



2019

CRRC Corporation Limited (CRRC)
Social Responsibility Report



Preparation Instructions

As the fifth annual Social Responsibility Report released since the establishment of CRRC, this Report accurately reflects the Company’s economic, social and environmental responsibilities aiming to achieve comprehensive, coordinated and sustainable development.

Reporting period

From January 1, 2019 to December 31, 2019, some of the contents may be beyond the above period.

Reporting Scope

This Report covers corporate headquarters and its subordinate enterprises. Please refer to the Annual Report of CRRC for more details of the Company.

Source

All information data hereunder has been sourced from the Company's official documents, statistical reports and financial reports, as well as the social responsibility information organized, summarized and reviewed by the Company.

Basis for Report

The Report has been prepared under the Guidelines for Central Enterprises to Fulfill Social Responsibilities and Guidance for the State-owned Enterprises to Better Fulfill the Social Responsibilities issued by SASAC, the Environmental, Social and Governance Reporting Guide issued by the Hong Kong Stock Exchange, the Environmental Information Disclosure of Listed Companies and the Guidelines for Compiling Corporate Social Responsibility Reports issued by the Shanghai Stock Exchange, the Preparation Guidelines for China Corporate Social Responsibility Reports (CASS-CSR4.0) issued by the Chinese Academy of Social Sciences, the GRI Sustainability Reporting Standards (GRI Standards) issued by the Global Sustainability Standards Board (GSSB), and the Guidance on Social Responsibility (ISO 26000:2010) issued by the International Organization for Standardization.

Access to Report

You may find the Report in PDF and dynamic information pertaining to corporate social responsibilities on the "Social Responsibility" page of the CRRC Portal (Website: <http://www.crrccg.cc>).

Name Description

For the convenience of presentation and readability, the CRRC Corporation Limited is referred to as “China CRRC”, “CRRC”, “the Company” and “We” in the Report.



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Message from Executive Management



Liu Hualong

Chairman of the Board, CRRC Corporation Limited (CRRC)

Shouldering the mission of “Connecting the World through Better Mobility” and adhering to the social responsibility philosophy of “Dedicated to Our Founding Mission and Committed to Our Social Responsibility”, CRRC Cooperation Limited (CRRC) has been striving to take more responsibilities while pursuing our own growth, and making all-out efforts to create maximum economic, social and environmental value. We sweated and we toiled as we pressed ahead with concrete efforts for achievements, and we achieved high-quality development as well as good results in all aspects in 2019.

Backbone of the Nation for Value Creation

We contributed to the steady and long-term economic growth, remained committed to the new development philosophy, and promoted the rapid development of China’s rolling stock industry. CRRC has delivered 160 km/h EMUs in batches, obtained qualifications for the 250 km/h standard EMUs, proudly seen its products represented by the “Fuxing” EMUs travelling across the vast territory of China, successfully launched the Beijing-Zhangjiakou intelligent EMUs which achieved 350 km auto-piloting for the first time in the world. As President Xi Jinping said, “Looking back at history, we found greater significance of the new line.” **We have been promoting the connectivity among nations around the world** and continuously expanding the international market. To date, our products have been exported to more than 100 countries and regions. Relying on our comprehensive product portfolio and excellent services, we have been constantly satisfying people’s aspirations for a better life. **We’ve been committed to achieving opening up and win-win** by implementing a strategy of “Five Localization Modes,” namely localized manufacturing, localized procurement, localized employment, localized maintenance and localized management, by playing our roles as cultural “interpreter”, talent “incubator”, industrial “propeller” as well as “good neighbor” in communities, in order to realize joint discussion, joint construction, sharing and win-win with the stakeholders in more areas.

Iconic Brand, Quality Assurance

To ensure “Made by CRRC” with impeccable quality, we’ve paid closer attention to the customers’ whole process quality demand and value creation, implemented the “CRRC Q” quality system, and actively explored the whole life cycle services, in an effort to exceed customers’ expectations. **We have set a high standard for “Safe CRRC”**, continuously improved product quality, and made solid efforts to promote coordinated and

integrated after-sale services, so as to “ensure the uttermost safety of EMUs and passenger trains” and create an “iconic brand” that will never fade. We have been striving to achieve safe operations and making all-out efforts to build a safety network, so as to ensure that the safe production situation is stable and controllable as a whole.

With an ambitious target of “green CRRC” and the concept that “Lucid waters and lush mountains are invaluable assets”, CRRC has been committed to promoting green manufacturing and incorporating the concepts of energy conservation, low carbon and sustainable development into each and every procedure of product design and manufacturing. We have been taking solid steps to implement the action plan for energy conservation and environmental protection, and committed to building a better homeland for all by efficiently utilizing resources, stepping up efforts in energy conservation and emission reduction, and actively responding to climate change.

An Industrial Powerhouse Led by Innovation and Intelligence

We have continued to promote scientific and technological innovation, deepened the reform of the scientific and technological system, further increased scientific and technological investments, and further stimulated innovation. With the establishment of two overseas R&D centers in Italy and Austria, the total number of CRRC’s overseas R&D centers has reached 17. We have endeavored to achieve breakthroughs in key products. With the 400 km/h high-speed train prototype and 600 km/h high-speed maglev pilot prototype rolled off the production line, our product portfolio has been further diversified, showing increasingly strong leading capability. **We have continued to improve our managerial approaches**, implement comprehensive budget management, strengthen strategic management and control, press ahead with lean management, enhance quality and efficiency, and increase our risk management and control capabilities, so as to promote high-quality development of CRRC. **We have continued to tackle hard issues in the reform** and have seen seven of our subordinate enterprises ranked among the “Double Top 100 Enterprises”, securing CRRC’s first place in this aspect among the central enterprises. Besides, our comprehensive reform plans have been implemented successively. Two of our enterprises have been selected for the fourth batch of pilots for mixed ownership reform, the pace of which has been quickened. We have achieved phased results in “Compress management level and reduce the number of legal person and the “eliminating zombie enterprises and helping disadvantaged enterprises”, taken solid steps to implement internal reorganization and integration, and constantly deepened the Three System Reformation in State-owned Enterprises.

A Role Model among Central Enterprises for Poverty Alleviation

Sticking to the vision of shared development and striving to increase the value of CRRC, we have achieved double growth in operating revenue and profit attributable to shareholders of the Company throughout the year. We have been committed to building harmonious labor relations, protecting the rights and interests of our staff, carrying forward the team spirit, encouraging them to innovate and forge ahead, facilitating the joint development of our staff and enterprises, and promoting the continuous development of our enterprises relying on top-notch talents. We have strengthened transparent and compliant operations, continuously improved the stakeholder engagement mechanism, consecutively released our Corporate Social Responsibility Report, and constantly improved our capability to disclose high-quality environmental, social and governance information. **We have engaged in targeted poverty alleviation**, including carrying out the “Tian’e Program” (activities and the workshop for improving the leadership of outstanding grassroots cadres in CRRC designated poverty alleviation areas), creating the model of “Poverty Alleviation Workshop” and supporting industrial assistance projects such as the 10,000-mu Sichuan pepper industry park, fruit base, and Chinese honeybee apiculture with the purpose of achieving key poverty alleviation targets by this kind of self-motivated approach with hematopoiesis-effect. **We have taken the initiative to give back to society**, organized an extensive array of voluntary activities to help impoverished children and provide community services for the residents. Besides, we have engaged in community development and launched a series of characteristic activities such as “Public Open Day” and “Train Fans’ Visit to CRRC”, to demonstrate the culture, social responsibility and beauty of CRRC.

In the future, we will communicate more with all sectors of society, join hands with our stakeholders to create a cooperation platform for sustainable development and a community of shared future, striving to build CRRC into a respected international corporation.

