



**中国三峡**  
China Three Gorges Corporation



**2019**

**Sustainability Report**



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# Message From the Chairman



雷鸣山

Lei Mingshan  
Board Chairman and Secretary of the CPC Leadership Group of China Three Gorges Corporation (CTG)

The year 2019 was the 70th anniversary of the founding of the People's Republic of China. It was also a year for China Three Gorges Corporation (CTG) to forge ahead under the guidance of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era. Over the past year, we fully implemented the guiding principles of President Xi's important speeches to CTG and gave the "Six Roles" full play with a new development philosophy. To provide clean energy and achieve ecological conservation, we seized the opportunities of central government inspections and themed education campaign "staying true to our original aspiration" to advance reform and development and strengthen the Party building. By doing so, we took a solid step on the road toward a world-class enterprise, and also contributed to the 70th anniversary celebration.

**The capable is to shoulder great responsibility.** Our positioning in the new era entails our resolve to build a world-class enterprise, which answers to the call of our times, corresponds to the expectation of the people and falls in line with the strategy of our country. It is also an inevitable path dictated by the rule of economic development and a requirement we can't circumvent when we want to modernize our governance and boost our management capability. As it has become a global consensus that enterprises should embrace social responsibility and include sustainability in their development agenda, a world-class enterprise means excellence both in hard power and soft power—a must-have trait for a CSR model. The global competition among enterprises is entering a new era when we compete on responsibility fulfillment. As a backbone central SOE, CTG is keenly aware of the weight of our responsibilities and we practice it with a great sense of honor. We commit to being a CSR model and strive to lead in the global competition among the world's best companies. We will live up to expectations.

**A CSR model and a world-class enterprise - we must stay true to our original aspiration.** Starting with the Three Gorges Project, and upholding "serving the country and the people" as our core value, we have become the largest clean energy provider in China and the biggest hydropower development and operation enterprise in the world. We attribute this achievement to the commitment to following the party line and a transformation of the institutional advantages of China's socialism into a competitive advantage and an infinite driving force for the reform and development of CTG. The achievements come from our overarching strategy, which is to comply with and serve the national strategy with our determination in the development of clean energy. Leading the way towards the future, the mission is built into our genes to inspire generations of CTG staff at different times with various connotations. Having inherited this social responsibility, we serve as the backbone of our nation and country. It is our responsibility and mission to play our role in the project of well-coordinated environmental conservation in the Yangtze River Basin. We are dedicated to our new mission for the new age: shifting our role from "building the Three Gorges Project and developing the resources of the Yangtze River" to "managing the Three Gorges Project and protecting the Yangtze River".

**We must take our responsibilities for our times.** As one of China's ancient sages said, the smart people perceive the trend, while the wise go with it. The concept of sustainable development has been evolving across the world and it is urgent to make a change in the global environment management system. As President Xi Jinping points out that lucid waters and lush mountains are invaluable assets, therefore, protecting the ecological environment means increasing productivity. In awe of Nature, man can receive far more than he seeks. While achieving their own

growth, enterprises should contribute to society through cooperation and sharing of resources to benefit all and to help the transformation of the nature of doing business from competition for interests to cooperation. Responding to the crucial, strategic project of a well-coordinated environmental conservation in the Yangtze River Basin, we have explored a new path towards clean energy development and eco-environmental protection of the Yangtze River at the same time with rich experience in cascade hydropower plant operation and management, as well as advantages in investment and financing. Meanwhile, we take an active part in the environmental conservation of the Yangtze River Basin by building our core competence in ecological and environmental protection, exploring new areas, expanding to new spaces and developing new growth drivers to become a world-class enterprise. Over the past year, we pushed forward the project of the well-coordinated environmental conservation in the Yangtze River Basin with our continuous endeavors through the operation of five business platforms and advancement of project construction. From pilot projects and extensive cooperation to a full-scale implementation, the landscape of environmental conservation in the Yangtze River Basin is clear with the application of the "CTG Mode" for urban sewage treatment.

**A global vision is key in our efforts to deliver CSR and to build a world-class enterprise.** As an old saying goes, when the great way prevailed, the global community was equally shared by all. On the road to build a world-class clean energy group, we should contribute more to society and take more responsibility, from the achievement of a moderately prosperous society in all respects, to a contribution to the sustainable development of China and the world. Upholding the philosophy of a community of shared future for mankind and the principles

of extensive consultation, joint contribution and shared benefits, we play the role to achieve the Sustainable Development Goals set by the United Nations via our core businesses, especially in the area of global energy transition. We aim at a world where sustainable energy is equally shared by everyone with a broader access to affordable clean energy. In the face of challenges to global sustainable development and hotspot issues, we are also involved in setting a good example by addressing global climate changes, boosting regional economy and improving the well-being of the people. With the contribution of CTG wisdom and solutions, we strive to achieve high standards, ensure the well-being of the people and reach our goals for sustainable development.

As a proverb goes, the world moves on in a never-ending process. The year 2020 marks the last leg for China to build a moderately prosperous society in all respects and achieve the 13th Five-year Plan (2016-2020). It is also a crucial year for CTG to create a world-class enterprise and a year where we will see the deliveries of well-coordinated environmental conservation in the Yangtze River Basin. Under the guidance of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, we will stay true to our original aspiration and keep our mission for the new era in mind. In a firm direction of clean energy development and eco-environmental protection of the Yangtze River, we will stick to our goals with increasing efforts, high standards and rise up to the pressure in production and operation throughout the year to spur the building of a world-class enterprise. CTG is to contribute its share to winning the battle against the COVID-19 pandemic and achieving stable growth of the national economy, and to make new contributions to secure victory in building a moderately prosperous society in all respects.

# An Interview With the President



王林

Wang Lin  
President and Deputy Secretary of the CPC Leadership Group of  
China Three Gorges Corporation

**The year 2019 was the 70th anniversary of the founding of the People's Republic of China. What measures did CTG take to achieve new highs for all indicators of business development and make new contributions to the steady growth of the national economy?**

CTG has carefully studied and put into practice the Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era and the guiding principles of the Central Economic Work Conference and the Executive Meeting for Central State-Owned Enterprises, and implemented the decisions of the CPC Central Committee and the State Council. With the general guideline of making progress while maintaining stability, we make coordinated advancements to stabilize growth, deepen the reform, enhance innovation, make structural adjustments and enforce strict supervision to reduce risks, achieving not only a feasible growth in quantity, but also in quality of production and operation performance. As a result, high-quality development invigorates us, makes us stronger. In 2019, the total installed capacity, including the consolidated capacity, and the capacities that are under construction and the minority-equity based capacity, has reached 131 GW and the annual output of power generation reached 289.47 TWh, with total assets of RMB 835.6 billion and a total operating income of RMB 98.5 billion. These achievements contribute to a stable growth of the national economy, the promotion of reforms, structural adjustments, the well-being of the people and risk prevention.

**What measures did CTG take after being included on the list of pilot state-owned enterprises to build world-class enterprises?**

CTG is fully aware of the significance of being included on the list of pilot state-owned enterprises to build world-class enterprises. We will seize the opportunity to benchmark ourselves against the world-class companies at all levels by analyzing the competitive strengths and limitations from an objective standpoint. We have therefore highlighted our weak points and key problems, and initiated feasible, targeted solutions that are looking to address the problems and deliver our goals, on the basis of facts and a sound decision-making system. We have launched and implemented execution plans and special programs to accelerate the building of a globally competitive, world-class international clean energy group. We hope to make substantive breakthroughs in certain areas and key aspects, and achieve an overall improvement.

**How will CTG keep your key role in advancing well-coordinated environmental conservation efforts, and continue the development of eco-environmental protection in the Yangtze River Basin?**

CTG works hard in fulfilling the responsibilities and missions honored by the nation. We play a key role in well-coordinated environmental conservation in the Yangtze River Basin by boosting CTG's business platform of ecological and environmental protection. We have signed strategic framework agreements with the cities of Chongqing and Shanghai, and the provinces of Hubei, Hunan, Jiangxi, Anhui, Jiangsu and others. We also have cooperation agreements signed with 22 cities (districts) and counties to construct a working pattern for well-coordinated environmental conservation in the Yangtze River Basin. We have launched the Yangtze Ecology and Environment Co., Ltd., the Yangtze Ecological and Environmental Engineering Research Center, the Yangtze River Protection Industry Alliance, China Yangtze River Green Development Investment Fund and the Yangtze Environmental Conservation Special Fund, and fulfilled the collaborative operation of the five business platforms. By promoting the "capital plus" mode, we have ramped up equity investment and funnelled investment of over RMB 35 billion. The "CTG Mode" for urban sewage treatment has been explored and widely applied along the Yangtze River. The total investment on the urban sewage treatment projects in the middle reaches of the Yangtze River is close to RMB 60 billion with a successful evolvement from several sporadic pilot projects to a broader cooperative scale and now implementation in full swing.

**2019 was a decisive stage for poverty alleviation and a crucial year to achieve poverty relief in an all-round way. What key measures did CTG take to reduce poverty? And what achievements were made?**

CTG has implemented the decisions and plans of the CPC Central Committee and the State Council to win the battle against poverty through fixed-point poverty alleviation with increased efforts and effects, making contributions to poverty relief and rural vitalization. We have implemented in full the new development strategy where CTG plays a leading role in CSR fulfillment. Based on the basic strategy of targeted poverty alleviation, we have focused on fixed-point poverty relief, reached out a helping hand to Xinjiang, Tibet and Qinghai, and aided ethnic minorities in Sichuan and Yunnan provinces, as well as those in the regions of the Three Gorges Reservoir and the reservoirs along the Jinsha River. We invested over RMB 2.3 billion in more than 220 assistance projects in education, health care and industries and targeted programs in 2019, ranking high in the 2019 SOE CSR appraisal. Wushan prefecture and Fengjie prefecture of Chongqing, Wan'an prefecture of Jiangxi province, and Bairin Left Banner of Inner Mongolia, as our long-term targeted areas, have all been lifted out of poverty. Two ethnic minorities of Pumi and Jingpo people with a relatively small population have all been lifted out of poverty, and people from the Nu ethnic group of Yunnan province and people from the Yi ethnic group of Liangshan, Sichuan province are about to get rid of extreme poverty for the first time in history.

# About CTG

China Three Gorges Project Corporation was founded on September 27, 1993 with the approval of the State Council. On September 27, 2009, it was renamed as China Three Gorges Corporation (CTG). Following a restructuring of its corporate system, CTG became a solely state-owned company headquartered in Beijing. CTG's strategic positioning is to actively serve the major national strategies such as the development of the Yangtze River Economic Belt and the "Belt and Road Initiative"; play a backbone role in the integration into the Yangtze River Economic Belt in an in-depth manner and the well-coordinated environmental conservation in the Yangtze River Basin; provide basic guarantee for promoting regional sustainable development; take the lead in promoting the upgrade and innovation of the clean energy industry; and continue deepening the reform of the enterprise so as to speed up the process of developing CTG into a world-class transnational clean energy group with strong innovation capabilities and global competitiveness. Committed itself to the main business of clean energy, CTG has formed eight business segments, namely 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, new energy development and operation management, capital operation and financial services, and asset management and base services. After 26 years of development, our business covers 31 provinces, autonomous regions and municipalities in China. We also expand footprints to over 40 countries and regions around the world, realizing leapfrog development from the Three Gorges to the Yangtze River, from Hubei Province to the whole country, from inland to the ocean, and from China to the world. In December 2018, CTG was included in the list of pilot central SOEs for building world-class model enterprises.

The largest hydropower developer and operator in the world

The largest clean energy group in China

74,596<sup>MW</sup>

Consolidated installed capacity in operation reached

RMB 835.6<sup>billion</sup>

Total Assets

RMB 98.5<sup>billion</sup>

Operating Revenue

131<sup>GW</sup>

Total installed capacity reached including consolidated installed capacity in operation, minority-equity based capacity and under-construction capacity

93.8%

Consolidated installed capacity for renewable clean energy in operation accounts for

49.58%

Asset-liability Ratio

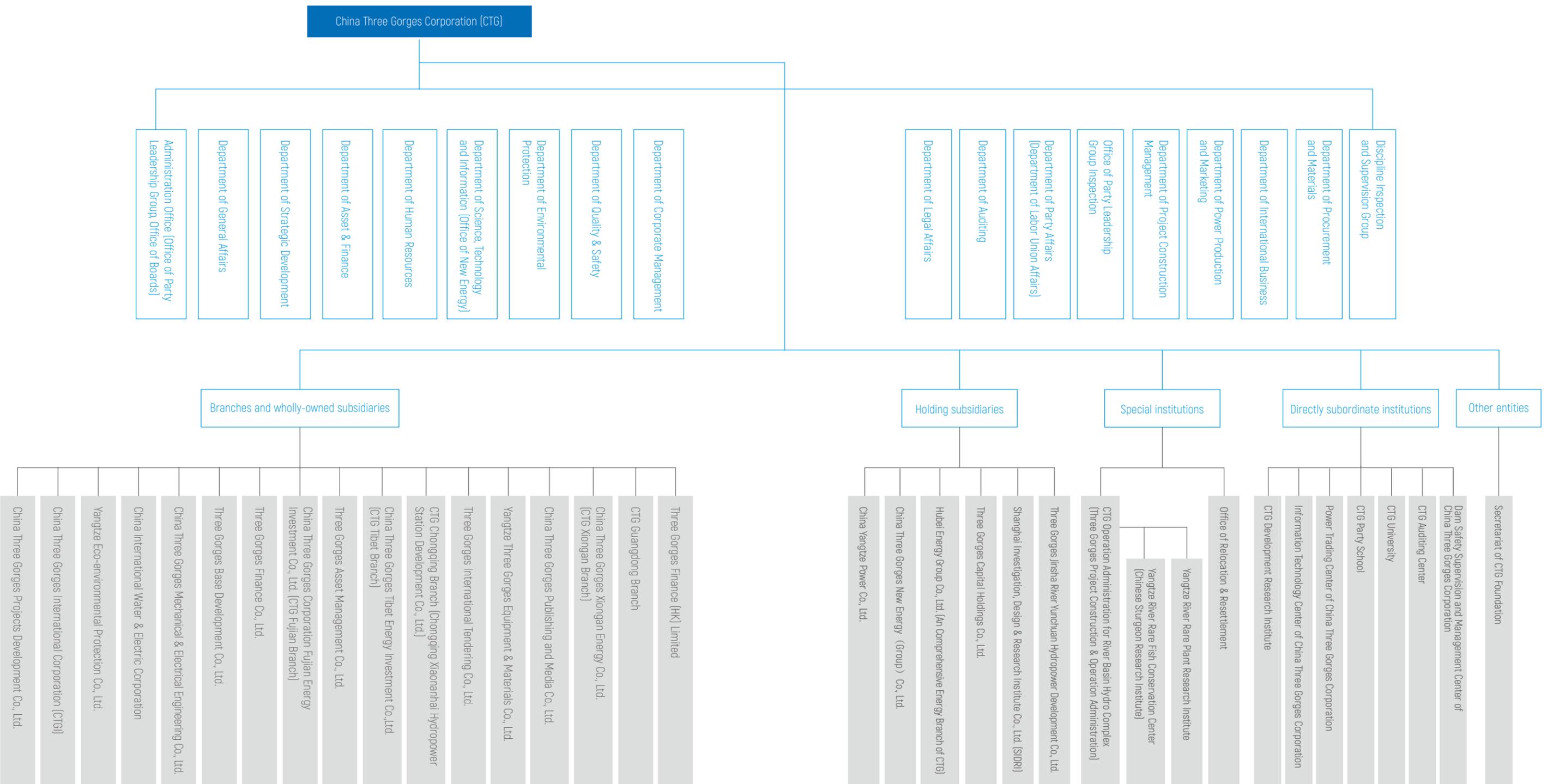
13.9%

Consolidated hydropower installed capacity accounts for 13.9% of China's total hydropower installed capacity

289.47<sup>TWh</sup>

Annual Power Generation

CTG has been rated as Grade **A** enterprise in the Annual Performance Assessment of SASAC for 12 consecutive years



Organizational structure

## Development Strategy

We stick to the general principle of seeking progress while maintaining stability, and adhere to the new development vision for pursuing high-quality development. Focusing on the supply side structural reform, we keep reform and innovation in line with our strategic development positioning, and strive to realize a two-pronged strategic business layout featuring clean energy development and eco-environmental protection of the Yangtze River, and give full play to our "Six Roles" to speed up efforts to build a world-class enterprise.

## Core Philosophy

### CTG's spirit for the new era:

Assume responsibility for the nation, promote people's well-being;  
respect life and nature;  
stay true and pragmatic and embrace innovation;  
open and inclusive for win-win cooperation;  
integrity and professionalism

**Core values:** Dedication, responsibility, innovation and harmony

**Mission:** Managing the Three Gorges Project, protecting the Yangtze River, dedicating clean energy and building a beautiful home together

**Vision:** to be a world-class clean energy group with global competitiveness

## Six Roles

- Play a fundamental role in guaranteeing and furthering the development of the Yangtze Economic Belt
- Play a backbone role in promoting well-coordinated environmental conservation in the Yangtze River Basin
- Play a leading role in China's hydropower industry to "go global" endeavour
- Play a constructive role in promoting the industrial upgrading of clean energy
- Play a demonstrative role in deepening SOE reform
- Play an exemplary role in assuming social responsibility



Feature Story

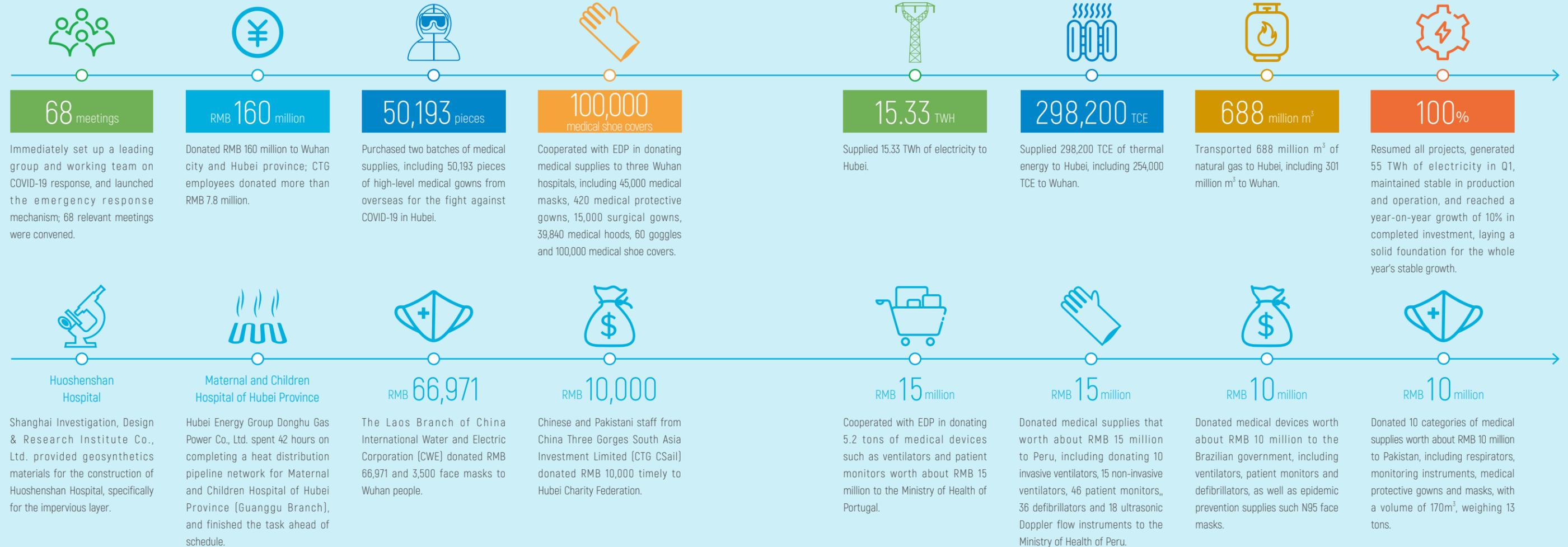
# CTG: A Pillar in the Fight Against COVID-19

State-owned enterprises (SOEs) are pillars of the socialist economy with Chinese characteristics, and the most reliable strengths for the Party and the country. As a central SOE, we must be competent, courageous and reliable at all critical moments when the Party and the people need us.

Since the COVID-19 pandemic hit the country, the Party Leadership Group of CTG has been thoroughly studying and implementing the guiding principles of General Secretary Xi Jinping's series important speeches and instructions, as well as the decisions and plans made by the CPC Central Committee and the State Council. We act as the pioneers, pacesetters, doers and fighters in this all-out, people's war against COVID-19, and give full play to our role as the pillar of the nation. To meet the "three zero" goal put forward by the Party Leadership Group, namely "zero quality accident, zero safety accident, and zero pandemic-related accident", we facilitate targeted and orderly resumption of production and work, provide electricity, heat and gas on a stable basis to guarantee people's livelihood, and ensure all major projects are under orderly construction. Now, all our projects have been resumed, and lived up to the "three zero" goal.

