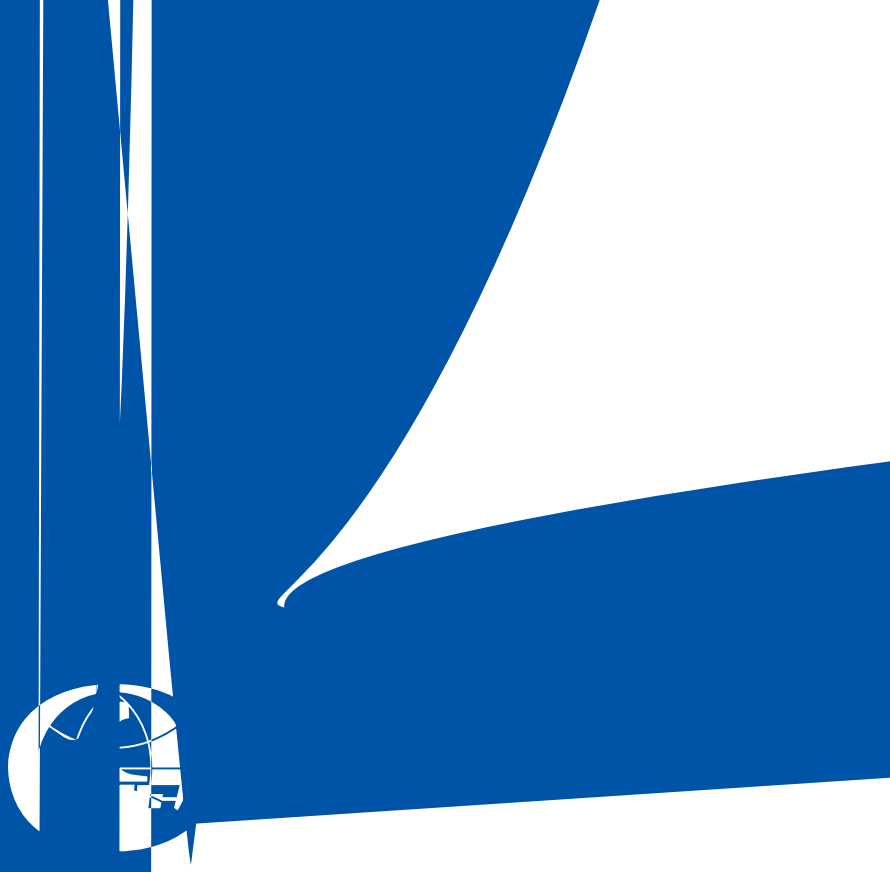
The Board of Directors and all directors of the Company guarantee that there is no false record, misleading statement or major omission in this report and they will bear individual and joint liabilities for the authenticity, accuracy and integrity of the contents.



npany name " " and the English abbreviation
mbition as the standard color. The background of the
ompany's global and strategic vision. The upright and
orious and heavy history, but also like giant building,

Welcome to read Social Responsibility Report (Environment Society Governance Report) in 2017 of China Railway Group Limited.

In order to facilitate your reading, China Railway Group Limited in this report will be expressed by “CREC”, the “Company” and “we/us”, etc.

This report is the Company's tenth annual social responsibility report with the time span of 1st January to 31st December of 2017, mainly focusing on the work about managing enterprises according to law, high-quality service, benefit creation, staff development, safety supervision, science & technology progress, environmental protection, targeted poverty alleviation, public welfare undertaking, win-win cooperation and overseas responsibility during the year of 2017, with due attention to the status of company fulfilling their social responsibility before 2017.

We prepared the report by referring to the "ten principles" promulgated by the United Nations Global Compact (Global Compact), the relevant standards of the Global Reporting Initiative (GRI), according to the requirements of the Chinese National Standards GB/T36000-2015 Social Responsibility Guidelines, GB/T36001-2015 Social Responsibility Reporting Guidelines, GB/T36002-2015 Social Responsibility Performance Classification

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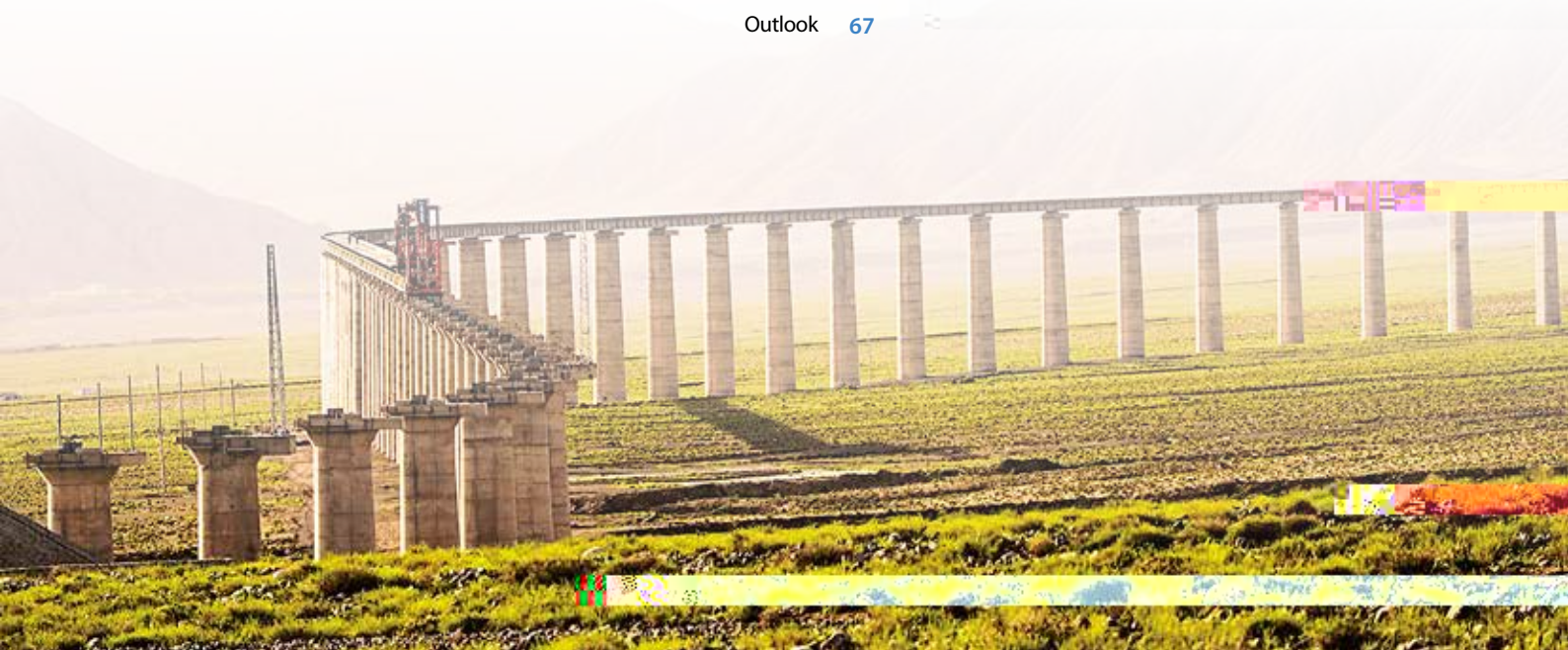


Leader's Message

The year 2017 is an extraordinary year for CREC, and it is also an unforgettable year. In this year, we insisted on following Xi Jinping's socialist ideology with Chinese characteristics in the new era, guiding our practice and promoting our work with the socialist ideology so as to effectively transformed the spirit of the 19th CPC National Congress into the fundamental guideline and key impetus for enterprise reform and development, and accelerate our efforts toward high quality and high efficiency development. In this year, we seized market opportunities and took advantage of the momentum, and reached a new record high in major economic indicators. In this year, we worked hard to improve the quality and efficiency, and further promoted the works including laboratory activities of project management, reduction of the number of legal persons, rigescence and poverty governance, clearing & recovering and debts pay-off, centralized management and the construction of financial sharing center in order to further enhance the level of our business management. In this year, we continued to deepen the reform in an all-round way, took the lead in taking the party building work into the articles of association, and successfully completed CREC industrial reconstruction and listing. In addition, we actively carried out pilot reform in mixed ownership of China Railway Engineering Consulting Co., Ltd and steadily pushed forward the separation and transfer of "three supplies and one property", thus the potential for business development has been greatly enhanced. In this year, we promoted the construction of such projects as Beijing-Zhangjiakou Railway and the Mongolian-Central China Railway in high-quality, high-efficiency and safety way, and completed a large number of key projects such as Baoji-Lanzhou High-Speed Rail, Xi'an-Chengdu High-Speed Rail and Beijing-Xinjiang Expressway on schedule, and gained outstanding achievements in serving economic and social development. In this year, we actively promoted the construction of major projects of the "Belt and Road", including Jakarta-Bandung High-Speed Rail, China-Laos Railway, Addis Ababa-Djibouti Railway and Hungary-Serbia Railway. The status and role of the large international corporation have become increasingly prominent. In this year, we were committed to shaping the corporate image, widely disseminating the corporate values, creating a good public opinion environment, thus our brand recognition and social reputation have been continuously rising. In this year, we paid more attention to the all-round development of our employees. While improving the benefits, we focused on smoothing the career development channels and carrying out extensive and colorful cultural activities. In this way, our employees have obtained more and more sense of gain and happiness. In this year, we actively fulfilled the social responsibility of a central enterprise and further enhanced our efforts on targeted poverty alleviation. We have made important contributions to stimulating economic growth, promoting scientific and technological progress, promoting employment, and protecting the environment, having been highly praised and widely recognized by all sectors of society.

In 2017, CREC ranked 55th in top 500 enterprises of the world, and ranked 13th in top 500 Chinese enterprises. The Company won 2 prizes for National Progress in Science and Technology, 1 prize for National Technical Invention Award, 11 Luban Prizes for China Architecture Project, 2 gold awards for National High-Quality Project, and 35 prizes for National High-Quality Project.

In 2018, CREC will continue to faithfully fulfill its corporate mission and constantly explore new forms of society benefiting and make efforts to make new and greater contributions to promoting scientific development and social harmony.

Chairman of the Board: Li Changjin

March, 2018

C a
Va e

C a eS i i :

Brave to Overcome Difficulties and Pursuit for Excellence

C eVa e:

Honesty and Professionalism, Co-building and Sharing

C a eTe e :

Innovation and Efficiency for High Quality Development

C a eMi i :

Dedication to Excellent Products for Better Life

C a eVi i :

Leading in China and First-class in the World

Planning of Social Responsibility

As a leader in the construction industry, CREC has always been to become a practitioner, propellant and leader of Corporate Social Responsibility as its mission. Since 2008, it began to establish a scientific, standardized, systematic and effective management system of corporate social responsibility, and planned social responsibility from such aspects as managing enterprises according to law, high-quality service, benefit creation, staff development, safety supervision, science & technology progress, environmental protection, targeted poverty alleviation, public welfare undertaking, win-win cooperation and overseas responsibility. And the Company launched a series of management practices of social responsibility from the Company Headquarter to the subsidiaries in order to achieve the goal of full-coverage, full-fulfillment, pursuit for perfection and industry-leading social responsibility, making the irreplaceable and outstanding contributions to a sustainable society.