About Us

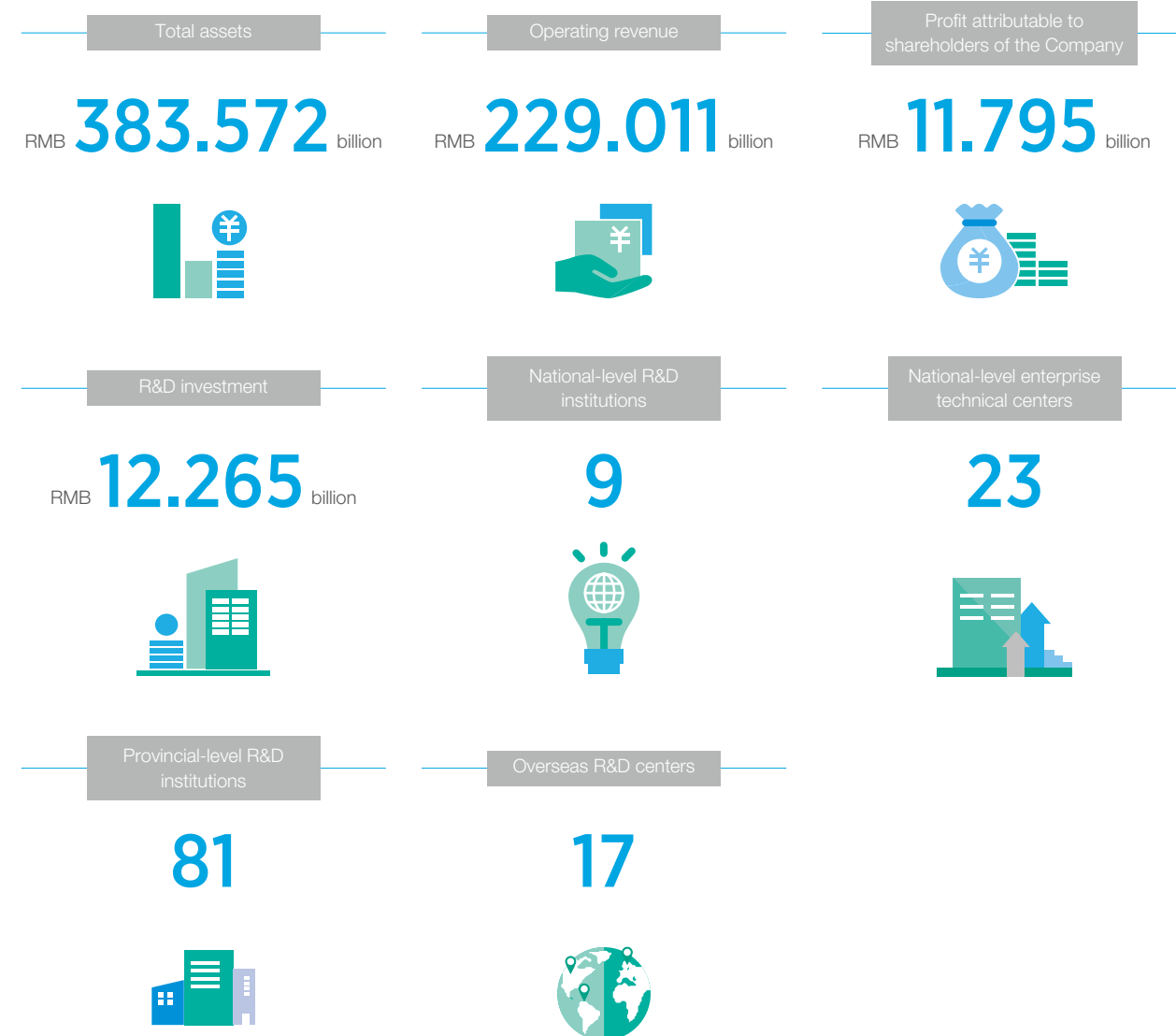
CRRC Corporation Limited (CRRC) is the world's largest and most diverse rolling stock supplier with advanced technology. Ranked among Fortune Global 500 list companies and Top 100 Chinese enterprises, CRRC has seen its products exported to more than 100 countries and regions, secured its prominent place for consecutive years on the list of "Most Admirable Chinese Companies" released by Fortune magazine, and ranked the top in the domestic machinery manufacture industry in terms of brand value. Besides, CRRC was selected as one of the Top 10 Model Brands of the Year at the 2019 Chinese Brand Award Gala and "Fuxing" made its appearance at the ceremony of the 70th Anniversary of the People's Republic of China, demonstrating its world-renowned national brand image in the new era. Headquartered in Beijing, CRRC was successfully listed on the Shanghai Stock Exchange and the Hong Kong Stock Exchange on June 8, 2015.

Facing the global market, CRRC has grasped the changes and technological developments in the domestic and overseas rolling stock markets and aimed to become a world-class supplier of rolling stock equipment system solutions. To this end, CRRC has been committed to speeding up technological, product and service mode innovation and building itself a serialized, modularized and standardized product platform as well as a technological platform, so as to constantly cater for rolling stock development in an advanced, applicable, intelligent, green and safe manner. CRRC's product series, as represented by high-speed EMUs, high-power locomotives, rolling stock and urban rail vehicles, have reached the world's advanced level in all aspects. They can adapt to various complex geographical environments and meet diverse market demands.

