective first prizes at the National Vocational Skill Competition Competition for Hydro-generator Maintenance organized by the Labor Union of China Energy, Chemistry, and Geology Society.

Enriching life at the workplace

- **Holding cultural and sports activities:** We actively hold cultural and sports activities such as art festivals, photography exhibitions, and basketball games to enrich employees' life after work and improve their health, providing a healthy and harmonious workplace.
- **Caring for employees:** We have revised the *Management Measures for CTG Care Fund* and organized activities to send greetings to employees' family members, helping employees in an all-round manner.

1

Employee won the title of National Technical Expert granted by the Ministry of Human Resources and Social Security

5

Employees listed among the "Top 100 Craftsmen in the Power Sector" by China Electricity Council

1,700

Front-line staff, employees stationed abroad and their family members CTG reached out to

53

Employees in need assisted by CTG



CSR Cases

Launching health lectures and consultations on the International Women's Day

To celebrate the festival and boost happiness of female employees, China Three Gorges International Corporation (CTGI) invited psychology experts and gynecologists to give lectures about parenthood and female health. They shared knowledge about common diseases and health tips with female employees. Through the activities, CTGI shows care for female employees and promotes a benign corporate atmosphere.

2021 Young Employees Management Training Program

In 2021, CTG held young employees management training program for six sessions. With innovative curriculum design and diversified teaching methods, young employees were encouraged to grasp the opportunity of the training to improve their working skills, apply theory to practice, and forge ahead courageously.



Capacity Building Program for Internal Trainers

Sending greetings on the New Year's Day and Spring Festival

During the New Year's Day and Spring Festival holidays of 2021, CTG organized various heartwarming activities. We reached out to the staff at the grass-root level, helping them weather difficulties in life and work. Through paying visits, greeting employees who stick to post during Spring Festival and organizing celebration events online, we warmed the hearts of employees with concrete actions.

Holding winter sports activities for the celebration of the Beijing 2022 Winter Games

To enrich employees' sparetime life and strengthen their physical fitness, CTG Winter Sports Association was established. A series of info sessions on the Beijing 2022 Winter Games were held. Employees and their families were organized to experience winter sports.



Winter Sports Experience

Comments from Stakeholders

"Looking back over the past 10 years' cooperation, this experience has brought me not only familiarity with the business, but more importantly a high degree of value recognition and consensus on strategic goals with the company. I will continue doing my best to deliver on the very high expectations, being the first local CEO for China Three Gorges Corporation in the history for its wholly-owned overseas subsidiary."

—Ignacio Herrero Ruiz, the first foreign CEO of CTG Europe

"Young employees management training program has a full, beneficial, diverse form. I participated in the sensation and harvest during training."

—Young employees management training program participant

Role as a Good Global Corporate Citizen



Nam Kong 1 Hydropower Project in Laos

About **11.04** ^{GW}
Total consolidated installed capacity overseas

About **31.3** ^{TWh}
Annual power generation overseas

RMB **23.9** billion
Business revenue overseas

Management philosophy

In the spirit of extensive consultation, joint contribution and shared benefits, CTG is an active adherent to the "Going Global" endeavor and the Belt and Road Initiative, driving the whole hydropower industrial chain of China to "Go Global".

Management objectives

By promoting orderly cooperation, we hope to engage in global competition as a national team by pooling China's leading hydropower enterprises together, and play a leading role in facilitating China's hydropower equipment and technology and industry standards to "Go Global", in order to bring the going-global endeavor of China's hydropower industrial chain to a new level.

Management strategies

- Giving full play to industrial investment capacity and industrial chain integration strengths
- Building the "Going Global" platform for upstream and downstream enterprises within the hydropower industrial chain through industrial alliances or joint ventures
- Establishing an international cooperation platform with key domestic equipment manufacturers through project development

CSR Actions

Building high-standard energy projects

- All generating units at Nam Kong 1 Hydropower Project in Laos were commissioned.
- All generating units at the Turguson Hydropower Station in Kazakhstan were commissioned.
- All generating units of the Moray East Offshore Wind Project in the UK were successfully hoisted.
- The Karot Hydropower Project in Pakistan started reservoir impoundment.

Investing in overseas clean energy projects

- The mandatory offer to acquire the LDS Corporation, Peru was completed.
- Four major franchise agreements with the Kohala Hydropower Project in Pakistan were signed.
- The Horus New Energy Project in Spain was delivered.
- CTG South Asia's Alcazar project was delivered.
- CTG signed an agreement with EDP to acquire the Flores Onshore Wind Power Project in Spain.