Interested Parties

Over several years, CREC has always maintained the cooperation relationship of harmony, mutual trust, mutually benefit with all interested parties, adhered to the interests of interested parties in the perspective of interested parties, responded actively to important issues that interested parties pay attention to, established smooth, standardized and distinctive communication mechanism of interested parties, and made efforts to achieve common development, harmony and win-win with all interested parties. After a comprehensive analysis of the production chain and macro-environment in the industry, CREC interested parties are mainly constituted by ten groups, i.e. creditor, clients, government, investor, partners, brother chip, NGO (non-governmental organization), staff, public and suppliers.

Company Profile

CREC is an extremely large enterprise group with survey and design, construction and installation, industrial manufacturing, real estate development and other business. It is the largest construction contractors in the world, ranking 55th in the top 500 enterprises of the world. CREC was listed respectively on December 3rd, 2007 and December 7th, 2007 in Shanghai and Hong Kong, with the total assets of RMB 844.08 billion Yuan and net assets of RMB 169.72 billion Yuan.

The builders of CREC have successively constructed two-thirds of trunk railways and 15% of expressway in China; they have participated in the construction of urban rail transit works of more than 2,000 kilometers, accounting for three-fifth of China's urban rail transit works; they have constructed nearly ten thousand bridges with total length of more than 21,000 kilometers including Wuhan Yangtze River Bridge, Nanjing Yangtze River Bridge, the East Sea Bridge, Hangzhou Bay Cross-sea Bridge; they have built long tunnels of Qinling Tunnel, Taihangshan Tunnel, Xiamen Xiang'an Undersea Tunnel, Wuhan Yangtze River Tunnel and so on, with the total length of 19,000 kilometers. The builders have participated in the Antarctic expedition for 15 times, undertaking the construction and maintenance tasks of Zhongshan Station, Great Wall Station and Kunlun station. The Company also has participated in design and construction of more than 6000 large-scale projects including national airports, docks, hydropower, high-rise buildings, municipal and other large projects, with the business scope covering all infrastructure construction fields, and the projects spreading all over China's provinces and autonomous regions except for Taiwan and more than 80 countries and regions in the world. The technological level in many areas has reached the world's advanced level, and has won the prizes for National Progress in Science and Technology for many times.

Corporate Governance

In 2017, the Company completed the office-term change of governance structure in accordance with laws and regulations. At the end of report period, the 4th Board of Directors is composed of 9 members including 4 executive directors, 4 independent non-executive directors, and 1 non-executive director. The construction of the Board of Directors has been strengthened and the corporate governance structure of the company legal person has been further optimized. There are 5 special committees of strategy, audit and risk management, remuneration and performance assessment, nomination as well as safety, health and environment under the Board of Directors, among which strategy committee is composed of 5 directors, and the director of the committee is taken by the Party Secretary and Chairman of the board, including one independent non-executive director and one non-executive director; audit and risk management committee is composed of 3 directors, all of them are independent non-executive directors, among them two are experts in finance and accounting fields in domestic and overseas enterprises respectively; remuneration and performance assessment committee is composed of 2 independent non-executive directors and 1 non-executive director, having rich experiences in large corporate performance assessment and remuneration management; nomination committee is composed of 5 directors, and the director of the committee is taken by the Party Secretary and Chairman of the board, including 3 independent non-executive directors; safety, health and environment committee is composed of 5 directors, and the director of the committee is taken by the President, including 2 independent non-executive directors and 1 non-executive director. The setup and composition are in line with the actual situation of the Company and listing rules requirements in Shanghai and Hong Kong. All the new directors have signed the statement and letter of commitment, completed personal information declaration and qualification examination on time, received pre-service mentoring and business training according to the regulations, thus effectively ensuring the smooth transition and sustainable development of corporate governance. The Board of Supervisors is composed of 5 members including 2 shareholder representative supervisors and 3 workers' representative supervisors. The upper management is composed of 5 members including 1 president, 1 vice president and chief engineer, 1 vice president, 1 CFO, 1 board secretary and general counsel.

The year 2017 is the tenth anniversary of the establishment of a joint-stock company by CREC and the overall listing of A + H, and is also the year for the formation and operation of the 4th Board of Directors of the Company. The Board of Directors, the Board of Supervisors and the Management of the Company seriously studied and implemented Xi Jinping's socialist ideology with Chinese characteristics in the new era, unified its adherence to the Party leadership and improvement of corporate governance, faithfully reflected the will of the investors, closely centered on the annual corporate work and earnestly performed the duties given by the Corporate Law and the Articles of Association. Following the laws and regulations and forging ahead as well as being diligent and conscientious, pioneering and enterprising, the Board of Directors gave full play to the roles of market analysis, strategy guidance, reform deepening, scientific decision-making and risk prevention. In addition, the Board of Supervisors fully performed the functions of supervision and inspection, and the management exercised its power to manage the production and operation according to law and organized the implementation of resolutions of the Board of Directors. Moreover, it continued to improve its operation quality and promoted the transformation of corporate governance from standardization to effectiveness and then to scientificity.

Internal Control Supervision

CREC attached great importance to construction of the internal control system. According to Basic Norms of Corporate Internal Control, by issuing relevant documents including Instruction Manual for Internal Control of Engineering Projects, in 2017, CREC strengthened efforts on management defect rectification found in internal control audit and appraisal under the requirements of overall in-depth corporate reform. It took relevant rectification measures, revised and improved internal control system documents of the Headquarter. In the whole year, management system appraisal meeting was held for 5 times, and 32 rules and regulations have been appraised.

In combination with its reality and based on the organization of initial information collection for risk management and risk assessment results of all subordinate units, CREC compiled the risk assessment questionnaire, listed five categories and 76 risk points that it was facing, formulated risk assessment standards from the probability and influence degree of risk, carried out risk questionnaire survey, assessed and determined the great and major risks that it was facing and compiled the Overall Risk Management Report 2017.

The Company Strictly abide by the laws and regulations of the countries and regions of China and overseas business, and resolutely prohibit bribery, extortion, fraud and money laundering, etc. continuously strengthened the building of anti-corruption system and staff training, set up an independent audit department, intensified internal audit efforts, strengthened the monitoring of various businesses and actively created an incorruptible culture atmosphere of "do not want to corrupt, cannot corrupt, and dare not corrupt".

Honest Management

In 2017, the Company insisted on the tenet of governing CREC according to law including "governance perfection, operation compliance, management standard, law-abiding and integrity", strictly implemented the domestic and overseas laws and regulations as well as the Company system, adhered to the compliance management principle of all staff participation, whole process monitoring and whole field coverage. In addition, it attached great importance to the corporate credit management and fully fulfilled all the contractual commitments. It always implemented the principle of governing the corporate according to law throughout the enterprise's production and operation activities without bad business practices.

In 2017, CREC No.1, CREC No.3, CREC No.9 and CRCIG (China Railway Construction & Investment Group Co., Ltd.) were awarded national contracted honor enterprises, 16 units including China Railway Group Limited, CREC No.3, CREC No.10, CREC Electricization Bureau and CRBB (China Railway Bridge Bureau) were awarded advanced legal units in national transportation corporates, CREC No.5 was rated as AAA credit corporate, and CREC Electricization Bureau was rated as national customer satisfaction corporate.

Information 1: In the credit rating of railway construction enterprises in the first half of 2017, CREC No.2, CREC No.3, CREC No.4, CREC No.5, CREC No.7, CREC Beijing Bureau and CREC Shanghai Bureau were rated as Class A, accounting for 70 % of Class A. In thesecond half year, CREC No.1, CREC No.3, CREC No.4, CREC No.9, CRBB, CREC Beijing Bureau and CREC Shanghai Bureau were rated as Class A,alsoaccounting for 70 % of Class A.

Information 2: In 2017, CREC completed the construction of a batch of key projects and put them into use on schedule, including Xi'an-Chengdu High-Speed Rail, Baoji-Lanzhou High-Speed Rail, Shijiazhuang-Jinan High-Speed Rail, Shijiazhuang Metro Line 1 and Guiyang Urban Rail Transit Line 1, etc.

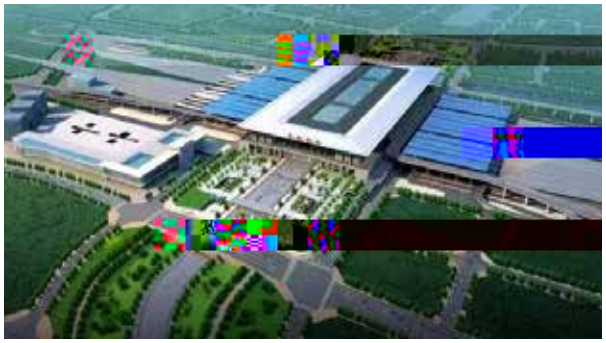
High-Quality Service

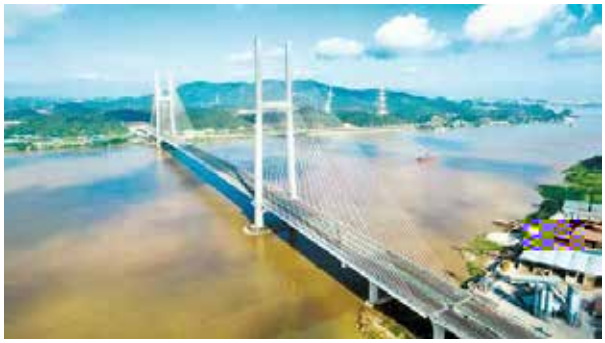
- Improvement of Physical Environment
- Improvement of Service Quality
- Construction of High-Quality Project

Improvement of Physical Environment

CREC has powerful technical forces and mechanical equipment that can be used in complex geological and hydrological conditions as well as special environment for construction of railways, roads, bridges and municipal buildings with various structures. From beyond the Great Wall to the south, from the East Sea to the snow-covered plateau, CREC people, by developing the spirit of "brave to overcome difficulties and pursuit for excellence", have perfectly achieved the sacred mission that the state and people delivers during various periods, and left a string of flash footprints in the field of global infrastructure construction, making impressive performance in the great cause of improving the geophysical environment of the Earth for mankind's ideal.

In 2017, CREC completed the construction of a batch of high-speed rail projects including Xi'an-Chengdu High-Speed Rail, Baoji-Lanzhou High-Speed Rail and Shijiazhuang-Jinan High-Speed Rail. In addition, it newly built 2439 kilometers of highways, 2073 kilometers of bridges, and 1430 kilometers of tunnels.





Improvement of Service Quality

In 2017, CREC always insisted on the general idea of "ever perfecting and continuous improvement" and adhered to people oriented concept to constantly improve its service quality in an attitude of highly responsible for the nation, the people and the corporate. In the meantime, we fully protected our customers' sensitive business information and personal privacy.