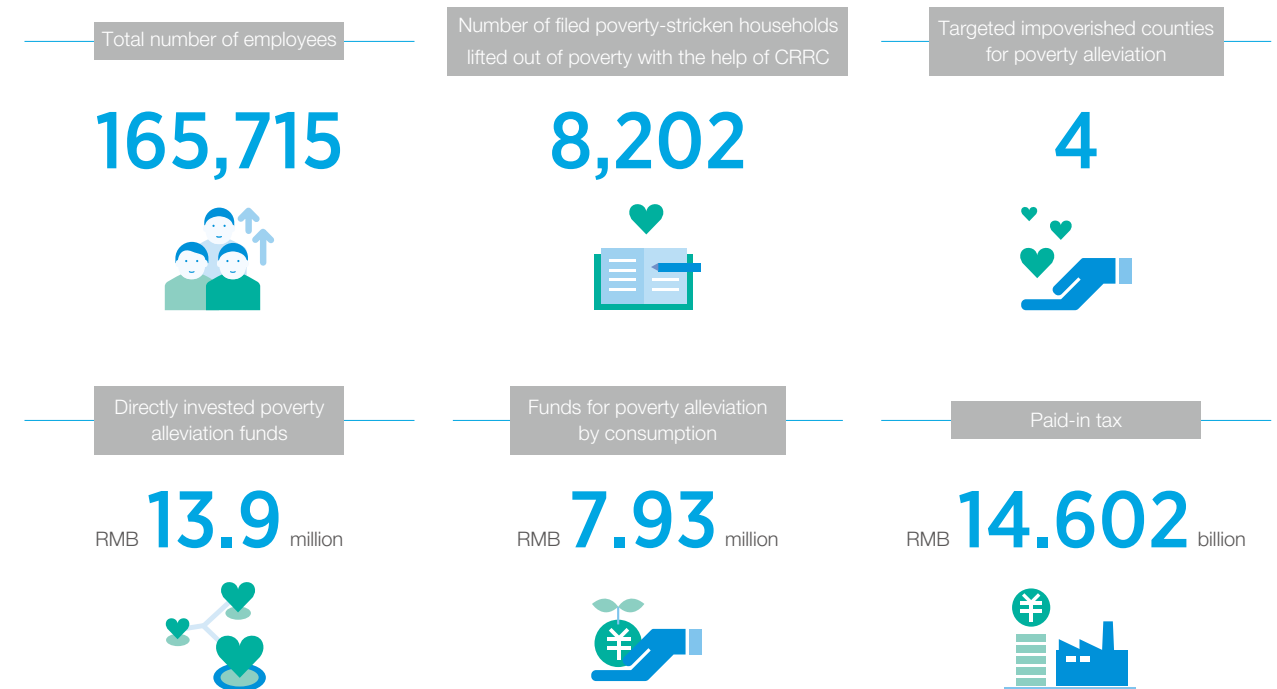


Figures in 2019

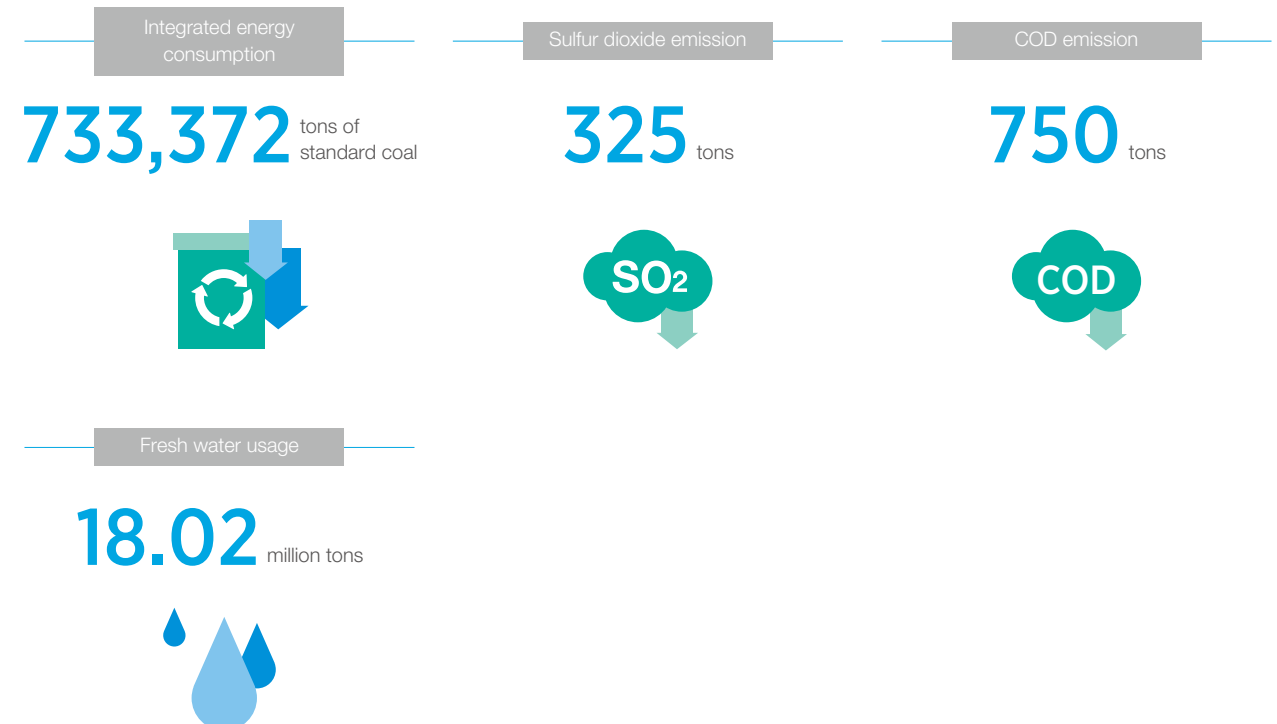
Economical



Social



Environmental



Major Businesses

CRRC's main scope of business includes: research and development, design, manufacturing, refurbishment, sales, leasing and technical services of railway locomotives, rolling stocks, EMUs/DMUs, urban rail transit vehicles, engineering machinery, various electromechanical equipment, electronic equipment and components, as well as electronic devices and environmental protection equipment; information consultation; industry investment and management; asset management; import and export business.



Railway Equipment Business

- Locomotive business
- EMU and passenger carriage business
- Freight wagon business
- Track engineering machinery business



Urban Rail Transit and Urban Infrastructure Business

- Urban rail transit vehicles
- General contracting of urban rail transit vehicles projects
- General contracting of other projects



New Industry Business

- General Electromechanical business
- Emerging industry business



Modern Service Business

- Financial business
- Logistics and trading business
- Other business



International Business

- Promote the approach of "product + technology + service + capital + management"
- Deeply carry out "Five Localization Modes", namely localized manufacturing, localized procurement, localized employment, localized maintenance and localized management

Main Products

MUs

Mainly include various electric multiple units and diesel multiple units at the speed of 200 km/h and below, 200-250 km/h, 300-350 km/h and above, mainly used to provide main line railway and inter-city railway passenger transport services. On the basis of "import, digestion, absorption and re-innovation", the MUs products represented by "Fuxing" have independent intellectual property rights.

Locomotives

Mainly include various DC driving and AC driving electric locomotives and diesel locomotives with the largest traction power of 12,000 KW and the highest speed of 200 km/h, which are mainly used to provide passenger and goods transport services in main line railway. The Company's locomotive products have independent intellectual property rights.

Passenger carriages

Mainly include seater car, sleeping car, dining car, luggage van, generator car, special vehicles, plateau cars and double-deck railway passenger carriages at the speed of 120-160km/h, which are mainly used to provide passenger transport services in main line railway. The Company's passenger carriages have independent intellectual property rights.

Freight wagons

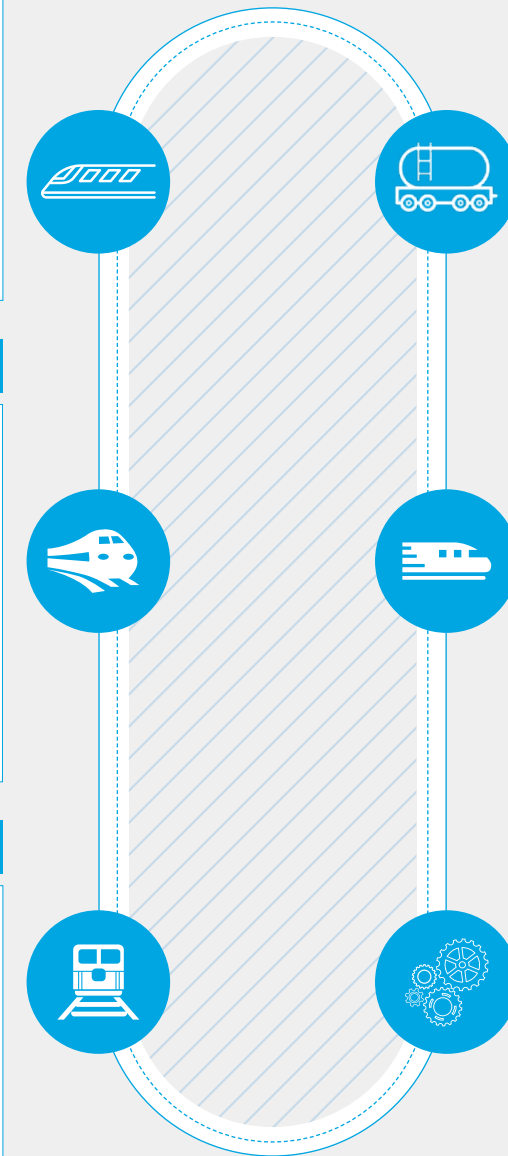
Mainly include various railway gondola trucks, box wagon, flatcar, tank truck, hopper car and other special goods transport trucks, which are mainly used to transport goods for main line railway and industrial and mining enterprises. The Company's freight wagons have independent intellectual property rights.

Urban rail transit vehicles

Mainly include subway vehicles, light-rail vehicles, urban (commuting) vehicles, monorail vehicles, maglev train, tramcar, rubber-tired vehicles, etc., which are mainly used to provide commuter and passenger transport services between cities and suburbs. The Company's urban rail transit vehicles have independent intellectual property rights.

General electrical and mechanical equipment

Mainly include traction electric driving and network control system, diesel engine, braking system, cooling and heat transfer system, train operation and control system, passenger information system, power supply system, gear assembly, etc., which are mainly used to complement with MUs, locomotives, urban rail transit vehicles, tracking engineering machinery products in main line railway and inter-city railway, and part of them are provided to third party customers as spare parts. All of the aforesaid products of the Company have independent intellectual property rights.