Deepening international exchange and cooperation

Participating international exchanges

- CTG attended the Second Sustainable Development Forum.
- CTG attended the World Hydropower Congress.
- CTG attended the Second Belt and Road Energy Ministerial Conference.
- CTG attended the Seventh China-Africa Business Forum.
- CTG attended 2021 Global Offshore Wind Summit.

Formulating International Standards

- CTG contributed to the formulation and release of the *Hydropower Sustainability Standard* and *San José Declaration on Sustainable Hydropower*.
- CTG attended the international standardization activities organized by the International Electrotechnical Commission (IEC) and contributed to the development of more than 10 IEC standards in water turbines, electric generators, photo-thermal energy, wind resource evaluation, etc.
- CTG has joined the IEA Technology Collaboration Programme on Hydropower and taken the lead in a number of projects, including the *Management Models for Cascade Reservoirs* and *Decision Support for the Comprehensive Utilization of Water Resources in the River Basin*.
- As the chair of the International Commission on Large Dams (ICOLD), CTG takes the lead in the operation of its two committees, the Technical Committee for the Joint Dispatch of Hydropower Stations and Reservoirs and Technical Committee for Reservoir Immigration, and the formulation of relevant technical communiqués and standards.



The Karot Hydropower Project in Pakistan was selected in the UN's *Global Sustainable Development Report* and *China's Progress Report on Implementation of the 2030 Agenda for Sustainable Development (2021)*.

Nam Kong 1 Hydropower Plant in Laos was selected among the *Outstanding Cases of Sino-Foreign Cooperation in the Hydropower Industry*.

Contributing to local community development

Improving education

- **In Asia**, we undertook campus renovation and expansion projects in areas where our projects operate to improve local education facilities; we organized a public welfare reading salon in Laos to contribute to local education development.
- **In Africa**, we gave support and made donations to local primary schools, and improved the teaching conditions in schools near the power stations, working hard to promote local fundamental education.

Promoting green development

- **Globally**, we have conducted scientific proliferation and release activities for several years in a row with the aim of protecting aquatic life and safeguarding a harmonious water environment.
- **In Asia**, we plant trees, promote landscaping and monitor water quality regularly in Laos to promote the local ecological balance. **17,000** saplings have been planted.
- **In Latin America**, the team of Chaglla Hydroelectric Power Plant in Peru has saved about 9,000 wild orchids of 160 species. More than 9,000m² of vegetation have been compensated or replanted during the construction of San Gaban III Hydropower Project in Peru. CTG Brasil has ramped up efforts to develop renewable energy and has achieved **100** percent carbon neutrality for two years in a row.

Engaging in community development

- **In Asia**, we built bridges, roads, and drinking water systems for local communities, and provided funds to construct schools, lounges and health clinics to help communities flourish.
- **In Europe**, we made donations to township clinics to improve medical care for local residents.
- **In Africa**, we built local resettlement communities and markets to bring convenience to local residents.
- **In Latin America**, we sponsored vocational training programs for teenagers in local communities, and helped local residents find jobs and earn an income.

CSR Cases

The first generating unit of Karot Hydropower Project in Pakistan available for power generation

The Karot Hydropower Project is a major pilot project under the China-Pakistan Economic Corridor (CPEC) and a key project under the Belt and Road Initiative. It is also the first hydropower investment project included in the *Joint Statement between the People's Republic of China and the Islamic Republic of Pakistan*. On December 28, 2021, the project's first generating unit became available for power generation, marking a good start for all of its generating units to be commissioned by 2022. The total installed capacity of the project is 720 MW, and the average power generation capacity is 3.2 TWh, which can meet the power demand of 5 million local residents and effectively alleviate Pakistan's power shortage.



Karot Hydropower Project in Pakistan

All generating units of the Moray East Offshore Wind Project in the UK successfully hoisted

By September 15, 2021, all wind turbines of the UK's Moray East Offshore Wind Project had been successfully hoisted. The project is located in Moray Firth of Scotland. It is a large-scale offshore wind farm jointly developed by CTG and EDP. It is expected to supply electricity to more than 100,000 local households when it is put into operation.

The Horus new energy project in Spain successfully delivered

On August 12, 2021, CTGI, a subsidiary of CTG, completed the acquisition of the Horus project in Spain, which includes 11 wind power plants and one PV power plant in Spain, with a total installed capacity of 404.9 MW. The successful delivery marked the achievement of a gigawatt-level clean energy capacity for CTG in Spain and the optimization of wind and solar assets, driving Spain's economic and social green transition and creating a community of life for man and nature.



The Horus New Energy Project in Spain

All generating units of Turguson Hydropower Station in Kazakhstan commissioned

The Turguson Hydropower Station in Kazakhstan is the first key hydropower project jointly implemented by China and Kazakhstan under the framework of the Belt and Road Initiative. It is also one of the major engineering partnership outcomes between China and five Central Asian countries. The project was officially put into operation in July 2021, filling half of the power gap in the Altai region of East Kazakhstan Province, and thus greatly alleviating the region's power shortage and effectively promoting economic and social progress in the region.