In project quality management, CREC seriously implemented ISO9000 system standard and Measures for Project Quality Supervision and Management, vigorously carried out QC activities, developed feasible quality plan, set up professional quality engineers and prepared special excellence programs to ensure the quality of excellence to achieve the goal.

In industrial equipment service, CREC adhered to the development philosophy of "Advancing with Technical Services and Developing with Customer Trust", strengthened the construction of after-sales service system and promoted the transformation from the self-creation value of industrial products to value creation for customers. Based on the product marketing, it achieved the transformation toward manufacturing and service and the transformation from product providing to value-added service providing as well as from one-time product selling to profiting in the entire life cycle, thus forming an integrated and comprehensive service system so as to provide customers with "Butler" after-sales service in full life cycle to promote the Company to realize comprehensive transformation and upgrading from an industrial manufacturing enterprise to an industrial manufacturing service-oriented enterprise.

Information 1: In 2017, the "deep chasm turning into thoroughfare and four-in-one quality management mode" of CRBB (China Railway Bridge Bureau) was nominated for the 3rd China Quality Award, which was the only short-listed construction company.

Information 2: The Company fully carried out technical additional services to a package of project engineering including shield re-manufacturing, equipment assembly and debugging, trade-in, technical consulting, shield leasing, tunneling subcontracting, shield cloud information technology services, and established a remote information service center for tunneling machine so as to provide customers with real-time remote monitoring, intelligent fault diagnosis and prediction services.

“ ”

Construction of High-Quality Project

In 2017, CREC continued to carry forward the philosophy of "elaborately design to draw the blueprint for the times; scientifically construct to build high-quality project". The Company has always made every construction site management as a system work. Through standardization of site compliance activities, it strictly controlled quality and strictly implemented construction technology standards. It constantly kept improving the quality of construction products and enriching the content of construction products. Moreover, it strove to build every project as an international first-class architecture and a hundred-year fine project.

In 2017, the Company's 11 projects were awarded Luban Prize for China Architecture Project, which respectively were metabolic disease hospital project of Tianjin Medical University Eco-City in Sino-Singapore Tianjin Eco-City, the right bridge works of Wuhan Parrot Island Yangtze River Bridge, newly-built Najiehe Super-large Bridge pre-station project construction in Linxi-Zhijin (Xindian) Railway, Hefei South Railway Station Project of Hefei Hub South Loop Line, newly built Jinhua River Super-large Bridge (the special passenger transport line of Hangzhou-Changsha Railway), Hangzhou Zizhi Tunnel (Zijingang Road-Zhijiang Road) project, the first section of technical renovation project on location change of Tengzhou Tobacco Factory of China Tabacco Shandong Industrial Co., Ltd., Jiangshun Bridge project (Guangzhou-Foshan-Jiangmen fast channel), Phase II project of "1600 Project", Uzbekistan Kamchik Tunnel in the Angren-Pap Railway, and Phase I project of Congo-Kinshasa SICOMINES copper and cobalt mining and smelting. Till now, CREC has accumulated 162 projects awarded with this prize.

Benefit Creation

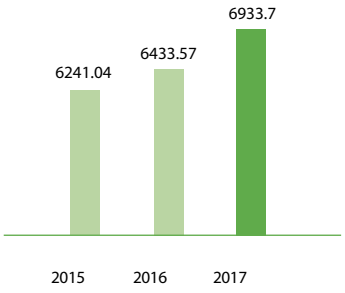
- Promotion of Economic Development
- Social Contribution Value
- Continuous Promotion of Employment

Promotion of Economic Development

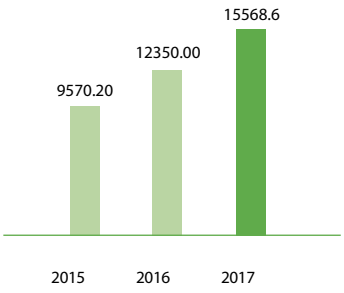
CREC has worked hard to become the prop for the national economic development. In 2017, the Company has driven the global and local economic growth and promoted the economic development and social progress through the construction of railway, highway, rail transit, port, municipal building, airport and other infrastructures in the global market especially the Chinese market, and constantly created and accumulated high-quality material wealth for the society.

In 2017, the Company total revenues was RMB 693.37 billion Yuan, with a year-on-year growth of 7.8%; the amount of newly-signed contracts reached RMB 1556.86 billion Yuan, with a year-on-year growth of 26.1%; net profit belonged to parent company was RMB 16.07 billion Yuan, with the average profit of RMB 0.669 Yuan for each share. CREC has become the major creator of social wealth and an important driving force for social and economic development.

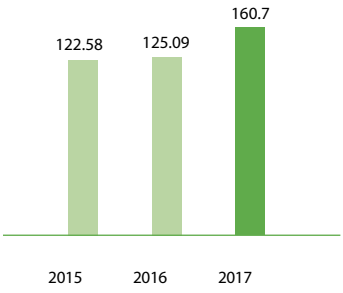
(Unit: RMB 0.1Billion Yuan)



Operating income



The amount of new-signed contract



Net profit

Terminological Interpretation:

(1) Profit contribution: the value that the Company has created through making profits for shareholders.

(2) Tax contribution: the value that the Company has paid the state and local tax revenue, fees and others.

(3) Debt interest contribution: the value such as interest that the Company has created for creditors.

(4) Employee contribution: the value of wages and benefits paid by the Company for employees (including peasant workers).

(5) Public welfare contribution: the direct expenditures for helping the poor, dedication of love and others including donated money and things.

(6) Other contribution: the positive benefits assessment value that corporate activities bring for the society except the above items listed.

(7) The negative contribution to the environment: the negative impact value on the environment caused by corporate behaviors.

(8) The negative contribution to the safety and quality: the negative impact value on the society caused by corporate safety and quality accidents.

(9) Other negative contribution: negative benefits assessment value that corporate activities bring to the society except the above items listed.

Maintenance of Staff's Rights and Interests

CREC paid high attention to maintenance of staff's rights and interests, and supported gender equality. Through signature of labor contract according to law, it established a scientific salary management system and maintained the staff's legal rights and interests.

Labor Contract Management

In 2017, CREC strictly implemented the national Labor Contract Law and signed labor contract with its staff in written form, and the signature rate of labor contract reached 100%. Moreover, it strictly executed contract clauses; in addition, it clearly defined the rights and obligations of both parties through labor contract, and strictly executed the terms of the contract to effectively safeguard the staff's legal rights and benefits. CREC strengthened the management of labor contract and handled the relevant formalities in time for employees whose contracts have been expired, changed or terminated. Both parties will terminate the labor contract if an employee is not competent for the work post or seriously violates the Company rules and regulations.

Staff Salary Management

In 2017, in accordance with the requirements of national laws, regulations and policies, CREC further standardized the normal staff salary growth and income guarantee mechanism on the basis of original remuneration system so that the staff income growth could keep up with the corporate economic growth and the staff income level was steadily increased. The staff salaries were paid off in full and on time, and they could enjoy the Company's development achievements.

Staff Social Insurance Management

CREC protected legal social security rights and interests of the staff, supervised and urged member corporates to join in primary endowment insurance, basic medical insurance, work-related injury insurance, unemployment insurance and maternity insurance for the staff. In addition, the Company actively implemented national requirements about industry and corporate social insurance to be listed into local management. In 2016, it vigorously standardized and boosted enterprise annuity management, supervised member corporates to establish annuity plan.

Democratic Rights of Staff

In 2017, CREC held the 3rd session of the second workers' congress. On the congress, the labor union signed CREC 2017 Collective Contract with the corporate on behalf of all staff; it insisted on the systems of workers' congress review of administrative work report, democratic appv ( )ompano (w (e .2 (1 (tiv(eqtiv)9.8Rteqt

Promotion of Staff's Growth

CREC strongly implemented the "Talent Corporate" strategy, treated the talents as the first corporate recourse, made effort to give priority to development of talent resources, give priority to adjustment of talent structure, give priority to talent investment and give priority to innovation of the talent system. The Company has set up professional and technical personnel promotion appraisal committee in engineering, accounting, economy, political work and other series, and carried out qualification review to senior professional and technical personnel who applied for the above series in accordance with the relevant provisions of the Company.

In 2017, the Company developed the CREC "13th Five-Year" talent development plan and talent training program, in order to provide a blueprint and basis for further promotion of the strategy of talent thriving enterprises and creation of "eight talent teams".

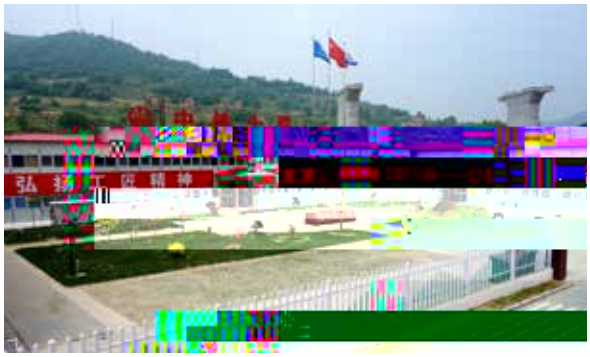
In 2017, the Company organized Jinggangshan ideal and faith training class once for leading cadres, theoretical training class twice for leading cadres, operation management training class twice for leading cadres, advanced study class once for department leaders in SASAC branch of Party School of the CPC Central Committee to vigorously carry out the education on ideal and faith, party style and party discipline, political theory, and has trained more than 350 leaders at all levels. The whole company has totally trained over 300,000 talents in all fields and promoted the substantially improvement of talent team in capacity and quality.

In 2017, CREC established a new CREC Expert Committee and set up 17 professional groups. At the beginning of the year, each professional group determined the projects by centering on scientific and technological innovation, project construction and management, research on major and key technical issues, and reported to the Expert Committee on the progress and achievements of the projects at the end of the year. At the same time, CREC conducted advanced research on various industry development trends and innovated new processes and methods to provide powerful technical support for technological innovation of enterprise and improvement of technological level of all industries, and gave full play to the professional advantages of experts and high-end think tank.

In 2017, CREC added 3 "master designers in national engineering survey and design", 2 "young science and technology talents in national transportation", 18 experts enjoying the State Council special contribution allowance, and promoted 4090 personnel to senior professional title.

Information 1: In 2017, the Company continued to carry out "3 +1" order-oriented training work for international engineering reserve talent, and totally recruited 338 junior students in 8 cooperative colleges and universities, an increase of 16 students over last year. At the same time, more than 300 college students graduated from the second international engineering class were assigned to various overseas projects to begin the actual practice. 60 young backbones who successfully graduated from the second CREC International Engineering Seminar have completed full-time study of nearly 10 months. They have improved the level of foreign languages and become familiar with the international engineering contracts, laws, businesses, and management knowledge, laying a solid foundation for better participation in the development of international business in the future.

Information 2: In 2017, the Company carefully organized the appraisal of skills, appraisal of high-skilled personnel and appraisal of premium technicians. It appraised and approved 597 senior technicians and 139 premium technicians, and Ju Xiaolin, Bai Zhiyong and Dou Tie were evaluated as Great Craftsman Technicians.