Facing the sudden COVID-19 pandemic, we coped with pressure properly and doubled down on our efforts and have realized growth of production and operation in Q1 of 2020 despite adversities: our electricity output was 55 TWh, realizing a year-on-year growth of 0.4%, and the net profit was RMB 9 billion, a year-on-year growth of 4.5%. Our performance ranked high among central SOEs in Q1, marking a good start for 2020 and contributing to the country's two tough battles, i.e. COVID-19 prevention & control, and the realization of 2020's economic and social development goals.

All projects resumed realized  
**"Zero quality accident, zero safety accident, and zero pandemic-related accident".**



Note: The time period of the statistics is from January 1 to April 29, 2020.

# Consolidating Basis to Lay a Solid Foundation for Fulfilling Social Responsibility



# Strengthening Party Leadership

## Reinforcing Political Guidance

Comprehensively learning and implementing guiding principles of the Fourth Plenary Session of the 19th CPC Central Committee

We have adopted multiple measures, such as theoretical central group study, expert sessions, "three meetings and one lesson", and Thematic Party Day activities. Taking the lead in political learning, we assigned 10 tasks to four levels of Party organizations in 2019, including Party Leadership Group, regional Party Committee, Party Committees of subsidiaries and grassroots Party branches, and clarified responsibilities and deadlines. We also set up our own media outlet with columns and feature stories to timely introduce and explain Party theories.

Thoroughly implementing the guiding principles of General Secretary Xi Jinping's important speeches and instructions

To further learn, understand and implement the guiding principles President Xi Jinping's important speech delivered during his inspection of the Three Gorges Project (TGP), and other important instructions for CTG. In 2019, we organized a learning program in commemoration of the one-year anniversary of General Secretary Xi Jinping's inspection, held nine specific seminars, interviewed 198 grassroots staff, and compiled over 100 field study reports and minutes of meeting, as well as over 180 special reports.

Carrying out the themed education campaign "staying true to our original aspiration"

In 2019, we mobilized over 9,800 Party members from 673 grassroots Party organizations to participate in the themed education campaign, held 1,296 seminars and 1,200 special field studies, identified 3,654 problems and formulated 6,061 specific rectification measures. We organized a meeting on "finding the gap between ourselves and the Party Constitution and regulations", and democratic meetings and branch meetings on the theme, so as to see Party members "maintain political integrity, think in terms of the big picture, follow the leadership core, and keep in alignment with the central Party leadership", "have full confidence in the path, theory, system, and culture of socialism with Chinese characteristics", and remain "firmly safeguarding Xi's status as the core of the CPC Central Committee and the whole Party, as well as the authority and centralized, unified leadership of the CPC Central Committee".



Retired CTG employees retrace General Secretary Xi Jinping's inspection route



Themed seminar on staying true to our original aspiration



Joint education program on the theme with National Audit Office



Conference for Promoting Outstanding Cases in the Themed Education Campaign

The Party Committee of Baihetan Project Construction Department of China Three Gorges Projects Development Co., Ltd. was listed among Outstanding Central State-owned Enterprises and awarded **Outstanding Central SOE Grassroots Party Organization** by the Party Committee of State-owned Assets Supervision and Administration Commission of the State Council (SASAC).

Awarded **9** individuals including Zhang Chaoran, Zheng Shouren and Yang Zongli, as well as **2** collectives, namely Three Gorges Hydropower Plant of China Yangtze Power Co., Ltd. and Baihetan Project Construction Department of China Three Gorges Projects Development Co., Ltd., as **Model Cases in the Themed Education Campaign**.

## Strengthening Party Building

**Improving the Party building accountability system:** In 2019, we established the Leading Group on Party Building and Comprehensively Strengthening Party Discipline, set up a Party building accountability system with clear responsibilities to each level, personnel at all levels, and annual assessment targets. We also revised the *Implementation Measures for Party Building of Overseas Organs*, and held the first Party Building Forum for Overseas Organs.

**Promoting effective rectification after the central government's inspection:** Focusing on "four implementations" and centering on responsibilities and duties, we set up the Leading Group on Inspection and Rectification to guide and supervise progress of inspection and rectification. We also assign specific personnel to supervise relevant work weekly, striving to form a well-coordinated and systematic layout where the central government's inspection and rectification can be combined with the themed education campaign. Over the past

year, we realized the synchronized coordination and progress, oversight and implementation, inspection and acceptance for both 22 key issues and 83 rectification measures put forward by CTG's Party Leadership Group during the themed education campaign as well as the issues identified by the central government's inspection team.

**Adhering to the Party's leadership over state-owned enterprises and establishing a modern enterprise system:** We have well included Party building into our Articles of Association, revised and improved the Party Leadership Group's decision-making system of major issues, major personnel appointment, major project arrangements, and use of large-volume capital, as well as rules of procedure for other governing bodies. The *Notice on Further Regulating the Decision-Making Content and Procedures of the Party Committee, Board Meeting and Executive Meeting of President or Director* was published to clearly define boundaries of rights and liabilities concerning corporate governance.

**Facilitating the construction of grassroots organizations:** In 2019, we revised over 20 work regulations relating to Party building, including *Management Regulations for Party Building*, and compiled responsibility lists for three levels of Party organs, i.e. the Party Leadership Group, Party Committee and Party branches. We also carried out a specific campaign – "Central SOE's Grassroots Party Building Year", to further rectify feeble and slack grassroots Party organizations. Moreover, we revised regulations including *CTG Officials Management Measures* and hold regular training courses for Party branch secretaries to constantly enhance the quality of Party building at grassroots level.

**Strengthening education, supervision and management of officials:** We implement standards of good officials in the new era, strictly investigate and punish misconducts in staffing process and selection and appointment of officials, and hold those fail to fulfill their duties accountable, so as to further improve work style.



Annual Party Conference on Conduct, Governance and Anti-corruption

## Exercising Full and Rigorous Governance Over the Party

### Strengthening ideological and political guidance, and firmly ensuring "two upholds"

We thoroughly study and implement the guiding principles of General Secretary Xi Jinping's series important speeches and instructions, as well as major decisions and plans made by the CPC Central Committee. While practicing the new development vision, we also implement a number of policies and measures, including taking tough steps to forestall and defuse major risks, carry out targeted poverty alleviation, and prevent and control pollution, deepening the supply side structural reform, contributing to well-coordinated environmental conservation in the Yangtze River Basin, and achieving high-quality growth. Follow-up checks have been carried out, and identified issues are timely reported.

### Steadfastly curbing formalism, bureaucratism, hedonism and extravagance, and constantly improving work style

Regulations like *Measures for Rectifying Prominent Formalism and Bureaucratism Problems and Planned Tasks in Line with the Eight-point Guidelines Issued by the CPC Central Committee* have been formulated to curb formalism and bureaucratism. Accordingly, we pay special attention to key points in time and to key areas, tighten up on accountability for overseeing discipline compliance, and send a strong signal to all officials that discipline regulations will be increasingly stricter in the coming days.

### Accurately adopting four forms of discipline supervision and enforcement, and unitedly advancing the three-fold anti-corruption mechanism

Our fight against corruption knows no bounds, and will leave no ground uncovered and show no mercy. Effective constraints, tough measures and long-term deterrence are essential. We will strengthen monitoring and inspection over the implementation of regulations, so that the institutional cage would be fortified and officials cannot be corrupt. We will also promote integrity culture to build stronger anti-corruption awareness. Moreover, we will establish a three-fold system and mechanism to deliver quality engineering projects and promote clean culture at the same time, so as to purify both the political ecosystem and the Yangtze River Basin's ecological environment.

### Carrying out proper supervision over rectification after inspection to ensure solid progress

We established a Monitoring Group on Inspection Rectification and formulated a *Work Plan and Checklist of Key Issues in the Monitoring over Rectification after CPC Central Committee's Inspection*, to ensure that problems identified in the inspection would be well rectified. We will carry out proper supervision over rectification, organize preliminary acceptance check for rectification outcomes, and strengthen full-process monitoring throughout rectification. While earnestly looking into clues of problems given by the inspection team, we will combine inspection monitoring and discipline inspection & oversight to urge the Party Leadership Group to finish the "second half" of the inspection – to fix all identified problems.

### Deepening the institutional reform and building a sound monitoring system

We deeply study the guiding principles the discipline inspection and supervision system reform for central state-owned enterprises, formulated and promulgated *Implementation Scheme for Deepening the Reform of the Discipline Inspection and Supervision System*, separated functions like supervision and inspection, investigation and survey, case management and processing, and divided institutions. We created a three-in-one stereoscopic monitoring and coordination mechanism comprising three levels, namely Discipline Inspection Team and Party Leadership Group, supervision department at the headquarters, and Discipline Inspection Commissions of affiliates, to institutionalize, regularize and normalize monitoring. Through reforming and improving systematic monitoring, highlighting political oversight, strengthening daily supervision and implementing long-term supervision, we hope to achieve high-quality development in discipline inspection and supervision in the new era.

# Excellent Operation and Management

## Refining Corporate Governance

We continue to improve the corporate governance system and working mechanism featuring "transparent structure, well-defined rights and liabilities, coordinated operations, and effective checks and balances". In addition, we have integrated Party leadership into the corporate governance structure to effectively guarantee the roles of the Party Leadership Group, Boards of Directors and other governing bodies. In 2019, 13 Board of Directors meetings were held to debrief seven reportedss matters. 74 proposals were deliberated and approved, and seven field studys were organized for outside directors.



Lei Mingshan, Chairman



Lei Mingshan, Secretary of the Party Leadership Group and Chairman



Wang Lin, Deputy Secretary of the Party Leadership Group, Director, President



Wang Lin, Director



Ding Zhongzhi, Outside Director



Wang Zhisen, Outside Director



Wang Liangyou, Party Leadership Group members, Vice President



Long Fei, Head of the Discipline Inspection and Supervision Team, Party Leadership Group members



Fan Xiaxia, Party Leadership Group members, Vice President



Zhang Yuanrong, Outside Director



Xia Dawei, Outside Director



Cai Yongzhong, Worker Director



Zhang Dingming, Party Leadership Group members, Vice President



Yang Xingshi, Party Leadership Group members, Vice President, CFO



Sun Zhiyu, Party Leadership Group members, Vice President

Board members

Members of the Leadership Team

## Strengthening Quality Management

CTG always believes superior quality is the foundation for long-term prosperity. Thus, we align ourselves with the highest standards, adopt cutting-edge techniques, utilize the best resources, recruit the strongest teams, and carry out strictest management to deliver high-quality, innovative, green and corruption-free projects that benefit people's livelihood. We strive to improve quality and create more benefits to lay a solid foundation for clean energy development and eco-environmental protection of the Yangtze River.

We are now deepening the upgrade of the "QEOHS" system (Quality, Environment, Occupational Health & Safety), which has basically covered our principal business, the whole business process and all our subsidiaries. We also promote the standardization and institutionalization of quality supervision and inspections by revising regulations on quality management, so as to truly fulfill quality management responsibility.

Over 80

Quality management achievements winning national and industrial honors in 2019

- Shuibuya Hydropower Plant of Hubei Qingjiang Hydropower Development Co., Ltd. was named Tien-yow Jeme Civil Engineering Prize – 20th Anniversary Quality Engineering Award.
- CTG's Yuefei QC Team won **Second Prize** in the Second Central SOEs QC Team Presentation Competition in 2019.
- The "Shadow of the Wind" QC Team of China Three Gorges New Energy (Group) Co., Ltd. (CTG New Energy) won **Outstanding Award** in 2019 National Power Sector QC Achievement Competition.

## Consolidating Safety Management

CTG has ensured safe and stable operations of its engineering projects through constantly improving the safety management system, organizing quality and safety training regularly, and comprehensively implementing safety risk management as well as investigation and management of hidden dangers.

0

Annual employee fatalities

0

Annual major equipment accident

### Complying with the safety guideline

Guided by General Secretary Xi Jinping's important statement and instructions on work safety, we aim to ensure zero quality accident and zero safety accident, and attach equal importance to development and protection.

### Implementing safety management

We strictly implement the work safety accountability system, and keep the effective operation and constant improvement of safety management system, with special attention on the key industrial fields like project construction and power generation. We have effectively promoted the establishment of the safety management system for the well-coordinated environmental conservation project in the Yangtze River Basin to ensure the project is carried out safely and in an orderly fashion. The Dam Safety Monitoring and Management Center is set up to reinforce dam safety management. The Project Department for Quality and Safety Monitoring and Inspection is also established to strengthen inspections over quality and safety issues. And a monthly meeting mechanism on quality and safety is launched to follow up with and track the implementation of major work safety issues.



Recording the service data of outdoor equipment

### Highlighting the troubleshooting of safety hazards

We work on the establishment of a dual prevention mechanism, comprehensively investigate and manage hidden dangers, and strengthen patrol inspections of equipment to eliminate loopholes. Besides, we have mobilized internal and external professionals to carry out quality and safety inspection and monitoring of 32 projects under construction and power plants in service in fields of project construction, power generation, offshore wind power, and well-coordinated environmental conservation project in the Yangtze River Basin, trying to troubleshoot and eliminate safety hazards.

### Enhancing emergency response capacity

We assess our emergency response capacity and evaluate our emergency resources, staffing and emergency handling mechanism in a comprehensive manner while increasing emergency drills. In 2019, we carried out 15 emergency drills, such as "black start" drills at the TGP, Gezhouba, Xiluodu and Xiangjiaba Hydropower Stations, flood, and black-out drills. Among them, four "blind drills" were launched for the first time.

1,015

Emergency drills carried out in 2019

### Advocating safety culture

We organize diverse safety training programs for employees and safety promotion campaigns to advocate safety culture and strengthen safety awareness of our staff. Besides, we hold training sessions on work safety and emergency management, launch Work Safety Month campaign, and organize lectures and warning education activities during the Work Safety Month. Training courses on overseas public security are also provided to deepen employees' understanding of our practices in overseas safety management.

### Case Project on Key GIL Overhauling Technology wins top prize in National Quality Innovation Competition

The safe and stable operation of Gas insulated metal enclosed transmission lines (GIL) is critical to power stations and the power grid. Yet, China hasn't acquired the overhauling technology for welded GIL. To solve this difficulty, CTG concentrated R&D forces to complete the project *Key Overhauling Technology for 500kV Welded GIL*, which later won the top prize in the Fourth National Quality Innovation Competition: QIC-V Level (the highest level) Technical Outcome.



Maintenance crew troubleshoots a device

## Enhancing Compliance Management

To keep legal and compliant operation, we actively develop law-based governance, and strictly comply with national laws and regulations as well as other requirements. By designing a top-level structure for compliance management with coordinated efforts, we have further improved our performance in compliant operation and raised employees' awareness of compliance.

We established the Compliance Committee and clearly defined boundaries of rights and liabilities on compliance management. The *Trial Regulation on Compliant Management of China Three Gorges Corporation* was promulgated and implemented, and a publicity and implementation meeting was convened to initiate a well-established, scientific, standardized and effective institutional system.

We established a quarterly reporting and meeting mechanism for risk management, updated the risk management checklist, improved categorization criteria for risk events, and developed a risk management information system to strengthen analysis and prediction of major risks, and provide solid solutions for risk management.



To accelerate the building of a "law-based CTG" in the new era, we implemented the central government's strategy of comprehensively promoting law-based governance, as well as the plans made in 2019 SASAC Work Conference on the Law-Based Management of Central SOEs. Accordingly, we comprehensively fulfilled our responsibility as the principal responsible body for law-based management, and integrated law-based governance into our primary tasks – reform and development, which made law-based governance serve the operation and management of businesses with high quality, and facilitate us to properly deal with all kinds of legal disputes. Besides, we innovated in legal awareness campaigns, education and training.

We made two policy commitments, namely *Moral and Compliance Principles and Policy of Sustainable Development*, organized a series of forums on compliance management, and held seminars on overseas compliant operation and management as well as training courses on compliant operation, striving to create a compliance culture and atmosphere with CTG's characteristics.

100%

Proportion of responsible procurement

9,434

Suppliers evaluated in 2019

## Building a Responsible Supply Chain

Guided by the principle of "fairness, justice and transparency", we strengthen mutually-beneficial cooperation, constantly optimize supplier management, and join hands with upstream and downstream companies along the industrial chain to boost the whole industry's prosperity.

### Supply chain management

- Held 2019 Supplier Webinar to introduce CTG's bidding and procurement management, quality and safety management and anti-corruption management, etc.
- Carried out supplier credit management, suppliers' credit rating and training.
- Improved work systems and mechanisms of bidding and procurement management, IT-based bidding and procurement management, to further standardize and regulate bidding and procurement management.

### Realizing win-win cooperation

We actively collaborate with companies along the wind power industrial chain, and have established strategic partnerships with Agricultural Bank of China, Shanxi Coal Import and Export Group Co., Ltd., China Minmetals Corporation, China Aerospace Science and Industry Corporation Limited, and Beijing Capital Group, etc.



Signing Strategic Partnership Framework Agreement with China Aerospace Science and Industry Corporation Limited to cooperate in well-coordinated environmental conservation in Yangtze River Basin, new energy and international business, etc.



Summer view of Qutangxia Section, the Three Gorges Reservoir Region



# Sticking to Independent Innovation

By deepening the reform of its scientific and technological system and mechanism, CTG integrates internal S&T innovation resources, improves the S&T input guarantee mechanism, and promotes the establishment of an independent S&T innovation platform as well as the S&T talent cultivation. With the support of major projects, CTG leverage S&T innovation to develop key technologies and tackle stranglehold problems in clean energy and ecological conservation and environmental protection. It pools strengths of R&D, design, manufacturing and constructors along the industrial chain to concentrate on independent innovation, collaborative innovation as well as joint efforts for tackling problems.

## Deepening the Reform of S&T System and Mechanism

We devote great efforts to strengthening the comprehensive management of R&D projects, standardizing S&T statistical requirements, improving the incentive mechanism and formulating policies to encourage employees to make S&T innovations.

**The S&T management system:** We compiled management measures for scientific research projects, detailed implementing rules for S&T statistics, and awarding measures for innovation outcomes. For example, we newly compiled management measures for S&T innovation team building, implementing rules for the special fund on well-coordinated environmental conservation in the Yangtze River Basin [S&T research expenditure], as well as the review and awarding measures for the CTG S&T Incentive Fund, etc.

**The S&T incentive and awarding mechanism:** To unleash employees' enthusiasm for S&T innovation, we increased the amount of bonus for S&T achievements and improved the S&T incentive and awarding mechanism. Now, we grant awards to all kinds of achievements, including intellectual property, technical standards, theses and monographs.

## Building an Independent S&T Innovation Platform

CTG further improves its independent innovation system. To build innovation capacity and fill the gap of innovative strength in conducting independent scientific research, we scale up efforts in integrating internal and external resources, and expedite the development of S&T institutions and R&D platforms, striving to build a CTG-centered joint collaborative innovation network.

## Integrating internal resources

- The main body for independent S&T innovation, Research Institute of Science and Technology, was set up.
- Hubei Province Key Lab of Intelligent Yangtze River and Hydropower Science of China Yangtze Power Co., Ltd. (hereinafter referred to as CYPC) was approved as one of the first batch of Hubei province key labs, and the first company-sponsored lab specializing in hydropower research in Hubei.
- A pilot program was launched in Three Gorges Hi-Tech Information Technology Co., Ltd., to promote the reform of one hundred high-tech companies administered by SASAC.

RMB **2.676** billion  
Scientific and technological investment

RMB **1.495** billion  
R&D investment

## Cooperating with external resources

- United Laboratory of Hydrogen Energy co-built by CTG and North China Electric Power University was officially inaugurated.
- CTG-Hohai University Joint Laboratory of Water Resources Efficient Utilization was founded.
- The CTG-DF Hydraulic Electric Generation and Innovation Center and CTG-DF Offshore Wind Power Innovation Center were jointly established by CTG and Dongfang Electric Corporation.



**Awards for S&T advancement, inventions and employee S&T achievements:**  
To reward independent S&T research outcomes.

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**A fund for S&T publications:**  
An annual RMB 2 million is planned to support employees summarize and publicize their S&T research outcomes.

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**CTG S&T Incentive Fund:**  
To reward staff with prominent contributions to the development of clean energy and the well-coordinated environmental conservation in the Yangtze River Basin with S&T achievements. In 2019, the Three Gorges Lifetime Scientific Innovation Achievement Award was granted for the first time and went to Academician Zheng Shouren and Academician Zhang Chaoran.



36

National standards compiled as the main contributor or participant since the 13th Five-Year Plan launched

251

Industrial standards compiled as the main contributor or participant during the 13th Five-Year Plan period

## Tackling Key Technological Problems

CTG increases S&T input to realize two goals, i.e. "for CTG to independently acquire a batch of key and core technologies" and "to promote members of the industrial chain to acquire a batch of key and core technologies". Thus, CTG has set up independent scientific research projects, and actively applied for national, ministerial and regional R&D projects as well as S&T innovation and problem-tackling engineering projects for central SOEs. In 2019, we undertook 48 national, ministerial and regional R&D projects, acquiring about RMB 160 millions of fiscal fund for research (including allotment granted to CTG).