Turguson Hydropower Station in Kazakhstan

Providing technical support for Uganda

In May 2021, China Yangtze Power Co., Ltd. (CYPC), a subsidiary of CTG, sent a project team far away to the Isimba Hydropower Station in Uganda, Africa, to provide technical consultation and assist China International Water & Electric Corp. (CWE) in solving technical problems in the Isimba Project during the quality guarantee period. In cases of machine failure and other emergencies that needed a temporary shutdown, the project team gave fault handling plans after optimization and completed emergency overhauls. The project team not only saved time and earned profits for the Isimba Hydropower Station but also passed valuable repair experience to the local maintenance team.



CYPC project team communicates with staff from the Isimba Project

Driving local community development in Laos

In Laos, CTG has actively engaged in community development by learning about the needs of local residents and leveraging its strengths and resources to contribute to community prosperity. We provide clean electricity, safeguard the local ecology, support local education development, promote cultural exchange, and build bridges, asphalt roads, drinking water systems and other infrastructure. Through multiple measures, we have improved the living conditions of local people and enhance their quality of life.



Reading activities organized by CWE in Park Ngua School, Laos



CTG Ilha Hydropower Station in Brazil

Comments from Stakeholders

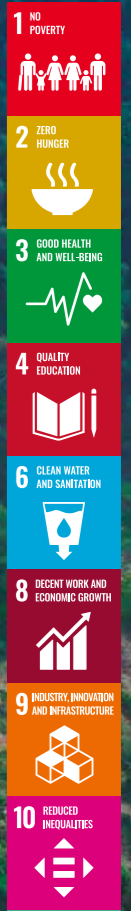
"Both Pakistan and China are committed to realizing the clean and green vision of the China-Pakistan Economic Corridor, and the Karot Hydropower Station will provide Pakistan with clean, affordable and sustainable energy. We look forward to the completion of the Karot Hydropower Station as well as other projects on the China-Pakistan Economic Corridor as scheduled."

—Asim Iftikhar Ahmad, spokesperson of the Ministry of Foreign Affairs of Pakistan

"Our goal is to contribute to the socio-economic development of the regions in which we operate. The severe COVID-19 pandemic has had a huge impact on many industries in Brazil, and it has also affected the livelihoods of many families. Therefore, our project (vocational training programs) has become even more important."

—Salette da Hora, Brand, Communications & Sustainability Director at CTG Brasil

Public Welfare Efforts to Society



Aerial view of Gaoling village, Wan'an County, Jiangxi Province

RMB **720** million
Total investment in integrating poverty alleviation with rural vitalization

351
CSR projects

RMB **80.43** million
Agricultural and sideline products purchased and sold by CTG

Management philosophy

In response to the state's call for rural vitalization, we earnestly fulfill social responsibility and work to play a leading role in effectively integrating poverty alleviation with rural vitalization.

Management objectives

CTG aims to drive local economic development with hydropower projects. Focusing on targeted counties, rural areas and rural people covered by our paired assistance programs, we continue to consolidate our achievements in poverty alleviation and drive increases in key economic and social indicators. We also strive to facilitate common prosperity in China and play a vital role in sustaining and improving people's livelihoods.

Management strategies

- Ensuring resident resettlement
- Providing targeted assistance from all aspects
- Continuously aiding Xinjiang, Tibet and Qinghai
- Providing all-round assistance in the reservoir areas

CSR Actions



CTG was rated Outstanding (top rating) for the 4th consecutive year in the Annual Assessment for Performance in Targeted Assistance among units of the central government and the Party, securing our place in the "first phalanx" among central SOEs.

CTG received the Donor Award for Poverty Alleviation and the Donor Award for COVID-19 Response during the 11th China Charity Awards.

1 group and 1 individual were commended at the grand gathering to mark the country's accomplishment in poverty alleviation.

6 groups and 7 individuals were commended at meetings to mark provincial-level accomplishments in poverty alleviation.

Ensuring resident resettlement

We provide assistance to resettled residents from reservoir areas in accordance with high standards and high quality to ensure the smooth relocation and resettlement and provide resettled residents with stability and the means to better themselves gradually. By assisting reservoir areas in setting up public service facilities, and improving local traffic conditions as well as water supply and electricity facilities, we have effectively enhanced the living and production conditions of resettled residents. In 2021, we accomplished the relocation of 100,000 local residents from the reservoir area of Baihetan Hydropower Station.