Reinforcement of Three Projects Construction

In 2017, CREC adhered to the “three projects” construction as the main content, namely construction site life, culture and hygiene. It accumulatively invested RMB 281 million Yuan in the "three projects" construction, fully improved the standard of living, culture and hygiene in forefront of the construction and created good living and working environment for front-line staff.

Information 1: In 2017, CREC overall implemented "Ten One Program of Happy Family" in Project Department to improve staff happiness index as the goal. Closely centering on the core work of Project Department, it focused on beautifying working environment, building a platform for making achievements, enriching the cultural life of construction site, caring for employees' physical and mental health, protecting the legitimate rights and interests of employees and building a spiritual home for employees in order to let every employee have a good environment for safety and health, a good mood for work and life, a sound physique in body and mind to realize decent work, happy life and all-round development.

Information 2: CREC Shanghai Bureau extensively carried out the standardization construction of "Family for the Staff", standardized and unified the resident construction standard so that the appearance color, overall style, image elements, equipment and facilities of the project of "Family for the Staff" become neat and uniform, which not only saved the project resident construction cost but also made the Company look "like family" and take it as the "family", and let employees more "love family" and "attached to the family".

Safety Supervision

Perfection of Management System

Implementation of Safeguard Measures

Concerns about Occupational Health

Perfection of Management System

CREC is constantly taking "to maintain stable condition of safe production, to provide the society with safe and good-quality architectural products, to provide the public with pleasant environment and create safe and health working condition for the staff" as the most important aspect of its social responsibility. In the long-term construction production and project management process, CREC formed a complete set of perfect safety management system, including the safe production responsibility system, prevention of major accidents, safety input, safety education, safety management and safety inspection, safety assessment, rewards and punishments and so on.

CREC safety concept: Hidden danger is more dangerous than open fire, prevention is better than disaster relief, and responsibility is extremely heavy.

Safety management policies: Safety first, prevention as the main and comprehensive management.

Safety management principles: Unified leadership, responsibility implementation, classification management and guidance, full participation.

Safety management objectives: Building of intrinsic safe enterprise.

In 2017, CREC firmly established the concept of safety development and "Zero Accident" and further strengthened the "Red Line" awareness and "Bottom Line" thinking. Combining with the actual situation of corporate reform and development and being problem-oriented, CREC insisted on resolving the current problems and eliminating the root causes, paid attention to top-level design, improved rules and regulations. Moreover, it successively studied and formulated the Rigid Requirement on Prevention of Inertial Accidents and Strengthening of Technology and Management Exchanges, and put forth rigid requirement on technology and management exchanges for preventing inertial accidents. By strengthening management training and information exchange, CREC further improved the on-site prevention and control measures, controlled the accident source, adhered to the process control and strictly followed technical standards, and worked hard to prevent production safety accidents. In addition, CREC issued Notice on Putting the Operation of "Safety and Quality Hidden Danger Investigation and Management System" into Safety and Quality Inspection and Assessment at All Levels". It gave full play to the role of science and technology, carried out regulation violation rectification actions in an in-depth manner and promoted the standardization construction on engineering project and safety management; it strengthened safety education and training, planed and implemented the "Year of Learning" activities in the whole company production safety system, intensified safety production inspection, hidden danger investigation and management as well as accident liability investigation, strengthened safety and quality control over investment projects and general contracting projects so as to ensure the stability of the whole company in production safety, occupational health, and environmental protection.

Implementation of Safeguard Measures

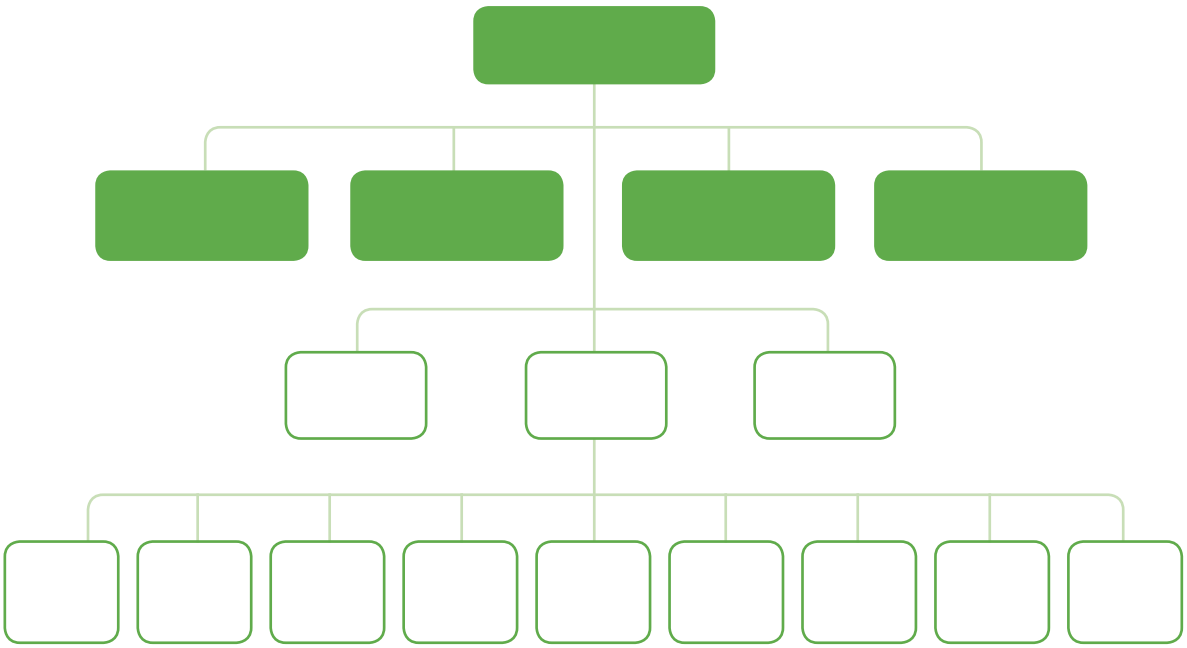
In 2017, CREC held production safety conferences for many times to keep alarm bell ringing. Moreover, it redeployed, re-arranged and re-implemented the safety production work and further highlighted key cities and key areas. CREC strictly controlled the total number of accidents and the frequency of various types of accidents, insisted on problem orientation, adhered to the on-site management, insisted on standardization management, perfected system and mechanism, strove to achieve "zero deviation" in rules and regulations, "zero error" in technical management, "zero loophole" in subcontracting management, "zero violation" in construction operation, "zero defect" in equipment status, "zero omission" in acceptance of materials and equipment, and "zero hidden danger" in construction site so as to realize "zero accident" in the enterprise and projects.

Information 1: In the second half of 2017, CREC conducted a large-scale inspection of safety production in the whole company and each unit set up a special inspection team led by key leaders. They focused on tunnel and underground engineering, large temporary facilities, supporting systems, lifting equipment disassembling and lifting operations, construction of business lines, accident warning education, troubleshooting system application to carry out on-site civilized construction, environmental protection and occupational health management in order to completely eradicate inertial problem such as "three violations" on site and ensure that the situation of safety production in the whole company is stable and controllable.

Information 2: In 2017, CREC Beijing Engineering Bureau conducted a pilot program of Internet + safety training mode in all affiliated units and project departments. It carried out comprehensive innovation in terms of training form, content and carrier, and developed a network training platform to support more than 200 countries and regions in the world to access, having achieved full coverage of safety education; it developed an off-line program and used the second-generation ID card identification device to support front-line workers and peasant workers for centralized video learning in meeting rooms and other places. Through on-site ID identification devices, projectors, notebook computers, it has set up a mobile electronic classroom for enterprises to effectively solve the safety education problem in project departments.

Improvement of Innovation System

According to the new requirements for scientific and technical innovation put forward by the state and construction industry and the demand for corporate self-development, the Company sped up the implementation of scientific innovation driven development. It carried out overall planning and optimization and integration to existing scientific resources and constantly perfected "two grades and four layers" technical innovation system with Chinese characteristics with market as orientation, corporate as main body, project as carrier, national laboratory as basis, technical center as platform and professional R&D center as backbone through joint tackling and open scientific research so as to achieve technically innovative operation management mode with layers in longitudinal direction and divisions in transverse direction by taking CREC technical center as the leading, all member enterprises' technical centers as main body and all professional R&D centers as backbone, laying a solid foundation for scientific innovation. In 2017, the Company seriously implemented the requirements of the state and SASAC of the State Council on innovation-driven development, made overall plans, highlighted innovations, participated in the innovation achievements exhibition of central enterprises, and received wide acclaim and won numerous rewards.



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As the main participator and promoter of the development of Chinese and world architecture, CREC has not only been in pursuit of self-development for many years, but also taken the leading of industrial progress as its important responsibility, which mainly manifested in expanding the industrial scale, driving the industrial self-discipline, leading technical innovation, win-win cooperation with partners and so on.

As the first batch of national "innovative corporate" granted by Ministry of Science and Technology, SASAC and ACFTU (All China Federation of

国家科技进步奖
特等奖

Strengthening Innovation Drive

In 2017, CREC carefully implemented the national guidelines for scientific and technical works of "independent innovation, key spanning, supportable development and leading the future". Combined with the actual enterprises development and engineering construction demands, it newly started 1109 research projects. Centering on the high-tech fields mainly supported by the state and enterprise "13th Five-Year Plan" for technology development, the Company enhanced scientific research strength in high-speed rails, large span bridges, long tunnels, low-carbon technologies, industrial upgrading, transformation of scientific research achievements, integration of industry and finance, organized and carried out scientific and technological research. It overcame a series of key technical problems, and further enhanced the scientific and technological innovation capability.

Information 1: In 2017, the Company carried out scientific research and development by centering on the Company "13th Five-Year Plan" for technology development. It took major and difficult projects as the support in its science and technology development plan, including Beijing-Zhangjiakou Railway, Iran Tehran-Isfahan High-Speed Rail, Chengdu-Lanzhou Railway, Lasa-Linzhi Railway, Indonesia Jakarta-Bandung High-Speed Rail, Chengdu-Guiyang High-Speed Rail, Chongqing-Kunming High-Speed Rail, Zhengzhou-Jinan High-Speed Rail, Yinchuan-Xining Railway, Zhengzhou-Wanzhou High-Speed Rail, Dali-Ruili Railway, Zhengzhou Yellow River Super-large Bridge, Maldives China-Maldives Friendship Bridge, Chibi Yangtze River Highway Bridge, Yarlung Zangbo River Super-large Bridge, Liuzhou Guantang Bridge, Kalasuk Reservoir Super-large Bridge in Altay-Zhundong Railway, Badaling Tunnel, Gaoligongshan Tunnel, Yangjiaping Tunnel Project in Chengdu-Lanzhou Railway, Yujingshan Tunnel, Yuanbaoshan Tunnel, Guangzhou Metro, Beijing Subway, Kunming Metro, Dalian Metro, Changsha Metro, Jinan Metro, Nanning Metro, Harbin Metro, and it mainly carried out the research on key technologies such as long and big mountain tunnel construction technology under complex environment and geological conditions, key technologies for large-diameter shield equipment and construction in earth - rock - boulder mixed layer, key technologies for bridges of long-span railway (highway) cable-stayed suspension system, comprehensive construction technology for underground pipe gallery, ballastless track system in city railway, and straddle-type monorail mass transit project, etc.