In 2019, the Three Gorges Hydroelectric-Complex Project in the Yangtze River Basin, with CTG as the first contributor, won State Science and Technology Award – Special Prize, and two achievements participated by CTG won State Science and Technology Award – Second Prize. 19 achievements were granted S&T awards by provincial/ministerial organs or industrial association.



The Three Gorges Hydroelectric-Complex Project in the Yangtze River Basin, won State Science and Technology Award – Special Prize

## Strengthening Intellectual Property Protection

CTG insists on independent innovation, actively organizes teams to tackle technical difficulties in design, manufacturing and construction, and strives to develop core technologies with proprietary intellectual property rights. By the end of 2019, CTG had 2,008 effective patents, and every 10,000 CTG employees possessed over 130 effective patents for innovation, the number of which was tenfold of the national average level.

629

Applied patents

464

Authorized patents

66

Registered software copyrights

# Cultivating Craftsmen for the Great Nation

## Ensuring Employee Rights and Interests

- **Equal employment:** We strictly comply with laws and regulations of China and regions where our projects are operated, abide by international conventions relating to human rights and labor rights, stick to equal employment, eliminate all forms of discrimination and respect the diversity of employees.
- **Democratic management:** We sincerely handle proposals from the employees' congress and safeguard employees' rights to know, participate and supervise.
- **Remuneration guarantee:** We formulate salary incentive and salary growth mechanism to promote a reasonable, scientific and standardized salary system.

100%

Completion rate of proposals from the employees' congress

100%

Signing rate of labor contract

100%

Coverage of social insurance

0%

Occupational disease rate

## Attaching Importance to Occupational Health

We attach great importance to employees' physical and psychological health, and proceed with systematic and standardized occupational health management. For example, we hold lectures on occupational health and organize activities like "Healthy China – Occupational Health Hand in Hand" and "Promotion Week of the Law on the Prevention and Control of Occupational Diseases", to strengthen daily management of occupational health, help employees prevent occupational diseases and stay healthy both physically and mentally, so all staff can maintain healthy conditions at work and our company can stay healthy as well.



## Facilitating Employee Growth

Talent cultivation is a fundamental, strategic and systematic work for CTG's development. We continuously cultivate professional talents, such as talents in hydropower construction & operation, clean energy technologies and international business, to build a professional, young and international talent team for the industrial chain. We also keep expanding our horizons in selecting and promoting officials so as to optimize our talent pool.



Organizing a training program for outstanding managerial talents at EDP College, which covers a wide range of fields including strategic management, risk management, financial/accounting, change management, transactions in the electricity market, human resource management, scientific research & innovation and brand management



Four Class-A Contests of the Eighth Employee Skill Competition are held in Wuhan and Yichang city, Hubei province and Beijing. All competitions are aligned with standards of national vocational skills grade exams and are relevant to real production scenarios, with prominent industrial features, high technical requirements and competition standards, and remarkable demonstration effects

### Case 2019 training trip for women employees

RMB **56.75** million  
Investment in staff training

On December 2, 2019, 54 women employees from 20 subsidiaries of CTG finished a training trip. It included activities like political learning, theoretical studies, policy studies, outdoor team building, field visit and communication. The trip aimed to further enhance trainees' capabilities of fulfilling duties, help them play a better role, improve their overall qualities, build the capacity of surviving and self-adjusting in the workplace, and guide them to be more dedicated to work, be ambitious and gain accomplishment.



Outdoor team building

## Caring for Employees

The CTG Labor Union organizes a wide range of cultural and sports activities and provides diverse and beneficial services for employees, with a view to enrich and meet their demands in their life after work. We also give special attention to and tailor care plans for employees in difficulty and overseas employees.

### Case The Labor Union sends warmth to expatriates

In November 2019, the CTG Labor Union organized a special activity to send warmth to expatriates, including purchasing a series of popular film and television products for overseas project sites, and visiting family members of employees living abroad for over six months. The activity effectively eased the loneliness of expatriates far away from their families and the motherland, and enriched their life after work, winning high praise from expatriates.



Reading salon for women employees

### Case Promoting cultural fusion between China and Brazil

Concerning cultural differences between the Chinese and Brazilians, China Three Gorges Brasil Energia Ltda. (CTG Brazil) launched "We" cultural fusion program. The diversified activities like lectures, intercultural competence assessment, case studies and role playing, helped over 100 Chinese and Brazilian employees gain a deeper understanding of each other and break stereotypes. For Chinese employees based in Brazil, the company launched a "Buddy" program to encourage them to pair up with Brazilian colleagues, introduce their culture and customs to each other, and support each other in work, study and life. The program not only helped Chinese expatriates overcome loneliness and "cultural shock" but also encouraged Brazilian staff to know more about Chinese culture and CTG's corporate culture.

CTG Brazil's "We Are Buddy - Intercultural Fusion Promoting Program" was awarded as the outstanding case for Chinese enterprises overseas brand image building in 2019 (intercultural fusion category), and won Top 10 Cases Award (ranking the first).



CTG Brazil Cultural Fusion Day

# Fostering Innovation to Play the Role of CSR Model



# A Fundamental Role in the Development of the Yangtze Economic Belt

## Management philosophy:

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

## Management objectives:

Giving full play to the comprehensive benefits in flood control, shipping improvement, power generation, water replenishment and ecological protection of the TGP, Gezhouba, Xiluodu, Xiangjiaba and other hydropower projects through engineering measures or technical means and scientific regulation, so as to further improve the capabilities of guaranteeing the flood control safety, ecological safety, shipping safety, water supply safety and energy safety in the Yangtze River Basin.

## Management strategies:

- Building two world-class mega-sized power stations (Wudongde and Baihetan).
- Operating efficiently the cascade hydropower stations 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.



## Character Story

## Craftsman of the great nation – striving for excellence for thirty years

Ling Weihua is a senior engineer at the Mechanical Division of the Three Gorges Hydropower Station. Engaged in speed limiter maintenance for nearly thirty years, he is now known as a "walking mechanical drawing" and a solution to all difficulties. The gap between the solenoid valve liner and the valve element in a speed limiter is about 0.005-0.008 mm. Generally, workers need to use precise instruments and spend half a day on dismantling and assembling a solenoid valve, but Ling could finish the work accurately in several dozen minutes with bare hands.

Although speed limiters of huge water turbines are constantly upgraded, Ling stays on top of his field due to his hard work, perseverance and professionalism. Now, he is also a successful mentor. His apprentices undertake important tasks in the TGP, safeguarding the TGP Hydropower Station and fulfilling missions together with him.

3 GOOD HEALTH AND WELL-BEING



7 AFFORDABLE AND CLEAN ENERGY



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



12 RESPONSIBLE CONSUMPTION AND PRODUCTION

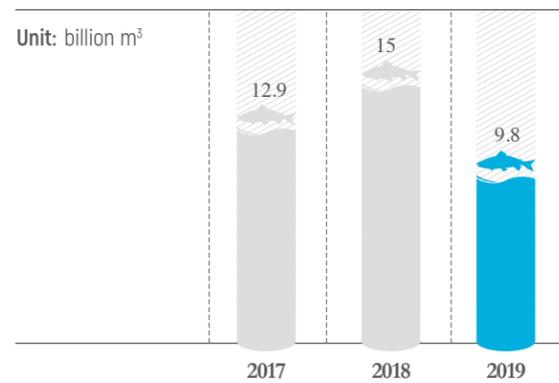


# Giving Full Play to Comprehensive Benefits

We actively serve the development of the Yangtze River Economic Belt and ensure the safe, stable and efficient operation of pivotal projects like TGP. At the same time, we continuously enhance the overall utilization rate of water resources, strive to expand the comprehensive benefits of cascade reservoirs in the Yangtze River Basin, and coordinate the relationship between flood prevention, shipping improvement, power generation, water resource utilization and ecological conservation. This will lay a solid foundation for clean energy development and eco-environmental protection of the Yangtze River.

## Flood Control in the Yangtze River Basin

- The Three Gorges Reservoir has handled four floods with a peak discharge of over 35,000 m<sup>3</sup>/s, and impounded 9.32 billion m<sup>3</sup> of flood water in 2019, effectively guaranteeing flood control security in middle and lower reaches of Yangtze River.
- The TGP has successfully carried out 175-meter trial impoundment operation for ten consecutive years.

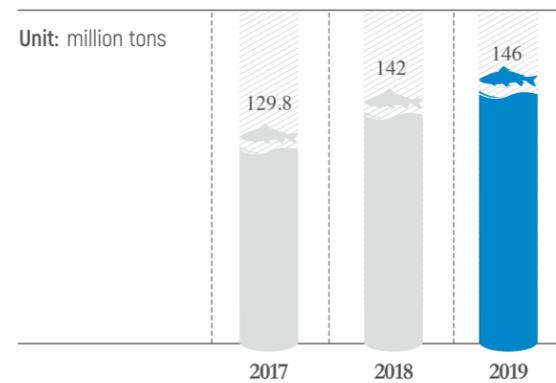


Flood retention volume by the cascade reservoirs in the Yangtze River Basin in the past three years

**9.32** billion m<sup>3</sup>  
Flood retention volume of the Three Gorges Reservoir

## Boosting Shipping and Tourism

- The average passing rate through the Three Gorges ship locks: 95.84%; serviceability rate of main devices: 100%.
- The Three Gorges ship lift was completed and accepted and transported over 147,300 tourists; Xiangjiaba ship lift completed trial operation.
- The Three Gorges Tourism Area received 3.2 million tourists. The number of tourists has grown by 390,000 annually for three years in a row.



Freight volume passing through the Three Gorges ship locks in the past three years

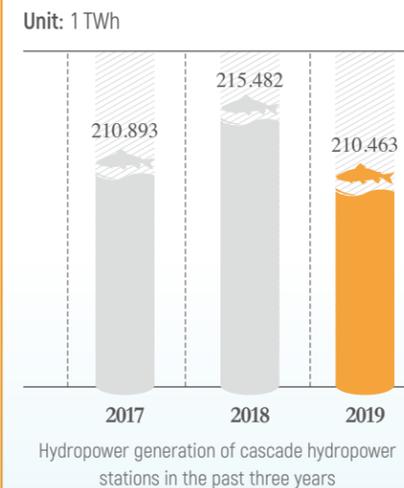
**10,627**  
Gate operations in Three Gorges ship lock in 2019

### Case Xiangjiaba Ship Lift carries over one million tons of cargo

Xiangjiaba Ship Lift has the highest single-stage lifting height among all ship lifts in service around the globe. It worked for 273 days in 2019, carrying over 2,557 ships loaded with 890,000 tons of cargo. By the end of 2019, Xiangjiaba Ship Lift had been operated for 3,016 times, carrying over 3,048 ships loaded with 1.069 million tons of cargo pass. The trial operation of Xiangjiaba Ship Lift enabled Jinsha River to become a golden waterway with great navigation value.

## Providing Clean Power

- Dispatching accurately by scientific planning and optimizing the dispatch of cascade reservoirs.
- Enhancing water resource utilization rate; cascade hydropower stations generated 9.945 TWh more electricity in 2019.

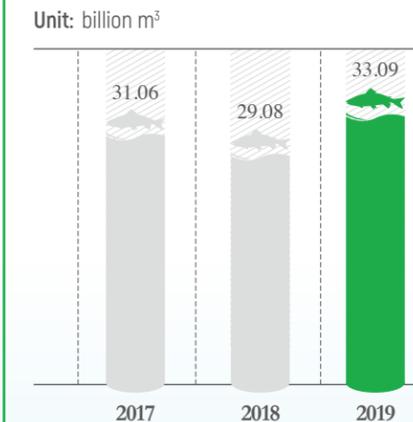


Hydropower generation of cascade hydropower stations in the past three years

**96.88** TWh  
Annual power generation output of all generating units of the Three Gorges Hydropower Station

## Assisting Drought Alleviation and Water Replenishment

- Three Gorges-Jinshajiang Cascade Reservoirs have replenished about 33.1 billion m<sup>3</sup> of water for its downstream area, relieving negative impacts of the dry season on shipping and people's production and life in the lower reaches.
- Scheduling water replenishment arrangements and increasing the depth of water of the downstream area of Xiangjiaba Reservoir by 0.51 m, and that of Gezhouba Reservoir by 0.95 m.



Water replenishment of cascade reservoirs in the Yangtze River Basin during dry seasons in the past three years

**23.25** billion m<sup>3</sup>  
Water replenishment volume of the Three Gorges Reservoir

## Promoting Ecological Restoration

- During the ecological regulation period in 2019, eggs spawned by the four major Chinese domestic carps reached 3 billion according to the monitoring results at Yidu section in the lower reaches of Gezhou Dam, and the total number of eggs spawned by of four major Chinese domestic carps during the breeding season was 8.6 billion.
- The water quality at monitoring sections in the Three Gorges Reservoir is generally good; over 58,000 cubic meters of floating debris near the dam section were salvaged and harmlessly treated.

**Case** Remarkable progress achieved in the multi-objective joint experimental ecological regulation among cascade hydropower stations along the main stream of Yangtze River

In 2019, we successfully completed the multi-objective joint experimental ecological regulation among cascade hydropower stations in the Yangtze River Basin. Our objectives included intaking water from multiple levels, studying the hydrological process, reducing sedimentation in the tail region of the reservoir, and preventing and controlling algal bloom. The trial marked three outcomes achieved for the first time: successfully intaking water from multiple levels through a "double-level" stop log gate at Xiluodu Reservoir for the first time; carrying out united dispatch of three reservoirs, i.e. Xiluodu, Xiangjiaba and Three Gorges Reservoirs for the first time; successfully carrying out dispatch for preventing and controlling algal bloom at the Three Gorges Reservoir.

over **58,000** m<sup>3</sup>  
Floating debris near the dam section cleaned in 2019

## Building Benchmark Projects

CTG holds dear and firm the belief that quality underpins the development of a company, and aims to finish the building of the two world-class mega power stations, namely Wudongde and Baihetan. We have developed a smart information management platform for dam engineering. Four simultaneous systems, i.e. construction management APP, safety hazard system, positioning system and contract management system, are leveraged to improve engineering quality and safety, and further lead industrial growth with CTG standards.

### Wudongde Hydropower Station

Wudongde Hydropower Station has the thinnest 300-meter super-high arch dam in the world, realizing both goals of safe, quality and efficient dam engineering and value creation throughout the full life cycle. It shows China's top level techniques in dam building. In 2019, the concrete pouring of the arch dam of Wudongde Hydropower Station reached the top, and the project successfully passed the Phase I impoundment acceptance test.

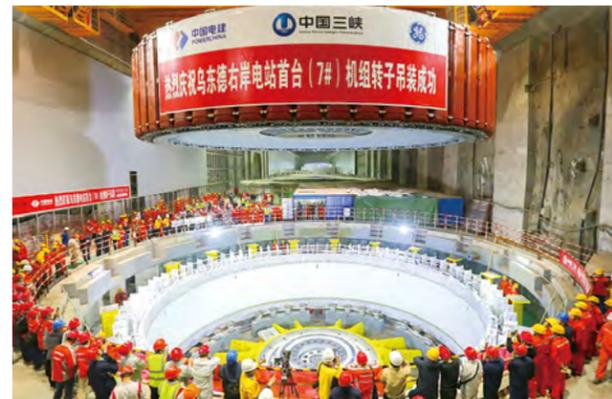
- The concrete was poured to the elevation of 971 m in 2019. The pouring height has increased over **110** m for two consecutive years.
- Zero quality accident and zero safety accident occurred in the past two years; It secured safe production for more than **1,000** days.
- The underground power house has completed civil works and started the installation of electromechanical equipment. Rotors of the first two generating units have been installed and the overall assembly has started.
- The world's first 100-meter dam built of low-heat cement roller compacted concrete (RCC) and an ultra-high arch dam made completely of low-heat cement conventional concrete (CC) were successfully put into operation and started water retaining.
- The smart grouting system has been put into full use, and the seepage control quality of dam foundation has well withstood the test of impoundment, winning the First Prize of Scientific and Technological Progress Award of China Society for Hydropower Engineering.

#### Case The world's first batch of 850MW hydro-generator rotors successfully installed

On December 16, 2019, the first hydro-generator rotor as heavy as 2,100 tons (#7 generating unit) in the Right Bank Power House of Wudongde Hydropower Station was accurately placed into pit, while the first rotor for Left Bank Power House (#6 generating unit) was installed on December 18, 2019, marking the successful installation of the world's first batch of 850MW hydro-generator rotors and the general assembly of the first batch of generating units of Wudongde Hydropower Station.



Construction area of Wudongde Hydropower Station



Successful installation of the hydro-generator rotor for #7 generating unit of Right Bank Power House of Wudongde

### Baihetan Hydropower Station

Baihetan Hydropower Station is currently the world's largest hydropower station under construction. For the first time, all generating units used in the hydropower station are domestically-manufactured gigawatts-level hydro-generators. After completion, the total installed capacity will reach 16 GW, the second highest in the world. The construction progress was ahead of schedule in 2019, and zero quality or safety accident occurred in the past three years.

- **5.12** million cubic meters of concrete pouring were completed in 2019, breaking the world record among peer engineering projects.
- In 2019, the concrete pouring height of all sections on average reached the elevation of **757** m, the maximum rise of the dam was **212** m and the average rise of all sections was 82 m.
- The first batch of four GW-level hydro-generators in the underground power house entered the stage of electromechanical installation.

#### Case Smart Dam of Baihetan Hydropower Station

CTG has conducted an in-depth study into concrete pouring for dam construction, multi-dimension and multi-element coupling simulation, full life-cycle work performance simulation, full-process smart temperature control and other relevant technologies. The smart construction system covers the whole construction and operation process of Baihetan Dam. Our ultimate goal is to realize "all-around sensing, fact-based analysis and real-time control" of the project throughout the entire life cycle, to effectively avoid thermal cracking and ensure project quality.



Construction area of Baihetan Hydropower Station



Rotors of the GW-level hydro-generators of Baihetan Hydropower Station

## Providing Stable Electricity

CTG strives for excellence and operates and manages power stations responsibly while constantly improving the lean production management system. Through accurate dispatching, lean operation and meticulous maintenance, we run cascade hydropower stations in the Yangtze River Basin sustainably, safely and steadily, and succeeded in completing major power supply missions with our clean power during the celebration of the 70th founding anniversary of the PRC and Wuhan 2019 CISM Military World Games.

### Accurate Dispatching

**Enhancing the accuracy of power generation scheduling:** We have strengthened consultation on power generation scheduling and the optimal dispatching of small and medium-sized floods, and established a statistical, analysis and adjustment mechanism for electricity output deviation.

**Making scientific decision for scheduling:** We have put into operation a supporting system for decision making in water resource management to provide decision-making support for the joint dispatching of reservoirs in the Yangtze River Basin.

**Improving the joint dispatching platform:** We have set up Kunming Dispatch Center and put dispatch & operation shift schedule into trial.

**Optimizing the dispatch management and control model:** We have launched a united dispatch management model for managing water and electricity in the Three Gorges and Gezhouba Reservoirs.

### Lean Operation

**Enhancing the reliability of equipment:** We strengthen the detection and diagnosis of equipment faults to timely notice and handle safety hazards.

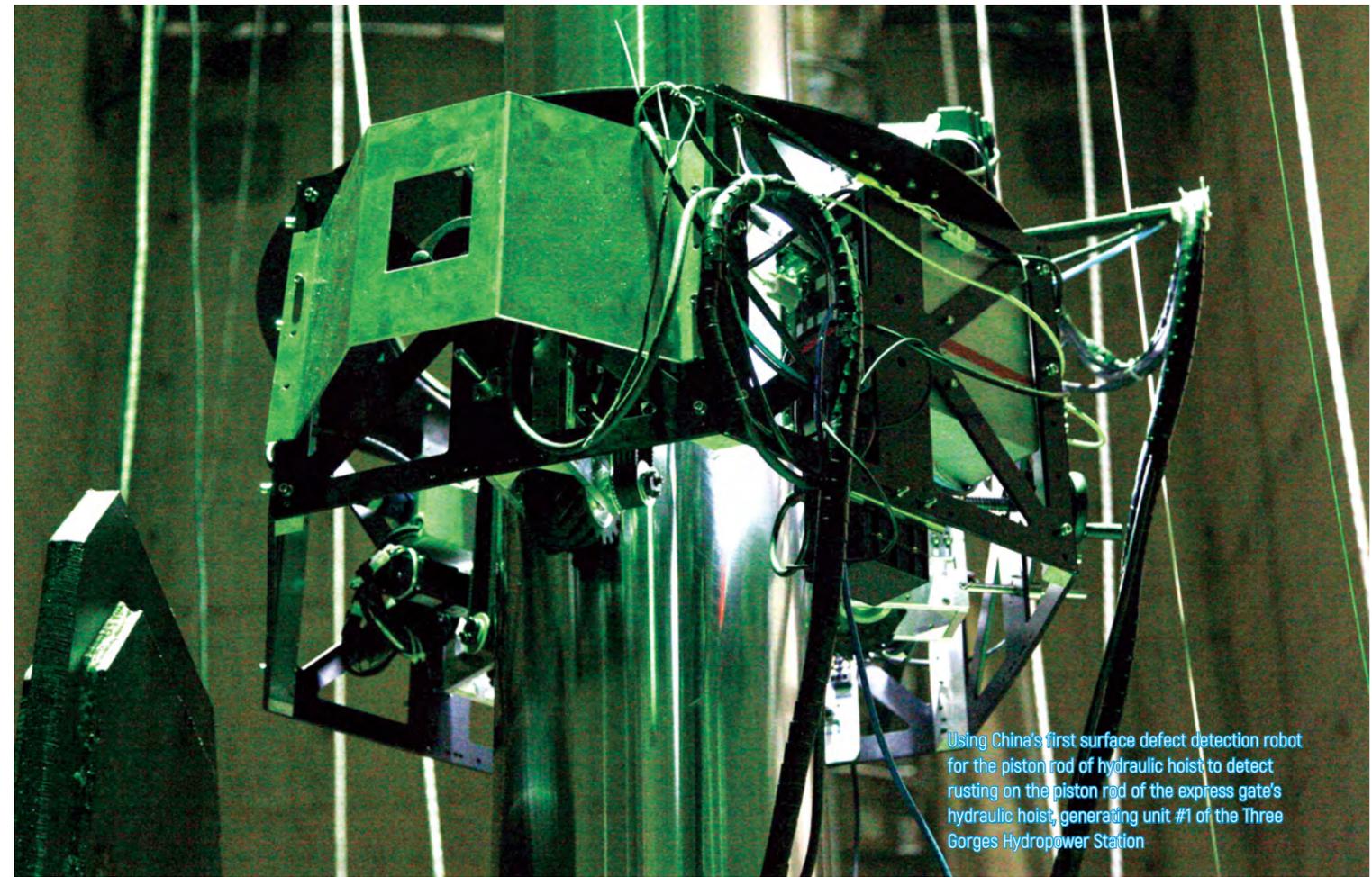
**Increasing hydropower efficiency:** We adopt measures such as impounding water in reservoirs, storing and dispatching flood water and optimizing operations to improve the benefits of water volume and water head.