Providing targeted assistance in all aspects

We have supported rural vitalization through multiple approaches and channels at all levels in the four targeted counties, namely Wushan County and Fengjie County in Chongqing, Wan'an County in Jiangxi Province, and Bairin Left Banner in Inner Mongolia.

<p>Industry</p> <p>We help rural areas diversify the local industry structure, introduce the "Renewable Energy Plus" pilot projects to targeted areas, develop cultural and creative products with local characteristics, and assist the construction of agricultural and livestock products refrigerated distribution centers.</p>	<p>Healthcare</p> <p>We provide training for local medical personnel and set up the Basic Medical Insurance Project to improve community-level public health services.</p>	<p>Ecology</p> <p>We develop a series of rural tourism pilot projects to boost economic development and environmental protection in parallel.</p>
<p>Infrastructure</p> <p>We assist in the renovation of roads in villages, improve drinking water facilities and build drainage and sewage pipelines in rural areas.</p>	<p>Education</p> <p>We help targeted areas build school facilities, and organize heartwarming visits and aid programs for students from poverty-stricken families, to help improve the conditions of local schools.</p>	<p>RMB 400 million</p> <p>Total assistance funds for the four targeted counties</p> <p>56</p> <p>Assistance programs launched</p>

Continuously aiding Xinjiang, Tibet and Qinghai

We continue to increase our support for these regions to promote the prosperity and stability of the border areas at all levels and in all aspects, striving to realize common prosperity with local residents.

<p>In Xinjiang</p> <p>we have invested over 20 million yuan in education and livelihood improvement projects, through which more than 2,300 college and technical secondary school students in Pishan County are subsidized.</p>	<p>In Tibet</p> <p>we have invested over 33 million yuan in border area vitalization, environmental protection, and smart energy town projects.</p>	<p>In Qinghai</p> <p>we have invested over 40 million yuan in eco-environmental protection projects in Hoh Xil to support the environmental protection of Sanjiangyuan.</p>
---	--	--

Providing all-round assistance in the reservoir areas

In line with our hydropower development philosophy of "building a power station to stimulate the local economy, improve the local environment and benefit resettled residents", we continue to strengthen our support for the Three Gorges Reservoir area and the Jinsha River reservoir area, and have effectively boosted the internal driving force for economic growth of the reservoir areas to ensure that the local people live and work in peace and contentment.

<p>RMB 210 million</p> <p>Assistance funds targeting relocated residents from the 19 counties in the Three Gorges Reservoir area and the 35 counties in the Jinsha River reservoir area</p>	<p>RMB 64.85 million</p> <p>Total donations for the establishment of a healthcare fund</p>	<p>6,365</p> <p>College students receiving subsidies offered by CTG</p>	<p>300</p> <p>Sets of facilities for the "Remote Class Program" donated by CTG</p>	<p>310</p> <p>Volunteer teachers receiving subsidies offered by CTG</p>
--	---	--	---	--

Engaging in public welfare undertakings

Upholding the philosophy that "Like water, highest good favors all beings", CTG actively gives back to society by engaging in public welfare undertakings, and facilitates a harmonious society.

<p>Over RMB 70 million</p> <p>Total investment in disaster assistance (flood, earthquake, and heavy snow)</p>	<p>27,221</p> <p>Children with severe disasters helped by CTG</p>	<p>125</p> <p>Patients with hearing loss receiving cochlear implants under the financial support from CTG</p>	<p>38,000</p> <p>Children of the Yi ethnic group participating in preschool Putonghua learning program funded by CTG</p>
--	--	--	---

CSR Cases

Accomplishing the relocation of over 100,000 residents from the reservoir area of Baihetan Hydropower Station

In close cooperation with the local government, we provided financial support and necessary supplies for the smooth relocation of residents in Baihetan. Over the past 10 years, we have assisted in the resettlement of 107,406 locals and built 47 concentrated resettlement sites. We also helped improve the local power grid for better power supply and constructed various infrastructure projects, including highways, water conservancy projects, docks, power supply and communications facilities, radio and television projects, etc., and passed the acceptance inspection of the resettlement work.



A builder of Baihetan Hydropower Station and students from Bayan Village Primary School, Ningnan County, Sichuan Province

Boosting the local economy by promoting sales of local products

To promote the sales of products from Wushan County, Chongqing, we went deep into local villages and towns to help them develop cultural and creative products with local characteristics and promote deep processing of food. Inspired by our assistance efforts, Wushan County adopted new approaches to connect upstream and downstream markets of fresh plums. We helped them effectively tackle difficulties in preserving fresh plums and selling plums of relatively small sizes, and mitigated the constraints on plum sales caused by unfavorable traffic and weather conditions. From purchasing farm produce from the local area to promoting the sales of local agricultural products, we expand the marketing of sideline products to boost the local economy.