Social Responsibility Management

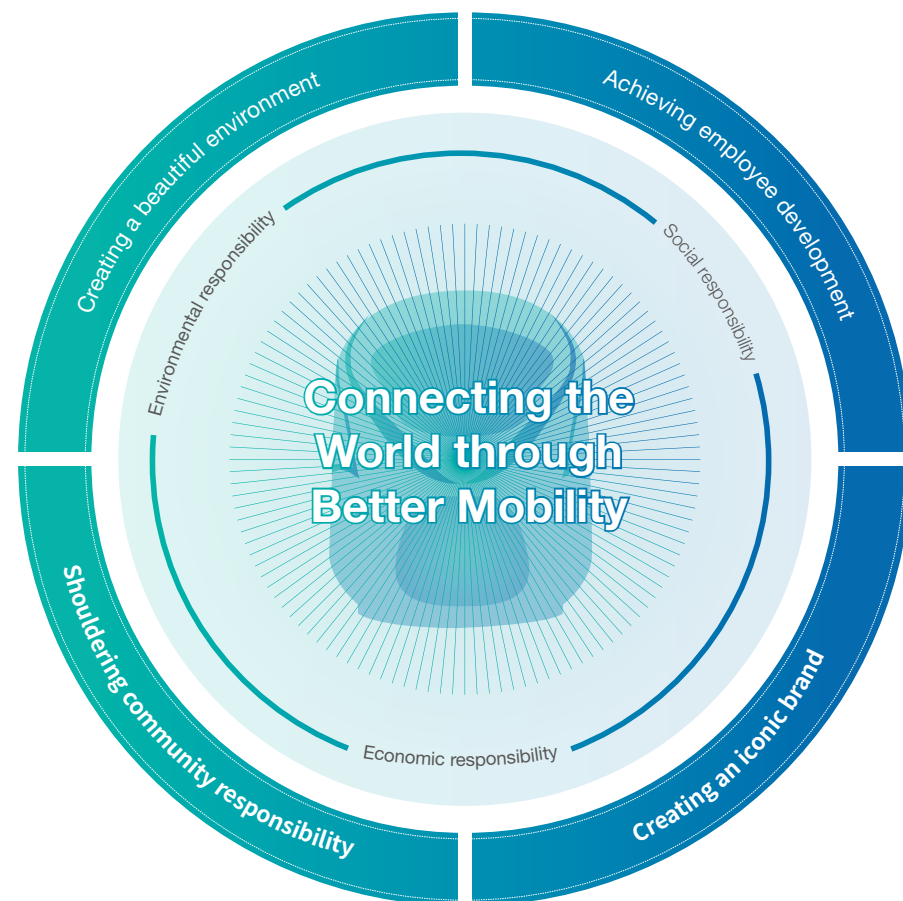
CRRC takes the fulfilment of its social responsibilities as an inevitable requirement for deepening its corporate reform and enhancing its core competitiveness, and continuously integrates its social responsibility concept into corporate management.

We will continue to strengthen our capacity for sustainable operations, adhere to the mission of “Connecting the World Through Better Mobility”, and contribute to the advancement of social development and progress.

Considering the environmental and social impacts, we are committed to providing the public with green and more excellent products and services, and satisfying people's hope for a better life.

We will integrate all forces to build a community of common destiny for CRRC, so as to achieve win-win results, and share development achievements with all parties.

We will also actively shape a full range of high-end images to ensure that our iconic brand will never fade, and do our best to make CRRC a respectable international company.



Social Responsibility Philosophy

CRRC applies the social responsibility concept of “Dedicated to Our Founding Mission and Committed to Our Social Responsibility” and adheres to the mission of “Connecting the World through Better Mobility”.

Social Responsibility Practice System

With the rapid economic and social development and the upgrading of rail transit equipment in China, CRRC has gained increasingly clear and profound insights for its social responsibilities. In particular, through in-depth integration with the capital market, benchmarking its performance against world-class enterprises, and extensive communication with stakeholders, CRRC has built a well-structured social responsibility practice system featuring five driving forces.

Navigation — Mission —

The corporate mission of “Connecting the World through Better Mobility” is not only a condensed expression of CRRC's corporate responsibility philosophy, but also a navigation mark that guides our social responsibility practice.

Traction — Vision —

“Dedicated to Our Founding Mission and Committed to Our Social Responsibility” represents CRRC's social responsibility concept, steadfast pursuit, as well as the core ideology guiding us to fully fulfil our social responsibilities and surpass the expectations of our stakeholders.

Drive — Value —

Throughout the operating and management process, CRRC has always placed a high priority on creating maximum economic, social and environmental value. This is also an inevitable choice for CRRC to adapt to sustainable economic and social development and enhance our brand value.

Guarantee — Compliance —

By regulating and improving internal operations and management, CRRC has continuously optimized the relations with our stakeholders, thus guaranteeing smooth communication for the fulfilment of our social responsibilities.

Support — Management —

CRRC adheres to the principle of seeking progress while maintaining stability, thereby creating favorable conditions for better handling the relations among all parties and fulfilling our social responsibilities.

The Board of Directors, as the highest leading body for CRRC to fulfil our social responsibilities, is responsible for deliberating on the social responsibility management plans, annual social responsibility reports and other core issues on social responsibility. The functional departments at the headquarters of CRRC and subsidiaries are the executive bodies to ensure the thorough communication and level-by-level implementation of social responsibilities.

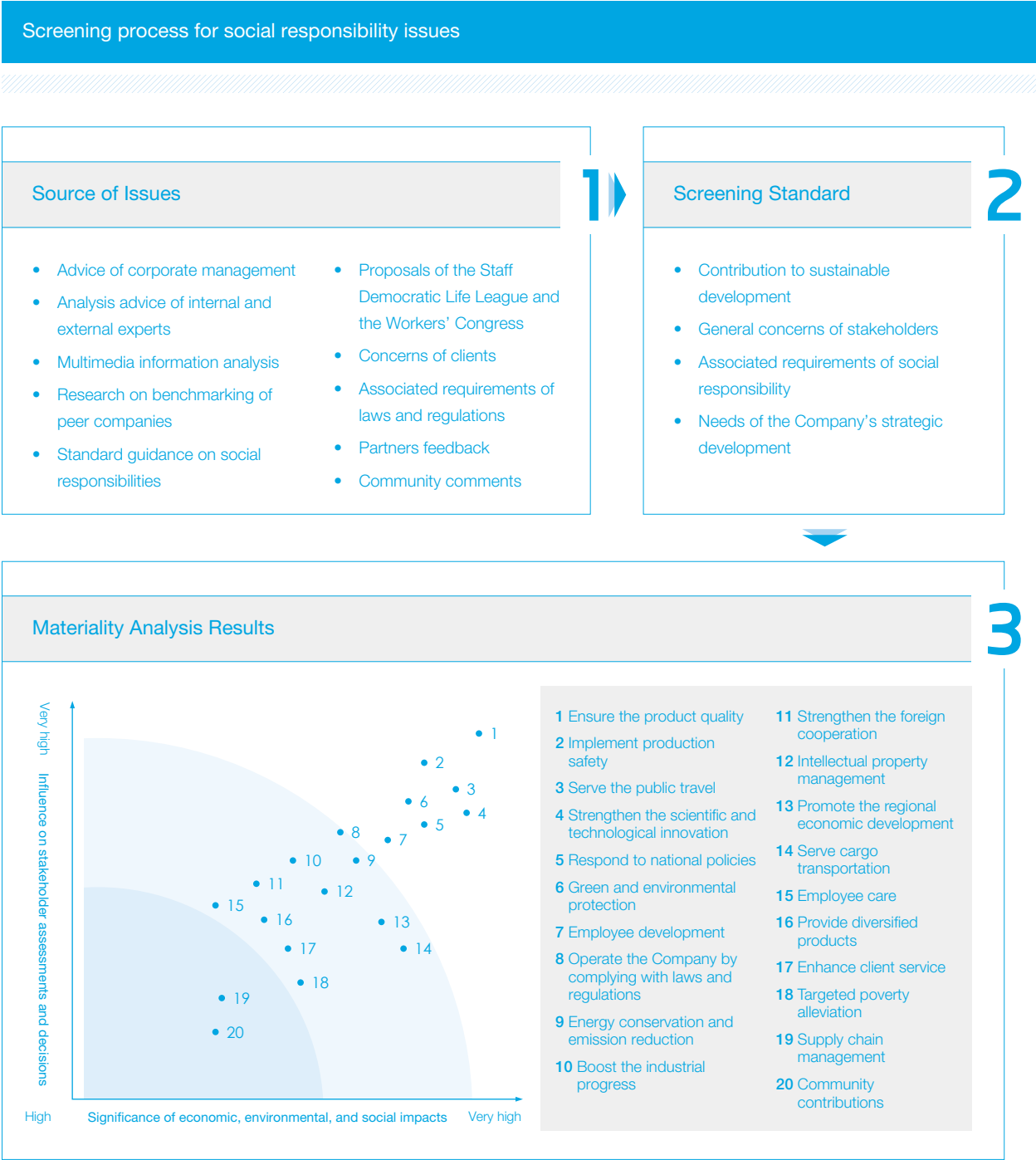
Stakeholder Engagement

We make extensive communications with stakeholders, and interact with the internal and external stakeholders like clients, governments, partners, employees, regulators, etc. through promotion, open day, road show, online and offline activities, incorporate their concerns and demands into corporate issues of social responsibilities development, and respond through a series of social responsibility practice.