Information 2: In 2017, 4 units including CREC No.3 were awarded advanced enterprises for scientific innovation granted by China Association of Construction Enterprise Management. Five patents including "resonance crusher", "a special water-reducing agent for self-compacting concrete of ballastless track of high-speed railway", "curve control method of steel bridge tower with curved line", "umbrella ratchet compensation device", "geometrical precision measurement system for railway track" won the Excellence Award of 18th China Patent Award.

Environmental Protection

- Promotion of Energy Saving and Emission Reduction
- Strengthening Environment Governance
- Protection of Ecological Environment

Promotion of Energy Saving and Emission Reduction

In 2017, CREC actively carried out energy saving and emission reduction work, issued CREC "13th Five-Year" energy saving and emission reduction plan, and fully implemented standardized site construction of energy saving and emission reduction, promoted the application of new technologies, new processes and new equipment to improve energy efficiency while strictly controlling pollutant emissions, increased technological transformation and elimination of backward equipment, reduced emissions of waste gas and waste liquid, and made full use of waste residues and other waste. It carried out energy saving and emission reduction training to its 42 units and organized the relevant units in Beijing to carry out the management of scattered coal in Beijing area in an all-round way. In 2017, there was neither environmental liability accident nor major illegal event on energy saving and emission reduction; and the pollutant emission reached both relevant national and local emission standards.

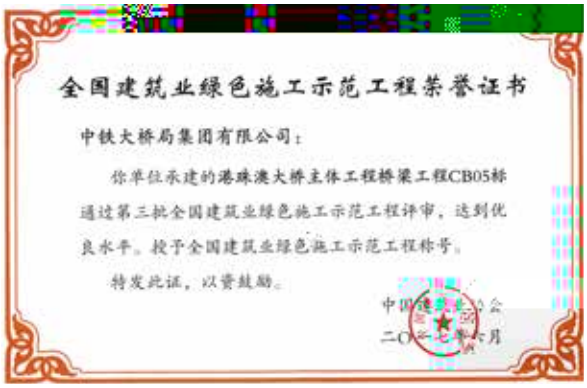
In 2017, CREC completed the energy saving and emission reduction statistics and summary analysis report in time on a quarterly basis. The annual consolidated energy consumption (comparable price) of operating revenue was 0.0571 tonne of standard coal/ten thousand yuan, which was reduced by 3.22% on year-on-year basis, so that it successfully completed the scheduled annual objectives for energy saving and emission reduction.

Information 1: In 2017, 18 engineering projects were defined as the 5th batch of national green construction demonstration projects in construction industry, and 71 projects won the title of CREC standardized construction site for energy saving and emission reduction.

Information 2: In 2017, CREC made further efforts in R&D of key energy-saving and low-carbon technologies, and 27 technologies were selected as CREC key energy-saving and low-carbon technologies. At the same time, it also carried out the research on enterprise standard, "Green Bridge Construction Project Specifications and Evaluation Criteria".

Key performance indicators in three aspects of emissions, resource use, environmental and natural resources

	E i i a d E e g T e	Acc a ed C ei Va e La Yea	Acc a ed C ei Va e Thi Yea	E i e a a d Na a Re ce
Exhaust emission types and related emission data	Nitrogen oxide, sulfur oxide and other pollutants regulated by national laws and regulations	---	---	---
Total amount of greenhouse gas emission (ton)	CO_2	13195853.6	12613192	---
	Other gases (specify if any)	---	---	---
Hazardous waste produced	In 2017, CREC continued to make the improvement of its energy saving and emission reduction management system as the basis, and excellence evaluation and construction promotion as the starting point, so that its green construction and green manufacturing levels on energy saving and emission reduction demonstration projects in infrastructure construction, industrial manufacturing, real estate and investment sectors have been significantly improved, the exhaust emission and total waste were decreased compared to the same period of last year, and a new progress was made in energy saving and emission reduction as well as in environmental protection. The company plans to continue the establishment of energy saving and emission reduction demonstration project, select and promote the application of key energy-saving and low-carbon technologies, and comprehensively reduce emission and total waste; it will make efforts to improve the statistical level of CREC waste gas and hazardous/non-hazardous waste emissions, comprehensively improve the company's environment, energy saving and emission reduction data monitoring system, and achieve a new promotion in classification and quantitative statistics of exhaust emission and total hazardous/non-hazardous waste so as to overall promote CREC energy saving and environmental protection work.			
Total amount of non-hazardous waste produced				
Detailed description of measures and the results obtained in energy saving and emission reduction	In 2017, the comprehensive energy consumption (comparable price) per ten-thousand operating income was 0.0571t standard coal, which was reduced by 3.22% on year-on-year basis compared to the last year, and the Company successfully completed the annual objectives for energy saving and emission reduction.			---
Detailed description of methods for handling hazardous and non-hazardous waste, measures to reduce production and all results	Generally, hazardous and non-hazardous wastes are handled through physical, chemical, biological, physicochemical and biochemical methods in order to make them suitable for transport, storage, utilization or disposal. The goal of waste disposal is harmless, reduced, and resource-based. The main methods currently used include compaction, crushing, sorting, solidification, incineration, and biological treatment, etc. For example, in response to the difficult problem of processing and recycling about 1.2 million cubic meters of construction rubbles produced in housebreaking and migration in the south area of new town in the south of Nanjing, CREC took the first to explore the recycling of large amounts of construction rubbles in China. Up to now, it has completed the construction of construction rubbles treatment plant to process and treat the building solid waste produced in demolition such as concrete blocks, bricks, and muck, and used them to fill road structure layers. Through the recycling of construction rubbles, the transportation volume of more than 1 million tons of building materials can be effectively reduced.			---
Direct/indirect energy classified by type (e.g. electricity, gas or oil)	Electricity (kilowatt)	837891	829139	---
	Gasoline (ton)	372650	357620	---
	Diesel (ton)	1267443	1218530	---
	Natural gas (10,000 standard cubic meters)	4100	4390	---
	Other energy (specify the name if any)	17080 (ton standard coal)	14850 (ton standard coal)	---
Total water consumption	Water (ton)	170082209.45	163640091	---
Describe energy use benefit plan and the results obtained	In 2017, the comprehensive energy consumption (comparable price) per ten-thousand operating income was 0.0571t standard coal, which was reduced by 3.22% on year-on-year basis compared to the last year, and the Company successfully completed the annual objectives for energy saving and emission reduction.			---
Describe any problems on the applicable water source, and enhancement in water efficiency and results obtained	There is no problem on the applicable water source, and the construction production water is mainly used for concrete curing, vehicle washing and dust suppression. The project departments of the Company attached great importance to water saving in construction and formulated effective measures, including setting up a three-stage sedimentation tank, developing an automatic spraying system and collecting natural precipitation to effectively save water resources.			---
NA, omitted	---			---
Describe the significant impact of operational activities on the environment and natural resources and the actions taken to manage the impact	CREC attached great importance to energy saving and emission reduction demonstration project construction, and carried out control from the source to reduce energy consumption. Through energy saving and emission reduction target management, system construction in construction site, it implemented energy saving and emission reduction responsibility system. Moreover, it formulated effective measures to standardize project management and realized the conservation and comprehensive utilization of resources and energy to ensure that there are no environmental			


全国建筑业绿色施工示范工程荣誉证书

中铁大桥局集团有限公司：

你单位承建的港珠澳大桥主体工程桥梁工程CB05标通过第三批全国建筑业绿色施工示范工程评审，达到优良水平。授予全国建筑业绿色施工示范工程称号。

特发此证，以资鼓励。

二〇一七年六月

Strengthening Environment Governance

In 2017, CREC performed enterprise environmental protection work according to laws and regulations. In accordance with Environmental Protection Law of the People's Republic of China, Administrative Regulations on Environmental Protection of Construction Project and other related environmental protection laws and regulation, rules and system as well as technical specifications, it released the details of key environmental protection work and implementation requirements, and established enterprise environmental protection management system. The Company carried out the principles of "Localization Management", "Prevention First, Combination of Prevention and Treatment", and "Pollution Control by the Unit Producing Pollution" in terms of enterprise environmental protection at all levels. Under the supervision and administration of national and local environmental protection authorities, it implemented a management model of unified leadership of a joint-stock company and responsibility undertaking at all levels of subsidiaries and branches, taking the road of cleaner production and sustainable development. In addition, it actively introduced ISO14001: 2004 environmental management system standards to ensure that the environmental protection work is orderly and controllable. For construction projects that CREC invests, designs, and with resources enterprises as the main investors, it insisted on conducting environmental impact evaluation according to law and fulfilling environmental approval procedures. Its environmental protection projects must be included in the overall project construction design to ensure that the relevant infrastructure and technological renovation projects are designed, constructed and put into operation simultaneously with the pollution prevention and control facilities and the main project. In order to ensure the normal operation of pollution discharge and treatment facilities of various sources of pollution in the production and living areas, the Company continued to strengthen the control management on discharge of waste water (liquid), waste (smoke) gas, dust, noise (vibration), solid waste (fragments) and radioactive hazards, setting goals, developing measures and implementing responsibilities to ensure up-to-standard discharge. For the temporary land involved in the construction process, the Company strictly prepared land use and reclamation planning, with special attention to the environmental protection in densely populated areas, water source conservation areas, scenic areas, nature reserves and national key protected monuments. In addition, it carried out reclamation in accordance with the provisions after completion of the project to maximize the repair and use of the environment. For materials prone to dust in the workplace, the Company took dust-proof measures such as fencing and covering. The construction sewage and mud must be discharged after being precipitated in three sedimentation tanks and must be cleaned regularly by specially-assigned person so as to actively build a green construction site. It improved the recycle rate of industrial water, reduced water consumption per unit of product, and saved water resources.

Information 1: In 2017, the Company actively took part in the evaluation and promotion of national key practical technologies and demonstration projects of environmental protection. The projects including CREC No.7 suburban railway works from South 4th Ring Road to South Zhengzhou Railway Station, main works of CRBB Hong Kong-Zhuhai-Macau Bridge and Yichang Miaozui Yangtze River Bridge won 2017 national green construction demonstration projects in construction industry.

Information 2: In 2017, CRBBG (China Railway Baoji Bridge Group Co., Ltd.) focused on the treatment of volatile organic compounds in the steel structure coating process and newly built three mobile painting booths. During the painting operation, under the action of the exhaust fan, certain section air velocity is generated in the painting working area, so that the paint mist generated by the painting can be discharged in time and effectively, thus the environment of the painting worker's operation area is in line with the industrial hygiene standards. After organic waste gas is collected, it can be purified by a combined process of activated carbon fiber adsorption and concentration, hot air desorption and catalytic combustion.