**Improving water resource utilization:** We design the sequence of reservoir drawdown periods reasonably to better the drawdown process and reduce water losses.

### Meticulous Maintenance

**Solidly carrying out preventive maintenance:** We make maintenance plans scientifically to enhance the reliability of equipment in cascade hydropower stations and the availability rate of mega generating units.

**Completing high-quality annual repairs:** We streamline and refine the annual repairs and maintenance of generating units to eliminate operating hazards.



Using China's first surface defect detection robot for the piston rod of hydraulic hoist to detect rusting on the piston rod of the express gate's hydraulic hoist, generating unit #1 of the Three Gorges Hydropower Station

## Comments From Stakeholders

93.72%

Average equivalent availability coefficient of hydro-generators in cascade hydropower stations in the Yangtze River Basin

2.089<sup>TWh</sup>

Increase in annual power output of the Three Gorges Hydropower Station and Gezhouba Hydropower Station through optimal dispatching of small and medium-sized floods

"The TGP has become a strong engine backing up the high-quality development of the Yangtze River Economic Belt."

—Zhang Jianyun, Academician of Chinese Academy of Engineering

"The TGP is currently the world's largest water conservancy and hydropower project with superior quality. It presents greatest technical difficulties and delivers outstanding comprehensive benefits."

—Chen Houqun, Academician of Chinese Academy of Engineering and Head of the TGP Quality Inspection Expert Team

"I am confident to say that the Three Gorges Dam is one of the highest quality dams in the world, in both design and construction quality."

—Michael F. Rogers, President of International Commission of Large Dams (ICOLD)

"The TGP is a great project Chinese people should take pride in. Undoubtedly, it deserves its reputation."

—M. Abel Didier TELLA, General Secretary of the Association of Power Utilities of Africa

"The TGP is the collective wisdom of Chinese people!"

—Jose Augusto Duarte, Portuguese Ambassador to China



Maintenance staff is checking the generating units of Xiangjiaba Hydropower Station

**Case** Zero unplanned power outage in Xiangjiaba Hydropower Station for three years in a row

Xiangjiaba Hydropower Station optimizes and upgrades management on an ongoing basis, and strives to gain a deeper understanding of the rules of operation as a large hydropower station. It sticks to scientific innovation and keeps improving risk management to eliminate unplanned power outage. By December 31, 2019, Xiangjiaba Hydropower Station had realized "zero unplanned power outage" for 1,252 days, providing fundamental guarantee for the steady and safe operation of the power grid.

# A Key Role in the Well-coordinated Environmental Conservation in the Yangtze River Basin

## Management philosophy:

Sticking to the idea of creating a "whole basin, whole life cycle, open and scientific research-oriented protection of environment", CTG realizes major historical transition from "Building the Three Gorges project and developing the Yangtze River" to "Managing the Three Gorges project and protect the Yangtze River".

## Management objectives:

CTG develops and strengthens 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:

- With the goal of fundamentally improving the quality of the water environment, and taking urban sewage treatment as the starting point, we implement pilot projects in pilot cities first.
- Established Yangtze Ecology and Environment Co., Ltd., China Yangtze River Green Development Investment Fund, set up a national environmental engineering research center, and established Yangtze River eco-environmental protection industry alliance and special funds.
- Pooling in technology, talents and capabilities to the Yangtze River Economic Belt through cooperation, mergers and acquisitions and shareholdings.



## Character Story

## A conscientious pipe network expert

Huang Rongmin is the head of the Wuhu Project Department, Yangtze Ecology and Environment Co., Ltd. When he came to Wuhu in early 2018, the city suffered from severe water pollution, and there were two malodorous rivers directly connecting with tributaries of the Yangtze River. After extensive survey and research, Huang and his colleagues found out the root cause of malodorous water body was the incomplete and damaged underground pipe network.

Huang thus immediately devoted himself to improving the pipe network. He made in-depth survey of every section of the system and repaired it scrupulously. Now, the project of well-coordinated environmental conservation in Yangtze River Basin in Wuhu has delivered initial outcomes, and malodorous water disappeared. The project to protect the Yangtze is being implemented in a wider area along its banks, which will render the water of Yangtze clean and clear.

6 CLEAN WATER AND SANITATION



11 SUSTAINABLE CITIES AND COMMUNITIES



13 CLIMATE ACTION



14 LIFE BELOW WATER



15 LIFE ON LAND



# Promoting Well-coordinated Environmental Conservation in the Yangtze River Basin

We earnestly fulfill our duty and mission assigned by the state as a backbone in promoting well-coordinated environmental conservation in the Yangtze River Basin. Aligning with our development strategy on clean energy development and eco-environmental protection of the Yangtze River, we prioritize the protection of the Yangtze River Basin over other work, and promote its comprehensive implementation, with remarkable progress being made.

## Enhancing Top-level Design to Facilitate Concerted Efforts with Institutional Guarantee

In 2019, we compiled the Three-Year Plan on the Well-coordinated Environmental Conservation in the Yangtze River Basin (2019-2021), and promulgated instructive documents on CTG's experience and best practices in urban sewage treatment. The Leading Group on the Development of the Yangtze River Economic Belt and its office convened a series of important meetings and made overall arrangements. The Leading Group on Ecological Conservation was also set up and relevant lists of ecological liabilities were formulated.

### CTG's roadmap for scientific and systematic water governance:

Starting from urban sewage treatment and based on a clear understanding of the current situation, we focus on problems and strive to control the total quantity of pollutants. Guided by the overall plan, we stick to the principle of planning our work in the river basin as a whole, coordinating multiple regions, carrying out systematic governance and treating both the symptoms and the root cause. We provide improvement measures for each city and highlight the overall benefits and the importance of scale operation. Besides, we strive to facilitate investment, construction and operation by integrating plants, pipe networks, rivers, lakes and riverbanks, treating sewage and sludge at the same time, recycling resources and energy, and providing full life-cycle construction and maintenance. The ultimate goal is to ensure that all urban sewage is collected, treated, discharged in line with regulatory standards and comprehensively utilized, and the quality of urban water environment can be substantially improved.

## Establishing a Collaborative Platform to Promote Concrete Outcomes

Five platforms respectively for implementation, financing, R&D, joint building and support have been set up and are now being well operated, greatly enhancing our capabilities of protecting the Yangtze River Basin.

- Yangtze Ecology and Environment Co., Ltd., as the core implementation platform, is now in daily operation.
- China Yangtze River Green Development Investment Fund was approved to be set up, and a fund management company was registered and established.
- The Yangtze Ecological and Environmental Engineering Research Center has developed its organizational structure and set up a R&D platform.
- Yangtze River Protection Industry Alliance has attracted 88 members and set up seven specialized committees. 63 professional talents have been selected and recommended to assist the environmental conservation in the Yangtze River Basin.
- The first allotment of Yangtze Environmental Conservation Special Fund has been granted.

## Collaborating with Various Parties to Expand the Business Layout

A three-stage plan was developed and implemented. We first rolled out pilot projects in four cities, namely Jiujiang city of Jiangxi province, Wuhu city of Anhui province, Yichang city of Hubei province, and Yueyang city of Hunan province, and then cooperated with 16 cities and counties along the Yangtze River, and later expanded our practices across the whole Yangtze River Basin. In this way, we were able to launch, plan and conceive programs simultaneously.

RMB **58.94** billion  
Implemented investment in 2019

**18** times  
Environmental and water protection inspections to Wudongde, Baihetan and Changlongshan Hydropower Stations

## Using "capital+" as a Tool to Facilitate Coordinated Efforts

We keep exploring the model of "capital+" to attract all kinds of private capital and open up diverse investment and financing channels. By the end of 2019, we had determined 20 equity investment projects with a total amount of RMB 15.4 billion.



## Starting from Urban Sewage Treatment with Pipe Network Management as the Key

With regard to urban sewage treatment in the Yangtze River Economic Belt, we have developed CTG Modes, for example, the management mode covering plants, pipe networks, rivers, lakes and riverbanks, a business mode focusing on price mechanism, a cooperation mode emphasizing mutual benefits for both the government and the company, and a co-building mode highlighting the role of industrial alliance. By doing so, we aim to replicate best practices and promote experience in the urban sewage treatment.

### Focusing on Urban Sewage Treatment

- **Exploring new mechanisms:** Implementing comprehensive management measures for the urban water environment, such as integrating plants, networks, rivers, lakes and riverbanks, and treating sewage and sludge at the same time; promoting the reform of a price-centered sewage treatment charging mechanism, and exploring a market-oriented mechanism for the operation and maintenance of urban sewage pipe network.
- **Launching pilot projects in the middle reaches of Yangtze River:** A total RMB 19.1 billion had been invested in four pilot cities, i.e. Jiujiang, Wuhu city, Yichang and Yueyang by the end of 2019.
- **Reaching strategic cooperation agreements with local governments on the well-coordinated ecological conservation of the Yangtze River Basin:** By the end of 2019, CTG has established partnerships with 103 cities and counties in 11 provinces (municipalities) along the Yangtze River, and won the bidding for urban sewage treatment projects with a total contract value of RMB 43.5 billion.

### Improving Pipe Network Management

- **Thorough management:** Technicians and CCTV pipeline detection robots maintain and troubleshoot the drainage pipe network together.
- **Intelligent management:** An intelligent pipe network management system has been established, covering water quality monitoring, prediction & forecasting and intelligent dispatching.
- **Full life-cycle management:** Carrying out investment, operation and management throughout the entire life cycle of construction and maintenance.
- **Key management program on sewage:** Improving the building and renovation of drainage pipe networks in dam areas, and basically realizing "full collection and zero direct discharge" of plant sewage.



Construction site of the newly built Dalongwan Wastewater Treatment Plant in Wuhu city, Anhui province



4.36 million tons  
Daily wastewater treatment capacity

### Case The Emergency Decentralized Sewage Collection & Disposal Project in the TGP Area completed

The Emergency Decentralized Sewage Collection & Disposal Project in the TGP area was fully completed in 2019. A total of over 15,000 meters pipes for rainwater and sewage were laid. Over 300 inspection shafts and 20 septic tanks and oil-water separators were newly built. Four integrated wastewater treatment devices were put in place. The facilities and devices cover 14 decentralized sewage spots on both left and right banks of the TGP, and have realized the goal of 100% collection, treatment and proper discharge. They strictly prevent any drop of unqualified water from being discharged into Yangtze River.

### Case Convening urban sewage treatment meeting

On June 5, 2019, the Office of the Leading Group on the Development of the Yangtze River Economic Belt convened the Meeting on Deepening CTG's Efforts in Urban Sewage Treatment in Wuhu city, Anhui province, in hope of further supporting CTG to play its key role. In the meeting, representatives of Wuhu, Jiujiang, Wuhan and Chongqing shared their experience and best practices in urban sewage treatment, and CTG reported its progress in well-coordinated ecological conservation of the Yangtze River Basin as well as new models and mechanisms adopted.

## Protecting Biodiversity

We attach great importance to biodiversity protection. While defining and building ecological restoration areas, we also adopt multiple measures to protect terrestrial and aquatic animals and plants.

### Rare Terrestrial Plants

- Conducting survey of wild plant resources in the Yangtze River Basin:** We have launched the survey of endemic and rare plant resources in the reservoir area of Xiangjiaba and Xiluodu Hydropower Stations to develop a Plant Germplasm Database and map out resource distribution step by step.
- Studying and preserving plant germplasm:** We have collected, graded and stored the germplasm of 320 species of live endemic and rare plants in the Yangtze River Basin. We have acquired 836 species of plant germplasm and stored 100 kinds of seeds, scientifically preserved and made over 400 dried and humid rare plant specimens, and obtained the international specimen no. "YZB", which was recorded by relevant international organizations.
- Putting endemic rare plants into application:** We chose Pianyanzi hydro-fluctuation belt of the Three Gorges Reservoir to carry out in-situ experiments of flooding-tolerant plants and promote the research of ecological restoration in the hydro-fluctuation belt. We are building an experiment zone of flooding-tolerant plants in the lower reaches of the Three Gorges Dam and have finished 1,200 m<sup>2</sup> of planting. Over 10,000 seedlings of endemic and rare plant species have been used in the Ecological Restoration Project in Jigongling.
- Carrying out ex situ conservation of endemic and rare plants in the TGP area:** We have completed ex situ conservation of 320 species of 3,300 rare plants, and protected over 22,000 endemic and rare plants of 836 species, 333 genera and 106 families through ex situ conservation, including *davidia involucrate*, *taxus chinensis*, *adiantum reniforme*, *myricaria laxiflora*, *bretschneidera sinensis* and *cephalotaxus pliereri* nast, with a survival rate exceeding 90%.
- Breeding endemic and rare plants in the TGP area:** We have successfully bred over 50 species of 100,000 rare and endemic plants in the TGP area by traditional plant breeding and tissue culture techniques, including *taxus chinensis*, *adiantum reniforme* and *myricaria laxiflora*, and 150,000 seedlings.

### Rare Aquatic Animals

- Protecting rare fish species:** We established Yangtze River Rare Fish Conservation Center to promote research and practices in ecosystem-based fisheries of the Three Gorges Reservoir area. We organized personnel to improve, review and issue a design report of the fish barging system in Wudongde Hydropower Station, and to do experiments on the hydraulic model of the fish barging station in Baihetan Hydropower Station.
- Breeding endemic and rare river species:** We cooperated with the Ministry of Agriculture and Rural Affairs in protecting and saving the Chinese sturgeon as well as pushing ahead with the protection of aquatic life in the Yangtze River, and have successfully bred rare and endemic fish such as *acipenser dabryanus*, *schizothorax prenati* and *percocypris pingi*.
- Designing the Phase II project of fish proliferation and release stations at Xiluodu and Xiangjiaba Hydropower Stations:** We conducted the survey and design for the Phase II project of fish proliferation and release stations at Xiangjiaba Hydropower Station, and simultaneously carried out construction of the Phase II project and renovation & improvement of the Phase I project.

About **143,000** Chinese sturgeon fries were artificially cultured, the highest number in both eggs and fries compared with the previous years

3,300

Rare plants protected through ex situ conservation in 2019

700

Chinese sturgeons at all ages released in 2019



In the Yangtze Three Gorges Chinese Sturgeon Release Ceremony 2019, 700 Chinese sturgeons of all sizes were released, including 30 implanted with sonar tags that could work constantly for ten years. According to monitoring results, 22 Chinese sturgeons passed the estuary of the Yangtze River, accounting for 73.3% of the total amount, the highest number in the record



A fish proliferation and release activity organized for the first time in Heishui River, a tributary of Jinsha River



Introducing methods of protecting rare plants to students in the "Summer Camp for Children from the Reservoir Area to Three Gorges"

#### Case Experimental reintroduction of *myricaria laxiflora*

In March 2019, CTG conducted an experiment of reintroducing over 300 artificially cultured *myricaria laxiflora*. The sand used in the experiment completely simulated the original wild environment where *myricaria laxiflora* lives, in order to observe and study the adaptability of artificially bred *myricaria laxiflora*, and to gain theoretical evidence and technical support for restoring the species and the ecology in the Three Gorges Reservoir area.



*Myricaria laxiflora* propagated by seeds are growing well

# Addressing Global Climate Change

Global climate change has become a challenge facing humankind. CTG actively responds to climate change and dedicates itself to realizing clean and low-carbon development through multiple energy conservation and emission reduction measures.

2019



## Strengthening Carbon Emission Management

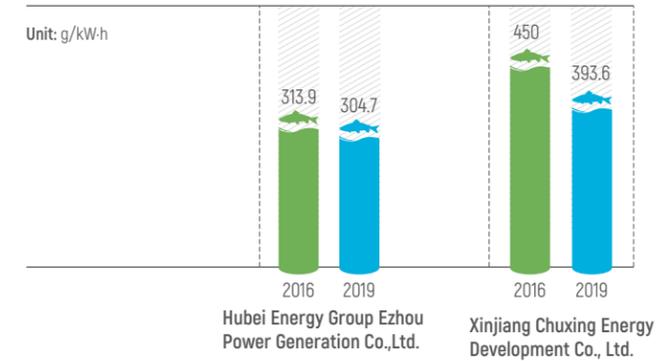
Source of Carbon Emissions	Management Measures
<b>Direct GHG emissions</b> <ul style="list-style-type: none"> <li>Anaerobic decomposition of underwater organisms in the dam's submerged area</li> <li>Sulfur hexafluoride in electrical equipment</li> </ul>	<ul style="list-style-type: none"> <li>Collecting sulfur hexafluoride gas through a specific recycling device and keeping it in a gas cylinder during the overhaul process, and sending the electrical equipment back to the factory for maintenance and treatment, to ensure zero emission of sulfur hexafluoride</li> </ul>
<b>Indirect emissions due to energy consumption</b> <ul style="list-style-type: none"> <li>Power consumption due to the use of electrical facilities such as lighting and air conditioners</li> <li>Thermal energy generated due to water pumping in hydropower stations</li> </ul>	<ul style="list-style-type: none"> <li>Promoting the use of energy-saving facilities, such as lighting and AC</li> </ul>
<b>Other indirect emissions</b> <ul style="list-style-type: none"> <li>Carbon emissions generated due to business travels</li> </ul>	<ul style="list-style-type: none"> <li>Advocating video conferencing to reduce unnecessary business travels, and encouraging employees to choose more low-carbon transportation</li> </ul>

## Promoting Green and Low-carbon Production

- Promoting the application of energy-saving products:** We renovate lighting facilities and optimize the central air conditioning system in the office area to minimize energy consumption, and strengthen the comprehensive utilization of resources in construction sites.
- Vigorously advocating low-carbon philosophy:** To save water, electricity and office supplies, we hold special training on environmental protection management, promote outstanding cases in saving energy, and leading employees to raise the awareness of energy conservation and emission reduction.

**Case** Hubei's prominent progress in energy conservation and emission reduction

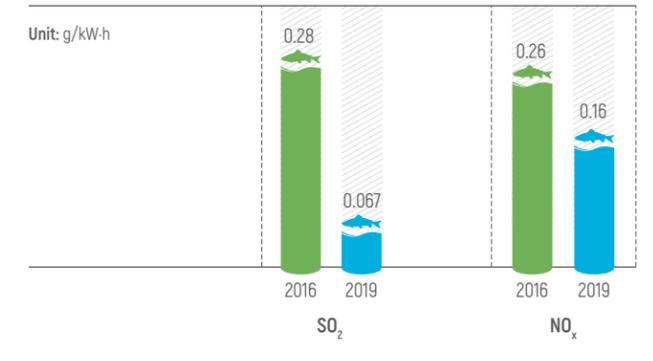
Hubei Energy Group Co., Ltd. (Hubei Energy)'s thermal power generation capacity accounts for 47.5% of the total installed capacity. The energy conservation and emission reduction brought by thermal power generation is thus an important move for Hubei Energy to achieve high-quality and sustainable development. The company has invested heavily to upgrade and renovate the old generating units, and put efficient, clean and low-emission generating units into service. Its subsidiaries Hubei Energy Group Ezhou Power Generation Co., Ltd. (EZPG) and Xinjiang Chuxing Energy Development Co., Ltd. (CXED) have also significantly cut energy consumption and emissions by benchmarking against energy consumption standards and optimizing operations.