Stakeholders	Expectations and Requirements	Means of Communication
Government and regulators	<ul style="list-style-type: none">To comply with laws and regulationsTo ensure the product qualityTo carry out energy saving and emission reductionTo maintain and appreciate the state-owned assetsTo promote the technological progressTo benefit the country and its people	<ul style="list-style-type: none">Conscientiously implement national policiesParticipate in the formulation of regulationsBe subject to regulatory assessmentCommunicate with local government
Investors	<ul style="list-style-type: none">Steady growth in return on investmentStable operationInformation disclosure and transparency	<ul style="list-style-type: none">Improve profitabilityTimely disclose information
Clients	<ul style="list-style-type: none">To provide high-quality products and servicesTo satisfy the diversified requirements of clientsTo create value for clients	<ul style="list-style-type: none">WebsiteVisit and interviewCustomer satisfaction surveyCorporate brochure
The general public	<ul style="list-style-type: none">To offer safe and reliable servicesTo promote operational transparency	<ul style="list-style-type: none">Enhance service capacityCommunicate and interact
Employees	<ul style="list-style-type: none">Protecting employees' rights and interestsEnsuring occupational healthPromoting occupational capacityImproving career pathsWork life balance	<ul style="list-style-type: none">Make factory affairs publicDialogue between the ManagementConference of employee representativesEmployee satisfaction surveyCaring for sympathy
Suppliers and partners	<ul style="list-style-type: none">Open, fair and equitable procurementAbiding by relevant agreementsMutual benefit and long-term development	<ul style="list-style-type: none">Joint R&DSupplier meetingDaily communication
Peers and industry organizations	<ul style="list-style-type: none">Fair operationWin-win cooperationBoosting industrial development	<ul style="list-style-type: none">Industry conferenceAssociation activitiesWorkshops
Community	<ul style="list-style-type: none">Conducting targeted poverty alleviationParticipating in community developmentSupporting philanthropyProtecting the environment	<ul style="list-style-type: none">Joint organizePublic benefit activitiesVolunteer activity

Identification of materiality issues

In accordance with the the Guidelines for Compiling Corporate Social Responsibility Reports issued by the Shanghai Stock Exchange, the *Environmental, Social and Governance Reporting Guide* of the Hong Kong Stock Exchange, *the Guidelines for Compiling Corporate Social Responsibility Reports* (GRI Standards) issued by the Global Sustainability Standards Board (GSSB) and other guidance on social responsibility, we solicit the views of the internal and external stakeholders of the Company, and further refine the process of defining report contents based on the ESG information disclosures of international advanced enterprises, and identify and determine the importance of issues of interest to stakeholders, thus ultimately determining the degree and boundaries of disclosures, and ensuring more accurate and comprehensive disclosure of information on operation and management.



Becoming a Great Power to Connecting the World

Committed to delivering its mission of “Connecting the World through Better Mobility” and the social responsibility concept of “Dedicated to Our Founding Mission and Committed to Our Social Responsibility”, CRRC strives to promote connectivity and sustainable development of the world.



Large Capacity Support

Aiming to serve as the "Backbone of the Nation" and "Industrial Powerhouse", CRRC exploits its strengths in high-end equipment manufacturing industry, actively implements the strategy of building national strength in transportation, and continuously promotes China's economic and social development.

Iconic Brand

We are committed to applying the new development concept of "innovation, coordination, green, openness and sharing", promoting the rapid development of China's rail transit industry, and constantly satisfying people's need for good travel experiences.

In terms of the high-speed railway mileage, the scale of high-speed railway under construction, the number of EMUs, and the speed of EMUs in commercial operations, China is the NO.1 of the world. By the end of 2019, China's high-speed railway mileage had reached 35,000 kilometers. More and more regions have joined the "high-speed rail circle", and the vast territory of China has been compressed into a "one-day living circle" by high-speed railway.

The high-speed EMU product series manufactured by CRRC are technically advanced as a whole, featuring eight advantages that are safety and reliability, stability and comfort, high capacity, energy conservation and environmental protection, high applicability, convenience and expeditiousness, high cost-effectiveness, and good compatibility. Today, they have become an iconic brand for China to showcase its achievements to the world.

Since 2008, China's high-speed railway has transported more than **10** billion passengers. During the 40-day Spring Festival transportation period in 2019 solely, the flow of passengers across the nation by trains reached **410** million.

The Debut of Island Intercity EMUs in Haikou

In June 2019, CRH6F Haikou Urban EMUs made their debut in Haikou, featuring the technical advantages of both high-speed EMU and urban rail transit vehicle. Besides high speed, large capacity, rapid start and stop, and quick on and off, CRH6F particularly accords with the operational requirements of intercity urban rail transit. CRRC Qingdao Sifang Co., Ltd. also designed refreshing and romantic paintings for those trains in light of the natural scenery in Hainan Province.



CRH6F Haikou Urban EMUs

Mass Delivery of 160 km/h centralized-power EMU

The 160 km/h centralized-power EMU belongs to China's "Fuxing" product series and can be used on all electrified lines. This has allowed the vast numbers of citizens living far away from high-speed rail lines to take comfortable EMUs at their doorsteps, thus greatly improving the equipment and service quality of existing railway.

Economic Driving Effect of Beijing-Shanghai High-Speed Railway

The Beijing-Shanghai High-Speed Railway has been in safe operation for more than **8** years. Cumulatively, it has hosted **1.039** million high-speed EMU operations and transported more than **1.1** billion passengers. In September 2017, "Fuxing" was put into commercial operation at 350 km/h on the Beijing-Shanghai High-speed Railway, which therefore represented the world's highest technical standard and recorded the fastest speed for trains under commercial operation.

Relying on CRRC's high-speed EMUs, the Beijing-Shanghai High-speed Railway has become an expeditious channel for the flow of passengers, logistics, information and capital, thus greatly promoting regional economic and social development, improving people's livelihood and boosting the urbanization process. Furthermore, the Beijing-Shanghai High-speed Railway has enabled small, medium and big cities along it to establish high-speed rail economic zones, resulting in the concentration of high-tech projects, high-quality capital and high-end talents.



Great Travel Experiences

CRRC has sped up technical and product innovation for urban rail transit equipment and built serialized, modularized and standardized product platform and technical platform, so as to bring the general public brand-new intelligent, convenient and comfortable travel experiences based on our high-quality products and services.

In 2019, with a focus on intelligent transportation and smart city construction, CRRC played an active role in driving the development of urban rail vehicles and related businesses, and saw a number of its unmanned urban rail transit vehicles put into operation in many cities across the country. For example, Beijing Daxing International Airport (BDIA) urban rail transit vehicles equipped with the world's most advanced fully autonomous system were put into operation; the first fully autonomous urban rail train in Jiangsu Province was rolled off the production line; the first fully autonomous train for Shanghai Subway Line 18 was completed and ready for use...

Subway Trains in Operation for Beijing Daxing International Airport Subway Line

In September 2019, subway trains made by CRRC with a designed speed of 160 km/h were put into operation for BDIA Subway Line, making it the fastest subway in China. These subway trains feature the world's most advanced autonomous system that enables a full process of automatic wake-up, self-inspection, operation and sleep mode of the train. Besides, they are characterized by low body vibration, high air tightness, strong sound insulation and noise reduction performance, and spacious seats. In addition, USB charging interfaces are provided between the seats to offer comfortable and convenient passenger experiences.

Full-automatic Subway Vehicles for Shanghai Subway Line 18

Zhuzhou Locomotive Co., Ltd. (CRRC ZELC) has independently developed intelligent driving, vehicle life-cycle remote tracking, diagnosis and maintenance systems, in an effort to innovate its service modes by technological means, improve user experience, and provide maximum value-added services for its customers. The full-automatic trains for Shanghai Subway Line 18 have realized automatic operation and management of "auto-run, auto-return, auto-inspection and auto-maintenance" in the real sense, thereby saving manpower, improving operating efficiency, reducing human errors, and ensuring safety and reliability.

Support for the Trial Operation of the World's First 5G Train-Ground Wireless Communication Train

In May 2019, the world's first 5G train-ground wireless communication train for Shenzhen Subway Line 11 was put into trial operation. As a co-developer of the train, CRRC ZELC was responsible for the intelligent operation and maintenance platform and conducted 5G and intelligent upgrade of the subway train. 5G train-ground wireless communication technology has the advantages of easy deployment, low engineering difficulty, low reconstruction cost and strong maintainability. Relying the technology, Shenzhen Subway Line 11 may automatically transmit 25GB of car-borne data collected by high-definition cameras in the cars within 150 seconds.

By the end of 2019, CRRC had provided more than **41,000** urban rail transit vehicles, serving **40** cities and more than **200** lines.