A local farmer celebrates the harvest of plums

Leveraging our strengths in renewable energy to promote the development of industries in rural areas

CTG actively responds to the national plan for developing wind power and solar power projects in thousands of villages across the country based on the integration of renewable energy development and rural vitalization. We launched a 100MW aquaculture-PV hybrid project with a grid-connected capacity of 24MW in Wan'an County, Jiangxi Province. Besides, we promoted the formulation of renewable energy development plan in Bairin Left Banner in Inner Mongolia for the 14th Five-Year Plan period, and signed an agreement on developing renewable energy projects with a total installed capacity of 3.75GW. We also signed a cooperation agreement on the development of renewable energy projects for rural vitalization with Wushan County, Chongqing. The cooperation will speed up the adjustment of the local energy structure, and boost the development of local industries.



The first aquaculture-PV hybrid project built by China Three Gorges Renewables (Group) Co., Ltd. (CTGR) in Wan'an County, Jiangxi Province

Launching the 2021 CTG-sponsored Kids' Trip in various areas

From October to November 2021, the CTG-sponsored Kids' Trip, a campaign to promote patriotism through visiting revolutionary sites was launched in the areas covered by our paired assistance programs, with the participation of 1,132 primary and secondary school students in total. The campaign focused on patriotic education and the dissemination of hydropower technology and clean energy knowledge, and offered students the opportunities to experience China's development achievements and acquire more scientific knowledge on site.



Scan to learn more about the 2021 CTG-sponsored Kids' Trip

CTG Inspirational Class supports children to receive quality education

CTG continues the educational support in reservoir areas in the lower reaches of the Jinsha River by means of multiple measures. We have opened the CTG Inspirational Class in outstanding secondary schools in the urban areas of Ningnan, Leibo, Huili, and Huidong counties. In September 2021, at Liangshan Minority Middle School in Sichuan Province, 50% of the students of the first CTG Inspirational Class in junior high department passed the senior high school entrance examination, and 81% of the Class in the senior high department were enrolled at universities after passing the college entrance examination. The CTG Inspirational Class program has brought high-quality educational opportunities to students from the reservoir areas and the region of Daliang Mountains.

32

CTG Inspirational Classes opened



CTG-sponsored Kids' Trip in the Three Gorges Hydropower Station



Opening ceremony of a CTG Inspirational Class from 2021-2022 school year

Helping improve the medical services in Bairin Left Banner in Inner Mongolia

To improve the local medical services, we provided financial support for the construction of buildings at the Tuberculosis Control Center and the Hospital of Traditional Chinese Medicine and Mongolian Medicine in Bairin Left Banner, and donated negative pressure ambulances. We also started the village clinic project in Dalianggou Village, Biliutai Town, launched the Basic Medical Insurance Project, and put into place the system that prevents the poor from sinking back into poverty due to illness in Bairin Left Banner to meet the needs of local farmers for medical services at different levels.

62

Negative pressure ambulances donated by CTG to local hospitals in 2021

Comments from Stakeholders

"When the local vacant houses are renovated into Bed & Breakfasts, the villagers gained benefits and the village collective increased their income. People are living a life full of hope now."

---Ye Faqing, Party Secretary of Xiyuan Village

"Thank you very much for your donation. For these children, they can only change their destiny through education. This donation has brought them love and hope."

---The principal of a boarding primary school in Qieji Township, Qinghai

"The CTG Inspirational Class program has given me heartwarming assistance. I am grateful to the program for making me grow and more confident."

---Lhama Chehong, a former student of the CTG Inspirational Class who has enrolled at the China University of Geosciences