Coal consumption for power supply of EZPG and CXED

## Studying Renewable Energy Technologies

- Promoting the design of the Three Gorges Dam's intelligent energy project and developing a demonstration project of integrated solar storage and charging.
- Planning large-scale biomass-to-energy projects along the Yangtze River, such as facilitating the acquisition and development of biomass energy and natural gas in Fengdu county of Chongqing and Hanchuan city of Hubei.



SO<sub>2</sub> and NO<sub>x</sub> emission intensities of Hubei Energy



The Phase III Project of EZPG is benchmarked against the world's highest environmental standards



Taxus chinensis, a wild plant species under first class state protection

## Reinforcing Pollution Prevention

CTG attaches great importance to the protection of the ecological environment. In strict compliance with national and local pollutant emission standards, we conduct standardized and harmless treatment of wastewater, waste gas and solid waste.

- **Wastewater discharge management:** Organizing troubleshooting and rectification of problems in the ecological environment of the Yangtze River Economic Belt, and improving the wastewater treatment systems in aggregate processing and concrete production, as well as the domestic sewage treatment system in all construction sites.
- **Solid waste management:** Continuously deepening the troubleshooting of solid waste problems along the Yangtze River, and organizing inspections of hazardous waste in the Yangtze River Economic Belt; advancing waste sorting and organizing relevant education campaigns and training, to sort domestic waste into four categories – recyclables, hazardous waste, kitchen waste and other waste.
- **Hazardous waste disposal:** For hazardous waste like waste oil and other pollutants generated from the work process, assigning specific personnel to take charge of cleaning and proper storage; designing and using the *Registration Form of Hazardous Waste Disposal*, and authorizing qualified agencies to recycle and dispose of hazardous waste in a professional manner.
- **Pollutant emissions and safety hazards troubleshooting:** Carrying out regular inspections on environmental issues, especially key links that may present environmental risks, such as the disposal of solid waste, wastewater and waste gas in construction sites, and then rectifying identified problems.

## Comments From Stakeholders

“The act has protected the biodiversity of the Three Gorges Reservoir area to the greatest extent and ensured the sustainability of endemic and rare plants in the area.”

—Shen Guofang, a renowned forestry and ecology expert, Academician of the Chinese Academy of Engineering

“The changes are overwhelming. This place was nothing more than a dry bulk port in the past. The table in our house was always covered with dust. And now the environment is getting better and better, and we don't even need to wipe it for weeks.”

—A resident living near to Binjiang River, the North Bund area, Hongkou district, Shanghai

“To realize the goal set out in the Paris Agreement, to reduce air pollution and create a more sustainable living environment, it is the trend to replace fossil fuels with clean energy. China is doing this, and so is CTG.”

—Joao Graca Gomes, winner of CTG-Portugal education scholarship



# A Leading Role in Driving China's Hydropower Industry to "Go Global"

## 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.

7 AFFORDABLE AND CLEAN ENERGY



8 DECENT WORK AND ECONOMIC GROWTH



13 CLIMATE ACTION



14 LIFE BELOW WATER



17 PARTNERSHIPS FOR THE GOALS



03



Character Story

## A dream pursuer overseas

Ding Jiaren is the CEO of CWE Laos Branch, and the youngest project manager in CWE. In a water supply project in Manila, Ding and other members of the project team worked unswervingly to tackle a series of technical challenges and achieved multiple technological outcomes. The project was completed and put into service half a year ahead of schedule, solving the local water shortage problem and supplying water to 15 million people. It is not only a model project of CWE but also a typical case of Sino-Philippine cooperation.

Now, Ding leads a team to deeply develop the Philippines and Laos markets. These practitioners of CTG's "going global" strategy dedicatedly explore operation models for the company's overseas branches, and strive to develop a Southeast Asia Regional Center of CTG. In 2019, Ding was named Model of Central State-owned Enterprises.

# Promoting Global Clean Energy Development

35.21<sup>TWh</sup>

Overseas power generation in total

47

Countries and regions covered by CTG's businesses

## Ensuring Clean Energy Supply

CTG attaches great importance to overseas engineering construction and introduces advanced hydropower equipment and construction techniques as well as strict project standards into host countries. We strictly carry out quality and safety management to deliver quality and reliable hydropower projects and secure local energy supply.

- Isimba Hydropower Station in Uganda was temporarily completed.
- The Karot Hydropower Project in Pakistan started building the core wall of the dam body and completed the annual filling goal; the rebuilt bridge was completed and put into operation.
- The dam of Nam Kong 1 Hydropower Plant was filled to 322 m.
- The stator of 1# generating unit of the Souapiti Hydropower Plant Project in Guinea was successfully lifted and installed.
- The concrete pouring of the headworks of San Gaban III Hydropower Project in Peru is proceeded orderly.
- The detailed design of Rucalhue Hydropower Plant of Chile was completed.
- The Dam Complex of Upper Atbara Project entered maintenance stage.

## Enhancing Energy Efficiency

CTG has brought rich project management and operation experience to host countries to boost technological innovation, improve energy efficiency and provide lasting clean energy for local people.

- The headworks of Upper Madi Hydropower Plant in Nepal was renovated.
- Jupia and Ilha Solteria hydropower plants renovated the first batch of generating units and put them into commercial operation.
- The overseas hydropower plant operation & management system was improved, and core capabilities of operation, maintenance and management were built.
- The 2# generating unit of the Salto Grande Hydroelectric Project has served for more than 500,000 hours.

Two projects, Acquisition of Stock Equity of Meerwind Offshore Wind Park and Acquisition of Duke Energy's Brazilian Assets won "2018-2019 National Award for Outstanding Investment Projects"

China Three Gorges International Corporation (CTGI) won the award of "2019-2020 Pioneering Chinese Company in High-quality International Cooperation on New Energy"

## Facilitating Outbound Investment

CTG actively seeks potential investment opportunities in the overseas market. Through completing M&As and issuing bonds abroad, we have entered the overseas capital market and expanded the overseas market.

- Successfully acquired Peru's largest electricity distribution and retail company.
- Finished the transfer of equities of Chaglla Hydroelectric Power Plant in Peru and Kaléta Hydroelectric Facility in Guinea.
- Issued USD 850 million of Reg S bonds.

### Case The Three Gorges First Wind Farm in Pakistan has been safely and steadily operated for five years

Following the guiding principles of "ensuring safety and facilitating production", Three Gorges Wind Farm Pakistan (Pvt.) Limited keeps strengthening the building of its work safety system and regulations. It has formulated standard operating procedures (SOP) and adopted multiple measures on work safety. In the meantime, it continuously improves project operation and management, finds out where it lags behind and rectifies the problems to ensure sustainable and efficient operation.

In November 2019, the project had been operated safely and steadily for five years with zero casualty, zero equipment quality accident and zero environmental incident, realizing its work safety goals.



The Three Gorges First Wind Farm in Pakistan



Stamps commemorating the Isimba Hydropower Plant issued by Posta Uganda



Kaléta Hydropower Station appears on Guinean stamps commemorating the 60th anniversary of the establishment of diplomatic relations between China and Guinea

### Case Completing the largest overseas acquisition deal in energy sector by a Chinese enterprise in 2019

China Yangtze Power Co., Ltd. (CYPC) signed an acquisition agreement with Sempra Energy, a US company, for its holding of 83.6% of stock rights in Luz Del Sur (LDS), the largest listed power distribution company in Peru. The deal was the largest overseas acquisition made by a Chinese enterprise in energy sector in 2019. Looking ahead, CTG will, through professional, marketized and localized management and control, guarantee and support LDS's comprehensive growth in hydropower development and the innovation of distribution network technologies. We will help LDS to grow stronger, better and bigger, and bring better service and more benefits to the people of Peru together with LDS.

# Driving Local Prosperity

9,241

Overseas employees

## Creating Jobs

Adhering to localized operation, we strive to create jobs for host countries. In addition, we train local talents in hydropower technologies and boost the development of local hydropower industry.

- Isimba Hydropower Plant in Uganda cultivates diverse local hydropower talents, including safety engineers, environmental engineers, community coordinators, administrative assistants, medical staff, drivers, heavy equipment operators, welders, wood pattern makers, electricians, drillers, steel workers, bricklayers, maintenance staff and other technicians and laborers.
- The Karot Hydropower Project in Pakistan has over 3,900 Pakistani workers.

## Supporting Educational Development

We actively assist in building schools for poverty-stricken populations living around our project sites. Through financing the construction of schoolhouses, donating learning supplies and teaching facilities and setting up scholarship programs, we hope to help improve local teaching conditions, create a better learning environment, and bring equal educational opportunities to every person.

**Case** CTG-Pakistan Scholarship Program fosters future hydropower talents

CTG joined hands with Punjab University of Pakistan, Jiangxi University of Science and Technology and Confucius Institute to launch the CTG-Pakistan Scholarship Program for Pakistani students in project affected areas. Through university-business and inter-university collaboration, the program plans to provide about 100 quotas for full scholarship. According to the five-year plan, the program will be implemented for eight years (2017-2025). During the project period, qualified students from project affected Pakistani families will be admitted to a "2+2" joint bachelor's degree program hosted by a Chinese and a Pakistani university. By the time of their graduation, these students will be equipped with sufficient knowledge and hands-on skills to construct and operate hydropower stations in line with Chinese standards.

The program is the first long-term full scholarship program sponsored by a Chinese enterprise for supporting project affected Pakistani students.



CWE's 500kV Transmission Line and Associated Substation Project builds a new library for the Na Kam Primary School, which is near to the project location. The project repairs original classrooms, bathrooms and roads

**Case** "Growing up Together with the Dam" activities

On April 1, 2019, 60 students from Park Ngua School visited the Nam Lik 1-2 Hydropower Plant and participated in the Open Day and "Growing up Together with the Dam" activities in the power plant. Students and project staff listened to one science lecture, had one field visit and experience, tasted Chinese lunch, joined one sharing session, and released fish fries together. After a full day of activities, students had a better understanding of this hydropower plant, improved their awareness of ecological protection, developed a passion for learning, and started thinking about future career plans.



From October 16 to 17, 2019, Jose Augusto Duarte, Portuguese Ambassador to China and winners of CTG-Portugal education scholarship visited the TGP together



CWE's Turgusun Hydropower Project in Kazakhstan contributes to a local middle school in the project area by repairing the playground of the school, buying sports facilities and teaching equipment, etc.



Scan the QR code and watch the full video of the "Growing up Together with the Dam" activities

## Improving Infrastructure

CTG actively engages in community development and reaches out to improve local people's living environment as well as quality of life, in hope of sharing the value of clean energy together with surrounding communities.

### Case The Karot Hydropower Project in Pakistan rebuilds the local bridge to facilitate residents' travel

On November 16, 2019, the bridge rebuilt by the Karot Hydropower Project team was open to traffic, becoming the second largest bridge of Pakistan. The bridge not only frees the construction of Karot Hydropower Plant from being disrupted by automobiles outside and guarantees safe construction, but also makes it more convenient to cross the Jhelum River, thus greatly improving local travel conditions.

### Case Providing stable electricity to villagers

The project site of Three Gorges Second Wind Farm under CSAIL, Jhimpir, Thatta District, suffers from severe shortage of electricity, causing great inconvenience to villagers' life. Thus, CSAIL installed split solar power systems in local people's houses and provided them with LED lights and fans, which significantly improved their life and enabled them to enjoy the convenience brought by electricity.

## Strengthening Community Engagement

We take the initiative to blend into local communities and get to know what local residents need. What's more, we capitalize our own resources and strengths to participate in community development, and actively organize and participate in diversified community development and cultural exchange activities, in hope of building good relations with communities surrounding our project sites.

### Case Volunteer activity in Brazil benefits over 5,000 local people

China Three Gorges Brasil Energia Ltda. (CTG Brasil) cooperated with Atados, a local NGO, in hosting 2019 Volunteer Week. About 300 volunteers participated in the activity. They engaged themselves in renovating playgrounds and schoolhouses and making musical instruments in 11 surrounding organizations. The activity benefited over 1,000 local residents, bridging CTG Brasil to local people.

In 2019, CTG Brasil organized 22 volunteering activities, attracting 689 volunteers to join and benefiting 5,641 people across Brazil.



Volunteers use recycled materials to make eight lamps and donate them to a local community with no access to electricity

## Valuing the Ecological Environment

We place importance on the protection of the ecological environment. In the construction of overseas projects, we practice the philosophy of "ecology first, green development", and always pursue the balance between project construction and environmental protection.

### Case CTG Brasil innovatively solves the biopollution problem of the golden mussel (*Limnoperna fortunei*)

Since April 2017, CTG Brasil cooperated with Bio Bureau Biotechnology and other agencies to study a genetically modified mussel only generating sterile offspring or that is without adhesion abilities after mating with wild golden mussels, which can reduce the reproduction rates of the mollusk by controlling its proliferation. In this way, the biopollution caused by the golden mussel will be solved from the root, rebalancing the local ecology.

CTG Brasil's Research Project on Golden Mussel Control won both Brazil Bioeconomics Award 2019 and the 17th Best Practice Prize of Brazilian Sustainability Award.

CTG Brasil's Research Project on Golden Mussel Control was bestowed **2019 Brazil Bioeconomics Award and the 17th Best Practice Prize of Brazilian Sustainability Award.**



Award Ceremony of 2019 Brazil Bioeconomics Award



Scan the QR code to watch the full video titled "Challenge Posed by Golden Mussel", Episode 3 "Cherishing Diverse Cultures and Living in Harmony" of the documentary "Shared Future" produced by CCTV for the Second Belt and Road Forum for International Cooperation

## Deepening International Cooperation and Exchange

CTG continuously deepens its cooperation with international organizations and companies. By giving full play to high-end international exchange and dialogue platforms, we strive to contribute our experience to realizing the sustainable development of clean energy sector, achieving the UN Sustainable Development Goals and fulfilling the Paris Agreement.

### Sharing Experience

- Attended the Second Belt and Road Forum for International Cooperation
- Attended the BRICS Business Forum
- Attended the First Sustainable Development Forum
- Organized Global Energy Interconnection & China-Africa Energy and Power Conference as the co-host
- Attended 2019 World Hydropower Congress
- Attended the Opening Ceremony of the First UNESCO International Water Conference



Lei Mingshan, Secretary of CTG Party Leadership Group and Board Chairman, attends the BRICS Business Forum and relevant events

### Participating in Formulating International Industrial Standards

- Participated in the development of Technical Guide for Smart Hydroelectric Power Plant and other IEC international standards
- Participated in the development and amendment of standards on the installation of hydropower generating units and on control systems for water turbines



Wang Lin, Deputy Secretary of CTG Party Leadership Group and President, attends and addresses a Roundtable Meeting for CEOs of Chinese and Foreign Companies themed "Responsible Business for Belt & Road Initiative, Win-win Cooperation for Sustainable Development" organized by SASAC and UN Global Compact

### Consolidating Cooperation With International Organizations

- Participated in relevant work in the ICOLD Committee on Public Awareness and Education as a committee member



Open Day of the Nam Lik 1-2 Hydropower Plant, Laos

## Comments From Stakeholders

"The partnership between CTG and EDP is a model of Sino-Portuguese economic and trade cooperation. After completing the acquisition, CTG attaches importance to not only investment management but also corporate social responsibility. It also values bilateral educational and cultural exchange, making a typical case in all-round economic and trade cooperation."

—Jose Augusto Duarte, Portuguese Ambassador to China

"Isimba Hydropower Plant will greatly contribute to the state power supply capacity of Uganda and help reduce the price of electricity after being put into service. It will ensure stable power supply for the future industrial and commercial development of Uganda."

—Yoweri Kaguta Museveni, President of Uganda

"Souapiti Hydropower Plant is CTG's first BOT project in Guinea. The success of the project will surely attract more Chinese companies to invest in and expand their business in Guinea, deepening the cooperation between China and Guinea. It will also play a decisive role in driving Guinea's future economic growth."

—Alpha Condé, President of Guinea

"I thank CWE for giving me a chance to change the life of our family. I've learnt a lot here, which is helpful for my future career development. More importantly, the project could improve our life quality and address the problem of power shortage in Uganda."

—Mbabazi Fortunate, a local employee of Isimba Hydropower Plant and winner of CTG Outstanding Foreign Employee Award

"Our relationship with CTG is more than that between supplier and customer, for that we share information, knowledge, experience and fruits of development."

—Pascal Radue, CEO of GE Renewable Energy Hydro business

# A Constructive Role in the Industrial Upgrading of Clean Energy

## Management philosophy:

CTG is committed to building a world-class clean energy group, and playing a leading role in promoting the industrial upgrading of clean energy according to the requirements of national energy strategy and energy supply-side structural reforms.

## Management objectives:

During the 13th Five-Year Plan period, CTG plans to put the offshore wind power installed capacity of 4.5 GW into operation and connect it to the grid, and strives to become the leader in terms of scale, management, technology, standard, talent and brand, so as to promote the large-scale development and sustainable development of offshore wind power in China.

## Management strategies:

- Continuously improving the core competence and influence in the hydropower industry.
- Accelerating the cluster development of offshore wind power.
- Actively exploring new technologies, models and forms of energy development.



## Character Story

### An "Ice-breaker" that braves difficulties

Lin Yifeng, a CTG engineer, leads a team to collect and study domestic and foreign materials on sea ice in a systematic manner. He has summarized key technologies and found out ways to calculate ice loads. He has innovatively introduced the anti-ice structure utilized in offshore drilling platform into offshore wind farms, and developed a prefabricated single pile anti-ice piton structure while considering characteristics of offshore wind farm construction. He also takes the lead in studying the anti-ice design of pile group foundation of high-pile concrete cushion cap.

Solid professional background, strong learning ability and passion for the industry are "trump cards" for Lin to cope with challenges and risks, seize development opportunities and stay in the forefront of the clean energy industry. They are also pillars supporting CTG in overcoming difficulties one by one. In 2019, Lin was granted the honorary title of Outstanding Member of the Communist Party of China in Central State-owned Enterprise.

7 AFFORDABLE AND CLEAN ENERGY



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



## Optimizing Onshore Wind Power

We vigorously promote the development of onshore wind power, and optimize our strategic business layout while focusing on the central southeastern projects and supporting ultra-high voltage transmission projects. By the end of 2019, our projects in operation had covered 22 provinces and autonomous regions including Inner Mongolia, Xinjiang, and Yunnan.

10.67<sup>GW</sup>

Total installed capacity of new energy sector

18,500<sup>GWh</sup>

Total annual new energy power generation

over 5.2<sup>GW</sup>

Total installed capacity of onshore wind power



Jiugongshan Wind Farm

### China's first low-temperature 6.45 MW large-capacity wind power generating unit successfully connected to the grid for power generation

On January 19, 2019, the large-scale Liaoning Zhuanghe Project of CTG was connected to the grid, marking that China's first low-temperature 6.45 MW large-capacity wind power generating unit was connected to the grid and started power generation, and that northern China smoothly entered the stage of large-scale commercial operation of offshore wind power projects.

### 10 MW generating unit breaks the record of single unit capacity in Asia-Pacific region

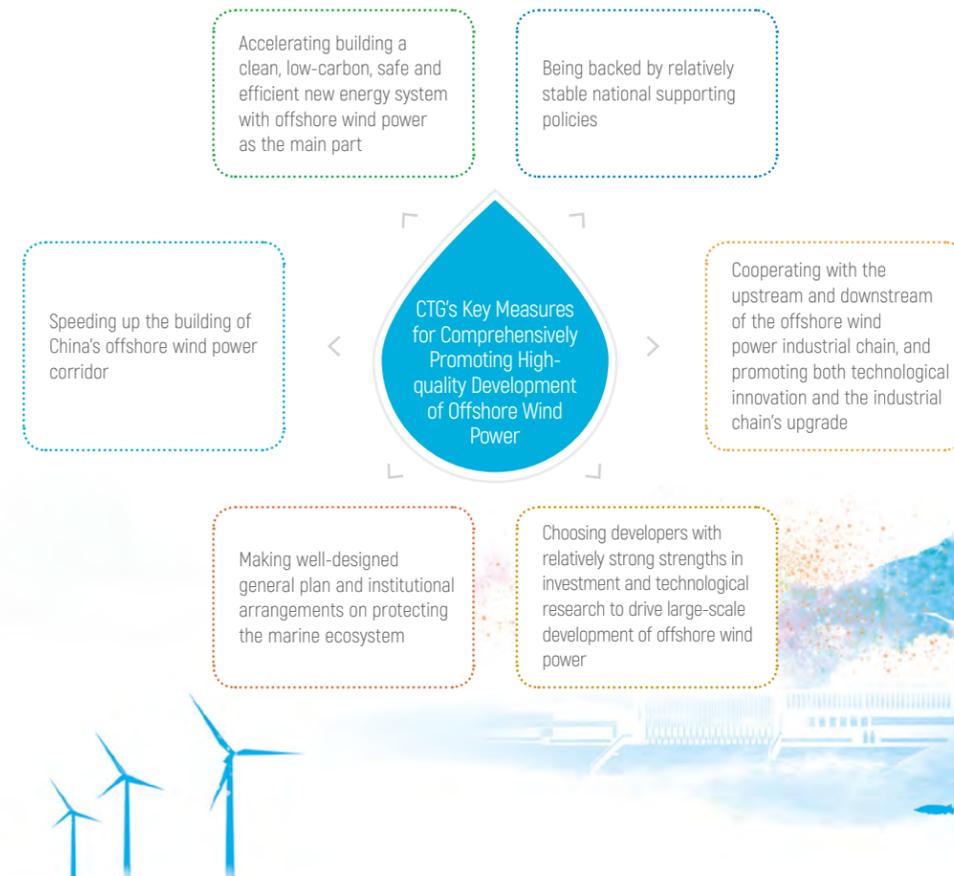
Since September 25, 2019, 10 MW and 8 MW offshore wind power generating units developed respectively by CTG and Dongfang Electric Corporation, and CTG and Xinjiang Goldwind Science & Technology were successively manufactured and put into operation. The 10 MW units broke the record of single unit capacity in Asia-Pacific region, marking that China's research and manufacturing capacity of MW level wind turbine was among the highest in the world.