Protection of Ecological Environment

In 2017, CREC actively implemented the green development philosophy of "Lucid waters and lush mountains are invaluable assets", and adhered to both resources conservation and environment protection so as to strive to build "environment-friendly and resource-saving" projects. In the early stage of project construction, CREC always organized professional institutions to evaluate the ecological environmental protection, made practical and effective protection program, especially focusing on construction site whose ecology is liable to be disturbed, it planed the ecological environment and project construction synchronously. Moreover, it carried out works such as conservation of water and soil, biodiversity protection, vegetation protection etc. In the construction process, CREC paid attention to the investment in ecological protection, applied environmental protection equipment, improved ecological construction process and optimized construction program, thus reducing the impact on water, air, vegetation and organism. No ecological destruction event occurred throughout the year.

Information 1: In Guanting Reservoir Super-large Bridge construction in Beijing-Zhangjiakou High-Speed Rail, CRBB (China Railway Bridge Bureau) entrusted a third-party water quality monitoring unit for real-time monitoring of reservoir water quality in order to protect the ecological environment of Guanting Reservoir (one of Beijing's three major water sources) from being affected. In addition, CRBB repeatedly optimized the construction scheme, took the construction scheme of assembling steel beam on the shore and pushing the beam to the middle of lake from the shore to minimize the water construction procedures and minimize the impact of the construction on water resources in the reservoir area.

Information 2: Wangjing Tunnel in Beijing-Shenyang High-Speed Rail constructed by China Railway Tunnel Bureau is the first large-diameter slurry shield tunnel in the high-speed rail in Beijing area. In construction, through scientific and technological innovation, the project departments summed up a set of methods for screening, swirling, filter pressing, centrifugation and auxiliary agents, and successfully solved the problem of separation of ultra-fine soil particles to achieve solid-liquid separation of slurry shield. The separated muck was transported to a special storage place while the fresh water was recycled to ensure zero emissions, zero leakage and zero pollution for green construction.

Targeted Poverty Alleviation Planning

Under the unified arrangement of the Poverty Alleviation Office and the SASAC of the State Council, the controlling shareholder, China Railway Hi-tech Industry Corporation Limited, positively responded to the call of the Party and the State and actively fulfilled the social responsibilities and obligations of a central enterprise. Since 2002 when it began to participate in targeted poverty alleviation, In addition, it has always carried out targeted assistance works from the actual needs of local people, gave full play to the advantages of the enterprise, increased intellectual support, technical services and information and policy guidance, and make its due contributions to throwing off poverty as scheduled in designated poverty alleviation county. In order to implement the "Outline for Rural Poverty Alleviation and Development in China (2011-2020)", "Opinions on Pushing Rural Poverty Alleviation and Development by Innovation Mechanism" and overall requirements and deployment of Poverty Alleviation Office and SASAC of the State Council, CREC released "CREC 2016 - 2020 targeted poverty alleviation work plan". It comprehensively implemented the instructions of General Secretary Xi Jinping on "four practical works" and "five batches" for poverty alleviation, and took cadre poverty alleviation as an important starting point for the Company in poverty alleviation work. It insisted on government-leadership and enterprise participation; it insisted on seeking truths from facts and highlighted targeted poverty alleviation; it insisted on highlighting the important point and classification guidance; it insisted on linkage between the superiors and subordinates for solving problem together. It strives to make the poor households that were established the record not worry about their eating and wearing by 2020, help the three county poverty to uncap.

Targeted Poverty Alleviation Summary

In 2017, facing the new situation of poverty alleviation work, all departments of the Company continued to attach great importance to poverty alleviation and development work. Based on the reality of the enterprises, the Company focused on the objective of "targeted poverty alleviation and targeted poverty elimination". In accordance with the arrangement of the local government, 15 affiliated enterprises under second-level units participated in the poverty alleviation and development work and actively helped poverty-stricken areas get rid of poverty through funds input, industrial assistance and employment of poor labor force. Throughout the year, the Company invested a total of nearly RMB65 million Yuan for poverty alleviation and development and helped nearly 6,000 poor families that were established the record to eliminate poverty. Of which, RMB 30 million Yuan was invested to support the reconstruction of the south-central highway project in Baode County which would effectively solve such problems as the travel of the masses, the utilization of mineral resources and the transportation of agricultural products; RMB 22.5 million Yuan was invested to support the construction of Phase I project of Datang Industrial Park in Guidong County and solved the employment problem of a total of 1,100 persons of 320 relocated households; RMB1.434 million Yuan was invested to support the construction of Rucheng County Skills Education and Training Base. By relying on the support of CREC education resources, it can receive about 300 students each year from poor families that were established the record, thus bringing about remarkable results in poverty elimination. In addition, it adjusted measures to local conditions and actively supported local industrial development. It built an industrial poverty alleviation demonstration and the 10,000-head wild boar ecological breeding base in Shanlian Village of Nandong Township in Rucheng County. It set up the planting base of pod pepper in Xiyuan Village of Xinfang Township in Guidong County and Chinese herbal medicine demonstration base in Shangdong Village of Oujiang Township. A total of 1500 poor people obtained employment, and per capita family income was increased by 1500-3000 Yuan or so.

Targeted Poverty Alleviation Result

Key performance indicators in three aspects of emissions, resource use, environmental and natural resources

I de	Q a i a d De e ⌄ e
I. General Information	6498.31
Of which, 1. Fund	5457.49
2. Materials converted into cash	981.52
3. Number of poverty elimination among the poor families that were established the record (person)	8584
II. Sub-item Investment	
1. Industry development and poverty elimination	
Of which, 1.1 Type of poverty alleviation project by industry	√ Poverty alleviation by agriculture and forestry industry Poverty alleviation by tour Poverty alleviation by e-commerce √ Poverty alleviation by assets income √ Poverty alleviation by science and technology √ Others
1.2 Number of poverty alleviation project by industry (piece)	26
1.3 Investment amount for poverty alleviation project by industry	2607.13
1.4. Number of poverty elimination among the poor families that were established the record (person)	3551
2. Poverty elimination by transfer and employment	
Of which, 2.1 Investment amount for vocational skill training	165.57
2.2 Number of persons receiving vocational skill training (person/time)	

Subsequent Targeted Poverty Alleviation Plan

In 2018, the poverty alleviation and development work will be into a crucial period for tackling key problems. CREC will innovate its thinking and take active actions to carry out the "CREC Implementation Plan for Targeted Poverty Alleviation in 2016-2020", and will strive to upgrade its work standards so as to effectively and continuously carry poverty alleviation forward.

中国中铁郭明义爱心团队

Disaster Relief

For many years, CREC has come out boldly and dared to challenge when facing series of serious natural disasters, and it actively took part in the rescue works; it positively fulfilled the responsibility of central enterprise, and has been highly praised by both the government and public.

In 2017, the whole company actively took part in various rescue and relief works in all places for nearly 260 times, with nearly 18,000 person-times of rescue and relief personnel, more than 3000 sets of equipment and nearly RMB 40 million Yuan of investment. CREC has established three national tunnel professional emergency rescue teams in Kunming, Guiyang, and Xi'an, and has participated in major emergency rescue tasks. Of which, the Kunming rescue team successfully rescued 12 trapped persons.

Information 1: On June 24, 2017, a landslide occurred in Mao County, Sichuan Province. CREC Party Committee attached great importance to it, and rapidly deployed 9 units to participate in disaster relief work. It invested more than 300 person-times of rescue and relief personnel, more than 70 sets of equipment, as well as a large amount of relief supplies, and successfully rescued 3 persons.

Information 2: On August 8, 2017, after the earthquake in Jiuzhaigou County, Aba Prefecture, Sichuan Province, all the units of CREC took prompt action and immediately organized the project departments close to the affected area to fully participate in the disaster relief work. It invested more than 200 person-times of rescue and relief personnel, more than 50 sets of equipment, as well as a large amount of relief supplies including tents, shovels, mineral water, and successfully completed such works as people search and rescue, road repair and logistical assistance.

Community Service

CREC always insisted on the work ideas of local corporate civilization and harmonious construction, widely supported the army and gave preferential treatment to the families of the armyman and martyrs, supported military police construction, offered volunteer services to gerocomium, hospital, street office, community, school and other local institutions, implementing its corporate citizenship responsibility by its actual deeds.

In 2017, the whole company totally set up 1105 volunteer service teams that offered volunteer services for 16,414 person-times, and carried out various volunteer service activities for 4283 times, with 44,033 persons receiving the help. It vigorously carried forward the social morality, and actively built a harmonious society.

In 2017, the whole company donated the fund of more than RMB 12 million Yuan for education, helped nearly 9000 students; it invested over RMB 60 million Yuan to other public welfare undertakings.

Information 1: Since 2013, CREC No.4 has explored and carried out a number of public welfare activities including the "Happiness Project" volunteer project for peasant workers to serve peasant workers and benefit peasant workers through "comprehensive system planning, full-coverage resource integration and full-cycle volunteering". The Loving-care Team of CREC No.4 won a number of awards such as National Outstanding Young Volunteer Organization Award, Outstanding Project Award, Gold, Silver and Bronze Prizes of National Young Volunteer Service Project Competition, and its "Happiness Project" volunteer project for caring peasant workers was included in the national "Four 100" best volunteer service projects.

Information 2: On June 10, 2017, CREC No.6 conducted Open Day activity of the capital state-owned enterprises. More than 50 Beijing residents, more than 20 reporters from 18 media and MiniHouse friends walked into the construction site of Beijing-Zhangjiakou High Speed Rail project and the Maglev Line S1 site undertaken by CREC No.6. They respectively experienced at the construction site of the modernized high-speed railway bridges, high-tech production command centers, standardized auxiliary production areas, specialized construction production and safety experience halls and the first medium and low speed Maglev Line S1 in Beijing.

Information 3: On September 6, 2017, the organ of CREC No.10 organized a blood donation activity on the theme of "gathering blood to pass on love". In this activity, a total of 74 loving-care volunteers donated blood of 26200ml. The organ of CREC No.10 organizes voluntary blood donation activities every year, thus effectively alleviating the shortage situation of clinical blood supply in Jinan and making positive contributions to ensuring people's lives and health.

Strengthening Strategic Cooperation

CREC attached great attention to the strategic cooperation with domestic and abroad organizations and large-scale corporates. The Company has set up a broad strategic alliance and close cooperative relationship in talent cultivation, funds management, construction and production, material supply, culture construction, scientific innovation and strategic development, promoting all-round complementary advantages to achieve resource sharing and collaborative development.

In 2017, CREC made full use of its advantages in capital, technology, management and talent reserve, and conducted extensive strategic cooperation with Shandong Province, Shanxi Province, Henan Province, Hunan Province, Guangxi Autonomous Region, Tibet Autonomous Region, Xiong'an New Area, Jinan City, Taiyuan City and Dongying City Weifang City and other local governments.