Contributions to the SDGs

SDGs	CTG's Actions	SDGs	CTG's Actions
	<ul style="list-style-type: none"> Continuing assistance to resettled residents from reservoir areas Responding to the national targeted assistance strategies Aiding Xinjiang, Tibet, and Qinghai Engaging in public welfare 		<ul style="list-style-type: none"> Protecting the interests of resettled residents from reservoir areas concerning life and production Strengthening the localized management of overseas projects
	<ul style="list-style-type: none"> Establishing the "CTG Seed Fund" Promoting assistance through industrial development worldwide 		<ul style="list-style-type: none"> Preventing floods and disasters Improving the living environment of communities Actively carrying out ecological governance
	<ul style="list-style-type: none"> Implementing the "QEOHS" system Improving healthcare assistance worldwide 		<ul style="list-style-type: none"> Disposing of waste water, waste gas and solid waste according to relevant regulations Continuously optimizing the supply chain management process
	<ul style="list-style-type: none"> Carrying out training activities on corporate culture, professional skills, etc. Carrying out educational assistance worldwide 		<ul style="list-style-type: none"> Strengthening capacity of resilience and adaptation to climate change Vigorously developing and utilizing clean energy resources such as hydropower, wind power, and solar energy Publicizing the concept of low carbon and environmental protection
	<ul style="list-style-type: none"> Providing equal employment opportunity, and forbidding gender discrimination Creating convenience for breastfeeding female employees Organizing health check-ups for women and children 		<ul style="list-style-type: none"> Launching water ecological restoration projects Protecting rare fish species Organizing release activities of Chinese sturgeon and other fish species
	<ul style="list-style-type: none"> Guaranteeing agricultural irrigation water and domestic water Comprehensively promoting the prevention and control of water pollution Building water treatment facilities 		<ul style="list-style-type: none"> Protecting and breeding endemic and rare plants in the Three Gorges area Protecting endemic and rare plants in the Yangtze River basin Actively engaging in cooperation in ecological protection projects in the Yangtze River basin
	<ul style="list-style-type: none"> Expanding the scale of hydropower projects and improving the utilization of water resources Accelerating the development of hydropower, wind and solar power Building multi-energy hybrid bases Vigorously building pumped-storage power stations 		<ul style="list-style-type: none"> Adhering to law-based corporate governance and operating in compliance with laws and regulations Building an authoritative and efficient audit-based supervision system
	<ul style="list-style-type: none"> Respecting and protecting the legitimate rights and interests of employees Paying social insurances on time and in full, and prohibiting forced labor Providing skills training in communities Creating jobs for communities 		<ul style="list-style-type: none"> Building international cooperation platforms Promoting international energy cooperation along the Belt and Road Developing a coordination mechanism between enterprises and local organizations for the well-coordinated environmental conservation of the Yangtze River
	<ul style="list-style-type: none"> Providing safe and fairly priced clean energy for countries along the Belt and Road Supporting infrastructure development worldwide Strengthening technological innovation and protecting intellectual property rights 		

Communicating Key Sustainability Performance

Economic

Value Creation

Indexes	2019	2020	2021
Total tax payment (RMB billion)	22.65	21.92	23.95
Revenue (RMB billion)	99.26	111.66	136.54
Revenue growth rate (%)	5.66	12.49	22.24
Net profit growth rate (%)	-0.13	29.52	11.58
Return on net assets (%)	8.61	10.16	9.78

Note: The total tax payment includes taxes paid abroad, and the data of 2020 is adjusted according to this scope.

Technological Innovation

Indexes	2019	2020	2021	
Investment on technology R&D (RMB million)	2,676	3,367	4,153	
Proportion of technical staff (%)	15.8	15.1	17.2	
Number of standards prepared	international standards	1	international standards	5
	national standards	10	national standards	18
	industry standards	13	industry standards	21
	group standards	2	group standards	6
	enterprise standards	100	enterprise standards	53
Number of patents applied	629	751	1,396	
Number of new patents	464	435	951	
Number of technological innovation rewards by national, provincial or industrial institutes	22	25	31	

Supply Chain Management

Indexes	2019	2020	2021
Number of suppliers	35,273	42,015	51,525
Number of annual newly added suppliers	10,572	6,742	9,510
Number of annual suppliers evaluated	9,434	11,027	10,093

Power Generation

Indexes	2019	2020	2021
Consolidated installed capacity in operation (GW)	74.96	84.60	109.10
Proportion of installed capacity of clean energy (%)	94	95	96
Proportion of electricity generated by clean energy (%)	94	95	94
Gross power generation (TWh)	289.5	330.5	363.3

Note: The above data include overseas power generation and exclude minority-equity based capacity and capacity under construction.

Overseas Power Generation

Indexes	2019	2020	2021
Consolidated installed capacity in operation (GW)	9.35	9.49	11.04
Proportion of installed capacity of clean energy (%)	100	100	100
Proportion of electricity generated by clean energy (%)	100	100	100
Gross power generation (TWh)	35.2	35.5	31.3

Environmental

Value Creation

Indexes	2019	2020	2021
Total investment in environmental protection(including water and soil conservation) (RMB billion)	16.73	32.60	25.9
Proportion of new projects undergoing environmental and social impacts assessment (%)	100	100	100
Emission reduced through domestic clean energy projects (million tons of CO ₂ equivalent)	187.82	232.21	258.75
Emission reduced through domestic clean energy projects (million tons of standard coal equivalent)	73.17	84.90	94.82

Note: Due to the change of carbon emission coefficient in 2021, the data has been adjusted to some extent

Social

Compliance and Rule of Law

Indexes	2019	2020	2021
Proportion of legal review on corporate rules and regulations (%)	100	100	100
Proportion of legal review on corporate economic contracts (%)	100	100	100
Proportion of legal review on significant corporate economic decisions (%)	100	100	100