Improving Freight Capacity

Heavy-load rail freight transport embodies the advantages of modern railway in large capacity and low cost, particularly its greater competitiveness in medium- and long-distance transportation of bulk cargo. In 2019, by exploiting the capacity of main outbound coal transportation lines such as Datong-Qinhuangdao Railway, Tangshan-Huhot Railway, Watang-Rizhao Railway, and Houma-Yueshan Railway, China Railway organized the operations of 10,000-ton heavy-load trains, delivering 75% of China's coal to all destinations. The trains made by CRRC have ensured the smooth and safe operations of the coal transportation channels and systems in China, and greatly promoted the economic development of regions along the transportation lines.

FXD1B and FXD2B AC drive freight electric locomotives with 30t axle load are eight-axle 9600kW freight electric locomotives designed by CRRC to adapt to China's heavy-load railways. With the traction force increased by 20%, these locomotives feature a great reduction in energy consumption and significantly improved performance in environmental protection. With a maximum speed of 100km/h, these locomotives have the advantages of fast network communication, flexible control mode, high braking stability, wide application, as well as easy and consistent operation and use. Besides, they feature good interoperability and double-headed operations with different models of locomotives.

New Members Added to the “Fuxing” Family

4400HP AC drive diesel locomotive for freight traffic represents the new-generation diesel locomotive developed by CRRC in light of the development trend of China's trunk railways and based on the mature HXN series of diesel locomotives. Positioned as the backbone of freight transport on China's trunk railways in the future, it is benchmarked against mature and reliable standards and represents a new member of the “Fuxing” locomotive family.

In 2019, 4400HP AC drive diesel locomotive for freight traffic developed by CRRC successfully rolled off the production line and went through the prototype test. With a loading power of 3500kW and a maximum operating speed of 120km/h, the locomotive will serve domestic railways for freight traction.

The First Intelligent-driving 10,000-ton Heavy-load Train Put into Operation with Success

China's first 10,000-ton intelligent drive heavy-load train was successfully put into operation on Shenmu-Shuozhou Railway, creating a number of domestic firsts in terms of heavy-load train technology: For the first time, the telecommunications operator network was applied on a heavy-load railway; for the first time, automatic coupling and uncoupling, wireless double heading and marshalling of trains were realized; and for the first time, the foreign object detection system was installed on a heavy-load railway. All these indicate that China has mastered the core control technology for intelligent freight heavy-load trains.



The first intelligent-driving 10,000-ton heavy-load train



Serving the Whole World

CRRC actively integrates itself in global development and implements a five-in-one internationalized operating strategy of “product + technology + service + capital + management”, with a view to offering more professional technologies and better services to our customers, providing CRRC technologies, products, wisdom and solutions to promote rail transit development in all countries across the world, and achieving joint development, shared expertise and win-win outcome.

CRRC Changchun Railway Vehicles Co., Ltd. Helps the Capital of Colombia Realize Its “Subway Dream”

A consortium of Chinese enterprises, including CRRC Changchun Railway Vehicles Co., Ltd. (CRRC Changchun), won the bid for the Bogota Subway Line 1 project. As the designated vehicle supplier, CRRC Changchun is responsible for the supply of 210 GoA4 top-grade unmanned metro vehicles and maintenance services for 20 years. With a total contract period of 28 years, the project aims to build a driverless elevated subway line. As a rail transit project with the largest single-project target amount ever acquired by Chinese enterprises through international bidding, it will realize the “subway dream” of the citizens in Bogota, the capital of Colombia.

China’s “Sirius” Bullet Train, the First EMU Exported to EU, Arrives in Czech Republic

The innovative EMU “Sirius” designed by CRRC consists of 6 cars and travels at a speed up to 160km/h, which can meet the needs of different countries and regions. The prototype was put into operation after going through certification tests such as TSI (Technical Specification for Interoperability), providing safe, convenient and green travel experiences for the local people.



China’s “Sirius” bullet train, the first EMU exported to EU

Datong Locomotives Pull Moscow-Berlin International Trains

The international trains operating between Moscow and Berlin are pulled by China-Belarus freight type 2 electric locomotives independently developed by CRRC Datong Co., Ltd. These high-end high-power electric locomotives have been continuously supplied to the European market, as is China’s first export project of its kind. Thanks to their strong horsepower, exceptional performance and mature technology, particularly their stable operations in extremely cold, stormy, or snowy weathers, China-Belarus freight type 2 locomotives have played a remarkable role in supplying traction for international trains.

CRRC Qishuyan Co., Ltd. Delivers First Batch of Locomotives to Nigeria

CRRC Qishuyan Co., Ltd. (CRRC Qishuyan) signed a contract with China Civil Engineering Construction Corporation on the export of 21 diesel locomotives to Nigeria. Among CRRC Qishuyan’s export orders, this one involved the widest variety of models. The first batch consisting of four NDJ3N diesel locomotives and six DF11GN passenger diesel locomotives had been delivered within factory by the end of October.

“The locomotives developed by CRRC Qishuyan are perfect and the engine performance is very reliable. We hope the friendly cooperation between Nigeria, CCECC and CRRC Qishuyan will continue to promote the economic development of China and Nigeria. In particular, I would like to thank CRRC Qishuyan for training Nigerian trainees in driving and maintaining these locomotives.”

—— Idris Abdullahi Umar, Nigerian Minister of Transport

CRRC ZELC Signed Order for Light Rail Vehicles to Mexico

CRRC ZELC has signed a supply contract with Monterrey Metro Bureau for 26 light rail vehicles. Representing China’s high-end rail transportation equipment, these vehicles, with a designed maximum speed of 80 km/h, will soon be used on Monterrey Light Rail Lines 1, 2 and 3 in Mexico. CRRC ZELC has introduced a series of innovations in the design of environmental protection, user-friendliness, and cost-effectiveness that customers are concerned about. As a result, the vehicles have reached the top level standard for safety performance, met the EN12663 standard in strength performance, and complied with the EN15227 requirements in collision performance.



Wagons made by CRRC serving for Australia

Localized Operations

CRRC is committed to implementing a strategy of “localized manufacturing, localized procurement, localized employment, localized maintenance and localized management” and playing our roles as a cultural “interpreter”, talent “incubator”, industrial “propeller”, as well as “good neighbor” in communities during the process of implementing our internationalization strategy.

Our products have been exported to more than 100 countries and regions, thus enabling joint discussion, joint construction, sharing and win-win with the stakeholders in even more areas.

In the process of overseas investment and cooperation, CRRC strictly abides by the local laws and customs, respects the local cultures, employs local talents, and tries to integrate with the local economies and community development, so as to enable enterprises to take roots in the local markets, continuously improve the level of localized operations, and realize common development with its business partners, the local communities and regional economies.

CRRC Malaysia’s “Plant-Community Bonds”

CRRC Kuala Lumpur Maintenance Sdn. Bhd. has held “Open House” activities in Malaysia for 7 consecutive years. At the “2019 New Year Open House”, a public open day held by the Company at its Anbang and Furong Maintenance Bases, overseas customers, family members of its employees, community residents, and followers were invited to visit the workshops and stations and take trial rides. The event also featured an interactive session with the customers to further strengthen the bonds and promote cultural exchanges between Chinese enterprises and local residents.

Classroom on African Grassland

As a supplier for the Mombasa–Nairobi Standard Gauge Railway (SGR), CRRC has provided 69 diesel locomotives, 40 passenger vehicles, and 2020 freight wagons and engineering vehicles, as well as maintenance services for the locomotives and rolling stock. In order to help local employees perform their duties and live up to the requirements for locomotive maintenance, CRRC has launched a series of training programs.

For Kenyan new recruits of SGR Operation Company, CRRC Qishuyan first trained them about the basics specialized knowledge and safety instructions. After they passed the probation assessment, each of them was assigned a “master” to have targeted specialized training based on the principle of two-way selection. Besides, CRRC Qishuyan has organized the large-scale post drill for 356 times in Kenya in 2019, aimed at effectively improving the working skills of its local employees.

“Family Open Day” Brings Chinese and Australian Employees Closer to Each Other

On the “Family Open Day” held by CRRC Times Electric Australia Pty Ltd., the family members of its employees visited CRRC’s factories in Australia, experienced the workers’ daily routines, and learned about the advanced products manufactured by the Company and its contributions to Melbourne’s rail transportation. Besides, on the “Family Open Day”, books were donated to “Australian House”, the staff activity room, including not only books on Australian culture and English learning materials, but also books of English version on Chinese culture and customs for the local employees, so as to create opportunities for employees from different cultural backgrounds to learn from each other and achieve cultural integration.