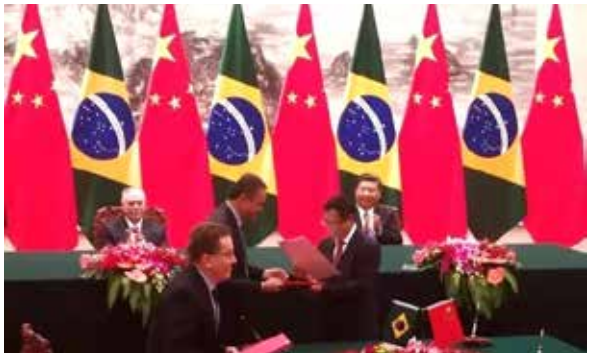
Promotion of Industrial Cooperation

In 2017, the Company actively pushed forward industrial cooperation in high-speed rail, infrastructure construction, financial service and building materials. In the field of high-speed rail construction, the Company carried out strategic cooperation in talent cultivation and technology sharing with Beijing Union University and other colleges and universities; in addition, it conducted in-depth cooperation with CRRC and other industrial chain-related enterprises to jointly promote China's high-speed rail development. In infrastructure construction filed, the Company carried out strategic cooperation with large-scale corporates such as HNCC (Hunan Communication & Water Conservancy Group Ltd), Country Garden Holdings, and Zhanjiang Communication Investment Group Co., Ltd to actively take part in domestic infrastructure investment and construction. In financial service field, the Company actively carried out cooperation with Industrial and Commercial Bank of China, China Construction Bank, CITIC Securities and Everbright Securities to innovate investment and financing mode and set up complete business chains. In the cooperation with suppliers, it carried out multi-aspect deep-level cooperation with a variety of suppliers in product development, technological innovation, product optimization, resource integration, information sharing and other aspects to achieve a harmonious win-win situation and value sharing. At the same time, we also continuously strengthened our supply chain management and constantly monitor their performance in integrity, product quality, safety and environmental protection by keeping the fairness in the supply chain as the basic requirement.

Information 1: On June 17, 2017 at the Inaugural Meeting of 2017 Silk Road International Association (SRIA), CREC and Zhejiang Provincial Government, China Construction Bank, Everbright Securities, International Finance Forum jointly sponsored the establishment of the Silk Road International Association (SRIA), with the Headquarter in Hangzhou.

Information 2: Under the guidance of SASAC of the State Council in 2017, CREC and other 13 central state-owned enterprises jointly sponsored the establishment of the Central Enterprise E-Commerce Alliance. CREC e-commerce platform relies on the alliance platform to strengthen the sharing of information resources with its council member units, promote the extensive interconnection of platform data and fully support the development strategy of national e-commerce.

Information 3: In 2017, CREC continued to carry out strategic cooperation with PetroChina to implement strategic procurement, centralized procurement and supply of petrochemical products. It achieved centralized procurement and supply of petrochemical products in 1214 projects accumulatively, and supplied petrochemical products of 600,000 tons to ensure product quality and maximize the conservation of resources and reduce environmental pollution.



FIOL

Construction Project Cooperation

In 2017, CREC carried out project cooperation with a number of domestic and foreign enterprises and actively innovated their business models. It won the bid for a number of ppp projects together with numerous third parties, respectively, including Qingdao Metro Line 8, Phase I project of Chengdu Rail Transit Line 9, etc. During the implementation of national strategies including "Belt and Road" and "China high-speed rail going out", it cooperated with related enterprises to boost China-Laos railway, Hanoi light rail in Vietnam, Astana light rail in Kazakhstan and other overseas major projects.

Information 1: Astana light rail constructed by CREC No.2 through cooperation with a number of enterprises is the first urban light rail in Kazakhstan. In this project, all Chinese standards were adopted, and the project is the first rail transit project in Central Asia that uses all Chinese standards. The total length of the line is 22 kilometers. When it is completed, it will shorten the commuting time at both ends of the light rail by nearly half, and will greatly relieve the traffic congestion problem in the area.

Information 2: On September 1, 2017, during the visit period of Brazil President Michel Temer to China, under the joint witness of presidents of China and Brazil, CREC, on behalf of Chinese signed the "MOU for Integrated Project of Brazil FIOL Railway and Related Supporting Projects" with Brazil. The project integrates railway, iron ore and port in large scale, involving many specialties. In order to improve the operational efficiency of the project, three enterprises including CREC carried out powerful combination to innovate the cooperation model and form a team to jointly promote the project implementation.

Global Development

Over the years, CREC has always adhered to the "going out" strategy, and actively participated in global infrastructure construction. At present, the Company's international business has been involved in foreign engineering contracting, design consulting, machinery manufacturing, overseas investment, resource development, labor export and international trade business, and overseas projects cover railways, highways, bridges, tunnels, housing construction, urban rail, municipal engineering and other fields.

In 2017, CREC achieved overseas business income of RMB 41.68 billion Yuan.

As of the end of 2017, CREC has set up overseas institutions in 83 countries to carry out business, and it has 493 overseas contract projects, design and industrial product processing projects under way. The Company ranked No. 2 in ENR largest global contractors in 2017 and No. 21 in international contractors.

In May 2017, the world-renowned China's Belt and Road Initiative Forum on International Cooperation was opened in Beijing. As a vanguard in "Belt and Road" infrastructure construction, CREC positively responded to the government's call and participated in a number of major railway projects under the Belt and Road Initiative, and achieved great achievements, including the completed "Belt and Road Initiative" projects such as Uzbekistan Angren-Pap Tunnel Project, Addis Ababa Light Rail in Ethiopia and Addis Ababa-Djibouti Railway Project in Ethiopia; the major projects under way includes Indonesia Jakarta-Bandung High-Speed Rail Project, China-Laos Railway Project in Laos, Astana Light Rail Project in Kazakhstan, Bangladesh Padma Bridge Project, newly-added Bangladesh Acora-Laxam Line 2 Project and Hanoi Light Rail Project in Vietnam.

The Company made full use of the "Belt and Road Initiative" and "Going Global" strategy to promote the export of industrial products by means of project implementation. Shield equipment, accessories, construction technology services export areas covered Singapore, Israel, Lebanon and other countries; industrial construction machinery products have been successfully launched in the market of 7 countries including, United Arab Emirates, Laos, etc.; the railway turnout products have been exported to 14 countries and regions including the United States and Russia, and the Company has achieved self-support export in Thailand, Indonesia and Malaysia. In the whole year, about 220 sets of turnout were exported and more than 2,300 pieces of frog product were sold to North America; the steel bridge structure was exported to the market of North America and Africa, with the total export of 10,000 tons.

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2017

Global Service

The Company gave a full play to its advantages of the whole industry chain and adopted EPC+F mode of design, procurement, construction and financing to provide the owners with all-round services from investment, survey and design, construction to operation and maintenance, and actively promoted China's railway technical standards, equipment and operation "going out". In terms of design, CREC undertook the design and feasibility study of most of the major overseas projects. The survey and design of Mosco-Kazan High-Speed Rail have been completed and submitted to the owner for approval, the survey and design of Pakistan ML1 Railway and the new Havelian Land Port are under way, and the feasibility study task of South American "Pacific-Atlantic Railway" is boosted in an orderly manner. In terms of construction technology, a large number of high-quality projects have been dedicated to the project countries with the craftsmanship spirit of professional dedication and pursuit of excellence. Bangladesh Padma Bridge Project adopting the Chinese standard is praised as the "Bridge of Dream" in Bangladesh; the completed Tanzania Jiganboni Bridge is named after Nyerere, the Father of the Nation, which is known as "the first bridge in East Africa"; the completed Uzbekistan Angren-Pap Tunnel Project is the first long tunnel in Central Asia, creating a new record in overseas tunnel construction. In terms of operation and maintenance, Addis Ababa Light Rail Project in Ethiopia constructed and operated by CREC has been operating safely for nearly 28 months as of the end of 2017, and Addis Ababa-Djibouti Railway in Ethiopia that CREC constructed and won the operation and maintenance contract jointly with other Chinese enterprises has been into the business operation stage.

Global Public Welfare

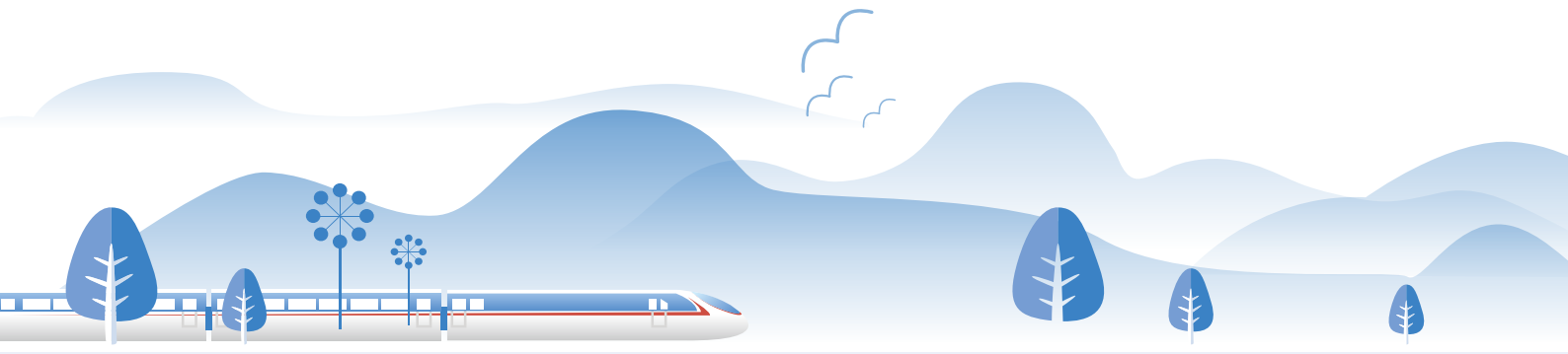
CREC insisted on the idea of "offering high-quality project and benefiting host country", and a large number of overseas major livelihood projects in 2017 including Ethiopia Addis Ababa-Djibouti Railway and Bangladesh Tongi-Bhairab Bazar Railway have been put into operation, thus greatly enhancing the local transportation capability, improving the people's living conditions, and boosting the local economic prosperity and development.

CREC international orders with accumulated amount of hundreds of billions of dollars are important part of each host country's GDP, having made a positive contribution to promotion of local employment and economic development. Up to now, the Company has hired nearly 40,000 local staff in the country where the business is located. CREC has cultivated a large number of engineering and technical personnel for the host country free of charge, and established a green management system for full monitoring from top to bottom in order to actively protect the ecological environment. In addition, CREC also actively participates in the public welfare undertakings in the countries where the project is located. A number of typical stories have emerged in poverty elimination, health research and service, education service, construction of clean drinking water and sanitation facilities, and disaster rescue and relief. Furthermore, it always upholds the road of sustainable development of enterprises abroad.

Information 1: In 2017, Ethiopia AHF project undertaken by CREC No.3 was into the final construction and handover phases. On the basis of restoring the ecological environment around the project, the project department used some abandoned facilities and surplus materials to improve some of the infrastructures along the four villages and townships, and successively helped the local government to level three football fields, transformed and expanded 3 urban roads. It has been repeatedly praised by the letters and calls from local government, and has won FOOTIG CONSULTINGPLC award by TIGRAY State at the same time.