Comprehensive Indexes

Indexes	2019	2020	2021
Total floodwater retention of cascade reservoirs (billion m ³)	9.8	35.5	28.8
Total days of water replenishment by the Three Gorges Reservoir for middle and lower reaches of the Yangtze River in dry season	124	164	138
Water replenishment amount by the Three Gorges Reservoir for middle and lower reaches of the Yangtze River in dry season (billion m ³)	23.25	22.92	22.08
Actual loading freight volume of Three Gorges ship lock (million tons)	146	137	146.2

Employee Responsibility

Indexes	2019	2020	2021
Number of on-duty staff	23,996	25,472	28,461
Coverage of social insurance (%)	100	100	100
Rate of Labor Union Membership (%)	99.8	99.6	99.7
Paid annual leave per employee (day)	9.5	9.5	9.5
Labor contract coverage (%)	100	100	100
Completion rate of proposals from employees' congresses and degree of satisfaction (%)	100	100	100
Occupational injury occurrence rate (%)	0	0	0
Occupational disease occurrence rate (%)	0	0	0
Coverage of supplementary medical insurance (%)	100	100	100
Proportion of female back to workplace after maternity leave (%)	100	100	100
Employee satisfaction (%)	100	100	100

Production Safety

Indexes	2019	2020	2021
Number of emergency plans	2,042	2,307	4,603
Number of emergency drills	1,015	1,525	2,707
Number of participants in safety training	157,680	185,637	195,206
Investment in Production safety (RMB million)	592	619	1,067
Casualties	0	0	0
Number of major equipment accidents	0	0	0

Community Participation

Indexes	2019	2020	2021
Providing targeted assistance (RMB million)	307	400	400
Aiding Xinjiang, Tibet and Qinghai(RMB million)	35	170	93
Number of voluntary service teams	59	59	59
Number of voluntary service bases	187	187	187
Number of registered volunteers	10,360	10,360	10,360

GRI Standards

Key indicators	GRI Standards
Message from the Chairman	102-14
An Interview with the President	102-15
About CTG	102-1,102-2,102-3,102-5,102-6,102-7,102-18
CSR FEATURES	/
Feature I: Addressing Climate Change	203-1,203-2
Feature II: Guaranteeing Power Supply	203-1,203-2,302-4
Feature III: Contributing to Biodiversity Conservation	203-1,203-2,304-1,304-2,304-4
Excellent Business Management	102-22,102-23,203-2
Sustainability Management	102-16,102-17
Comprehensive Benefits of Cascade Hydropower Stations	103-2,201-2,203-1,203-2,416-1
Contribution to Clean Energy Development	103-2,203-1,203-2,414-1,414-2
Endeavor in Keeping Ecological Balance	103-2,304-1,304-2,304-3,305-5
Common Growth with All Employees	201-3,401-2,404-2,406-1,407-1
Role as a Good Global Corporate Citizen	103-2,201-1,203-1,203-2
Public Welfare Efforts to Society	103-2,203-1,203-2
Contributions to the SDGs	/
Communicating Key Sustainability Performance	201-1,401-1,403-2
GRI Standards	102-55
Outlook for 2022	/
Third-Party Opinions	102-56
About This Report	102-46,102-49,102-50,102-52,102-53,102-54

Outlook for 2022

2022 is a crucial year for the full implementation of China's 14th Five-Year Plan. CTG will continue participating in the global energy transition proactively and reduce carbon emissions. We will step up efforts to become an innovative world-class multinational clean energy enterprise of global competitiveness, and contribute our strength to the green transformation of social and economic development.

We will build our strength in serving national strategies. We will deeply engage in clean energy development and eco-environmental protection of the Yangtze River, and fully unleash the comprehensive benefits of the largest clean energy corridor, to improve the living standards of people along the Yangtze River. By introducing the "urban smart water manager" model to the well-coordinated environmental conservation of the Yangtze River, we will promote the green and low-carbon technological revolution and contribute to the carbon peaking and carbon neutrality goals. Dedicated to becoming a stellar provider of wind and solar power and a leading player in offshore wind power, we will promote the upgrade and innovation-driven development of the renewable energy industry. Committed to the protection of rare plants and animals in the Yangtze River basin, we will strive to make greater achievements in biodiversity conservation. To better serve the Belt and Road Initiative, we will promote the global energy transformation and sustainable development, and contribute to the wellbeing of people along the Belt and Road.

We will deepen our reform and innovation. In line with the philosophy of innovation-driven development, we will strengthen our independent innovation capability, accelerate the transformation and application of technological research results, and motivate the upstream and downstream players of all sizes along the industrial chain to make innovations together. Moreover, we will deepen the business reform, boost internal forces through market-oriented operations, and achieve the comprehensive strategic transformation through reform.