The employees of CRRC Times Electric Australia Pty Ltd.

Development in New Industries

Guided by the concept of green transportation and intelligent manufacturing, CRRC strives to achieve breakthroughs in new business sectors such as wind power equipment, industrial digital, polymer composite materials, environmental protection, engineering and mining machinery, shipping and marine equipment, and photovoltaic products.

Wind Power Equipment

With a mature and complete industry chain for its wind power equipment, CRRC has developed a wind power industry cluster that encompasses components and wind farm operations throughout the industry chain, achieved breakthroughs continuously in wind power generators, and secured a ranking among the domestic top 3 in the market share of wind power blades. We have systematically enhanced our capabilities for the delivery of wind power products and contract performance, comprehensively improved the operating quality of wind farms, and maintained good product quality and R&D activity.

China's First 3.0MW Direct-drive Permanent Magnet Wind Turbine with Concentrated Winding Modules Rolled Off of Production Line



In August 2019, China's first 3.0MW direct-drive permanent magnet synchronous generator went off the production line at CRRC Yongji Electric Co., Ltd. The generator is the first concentrated winding modular motor in China. The stator splitting technology is adopted to split the large-diameter stator into several modules and central supports for small-diameter stators, thus reducing the difficulty of processing generator structural components and making it easier and more cost-effective to manufacture, transport, and install high-power direct-drive permanent magnet generators.



New Materials

CRRC leads China's polymer composite industry with advanced technology.

CRRC New Material Technologies GmbH (BOGE), a subsidiary of CRRC Zhuzhou Institute Co., Ltd., is engaged in the development, production and sales of chassis, powertrain suspension components and other polymer lightweight components to meet the vibration reduction, noise reduction and lightweight requirements for medium- and high-end passenger cars. In 2019, BOGE received multiple orders from high-end automakers including Audi, Porsche and BMW, adding up to a cumulative amount of more than EUR 600 million.

Shipping and Marine Equipment

In September 2019, after four years' development effort, SMD, a subsidiary of Zhuzhou CRRC Times Electric Co., Ltd., rolled off Quantum/EV, a working-level electric underwater robot featuring superior operating performance and environment-friendliness, bringing the performance of working-level underwater robots up to a new level. The robot, characterized by its high performance, high reliability, flexibility, ease of use and compactness, can descend to the sea floor of 6,000 meters in depth. With a designed power of 400 kilowatts, it is currently the most powerful working-level electric underwater robot in the world that may descend to the greatest depth.



Deep sea machinery made by CRRC

Engineering and Mining Machinery

As a manufacturer of high-quality mining equipment, CRRC strives to become a leading supplier of mining system solutions.

TR600H Rotary Drilling Rig, Operable at the Greatest Pile Depth in the World, Successfully Rolled off of Production Line

Developed by CRRC Zhuzhou Institute Co., Ltd., the TR600H rotary drilling rig is designed for the construction of ultra-large, deep and hard pile foundations of cross-sea or cross-river bridges. The rig, for which 30 patented technologies, 20 safety monitoring technologies and 6 intelligent control technologies were applied, can be used in ultra-deep pile foundation projects with a diameter of 3.0-4.5 meters and a depth up to 158 meters. Characterized by fast, high-quality, safe and convenient piling performance as well as energy-saving and environmental-friendly advantages, it may significantly shorten the construction process of ultra-large bridge projects and provide safe, efficient, and environment-friendly construction solutions for super projects in China.

CRRC Products Enter the “Kingdom of Copper Mines”

The generator prototype produced by CRRC Yongji Electric Co., Ltd. for mining dump trucks has passed the acceptance inspection by the Chilean customer, with whom a letter of intent for five-year cooperation has been signed. Chile is one of the largest mining dump truck markets in the world. In collaboration with its Chilean customer, CRRC Yongji Electric Co., Ltd. has carried out the generator project for 290-ton mining dump trucks. Subject to strict whole-process control from design scheme through production organization, supplier selection, technical guarantee to quality control, the prototype has passed the test with all indicators meeting the customer's technical requirements.

Zhuzhou CRRC Times Semiconductor Co., Ltd. Developed and Manufactured IGBT Products

Since 1964, CRRC Zhuzhou Institute Co., Ltd. has been committed to the R&D and industrialization of power semiconductor technology. Serving as a key laboratory of the State for new power semiconductor devices, the supporting unit for the State Energy R&D Center for High-Power Electric and Electronic Devices, the chair unit of IGBT Technology Innovation and Industry Alliance of China, CRRC Zhuzhou Institute Co., Ltd. is engaged in the R&D of IGBT as well as key national scientific and technological research projects and projects under the National 863 Program.

In 2019, CRRC Zhuzhou Institute Co., Ltd. founded Zhuzhou CRRC Times Semiconductor Co., Ltd., which specializes in semiconductor industry operations and has become one of the few IDM enterprises in the world that have mastered all technologies for high-power thyristor, IGCT, IGBT, SiC devices and their components and run a complete industry chain encompassing chips, modules, devices and systems.

Successful Production of “Jumbo” CR240E Electric Drive Mining Dump Truck

Using advanced LNG and dual-fuel diesel engine technology, CRRC Datong has developed the CR240E electric drive mining dump truck, which is equipped with a reliable electric drive system that may reduce the vehicle use cost by 8% to 15% and greenhouse gas emissions such as carbon dioxide by about 20%. The ROPS and FOPS design for the cab has been verified by the US-based Clark Laboratories. With a maximum load capacity of 240 tons and a maximum speed of 57 km/h, CR240E features strong manoeuvrability, high efficiency, and wide adaptability to open pit mines and major water conservancy and hydropower projects.

The mining dump truck produced by CRRC Datong

Most Extensive Cooperation

CRRC pays attention to sharing innovative models and best practice around the world, thus enabling rail transit to create a better life for mankind.

We have strengthened cooperation with governments at all levels, enterprises, financial institutions, and scientific research institutes at home and abroad, with a view to achieving complementary advantages, promoting international capacity cooperation in a greater scope, and make contributions to building a community of shared future for mankind.

In September 2019, under the joint witness of Premier Li Keqiang of the State Council and German Chancellor Angela Merkel, CRRC and Voith Group signed a strategic cooperation agreement to further develop rail and industrial market businesses.



Innovation and Intelligence Lead to Development

Adhering to the concept of innovation-driven development, CRRC has been continuously upgrading its core technologies, innovating its business models, speeding up its management reforms, promoting the shift to new growth drivers, and leading the innovation and development of the industry.



Innovation System

CRRC has carried out in-depth reform of its scientific and technological systems and stepped up efforts to stimulate the vitality of scientific and technological innovation. In 2019, CRRC continued to build its product R&D system, refined its technical research system led by CRRC Institutes and the National Innovation Centers of High Speed Train, carried out technical innovation evaluation and research, started building a technology evaluation and trading platform, and improved the technological support service platform, thereby stimulating the vitality of innovative elements and promoting the technical progress of global rail transit equipment.

In 2019, CRRC invested RMB 12.265 billion in scientific and technological R&D, accounting for 5.36% of its operating revenue and saw steady improvement in its scientific and technological innovation capability. It won three Second Prizes of State Technological Invention Award and one Second Prize of State Scientific and Technological Progress Award, as well as 21 China Railway Society Science and Technology Awards, including 2 Special Prizes and 3 First Prizes thereof. The "Fuxing" EMU scientific and technological innovation team won the title of "Top 10 Scientific and Technological Teams of Central Enterprises under the SASAC of the State Council". Besides, the "Super Copper" and "AI Behavior Analysis System" won the First Prize and the Second Prize of 2018 Central Enterprises Yixing Innovation & Creativity Competition respectively.

Improving Scientific and Technological System

CRRC continued to reform its scientific and technological system, organized major special projects and projects aimed at shoring up weak areas, carried out research on the "top-level design of CRRC's scientific and technological system", improved the structure and processes of its scientific and technological innovation system, reinforce the product R&D systems of its advantageous R&D-oriented subsidiaries, and engaged in the evaluation research on scientific and technological innovation.