Information 2: Padma Bridge constructed by CRBB (China Railway Bridge Bureau) is the largest project in the history of Bangladesh. The project department conducted technical training for local personnel by recruiting a large number of local university students for technical training and employing a Chinese foreman to lead a team of local labors. At present, the number of employed Bangladeshi workers is more than 3,200 persons, accounting for 85% of the total number of participants in the project. At the same time, the project department also set up a number of 24-hour medical clinics, free dormitories, dining halls and welfare facilities specifically for Bangladeshi staff, and expressed sympathy and solicitude for the staff with difficult family finances.

Information 3: In 2017, Germany Branch of CREG (China Railway Engineering Equipment Group Co., Ltd.) sponsored the school funding to Wegberg Senior High School in Germany, and provided game sponsorship funds to the team of German Technical University Munich participating in Hyperloop scientific research project. The sponsored German team, WARR Hyperloop, won SpaceX's Hyperloop Pod Super High Speed Rail Vehicle Championship and Fastest Speed Award.



2017

The selected indexes:

Statistics of CREC Selected Indexes in Hong Kong and Shanghai in 2017

A-share	SSE 180 Total Return Index, SSE 50 Index, SSE 50 Total Return Index, SSE F200 Index, SSE F500 Index, SSE Urbanization Index, SSE Industry Index, SSE Industrial Index, Index of State-owned Enterprises, SSE Overseas Index, SSE Infrastructure Index, SSE Free Float Index, SSE Large & Mid & Small Cap Index, SSE Large & Mid & Small Cap Total Return Index, SSE Market Value Top 100 Index, SSE Emerging Industry Index, SSE Central Enterprises Index, SSE Middle Industry Index, Shanghai Composite Index, Well-off Index, Emerging Composite Index, Emerging Index, Snowball Selection Index, Central Enterprises 100 Index, Central Enterprises 100 (SH) Index, CCTV 500 Index, Belt & Road Index, Galaxy 99 Index, Optimized High Beta Index, Optimized High Wave Index, Social Responsibility index, Governance Index, Zhongguancun 50 Index, Zhongguancun A Index, China 1000 Index (CNY), China 1000 Industry Index (CNY), China 400 Index, China 400ERC Index (CNY), China 400 Momentum Index, China 400 Industry Index, China Mainland Composite Index, CES China 120 Index, CES China A80 Index, CES China Shanghai-Shenzhen-Hong Kong 300 Index, CSI 100 Index, CSI 100 Total Return Index, CSI 800 Index, CSI 800R Value Index, CSI 800 Equally Weighted Index, CSI 800 Value Index, CSI 800 Total Return Index, CSI 800 Capital Index, CSI A-Share Index, CSI PPP Index, CSI Caitong ESG 100, CSI Super-large Index, CSI Super-large Index (SH), CSI Urbanization Index, CSI Service Index, CSI Industry Index, CSI Industry Index (SH), CSI Industry Total Return Index, CSI State-owned Enterprises Index, CSI State-owned Enterprises Index (SH), CSI Synthetic Option Index, CSI Infrastructure Index, CSI Free Float Index, CSI Free Float Index (SH), CSI Leading Index, CSI Large & Mid & Small Cap Index, CSI Large & Mid & Small Cap Index (SH), Construction Engineering of CSI Large & Mid & Small Cap Index, Capital of CSI Large & Mid & Small Cap Index, CSI Emerging Index, CSI Central Enterprises Index, CSI Central Enterprises Index (SH), CSI Yinhua Value 3070 Index, CSI Yinhua Value 7030 Index, CSI Middle Industry Index, CSI Middle Industry Index (SH), Periodic Low Wave Index
H-Share	Hang Seng Mainland and Hong Kong Corporate Sustainability Index, Hang Seng Infrastructure Construction Index, Hang Seng Mainland Composite Index, Hang Seng Shanghai-Shenzhen-Hong Kong AH-Share A+H Index, Hang Seng Corporate Sustainability Index, Hang Seng A-Share Corporate Sustainability Index, Hang Seng Corporate Sustainability Benchmark Index, Hang Seng A-Share Corporate Sustainability Benchmark Index, Hang Seng China Enterprise Equally Weighted Index, Hang Seng Composite MidCap Index, Hang Seng China (Hong Kong) 100 Index, Hang Seng HSCEI Capped 4% Index, Hang Seng China Enterprise Smart Index, Hang Seng Shanghai-Shenzhen-Hong Kong AH Share Smart Index, CSI Hang Seng Shanghai--Shenzhen-Hong Kong Through AH Share Smart Index, Hang Seng Composite Largecap and Midcap Index, Hang Seng Composite Index, Hang Seng China 50 Index, Hang Seng Property Construction Index, Hang Seng Shanghai--Shenzhen-Hong Kong Through AH Share H Index, Hang Seng Shanghai--Shenzhen-Hong Kong Through Midcap and Smallcap Index, Hang Seng Shanghai--Shenzhen-Hong Kong Through AH Share Premium Index, Hang Seng China Enterprises Index, Hang Seng Global Composite Index, Hang Seng Composite Midcap and Smallcap Index, Hang Seng 50 Index, Hang Seng Hong Kong Stocks Through Index, China Mainland Company Index of Hang Seng Hong Kong Stocks Through Index, Hang Seng Top 100 A-Share Index, Hang Seng A-Share Industry Leading Index, Hang Seng China Enterprises Index
MSCI	Constituent stocks of MSCI Ming Sheng China A-share Index , MSCI Emerging Market Index

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Harmonious Media Relations

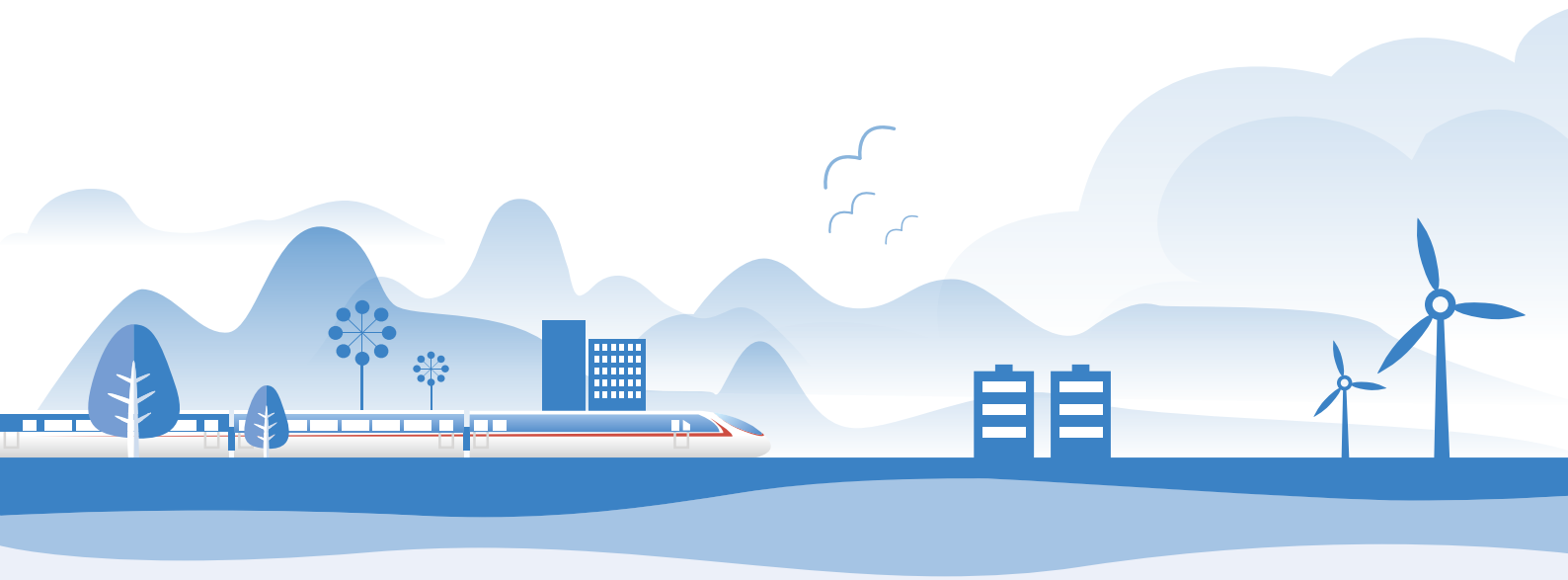
Over the years, CREC maintained good relations with various social media. Through holding press conferences, inviting media to attend important enterprise meetings, organizing and reporting opening and completion ceremonies of important project, opening up column in media and holding forum and training courses, the Company enhanced the communication with the media, promoted work, released information and received media's supervision.

In 2017, Xinhua News Agency, CCTV, People's Daily, Guangming Daily, Economic Daily, Science and Technology Journal, the China Securities, Shanghai Securities, Securities Daily, Securities Times, Xinhua Net, People's Net, Phoenix TV and other media have issued more than 150,000 pieces of information.

Characteristic Corporate Media

In 2017, the Company continued to strengthen the daily management and operation of corporate newspapers, websites, microblog, WeChat and other media, on the basis of which, it issued a "Notice on Further Regulating the Management and Operation of New Media across the Company" to further strengthen the construction of new media of the enterprise. In the whole year, it pushed more than 800 pieces of information by means of new media, with more than 9 million of reading quantity.

In 2017, CREC actively participated in the CCTV feature program production, and received overwhelming response after broadcast, including Great Power Diplomacy, Amazing China, Chinese World and Homeland • Dreamland; the Company and CCTV jointly held a large-scale live concert themed as "My Motherland and Me" at the construction site of the Pingtan Cross-sea Bridge Engineering Bureau of CRBB (China Railway Bridge Bureau); moreover, the television series, Predator, which was invested and shot by CREC, was broadcast, arousing strong repercussions.



Top Ten Outstanding Social Responsibility Practices in 2017

Na e f S cia Re ibi i P ac ice	I e e ai U i
Targeted poverty alleviation in Rucheng and Guidong in Hunan Province and Baode County in Shanxi Province	CREC
Emergency rescue in landslide disaster in Mao County, Sichuan Province	CREC No.1, CREC No.2, CREC No.3, CREC No.5, CREC No.6, CREC No.8, China Railway Tunnel Bureau, CREC Beijing Engineering Bureau, China Railway Science Research Institute, etc.
Emergency rescue in the earthquake in Jiuzhaigou County, Sichuan Province	CREC No.1, CREC No.2, China Railway Tunnel Bureau, China Railway Construction Engineering Group, China Railway Science Research Institute, etc.
Project Department "Ten One Program of Happy Family"	CREC Subordinate Units
"Belt and Road" public welfare practitioner	CREC No.2
"Happiness Project" volunteer project for peasant workers	CREC No.4
Blood donation activity on the theme of "gathering blood to pass on love"	CREC No.10
Construction of Guanting Reservoir Super-large Bridge in Beijing-Zhangjiakou High-Speed Rail	China Railway Bridge Bureau
Innovation and practice of "Internet + Safety Training" for construction enterprises	CREC Beijing Engineering Bureau
Project of standardization construction of "Family for the Staff"	CREC Shanghai Engineering Bureau