We will dedicate ourselves to serving the people with greater enthusiasm. To realize a smooth shift from poverty alleviation to rural vitalization, we will accelerate the construction of renewable energy projects in rural areas and help build beautiful villages. Being a responsible central SOE, CTG will continue the regular COVID-19 control, participate in emergency rescues, disaster relief and charity activities, and boost the development of reservoir areas, with an aim to promote the common prosperity and bring greater benefits to the people. Besides, we will press ahead with localized operations, play a more proactive role in performing social responsibility in infrastructure construction, emergency rescue and disaster relief, community assistance, etc., and continue to be a responsible global corporate citizen.



Close view of the Three Gorges Dam

Third-Party Opinions

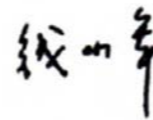
The China Three Gorges Corporation Sustainability Report 2021 ("the Report" for short) is the 12th report of its kind published by CTG. It systematically introduces CTG's CSR philosophy, measures and achievements, and displays CTG's sense of responsibility in pursuing sustainability and making it due contributions to global sustainable development.

The Report has a clear structure with complete and accurate contents. Under the same framework as before and the guidance of the latest development strategy and corporate culture, the Report discloses core topics such as quality and safety, low-carbon development, environmental protection, employees' rights and interests, equality and inclusiveness, etc. At the beginning of each chapter, targeted management philosophy, objectives and strategies are displayed to outline the content of the chapter concisely.

The Report responds to hot topics and displays CTG's sense of responsibility. The Report focuses on the key topics at home and abroad in 2021 and summarizes them in the "Feature" section. It thoroughly discloses CTG's CSR practices and performance in contributing to global climate goals, responding to biodiversity initiatives of the UN, and effectively tackling energy crisis, which responds to stakeholders' concerns about hot topics, further enhancing the materiality of the Report.

The Report facilitates CSR communication with stakeholders in a sincere and transparent manner. The Report comprehensively and objectively discloses the economic, social and environmental value created by CTG in the process of fulfilling social responsibility with rich pictures, detailed data and lively cases. In the newly added "CTG in Your Life" section, the Report discloses CTG's close ties and common development with the country, regions, families and individuals with vivid illustrations, tells CTG's CSR stories in a more vivid and concrete manner, and demonstrates the great love of the Corporation for society through its CSR practices.

2022 is a critical year for the 14th Five-Year Plan. We hope that CTG gives full play to its expertise in creating greater economic, social and environmental value and contribute to a better future with cleaner energy along a clearer development path.



Qian Xiaojun
Associate Dean of Academics, Schwarzman College,
Director of the Research Center for Green Economy and Sustainable Development,
Tsinghua University

About This Report

This Report covers the period from January 1, 2021 to December 31, 2021 and also includes additional content and information that predates the stated reporting period.

Note

China Three Gorges Corporation is referred to as "CTG", "the Corporation" and "we" in the Report.

Reporting Frequency

Since 2010, this Report is released annually, and this is the 12th Sustainability Report released by CTG.

Reference Standards/Documents

This Report is compiled in accordance with *ISO 26000: Guidance on Social Responsibility (2010)*, the *GRI Sustainability Reporting Standards (GRI Standards)* by the Global Reporting Initiative (GRI), *GB/T 36001-2015: Guidance on Social Responsibility Reporting and Guidelines on Corporate Social Responsibility Reporting for Chinese Enterprises (CASS-CSR4.0)* by the Chinese Academy of Social Sciences.

Reporting Scope

This Report covers CTG as a whole (for organizational structure, please see the section "About CTG").

Data Sources

The data cited in this Report derives from *China Three Gorges Corporation Annual Report 2021*, official documents of CTG, and statistics reports.

Reliability Assurance

Information disclosed in this Report is verified, reliable, and timely and is aligned with CTG's sustainability strategy. The Report addresses the major concerns of the stakeholders, and also summarizes CTG's corporate social responsibility (CSR) performance.

Report Access

This Report is published in Chinese and English. Printed and electronic versions are both available. For hard copies, please email to szbg@ctg.com.cn or call 86-27-85086881. For the electronic copy, please visit our website: www.ctg.com.cn, or scan the QR code on the back cover of the printed version to download.



Scan this QR code to
read this report online



QR code of CTG's official
WeChat account

China Three Gorges Corporation

Address: No. 1, Liuhe Road, Jiang'an District, Wuhan City, Hubei Province

Website: www.ctg.com.cn

Fax: 027-85086200

Post code: 430010

Tel: 027-85086000

Email: szbg@ctg.com.cn