## Expanding the Strength in Offshore Wind Power

We steadfastly implement the strategy of "being a leader of offshore wind power", concentrate our strength in developing large-scale offshore wind power projects, and launch, plan, approve and conceive new programs simultaneously. By the end of 2019, our offshore wind power projects had been rolled out in four coastal provinces, namely Fujian, Guangdong, Jiangsu and Liaoning, with a total installed capacity of over 800 MW.

18.07<sup>GW</sup>

Total offshore wind power resources acquired



### All generating units of Jiangsu Dafeng Offshore Wind Power Project connected to the grid for power generation

Generating units of Jiangsu Dafeng Offshore Wind Power Project were successfully connected to the grid on October 31, 2019, and all reached the designed capacity. It's estimated that the annual grid-connected power generation could reach 797 GWh. Compared with coal-fired power generating units of the same capacity, these wind power generating units could save an equivalent of 239,600 tons of standard coal and reduce an equivalent of 527,000 tons of carbon dioxide emissions annually.

### The first batch of generating units of Yangxishaba Offshore Wind Power Project, Guangdong province's first such project, officially connected to the grid

On November 29, 2019, the first batch of generating units of CTG's first offshore wind power project in Guangdong province - Yangxishaba Offshore Wind Power Project, were connected to the grid for power generation. A total of 55.5 MW wind turbines were planned to be installed, and the annual grid-connected power generation will reach 800 GWh after all units are connected. Compared with a coal-fired power plant of the same size, the project will save an equivalent of 250,000 tons of standard coal and reduce an equivalent of 650,000 tons of carbon dioxide emissions annually.



Macheng PV power generation



Lichuanqiye Mountain Wind Farm

## Promoting Diversified Development in Photovoltaic Power Generation

over **4.3** GW  
Total PV power capacity

We actively push ahead with diversified solar power development and orderly develop large-scale and centralized photovoltaic power generation, especially focusing on distributed PV power generation and thus have expanded our business layout. By the end of 2019, CTG's PV projects had covered 17 provinces, including Gansu, Qinghai and Hebei.

### Case Hubei Energy's PV Project wins National 2019 PV Project Subsidies

New Energy Development Co., Ltd. of Hubei Energy Group Co., Ltd. won the bidding for five projects with national subsidies in 2019, namely, the Phase III 30 MW Project and Phase IV 40 MW Ground PV Power Station Project in Wudian county, Guangshui city, 50 MW Ground PV Power station Project in Jiangtoudian village, Suizhou city, Phase II 50 MW Agriculture-Solar Complementary Project in Hongshanzui township, Laohekou city, and 20 MW Ground PV Project in Dahong Mountain. The five projects are all agriculture-solar or forestry-solar complementary, and will save an equivalent of 71,200 tons of standard coal and reduce 172,600 tons of carbon dioxide emissions after completion.



Inauguration of the Agriculture-Solar Complementary Project in Laohekou

## Comments From Stakeholders

“Thanks to the cooperation with CTG, we are able to optimize and restructure the energy structure of our region by starting from water-surface floating PV stations, and focusing our strength on building Panji district into a new green energy base in Huainan.”

—Li Xu, member of the CPC Standing Committee and Deputy District Chief, Panji District of Huainan city



# A Demonstrative Role in Deepening SOE Reform

## Management philosophy:

We thoroughly study the spirit of the speech made by President Xi Jinping during his inspection of the Three Gorges Project, and resolutely implement the CPC Central Committee and the State Council's series of major decisions on deepening the SOE reform and the reform of the electric power system as well as the guiding principles of a host of SOE reform policies dubbed as "1 plus N" plans, which refer to an overall blueprint and detailed support policies on SOE reform. Based on this, we forge ahead to drive the SOE reform and strive to play an exemplary role in this reform.

## Management objectives:

Being a stronger, better and bigger company by adhering to market-oriented reform, CTG improves our management level and market-oriented management capabilities in an all round way, and makes CTG better, stronger and bigger, so as to take more responsibility, play a more significant role, and make greater contributions in serving national strategy, striving to build CTG into a pillar for the nation in "six regards as a SOE", fostering a world-class clean energy group with global competitiveness.

## Management strategies:

- We will benchmark ourselves against world-class enterprises, and strive to become one of the top companies in the world. By improving the allocation of state-owned assets and enhancing the operation efficiency, we will take the lead to be a world-class clean energy group. By redoubling efforts in gaining a dominating place in international resource allocation, and leading global industrial technology advancement, we endeavor to be a leading enterprise with a stronger say in and greater influence on global industry development. We will strive to be a leader in total factor productivity, labor productivity, and key performance indicators such as net asset yield, value maintenance and appreciation, and product and service quality. We are committed to being a model practitioner of green development, an example of social responsibility fulfillment and a model brand worldwide.
- We will continue deepening the reform of the system and mechanism to enhance CTG's vitality, control, influence and risk resistance capacity and accelerate the implementation of various reform plans.
- We will focus on the main industrial business, optimize the industrial layout structure, and take the lead in promoting the upgrading and innovation of the clean energy industry.

7 AFFORDABLE AND CLEAN ENERGY



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



## Character Story

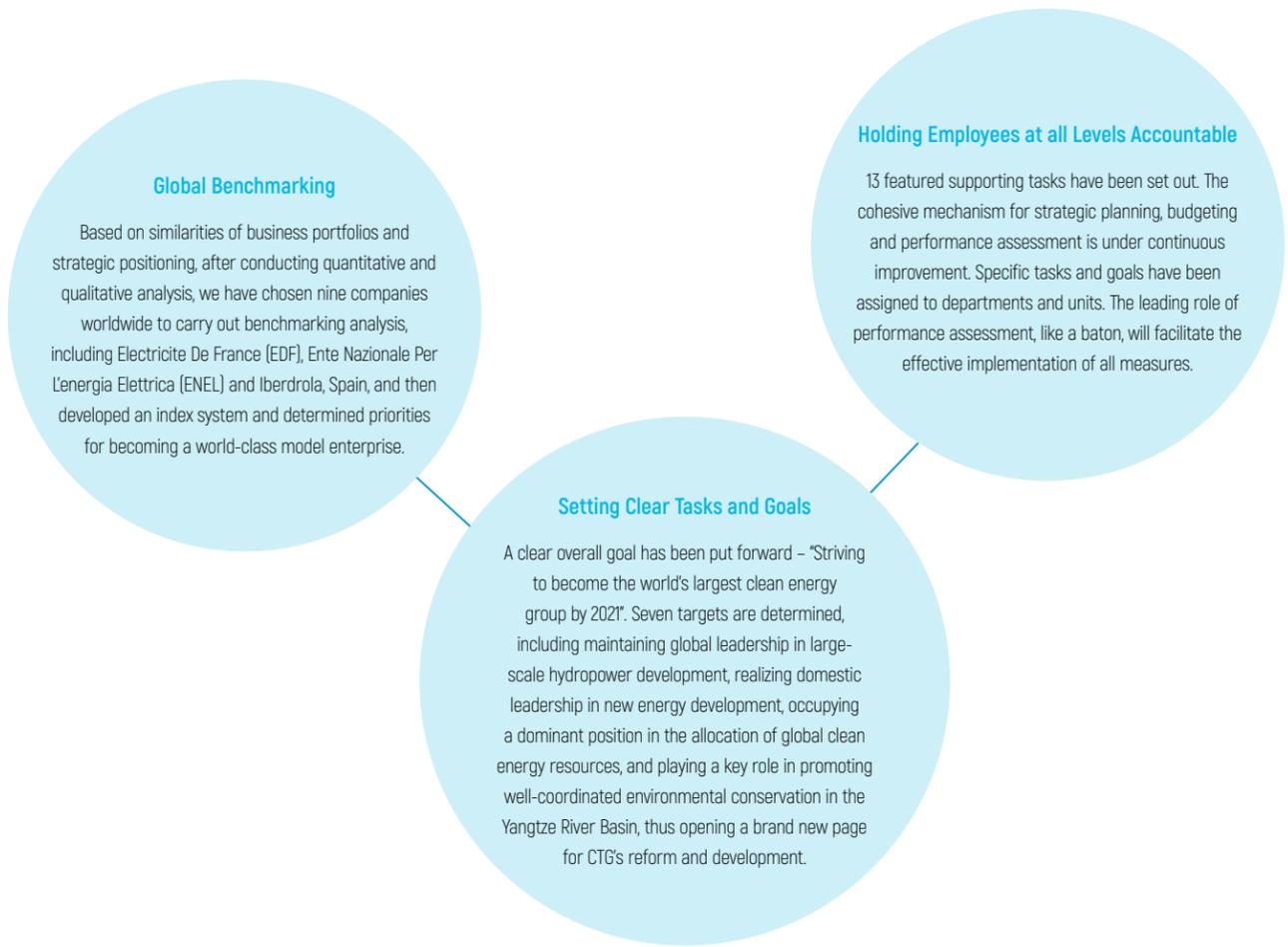
## A manager of exquisite engineering

Wang Xiaohai is an engineer in the Spillway Tunnel Project Department of Baihetan Hydropower Project. He believes the devil is in the detail when creating world-class engineering projects. He gives full play to his ability of identifying mm-level surface roughness in engineering construction. In the spillway tunnel of Baihetan Hydropower Station, the finished sidewalls, after concrete pouring, are extremely levelled and smooth, without any tiny defect. The concrete walls even look like mirrors after water curing.

As CTG pursues high-quality development of exquisite engineering projects, engineers need to innovate in techniques and checking approaches all the time during construction. Wang sets high standards in engineering management and put them into strict implementation, making concrete contributions to building CTG into a world-class clean energy group and model enterprise.

# Accelerating the Building of a World-class Model Enterprise

CTG benchmarks itself against the three tasks and objectives for world-class model enterprises, which refer to becoming leading, pioneering and exemplary enterprises in respectively three aspects as required by SASAC. It develops a general implementation plan in line with the conditions and specific supporting schemes to improve its weaknesses, and holds all staff accountable.



## Case Holding the First SOE Reform Forum in CTG

CTG held the First SOE Reform Forum for over 300 employees from internal departments and units. The forum elaborated on how to build a world-class enterprise, explained the significance, logic starting point and implementation paths of building a world-class enterprise at the present stage, and gave valuable suggestions and advice on building a world-class model enterprise.

# Constantly Optimizing the Management and Control System

CTG actively promotes the rectification campaign for headquarters of central SOEs to cut red tapes and dismiss redundant departments. While carrying out sound management and control of all important areas and key links, CTG aims to optimize the organizational structure of the headquarters, and has released plans of duties, institutions, and personnel for the Administration Office and other departments.



## Promoting Mixed-ownership Reform

CTG has actively advanced the mixed-ownership reform. We focus on the task of building a world-class model enterprise with its principal assets listed on multiple boards, and step up efforts in promoting the shareholding diversification and mixed-ownership reform of our subsidiaries. By the end of December 2019, 292 subsidiaries of CTG are mixed-ownership companies, taking up 79% of the total number of subsidiaries on its consolidated financial statement. 42% of CTG's total assets, 66% of the operating income, and 66% of the total profit come from listed companies.

- The first round of China Securities Regulatory Commission inquiries for the restructuring of Chongqing's regional electricity distribution scheme has been completed, and the reform measures have been highly praised by the National Development and Reform Commission and other national ministries and commissions.
- On the basis of successfully introducing eight strategic collaborative investors, CTG New Energy finished restructuring in June and became a limited liability company. Now it's actively preparing for IPO.
- Shanghai Investigation, Design & Research Institute Co., Ltd. was included into the fourth batch of China's mixed-ownership pilot reforms, and has made a general implementation plan for its mixed-ownership reform.
- The mixed-ownership reform for international business is progressing steadily, so is the mixed-ownership and shareholding diversification reform of CTGI and CWE.
- We continuously consolidate the management of market values of listed subsidiaries; the highest market value of CYPC, exceeds RMB 430 billion, maintaining its position as China's largest listed electric power company and the world's largest listed hydropower company.

### Case CTG New Energy completes shareholding reform

On June 26, 2019, China Three Gorges New Energy Company successfully completed its shareholding reform and was renamed "China Three Gorges New Energy (Group) Co., Ltd. (CTG New Energy). Through shareholding reform, it established a corporate governance structure comprising Shareholders' Meeting, Board of Directors and Supervisory Committee, marching towards a modern enterprise with scientific and institutional management structure.

In the future, CTG New Energy will strive to be a new energy development company engaged in project investment, construction and operation. It will build itself with strong competitiveness, reasonable industrial structure, outstanding asset quality, prominent economic benefits and high managerial level.

## Continuously Improving the Market-oriented Management System and Mechanism

Focusing on three key systems for labor relations, human resource and income distribution, we continuously improve our market operation mechanism, and accelerate forming six major mechanisms on market-oriented talent selection and recruitment, institutionalized retirement, accurate assessment and evaluation, contract-based labor relations, standardized remuneration management, and differentiated income distribution. In addition, we actively promote tenure system and contract-based management of managers, strive to cover all subsidiary units with tenure evaluation, and hope to set up a performance evaluation system combining annual and tenure evaluation, and unifying short-term goals and long-term development. We also support subsidiaries to take the lead in making breakthroughs in key areas and stages in the three key institutional reforms.

- CYPC has fully carried out the three institutional reforms and continues to deepen incentive and restraint measures such as sharing surplus profits.
- Three Gorges Capital Holdings Co., Ltd. (TGC) actively promotes the professional manager system in its affiliates, being the first to introduce professional managers among all subsidiaries included in CTG's consolidated financial statement.
- Shanghai Investigation, Design & Research Institute Co., Ltd. actively implements the dividend-based incentive mechanism for scientific research-related posts.

## Deepening the "Double Hundred Action" for SOE Reform

Over the past two years after CYPC and TGC were included in the "Double Hundred Action" work plan for SOE reform, the two companies have been closely focusing on the objective of "consolidating Party leadership, while making breakthroughs in the mixed-ownership reform, corporate governance structure, market-oriented operation mechanism, incentive & restraint mechanisms, and the tackling of unresolved issues". They always stay problem- and goal-oriented, keeping eyes on key steps and areas in the reform. What's more, breakthroughs in key areas have been made, such as in the corporate governance structure, mixed-ownership reform, market-oriented operation mechanism, professional managers system, and Party leadership. Being vanguards in the reform, the two companies have accumulated experience, explored implementation paths and served as examples for CTG to comprehensively deepen its reform.

### Case TGC launches Dongfang Electric Hydrogen Energy Industrial Fund

On June 26, 2019, TGC signed an agreement with Dongfang Investment Management Co., Ltd. and Chengdu Innovation Venture Capital Co., Ltd. in Beijing on jointly setting up Dongfang Three Gorges (Chengdu) Industrial Fund Management Co., Ltd. and initiating Dongfang Electric Hydrogen Energy Industrial Fund.

The fund will be built on TGC's strengths in investment and research in hydrogen energy. All three parties will work together to establish incentive and restraint mechanisms based on the market-oriented principle, optimize talent selection and recruitment and strictly control investment risks. They strive to build the fund into a demonstration project under the "Double Hundred Action", and boost the growth of China's hydrogen energy industry.



Agreement Signing Ceremony of Dongfang Electric Hydrogen Energy Industrial Fund

## Comments From Stakeholders

"CTG earnestly practices the new development vision and comprehensively acts in line with the new strategic positioning. It has become a backbone leading global hydropower development, promoting the energy revolution, serving national strategies as well as guaranteeing and improving people's livelihood."

—Peng Huangang, Secretary General of SASAC

# An Exemplary Role in CSR Fulfillment

## Management philosophy:

Studying and practicing President Xi Jinping's important statements on the poverty alleviation, CTG is an active adherent to China's poverty alleviation policies. The Corporation assumes the social responsibilities as a central SOE and plays an exemplary role in the fight against poverty.

## Management objectives:

CTG gives play to the role of hydropower project construction in driving local economic development with the focus on fixed-pointed poverty alleviation counties as well as areas in extreme poverty and the local residents, helping to lift impoverished counties out of poverty and supporting China in winning the anti-poverty war and building a moderately prosperous society in all aspects, so as to become a significant contributor to guarantee and improve people's well-being.

## Management strategies:

- Continuously devoted to the fixed-point poverty alleviation.
- Aiding Xinjiang, Tibet and Qinghai actively.
- Taking targeted measures to help the minority groups in Sichuan and Yunnan shake off poverty effectively.
- Providing solid assistance to resettled residents in the reservoir areas.



## Character Story

## A heart-warming official for villagers

Zhao Jianhua is the First Secretary stationed in Gaoqiao village, Duzhenwan township, Tujia autonomous county of Changyang. He is assigned by Hubei Energy Group Co., Ltd. to support the targeted poverty relief assistance in this village. Over the past three years, Zhao is always on the frontline to solve problems for villagers, and lead villagers to find new ways of creating wealth and start a new life.

Since Gaoqiao village is surrounded by water, the ferryboat is the only means of local transport, limiting their communication with the outside world. Zhao went hither and thither and kept reporting the situation to his superior again and again to seek a solution. Eventually, in 2019, the auxiliary highway of Xiadongyan highway bridge connecting Gaoqiao village and Duzhenwan township started construction. After completion, the highway will shorten the distance between villagers and the outside world, and bring Zhao Jianhua and villagers closer together.

## Steadily Carrying out Resident Resettlement

30,478 residents

resettled by Wudongde Hydropower Station by the end of 2019

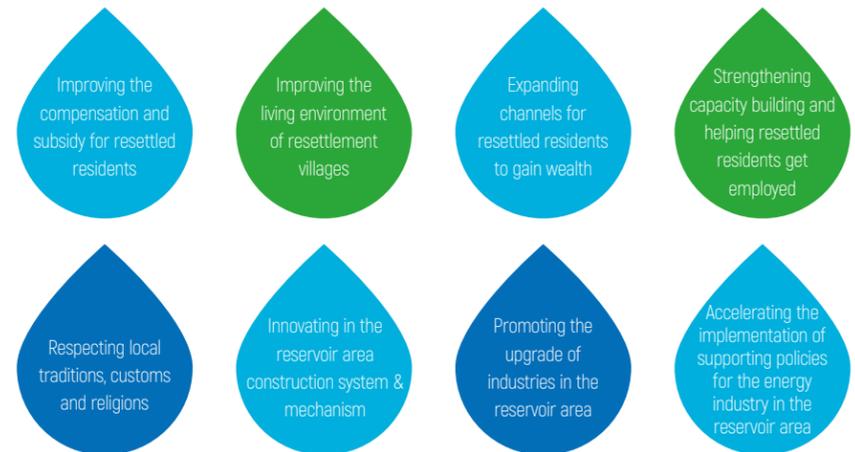
96,719 residents

signed resettlement agreements with Baihetan Hydropower Station by the end of 2019



Scan the QR code to check out the 360-degree VR panoramas of the resettlement sites for five counties in Jinsha River Reservoir Area

Adhering to the hydropower development philosophy of "Building a hydropower station to facilitate local economy, improve the environment and benefit resettled residents", CTG strives to realize the goal of "moving out for secure resettlement to develop and become rich" by steadily carrying out the resettlement in Wudongde and Baihetan Hydropower Stations, and creating a safe, comfortable and stable production and living environment for resettled residents.



CTG assists in building the resettlement site of Wudongde Hydropower Station in Jiangzhou prefecture, Huidong county, Sichuan province



CTG assists in building the resettlement site of Baihetan Hydropower Station in Xiawangjiawan, Qiaojia county, Yunnan province

## Attaching Great Importance to Poverty Alleviation Management

CTG resolutely implements decisions and arrangements made by the CPC Central Committee and focuses on targeted poverty alleviation. Our main leaders organize a team to conduct front-line survey and research in target areas. The Leading Group on Poverty Alleviation studies and plans poverty alleviation actions regularly. We make joint efforts across all levels of the Group, coordinate with each other and create a synergy to concretely push ahead with poverty alleviation.

RMB 2.6 billion

CSR investment in 2019 (including RMB 464 million from Central SOEs Industrial Investment Fund for Poverty-stricken Region)



Lei Mingshan, Secretary of CTG Party Leadership Group and Board Chairman, conducts field studies in Fengjie county, Chongqing city



Wang Lin, Deputy Secretary of CTG Party Leadership Group and President, conducts field studies in Wan'an county, Jiangxi province

- The Party Leadership Group organized **12** special learning activities or meetings to discuss poverty alleviation issues in 2019.
- The Leading Group on Poverty Alleviation held **4** meetings to discuss and study poverty alleviation issues in 2019.
- Main leaders of CTG organs conducted over **20** front-line field studies in poverty relief target areas.
- Over **30** CTG officials assumed temporary posts in the front-line of poverty alleviation in 2019.
- A three-tier assistance system covering counties, townships and villages was set up.

RMB 307 million

Fund invested in fixed-point poverty alleviation in 2019

RMB 75.48 million

Poverty alleviation fund invested in Wushan county, Chongqing city in 2019

RMB 75.4 million

Poverty alleviation fund invested in Fengjie county, Chongqing city in 2019

RMB 81.41 million

Poverty alleviation fund invested in Wan'an county, Jiangxi province in 2019

RMB 75.1 million

Poverty alleviation fund invested in Bairin Left Banner, Inner Mongolia in 2019

1,607

Trained grassroots officials

6,494

Trained technicians

## Dedicated to Fixed-point Poverty Alleviation

CTG continues to increase financial input to fixed-point poverty alleviation and develop multiple approaches and channels at all levels to facilitate the poverty alleviation. We outperformed all assigned tasks in 2019, and fulfilled commitments made in letters of responsibility on fixed-point poverty alleviation with high quality and standards. In 2019 Annual Assessment for Performance in Fixed-point Poverty Alleviation among units of the central government and the Party, we once again won the highest rating "Outstanding", ranking high among central SOEs.

### Case A new path of poverty alleviation by developing tourism

CTG actively explores a new path of targeted poverty alleviation by combining "tourism+cultural and creativity products+poverty relief". It tailor-made unique tourism routes and products for Wushan county and donated 10 tour buses to support the upgrade of Wushan county's tourism industry from all perspectives and help local residents gain the ability of self-sufficient development. CTG invited the poverty alleviation team "Seeing Mountains" from Soochow University to help dig deep into Wushan county's intangible cultural heritage and unique culture. Now, over 380 samples of cultural and creative products have been designed and developed.



Part of cultural and creative products with Wushan features

### Case Setting up Medical Assistance Fund to safeguard villagers' health

Devoted to improving basic medical conditions and service capacity of villages, CTG invested RMB 78.9 million to set up the Medical Assistance Fund. The fund, for the first time, will cover the excess cost for poor patients in Wushan county and Fengjie county, Chongqing city when the proportion of self-paid fees exceeds 10% of the total fees. Besides, it sponsors impoverished residents in Wan'an county, Jiangxi province to buy commercial supplementary medical insurance, to free them from worries of being trapped into poverty because of illness.

### Case Setting up an online platform to sell local agricultural and other distinctive products

CTG, for the first time, cooperated with JD Online Mall and set up a "JD Store" for over 100 agricultural and other distinctive products from four targeted counties. Centering on the online platform, we provided training on agricultural techniques, e-commerce training, and free advertising on products. We went all out to connect agricultural and distinctive products to potential buyers and continuously open up sales channels, helping people in poverty-stricken areas increase income.



Posters of CTG online sales platform for poverty-alleviation products

RMB 20.86 million

Worth of agricultural and distinctive products bought by CTG employees

RMB 38.1 million

Worth of agricultural and distinctive products bought by external contributors and partners of CTG



Plums harvested by villagers in Huajia village, Liangping township, Wushan prefecture, Chongqing city



CTG New Energy employees in Danqian Middle School in Wan'an county, Jiangxi province



Donating schoolbags and books to the Central Primary School, Yanwan village, Fengjie county, Chongqing city



Free clinic given by Beijing experts in Bairin Left Banner, Inner Mongolia

## Aiding Xinjiang, Tibet and Qinghai

**CTG in Xinjiang:** Since 2006, we have been providing pairing assistance to Pishan county, Hotan prefecture, boosting Xinjiang's development through local industrial development, educational support, job creation and talent cultivation. In 2019, we donated RMB 10 million to support 1,966 junior college and vocational school students in Pishan county. The fund covers all qualified children from poverty-stricken farmer and herdsman families, offering educational opportunities to poor students.

**CTG in Tibet:** We are engaged in the investment and development of Tibet's clean energy sector, foster the prosperity of Tibet's clean energy industry and serve local economic and social progress. In 2019, we donated RMB 25 million to Nyingchi county for building village roads in Medog and Zayu counties and improving local residents' living conditions.

**CTG in Qinghai:** We promote the development of clean energy in Qinghai, such as wind power and PV power generation, to provide clean and green energy for Qinghai's economic growth and leapfrog development. In 2019, we donated RMB 200,000 to Xinghua village, Keke township, Wulan county, to support local villagers buy feed for flocks and herds, developing collective economy and improving the income of villagers.

1,966

Junior college and vocational school students from farmer and herdsman families in Pishan county, Xinjiang aided in 2019

RMB 25 million

Donated to Nyingchi county, Tibet in 2019

RMB 200,000

Donated to Xinghua village, Keke township, Wulan county, Qinghai province in 2019



500 MW PV "Pacemaker" Project in Golmud city, Qinghai province



2019 Subsidy Granting Ceremony for junior college and vocational school students in Pishan county, Xinjiang



New houses built with the assistance of CTG in Miri village, Medog county, Tibet

RMB **2 billion**  
Fund for lifting three ethnic minority groups out of poverty

RMB **1.6 billion**  
Fund for lifting Liangshan Yi autonomous prefecture of Sichuan province out of poverty

RMB **500 million**  
Fund increased for lifting Zhaotong city of Yunnan province out of poverty in 2019

RMB **500 million**  
Funds increased for lifting Liangshan prefecture and other poverty-stricken areas in Sichuan province in 2019

**255,000 people**  
Poverty-stricken population in Sichuan and Yunnan provinces pulled out of poverty aided by CTG by the end of 2019

## Helping Ethnic Minority Groups in Sichuan and Yunnan

In 2019, apart from providing RMB 3.6 billion of poverty relief fund to three minority ethnic groups, the Nu, Pumi and Jingpo nationalities, in Liangshan Yi autonomous prefecture of Sichuan province and Yunnan province, CTG decided to grant another RMB 500 million respectively to Zhaotong city of Yunnan province and the impoverished area of Liangshan prefecture, Sichuan province. It ensures the solemn commitment of "leaving no one behind on the road towards a moderately prosperous society in all respects" is fulfilled, creating a typical case of central SOE lifting the whole minority groups out of poverty.



CTG assists the construction of Heishan Resettlement Site, Yingjiang county, Yunnan province



A "housewarming party" of Jingpo nationality villagers, Yunnan province



CTG assists the construction of Yongfeng village, Rekejue township, Jinyang county, Sichuan province

### Supporting the Poverty Alleviation in Liangshan Yi Autonomous Prefecture of Sichuan Province

RMB **400 million**  
Investment in 2019

**80,000**  
People pulled out of poverty

**80**  
CTG new villages built

**6,470**  
New houses built

**9,866**  
Houses improved for better functioning

**5,979**  
Dilapidated houses rehabilitated

**1,125 km**  
New roads built

**8,252**  
Trainees from low-income families

**839**  
College students from low-income families aided

### Helping Three Minority Groups in Yunnan Get Rid of Poverty

RMB **500 million**  
Investment in 2019

**175,000**  
People pulled out of poverty

**13,916**  
Dilapidated buildings rehabilitated

**1,116**  
Resettled households for poverty alleviation

**1,435**  
Houses renewed

**85**  
Dwellings with local features improved

**658 km**  
Rural roads hardened

**4,480**  
Trainees from low-income families

**952**  
Students from low-income families aided

Note: The statistical range is as of the end of 2019.

## Providing All-round Assistance to the Reservoir Areas

RMB 107 million

Input for supporting the development of the Three Gorges Reservoir Area in 2019

RMB 96 million

Input for supporting the development of the Jinsha River Reservoir Area in 2019

In the Three Gorges Reservoir Area, we step up our efforts in supporting the development of local industries, improving the employment of resettled residents, protecting local culture, supporting educational development and improving medical conditions. We strive to create a sound living environment for resettled residents.



A villager in Miaohe village, Zigui county, Hubei province is harvesting leaf buds in his own tea garden



CTG aids the construction of the office building of the CPC Committee of Miaohe Village, Zigui county, Hubei province



From August 28 to 29, 2019, nearly 30 resettlement experts from all around the world came to Yichang city, Hubei province to investigate the resettlement situation of the region, and get to know the employment status and living conditions of resettled residents

In the Jinsha River Reservoir Area, we increase efforts in post-resettlement support and ecological environmental governance. With feasible and practical measures, we create better production and living conditions for resettled residents, enhance local educational and medical level, improve local infrastructure and help them achieve sustainable development.



Ziqiu grapes (*Vitis davidii*) planted in Yibin city, Sichuan province



Case CTG Educational Support Program wins the award 2019 Model Project for People's Livelihood

CTG continuously explores innovative poverty relief models, and has launched four brand projects in educational assistance under CTG Educational Support Program, i.e. the Three Gorges Scholarship Program, Three Gorges Remote Class Program, Three Gorges Inspirational Class and Three Gorges Candlelight Action to expedite local educational growth.

Since the CTG Educational Support Program was implemented in 2018, it has benefited many students in Jinsha River Reservoir Area, including providing 282 integrated multi-media teaching machines to Liangshan prefecture, investing RMB 14.57 million in the Three Gorges Scholarship Program to benefit 8,298 resettled college students, opening eight Three Gorges Inspirational Classes, training and sending 178 voluntary teachers, sponsoring over 2,500 junior college and vocational school students and granting a total of over RMB 19 million subsidies to more than 42,300 kids from the Jinsha River Reservoir Area in 34 counties (districts, cities) of nine cities (prefectures) in Sichuan and Yunnan provinces.



Peng Wei, a voluntary teacher in "Three Gorges Candlelight Action" surrounded by students and their drawings of her

## Actively Contributing to the Central SOEs Industrial Investment Fund for Poverty-Stricken Region

RMB 1.064 billion  
Total contributions to the fund

In response to the call of SASAC, CTG actively contributes to the Central SOEs Industrial Investment Fund for Poverty-stricken Region. Apart from RMB 600 million of contribution in Phase I, CTG inputted another RMB 464 million in 2019, funding RMB 1.064 billion in total. It has built seven major industrial development platforms on modern agriculture, resource development, clean energy, medical treatment and healthcare, production and marketing, industrial finance and capital operations to support poverty alleviation. The platforms will support impoverished areas to foster their own unique industries and build their self-sufficient development capacity, striving to play a demonstrative role in the tough battle against poverty.

## Comprehensively Promoting the Well-Coordinated Environmental Conservation in the Yangtze River Basin

RMB 2 billion  
Special fund for well-coordinated environmental conservation in the Yangtze River Basin

CTG deeply implements General Secretary Xi Jinping's important instructions on well-coordinated environmental conservation in the Yangtze River Basin. We set up a specific fund for treating water pollution, restoring water ecology and carrying out water resource protection projects in 11 provinces and cities along the Yangtze River for no economic returns. The special fund caps RMB 2 billion, and supports actions of exploring sustainable, replicable and promotable models and mechanisms on improving the water quality of Yangtze River, striving to contribute CTG's share to protecting and restoring Yangtze River' ecosystem and building a beautiful China.

## Engaging in Public Welfare Undertakings

RMB 14 million  
Other public welfare investment

We keep our founding mission firmly in mind, pay back to society and actively participate in social welfare undertakings, to contribute to social harmony. In 2019, we input RMB 14 million public welfare fund to support anti-snow, flood, drought and earthquake actions as well as post-disaster reconstruction in Yushu autonomous prefecture of Qinghai province, Wan'an county of Jiangxi province, and Yibin city of Sichuan province, etc.

- Donated RMB 5 million to snowstorm-hit areas in Yushu autonomous prefecture, Qinghai province
- Donated an emergency fund of RMB 3 million to flooded areas in Wan'an county, Jiangxi province
- Donated RMB 3 million to areas hit by the earthquake rattling Changning county, Sichuan province on June 17, 2019
- Donated RMB 3 million to drought areas in Wan'an county, Jiangxi province

### Case "Summer Camp for Children from the Reservoir Area to Three Gorges" go on Air

During July 26 to 27, 2019, children in the 2019 Summer Camp for Children from the Reservoir Area to Three Gorges were about to enjoy the best time in the program. CTG invited 319 middle school and primary school students from poverty-stricken areas to give an art performance together, and invited Ju Ping, a well-known CCTV host, and the production crew of Hand in Hand, a CCTV-14 program, to guide the process. The special program Hand in Hand - Summer Camp for Children from the Reservoir Area to Three Gorges was live recorded, and a theme song Planting the Seed of Dreams was created. Through attending the splendid program, more children were encouraged to dream high, fight for their dreams and contribute to the country.



Scan the QR code to get more information about the summer camp



2019 Summer Camp for Children from the Reservoir Area to Three Gorges

## Comments From Stakeholders

“CTG has completed pioneering work in supporting Yunnan. I see ingenuity in their poverty alleviation model. It is really a good model.”

—Huang Yunbo, Deputy Secretary General and Head of Poverty Alleviation Office, Yunnan Provincial Government

“CTG is comprehensively stepping up its efforts in helping Xide county, Liangshan Yi autonomous prefecture get rid of poverty. It provides strong support for Xide county to realize its poverty alleviation goals as scheduled.”

—Wang Yanping, Deputy Director-General of the Poverty Alleviation and Resettlement Bureau of Xide County, Liangshan Yi Autonomous Prefecture, Sichuan Province

# Delivering the Value of CSR to the World



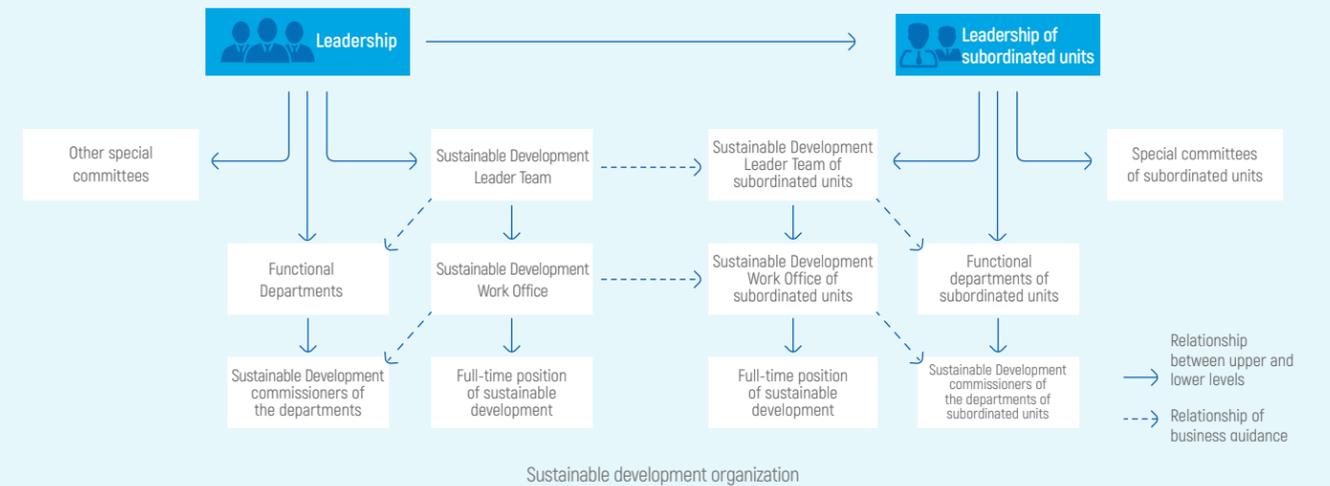
## Improving the Transparency of Accountability Information

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

Stakeholders	Core appeals	Communication Activities
Investors	<ul style="list-style-type: none"> <li>Maintenance and appreciation of investment</li> <li>Supervision and assessment</li> <li>Compliance management</li> </ul>	<ul style="list-style-type: none"> <li>CTG published the <i>China Three Gorges Corporation Annual Report</i>, <i>China Three Gorges Corporation Annual Report on Environmental Protection</i>, <i>China Three Gorges Corporation Informatization Annual Report</i>, the <i>Yangtze River and Three Gorges Project Ecology and Environmental Monitoring Bulletin</i>, <i>Social Responsibility Report of China Yangtze Power Co., Ltd.</i>, <i>Social Responsibility Report of Hubei Energy Group Co., Ltd.</i>, etc.</li> <li>CTG's Chinese official website had 370,149 visits, and the English website had 44,758 visits in 2019.</li> <li>With a total of 48,946 followers, CTG's WeChat official account "WeChat CTG" attracted 5,894,873 views in 2019.</li> </ul>
Resettled people in reservoir area	<ul style="list-style-type: none"> <li>Arranging resettlement in cooperation with the government</li> <li>Promoting the sustainable development of resettled people</li> </ul>	<ul style="list-style-type: none"> <li>CTG invested heavily on resettlement of residents as well as poverty alleviation in the Three Gorges Reservoir area and the Jinsha River Reservoir area.</li> </ul>
Community	<ul style="list-style-type: none"> <li>Charity</li> <li>Promoting economic and social development</li> </ul>	<ul style="list-style-type: none"> <li>CTG provides assistance to the reservoir areas, minorities in Sichuan and Yunnan as well as Xinjiang and Tibet.</li> <li>CTG has a total of 1.457 million views for its Toutiao publisher account, 7,835,061 views for its The Paper official account, and 4,312,419 views for its People's Daily publisher account.</li> </ul>
Employees	<ul style="list-style-type: none"> <li>Protecting labor rights and interests</li> <li>Salary and welfare</li> <li>Career Development</li> </ul>	<ul style="list-style-type: none"> <li>CTG carried out activities to foster democracy and held workers' congress.</li> </ul>
Customers	<ul style="list-style-type: none"> <li>Coordinated development</li> <li>Win-win cooperation</li> <li>Stable and safe electric power</li> </ul>	<ul style="list-style-type: none"> <li>CTG's annual power generation reached 289.47 billion kWh.</li> </ul>
Environment	<ul style="list-style-type: none"> <li>Ecological Protection</li> <li>Energy conservation and emission reduction</li> <li>Responding to climate change</li> </ul>	<ul style="list-style-type: none"> <li>CTG prepared the 15th Annual Report on Environmental Protection, which objectively reflected the environmental performance of CTG and answered the questions of stakeholders in a truthful and comprehensive manner.</li> <li>Carrying out the China Yangtze River Three Gorges Release Program in 2019.</li> </ul>
Partners	<ul style="list-style-type: none"> <li>Fair operation</li> <li>Responsible procurement</li> <li>Win-win cooperation</li> </ul>	<ul style="list-style-type: none"> <li>Held 2019 Supplier Webinar.</li> <li>Established strategic partnerships with Agricultural Bank of China, Shanxi Coal Import and Export Group Co., Ltd., China Minmetals Corporation, China Aerospace Science and Industry Corporation Limited, and Beijing Capital Group, etc.</li> </ul>
Provinces and cities in Yangtze River Basin	<ul style="list-style-type: none"> <li>Flood control and drought relief</li> <li>Improving shipping</li> </ul>	<ul style="list-style-type: none"> <li>CTG facilitated the cooperation between enterprises and local governments to promote well-coordinated environmental conservation in the Yangtze River Economic Belt.</li> </ul>

## Improving the Governance of Sustainable Development

CTG actively implements the Social Responsibility Plan of CTG during the 13th Five-Year Plan. Through the enhancing social responsibility capacity, making innovation in project management, and promoting social responsibility informationization, and continuously innovating the methods and manners integrating social responsibility concepts and requirements into the management and operation of company, CTG has laid solid foundation for responsibility management for achieving sustainable development.



**Improving the social responsibility management system.** With the aim of building a long-term mechanism for CSR efforts, we endeavor to create a sounder CSR organizational system and define clearly CSR duties of employees in different posts at all levels. We strengthen institutional construction, raise CSR awareness and enhance capabilities to develop an efficient and powerful CSR organizational management system in line with CTG's characteristics.

**Reinforcing CSR information disclosure.** We improve the quality of CSR information, disclose necessary information in a timely, accurate and standardized manner, release specific reports in targeted poverty alleviation, and encourage subsidiaries such as CYPG to publish their own CSR reports, so as to build a normalized CSR information disclosure mechanism step by step. We give full play to the mobile Internet and have been innovating in forms of information disclosure to make CSR reports more informative.

**Building CSR brand projects.** We plan and carry out lean management to consolidate closed-loop and full life-cycle management of CSR projects. Through standardized, sustainable and transparent project operations, we endeavor to deliver a batch of relevant, innovative, and influential CSR projects. We make targeted communication and innovate in forms of publicity, and release advertising videos and micro films on social responsibility to enable more diversified publicity forms that are friendly to the audience.

**Further digitalizing social responsibility management.** We further leverage applications of the CSR project information system, optimize the project management process and improve system functions, and put in place monthly online reporting and project progress monitoring mechanisms to ensure that all information about CSR projects are accessible, ready for statistical analysis, traceable and available, and continue to improve process management of projects by capitalizing on digital technologies.

# Making Contribution to SDGs

SDG (s)	Typical Measures and Actions of CTG	SDG (s)	Typical Measures and Actions of CTG
	<ul style="list-style-type: none"> <li>Continuously carrying out poverty alleviation in the Three Gorges and Jinsha River Reservoir Areas, scaling up efforts in poverty alleviation assistance for minority ethnic groups in Sichuan and Yunnan provinces, and fulfilling tasks assigned by the national government on fixed-point poverty alleviation, pairing assistance, and aiding Xinjiang, Tibet and Qinghai</li> </ul>		<ul style="list-style-type: none"> <li>Establishing the Three Gorges Seed Fund to support the short-term quick development of planting, breeding, processing and service industry</li> <li>Promoting poverty alleviation through fostering local industries, helping poverty-stricken people gain satisfying income and social security, improving the competitiveness of industries with local features</li> </ul>
	<ul style="list-style-type: none"> <li>Attaching importance to the occupational health of employees, especially front-line employees, actively promoting the three-standard integrated system of quality, environment and occupational health and safety, and regularly organizing physical examinations for employees</li> <li>Promoting poverty alleviation through improving local people's health, setting up medical assistance funds, helping build medical infrastructure, paying attention to the health of women and children, providing direct assistance for people in emergency and difficulty, and training medical workers</li> </ul>		<ul style="list-style-type: none"> <li>Organizing training on corporate culture and professional technologies</li> <li>Focusing on educational poverty alleviation, constructing education infrastructure, organizing activities such as Summer Camp for Children from the Reservoir Area to Three Gorges, setting up scholarship and subsidies programs, organizing innovative voluntary teaching activities such as the Three Gorges Candlelight Action, and exploring joint cultivation models</li> </ul>
	<ul style="list-style-type: none"> <li>Adhering to equal and compliant employment and prohibiting sex discrimination</li> <li>Establishing Love Mommy rooms and nursing rooms for convenience of female employees in nursing period</li> <li>Setting up resettled women development assistance fund in supported areas, and organizing activities like Health Express for Mothers and physical exams for women and children</li> </ul>		<ul style="list-style-type: none"> <li>Guaranteeing water supply for agricultural irrigation and people's daily life in the Yangtze River Basin during dry seasons as an important reservoir of freshwater resources</li> <li>Attaching importance to water environmental protection during project construction, and comprehensively promoting water pollution prevention and treatment</li> <li>Digging wells, carrying out water supply and discharge projects, and building water reservoirs, sewage discharge and treatment facilities and public toilets in supported areas</li> </ul>
	<ul style="list-style-type: none"> <li>Promoting the construction of two power stations in Wudongde and Baihetan based on the Three Gorges, Gezhouba, Xiluodu and Xiangjiaba Hydropower Stations, promoting cascade hydropower stations in the Yangtze River Basin to set up and improve comprehensive water resource utilization and joint dispatching mechanisms, and enhancing hydropower efficiency</li> <li>Actively developing new energy sources with an offshore wind farm cluster taking shape, strengthening the development of distributed wind power in central southeastern areas, and practicing the model of "PV+"</li> </ul>		<ul style="list-style-type: none"> <li>Respecting and guaranteeing the legitimate rights and interests of employees, paying social insurance on time in full amount and prohibiting forced labor</li> <li>Providing skill training to poverty-stricken populations in supported areas to build their employment competitiveness and help them get decent jobs, also lowering down the unemployment rate of local youth</li> <li>Vigorously developing tourism in Wushan county, Chongqing city, creating jobs for local poor people and promoting local culture</li> </ul>
	<ul style="list-style-type: none"> <li>Building model hydropower projects with high standards, high quality and high technical level</li> <li>Alleviating poverty through infrastructure construction in supported areas, and scaling up investment in infrastructure construction, including housing infrastructure and public service facilities, to improve local living environment</li> <li>Taking technological innovations as an important driver for business development and participating in the formulation of national and industrial standards</li> </ul>		<ul style="list-style-type: none"> <li>Formulating and strictly implementing comprehensive resettlement policies to protect the production and living rights and interests of resettled residents in reservoir areas</li> <li>Operating overseas business with the concept of "long-term development and local operation", and actively promoting local employment and hiring local employees, providing equal opportunities to them</li> </ul>

SDG (s)	Typical Measures and Actions of CTG	SDG (s)	Typical Measures and Actions of CTG
	<ul style="list-style-type: none"> <li>Conducting in-depth investigation and management of hidden dangers, intensifying safety education and training, implementing flood and disaster prevention measures, and adopting strict accident investigation and accountability system</li> <li>Promoting resettlement poverty alleviation in supported areas, adopting measures such as rehabilitating dilapidated rural houses, relieving poverty through resettlement and ecological development, and carrying out comfortable and affordable housing projects to improve local poor people's living environment</li> <li>Building and hardening roads, building and renewing bridges and other transportation facilities in supported areas and projects sites to improve the travel conditions of surrounding residents</li> </ul>		<ul style="list-style-type: none"> <li>Strictly complying with national and regional pollutant emissions standards, on top of standardized and harmless wastewater, waste gas and solid waste treatment</li> <li>Releasing sustainability reports annually for each country we operate in and the sustainability report of Belt and Road projects in both Chinese and English</li> <li>Continuously optimizing the supply chain management process and establishing an institutional system covering all processes at home and abroad</li> </ul>
	<ul style="list-style-type: none"> <li>Expanding the development and utilization of clean energy such as hydropower, wind power and solar energy, and constantly exploring various development modes of wind energy, solar energy, water energy and storage batteries, so as to reduce GHG emissions and help slow down global warming</li> <li>Promoting low-carbon and green philosophies from project camps to project sites and across the whole radiated area</li> </ul>		<ul style="list-style-type: none"> <li>Ecological Restoration Project of Heishui River is under construction in order to protect fish habitat</li> <li>Protecting rare fish species and organizing fish proliferation and release activities, such as for Chinese sturgeons</li> <li>Cooperating with the Ministry of Agriculture and Rural Affairs in protecting and saving the Chinese sturgeon as well as in pushing ahead with the action of protecting aquatic life in the Yangtze River, and successfully breeding rare and endemic fish such as acipenser dabryanus, schizothorax prenati and percocypris pingi</li> <li>Establishing Yangtze River Rare Fish Conservation Center and actively promoting research and practices in ecological fisheries of the Three Gorges Reservoir area</li> <li>Improving the design of the fish barging system in Wudongde and Baihetan Hydropower Stations</li> <li>Doing experiments on the hydraulic model of the fish barging station in Baihetan Hydropower Station</li> </ul>
	<ul style="list-style-type: none"> <li>Launching the survey of endemic and rare plant resources in the reservoir area of Xiangjiaba and Xiluodu Hydropower Stations</li> <li>Completing ex situ conservation of 320 species of 3,300 rare plants, and protected over 22,000 endemic and rare plants of 836 species, 333 genera and 106 families through ex situ conservation</li> <li>Breeding over 150,000 rare and endemic plants in the TGP area</li> <li>Having collected, graded and stored the germplasm of 320 species of live endemic and rare plants in the Yangtze River Basin</li> <li>Actively carrying out cooperation on ecological protection projects for the Yangtze River Basin</li> </ul>		<ul style="list-style-type: none"> <li>Strengthening Party conduct and clean governance management, and comprehensively strengthening Party discipline in a more in-depth manner</li> <li>Adhering to the principle of managing the enterprise according to the laws and operating in compliance, and fully incorporating the requirements for managing enterprise according to the laws and the general counsel system into CTG's articles of association</li> <li>Building a centralized and unified, full-coverage, authoritative and efficient audit supervision system</li> </ul>
	<ul style="list-style-type: none"> <li>Giving full play to the industrial investment capacity and the industrial chain's advantage in integrating resources, establishing "going global" platforms together with upstream and downstream partners along the chain in the form of industrial alliance or consortium; using development projects as carriers, setting up international cooperation platforms with key domestic equipment manufacturers</li> <li>Actively practicing the Belt and Road Initiative, continuously promoting international energy cooperation along the Belt and Road, supporting the hydropower development of host countries and benefiting residents in project areas</li> <li>Implementing the national strategy of well-coordinated environmental conservation in the Yangtze River Basin, accelerating the establishment of enterprise-government cooperation and collaboration mechanisms to this regard, using "capital+" as a tool to attract social capital and forming diverse investment and financing channels</li> </ul>		

# Communicating Key Sustainable Performance

## Economic Performance

### Responsibility of Shareholders

Indexes	2017	2018	2019
Revenue (RMB billion)	90.003	93.938	98.500
Revenue growth rate (%)	14.93	4.36	4.86
Net profit growth rate (%)	7.88	2.92	2.74
Return on net assets (%)	9.51	9.16	8.84

Note: As of the date of release of the report, the data have not been reviewed.

### Technological Innovation

Indexes	2017	2018	2019
Investment on technology and R&D (RMB million)	2,258.5818	1,875.1524	2,676
Number of staff in science and technology (persons)	2,753	2,266	3,799
Proportion of staff in science and technology (%)	12.0	10.7	15.8
Applying patents (number)	338	361	629
New patents (number)	251	310	464
Major innovation awards (number)	20	30	22

### Management of Supply Chain

Indexes	2017	2018	2019
Performance rate of business contract (%)	100	100	100
Proportion of responsible procurement (%)	100	100	100
Number of suppliers	17,327	24,701	35,273
Number of annual new suppliers	8,934	7,374	10,572
Number of annual supplier evaluations	7,137	8,041	9,434

### Power Generation Abroad

Indexes	2017	2018	2019
Total consolidated capacity (MW)	8,534	8,658	9,349
Minority-equity based capacity (MW)	8,180	8,580	8,370
Under-construction capacity (MW)	980	880	880
Gross generation (GWh)	38,020	37,890	35,210

### Power Generation

Indexes	2017	2018	2019
Total consolidated capacity (GW)	70.017	70.302	74.956
Minority-equity based capacity (GW)	19.10	21.69	24.51
Under-construction capacity (GW)	35.27	35.51	31.72
Proportion of clean energy capacity in total capacity (%)	96.2	96.3	93.8
Gross generation (TWh)	284.56	290.16	289.47

Note: Including overseas power generation.

## Environmental Performance

Indexes	2017	2018	2019
Total investment in environmental protection (including water and soil conservation) (RMB million)	890	1,283	16,733
Assessment proportion of environmental and social impacts on undergoing new projects (%)	100	100	100
Emission reduction benefit of clean energy in China (equals to emission reduction of carbon dioxide, per million ton)	188.4596	199.4495	187.8241
Emission reduction benefit of clean energy in China (equals to saving the use of standard coal, per million ton)	74.128	77.6975	73.1687

## Social Performance

### Government Responsibility

Indexes	2017	2018	2019
Total taxes (RMB million)	28,980	25,150	22,650
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

Note: The total tax contribution includes international taxation.

### Employee Responsibility

Indexes	2017	2018	2019
Number of on-duty staff	22,946	23,404	23,996
Coverage of social insurance (%)	100	100	100
Membership rate of Labor Union (%)	98.1	98.77	99.8
Paid annual leave per capita (day)	11	9.3	9.5
Signing rate of labor contract (%)	100	100	100
Completion rate of proposals in the Workers' Congress	100	100	100
Occupational injury rate (%)	0	0	0
Occupational disease rate (%)	0	0	0
Coverage of health insurance (%)	100	100	100
Female employees' returning rate after maternity leave (%)	100	100	100
Employees training investment (RMB million)	37.00	47.24	56.75
Total training hours	3,492,010	3,640,884	3,409,749
Number of trainees (person-times)	190,189	202,071	239,059
Employee satisfaction (%)	100	100	100

### Comprehensive Benefits

Indexes	2017	2018	2019
Total flood retention volume (billion m <sup>3</sup> )	12.9	15.0	9.8
Total days of water supplement for middle and lower reaches of the Yangtze River in dry season (day)	177	153	124
Water supplementing amount for middle and lower reaches of the Yangtze River in dry season (billion m <sup>3</sup> )	31.06	29.08	33.09
Actual loading freight volume of Three Gorges lock (million ton)	130	142	146

Note: There is an update in the amount of water replenishment for the lower reaches of cascade reservoirs in the Yangtze River Basin during dry seasons in 2018.

### Work Safety

Indexes	2017	2018	2019
Number of contingency plans	4,679	1,257	2,042
Number of emergency drills	1,262	1,756	1,015
Number of trainees (person-times)	88,586	98,625	157,680
Investment in work safety (RMB million)	5.72	5.65	5.92
Number of casualties	0	0	0
Major equipment accidents (time)	0	0	0
Unplanned outages (time)	18	17	14
Average Unit Equivalent Availability Coefficient (%)	94.52	93.17	93.23

### Community Engagement

Indexes	2017	2018	2019
Total amount of donations (RMB million)	1,383	1,412	2,600
Young volunteers' service participation (person-times)	43,000	43,700	44,500
Voluntary service time (hour)	290,000	295,000	297,000
Number of voluntary service team	57	57	59
Number of voluntary service bases	181	183	187
Number of registered volunteers	9,414	9,866	10,360

## Benchmarking GRI Standards

This Report contains GRI Standards disclosures.

Key indicators	GRI Standards
Contents	/
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
Feature story: CTG: A Pillar in the Fight Against COVID-19	/
<b>Consolidating Basis to Lay a Solid Foundation for Fulfilling Social Responsibility</b>	
Strengthening Party Leadership	205-2
Excellent Operation and Management	102-22, 102-23
Sticking to Independent Innovation	203-2
Cultivating Craftsmen for the Great Nation	201-3, 401-2, 404-2, 406-1, 407-1
<b>Fostering Innovation to Play the Role of CSR Model</b>	
A Fundamental Role in the Development of the Yangtze Economic Belt	103-2, 201-2, 203-1, 203-2, 416-1
A Key Role in the Well-coordinated Environmental Conservation in the Yangtze River Basin	103-2, 304-1
A Leading Role in Driving China's Hydropower Industry to "Go Global"	103-2, 201-1, 203-1, 203-2
A Constructive Role in the Industrial Upgrading of Clean Energy	103-2, 414-1, 414-2
A Demonstrative Role in Deepening SOE Reform	103-2, 413-1
An Exemplary Role in CSR Fulfillment	103-2, 203-1, 415-1
<b>Delivering the Value of CSR to the World</b>	
Improving the Transparency of Accountability Information	102-40, 102-42, 102-43, 102-44
Improving the Governance of Sustainable Development	102-16, 102-17
Making Contribution to SDGs	/
Communicating Key Sustainable Performance	201-1, 401-1, 403-2
Benchmarking GRI Standards	102-55
Sustainable Actions in 2020	/
Third-party Evaluation	102-56
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## Sustainable Actions in 2020

2020 is the final year for completing the 13th Five-Year Plan and building a moderately prosperous society in all respects. It is also a critical year for CTG to build itself into a world-class model enterprise. We will completely act in line with General Secretary Xi Jinping's important speech during his inspection tour to the TGP as well as other instructions. Staying true to our original aspiration and keeping our founding mission firmly in mind, we will unite as one and forge ahead to realize outstanding progress in both clean energy development and Yangtze River's ecological environmental protection. Giving full play to our six major roles, we will strive towards a world-class model enterprise and contribute to building a moderately prosperous society in all respects.

### Sticking to Party Leadership

Comprehensively strengthening Party leadership and discipline in an in-depth manner.

### Enhancing Managerial Competence

Improving quality management on an ongoing basis, accelerating building ourselves into an intrinsically safe enterprise, consolidating comprehensive risk management, scaling up efforts in independent innovation, forging a competent team and strengthening the protection of employees' rights and interests.

### Playing Six Major Roles

Exploring comprehensive benefits of cascade hydropower stations in the Yangtze River Basin, continuously fostering greater efforts in the well-coordinated environmental conservation in the Yangtze River Basin, going further and steadier in international operations, making our new energy business stronger, better and bigger, deepening the institutional reform of SOEs, and helping clinch a complete victory in the fight against poverty.

## Third-party Evaluation

This is the tenth sustainability report released by China Three Gorges Corporation. It gives a systematic and comprehensive introduction of CTG's highlights, concrete actions and achievements in economy, society and environment, and reflects CTG's responsibility and duty as the world's largest hydropower developer and operator as well as China's largest clean energy group.

**Clear structure and informative content.** Following CTG's latest strategic mission, the report inherits the main structure and chapter titles of previous reports and structurally reflects "Six Roles" in its main body, demonstrating CTG's "fundamental role in the development of the Yangtze River Economic Belt", "key role in promoting well-coordinated environmental conservation in the Yangtze River Basin", "leading role in driving China's hydropower industry to 'go global'", "constructive role in the industrial upgrading of clean energy", "demonstrative role in deepening SOE reform", and "exemplary role in CSR fulfillment". It also actively benchmarks itself against SDGs in the opening chapter of the report, demonstrating to stakeholders its contributions to the global sustainable development.

**Focused on hot topics as the embodiment of the sense of responsibility.** The report focuses on hot topics and latest news. In the "Feature: CTG: A Pillar in the Fight Against COVID-19", the report uses clear charts to summarize CTG's actions in the fight, showing that CTG gives full play to its role as a central SOE in supporting COVID-19 prevention and control in Hubei and acts as the pillar of the country with concrete measures.

**Vivid presentation and strong interactivity.** With accurate and concise words, vivid cases and photos as well as informative charts, the report communicates with stakeholders effectively. The new column "Story of CTG staff" uses plain yet vivid language to tell true, touching stories about model CTG employees, thus closing the distance between CTG and stakeholders. The report inherits a vivid, illustrative ink-painting style, depicting the overall picture of CTG's CSR vision in detail.

2020 marks the final year of building a moderately prosperous society in all respects and winning the battle against poverty. It is expected that CTG will earnestly fulfill the new mission entrusted by the Party and nation, speed up the building of a world-class clean energy group with a clearer roadmap and well-targeted goals, thus create more value for stakeholders, and contribute to fostering sustainable development globally.

Yin Gefei

Secretary of ISO 26000 Stakeholder Global Network (ISO 26000 SGN)  
Drafting Expert of ISO 26000

## Feedback Form

Dear Readers:

Thank you for reading the 2019 Sustainability Report of China Three Gorges Corporation. We hope to receive your feedback on our social responsibility work and this report. Your suggestions are an important for our continuous improvement of CSR management and practice. You can fill in this form or cut this form below and send the feedback to us by letter, email, or fax. Your valuable opinions will be appreciated.

Please tick "✓" the corresponding answer.

1. Do you think this report reflects the significant impact of CTG on the economy, society and the environment?

Yes

Maybe

No

2. Do you think the stakeholders and their relationship with CTG identified in the report is accurate and comprehensive?

Yes

Maybe

No

3. Do you think the information disclosed in this report is comprehensive?

Yes

Maybe

No

4. Do you think the information disclosed in this report is readable?

Yes

Maybe

No

### Open questions

1. What other issues or topics do you think should be disclosed in this report?

2. What other improvements can we make to this report?

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E-mail: [szbg@ctg.com.cn](mailto:szbg@ctg.com.cn)

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# About This Report

## Reporting Period

This report covers the period from January 1, 2019 to December 31, 2019 and also includes additional content and information that predates the stated reporting period.

## Reporting Cycle

This is an annual report and it is also the tenth Sustainability Report released by China Three Gorges Corporation since 2010.

## Compliance Conformance

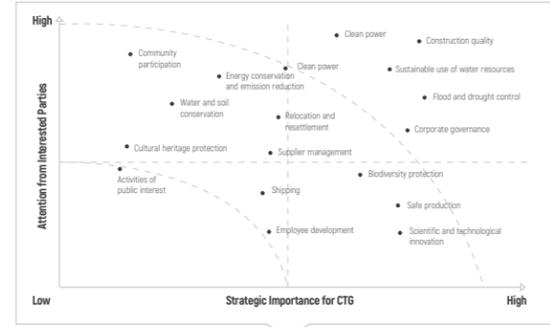
This report was compiled in accordance with *ISO 26000: Guidance on Social Responsibility(2010)*, the *GRI Standards* by the Global Reporting Initiative (GRI), *GB/T 36001-2015: Guidance on Social Responsibility Reporting and Guidelines on Corporate Social Responsibility Reporting for Chinese Enterprises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

## Materiality Analysis

### Recognition

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

### Sorting



### Verification

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

## Terms of References

China Three Gorges Corporation will be referred to herein as "CTG", "the Corporation" and "we".

## Reporting Scope

This report covers CTG as a whole.

## Data Sources

The data cited in this report derives from *China Three Gorges Corporation Annual Report 2019*, 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 strategy for sustainable development. It addresses the major concerns of the stakeholders in this report, and it also summarizes CTG's Corporate Social Responsibility (CSR) performance.

## Obtaining the Report

This Report is available in Chinese and English versions and in print and electronic formats. For hard copies, please email [szbg@ctg.com.cn](mailto:szbg@ctg.com.cn) or call +86-10-57081850. For electronic copy, please visit this website: [www.ctg.com.cn](http://www.ctg.com.cn), or scan the QR code on the back cover of the print format to download.



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CTG Philanthropy

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