Building Scientific and Technological Platforms

CRRC has sped up the construction of its technical supply service platform and the National Innovation Center of High Speed Train, invested in the construction of multiple technical centers including the national engineering laboratory for integrated rail transit vehicle systems, the high-speed maglev test center, the engineering materials research institute, and the energy and power research institute.

Cultivating Technological Talent Teams

CRRC has introduced and trained talents through various channels. We recruited 6 senior professionals such as academicians Zhai Wanming and Ma Weimin as well as top-notch teams, and sent young scientific and technological employees to universities for further study. Besides, we adopted flexible personnel management mechanisms such as the internal "double appointment system" to build our professional scientific research teams.

In 2019

3 Second Prizes of State Technological Invention Awards

1 Second Prize of State Scientific and Technological Progress Award

21 China Railway Society Science and Technology Awards,

including **2** Special Prizes

and **3** First Prizes

Achievements in Innovation

Placing a high priority on the transformation of innovation achievements, CRRC has been committed to promoting intellectual property management and R&D of new products and strengthening the popularization and application of scientific and technological achievements, thereby continuously providing renewed momentum for its quality development and enhancing its voice and influence in the industry. In 2019, CRRC released 12 international standards, 22 national standards and 58 industry standards.

Strengthening Intellectual Property Management

Respecting knowledge and highlighting intellectual property management, CRRC has maintained steady growth of its patent assets. On such basis, we stepped up efforts in patent applications in key target markets, implemented synchronous protection for key core technologies in many countries and regions worldwide, combed through contract terms and conditions concerning intellectual property for its subsidiaries engaged in the introduction of overseas technologies, overseas technical cooperation and other overseas business activities, and developed risk analysis reports. As a result, we filed 5,189 patent applications and won two gold prizes, one silver prize and seven excellence prizes at the 21st China Patent Award, ranking the top among central enterprises in the total number of gold prizes.

Promoting R&D of New Products

CRRC has been engaged in world-leading high-end technical research on intelligent high-speed rail fully-automatic unmanned driving, bow net detection, walking part monitoring, and obstacle detection, with a view to continuously developing new technologies and promoting innovative products. The 250 km/h standard EMU developed by CRRC has obtained operational qualifications; the Beijing-Zhangjiakou intelligent EMU has been successfully put into operation and realized 350 km/h auto-piloting for the first time in the world; and the 400 km/h high-speed prototype and the 600 km/h high-speed maglev prototype have been rolled off. All of these have enriched the high-speed train portfolio and continuously led the development of high-speed trains in the world.

CRRC Designed and Manufactured the World's Safest Light Rail Vehicles

In April 2019, the train tailor-made by CRRC Changchun Railway Vehicles Co., Ltd. for the Tel Aviv Red Line Light Rail project in Israel rolled off the production line in Changchun, marking that a 100% China-made low-floor train was exported to a developed country for the first time. Having gone through safety evaluation according to European standards, the train was designed to meet both the European general standard and the Israeli standard, representing one of the world class safety protection light rail vehicles in the world.

Scientific Research Exchanges

We continuously improved our technical innovation system integrating industry, university, research institutes and applications, constantly strengthened external communication and exchange in the fields of scientific and technological R&D, standard setting and product innovation, and achieved positive results in all aspects of our work.

CRRC further improved the construction of its overseas R&D centers, with a focus on technical research, support and conversion projects for rail transit equipment, while making efforts to introduce and train international talents and further engaging in international technical cooperation and exchanges on rail transit. By the end of 2019, CRRC had established 17 overseas R&D centers in countries like the United States, Australia, South Africa, Malaysia, India, Turkey, Italy, and Austria.

Deep sea machinery made by CRRC



Next-Generation Subway Train Passes Expert Inspection



The next-generation subway train project, as part of the National Sci-Tech Support Plan spearheaded by CRRC Qingdao Sifang Co., Ltd.(CRRC Sifang), passed the acceptance inspection by the Ministry of Science and Technology, marking the latest technological achievement by China in the subway train field. Using substantial advanced new materials, new technologies and new systems, the next-generation subway train points to the development direction of subway vehicles and is thus called “subway in the future”.

Lighter	Advanced carbon fiber technology is adopted; carbon fiber composite materials are comprehensively applied to the main structure of the train for the first time; and the weight of the train is reduced by 13%.
More energy-saving	Energy-saving technologies such as novel silicon carbide permanent magnet synchronous traction system, pneumatic drag reduction design, and regenerative braking full feedback are adopted, resulting in a comprehensive energy conservation by about 30%.
More comfortable	New sound insulation and noise reduction materials, structures and technologies are adopted to reduce noise by more than 5 decibels. The train is equipped with fully active suspension system to run more smoothly.
Smarter	Auto-driving is realized throughout the operating process. The train is equipped with smart service facilities including windows that are turned into touch screens, as well as intelligent air conditioning and lighting systems. Intelligent active operation and maintenance is realized through functions such as holographic real-time monitoring and in-transit early warning.
Greater adaptability	The train allows “flexible marshalling” within the scope of 2-12 cars to improve the operating efficiency and reduce operating costs. Besides, it adapts to more complex operating environments.

CRRC Released ETCS Signal System



The European Train Control System (ETCS) is hailed as the “brain” and “nervous system” of rail transit. SigThemis is an ETCS signaling system launched by Zhuzhou CRRC Times Electric Co., Ltd. Based on the ETCS architecture, the system fully conforms to the latest ETCS standards and realizes interoperability among trains at different levels, thus providing more comprehensive signaling system solutions for global customers.

600 km/h High-speed Maglev Prototype Successfully Rolled off the Production Line



On May 23, 2019, the high-speed maglev prototype with a designed speed of 600 km/h rolled off the production line at CRRC Sifang, marking a major breakthrough achieved by China in the field of high-speed maglev technology. With the advantages of fast speed, safety, reliability, low noise, less vibration, large capacity, and less maintenance, the prototype may fill the speed gap between aviation and high-speed rail passenger transportation, enable closer connections within the urban agglomeration, and has great technical and economic significance for improving the three-dimensional high-speed passenger transportation network in China.

Beijing-Zhangjiakou Intelligent EMUs Put into Operation



The Beijing-Zhangjiakou intelligent EMU has realized, for the first time in the world, an auto-driving speed of 350 km/h. The autodrives system of the train may automatically calculate a safe, energy-saving and efficient running mode according to the conditions of the line, thus greatly reducing the labor intensity of the drivers. In addition, multiple “black technologies” such as 5G signaling, wireless recharging, intelligent light adjustment, infinitely variable color windows and accessible facilities are adopted in the EMUs. The operation of Beijing-Zhangjiakou High-Speed Railway marks yet another milestone for China’s railway development from the high-speed era to an intelligent era.

As President Xi Jinping said,
“Looking back at history, we found greater significance of the new line.”



Intelligent Manufacturing

In terms of the R&D of forward-looking rail transit technologies, CRRC has been engaged in building an industrial internet platform and exploring “intelligence+”, with a view to empowering the transformation and upgrading of the manufacturing industry. Through intelligent design, manufacturing, operation and maintenance, and overhaul, CRRC has been committed to developing life-cycle overall intelligent solutions and creating “intelligent trains” for intelligent transportation and smart cities.

Intelligent Technologies of CRRC Qingdao Sifang Rolling Stock Research Institute Co., Ltd. (CRRC SRI)



CRRC SRI’s intelligent technologies cover intelligent design, intelligent manufacturing, intelligent operation and maintenance, and intelligent overhaul. With the help of IMOS (Intelligent Maintenance Optimization System), CRRC SRI relies on intelligent sensing, automatic identification and robot technologies to realize real-time remote monitoring of vehicle production and maintenance, provide users with real-time data on equipment status, vehicle production/overhaul and tests, optimize the production and overhaul processes, guide the intelligentized vehicle production and overhaul, and build intelligent workshops.

Using artificial intelligence technologies such as machine vision and big data analysis, CRRC SRI analyzes the data collected in each process of vehicle operation and comprehensively evaluates vehicle status, thus providing necessary support for the transformation of rail vehicles from the traditional planned maintenance mode to the status-based maintenance mode. IMOS may reduce operational failures, bring down the failure levels and ensure operational safety. Besides, it may accommodate enormous rail transit networks, reduce manual operations, minimize human influence and improve the level of intelligentization.



Intelligent Manufacturing of Bogies by CRRC ZELC



bogies has been put into operation, with 11 production lines covering the entire process of bogie manufacturing including processing, assembly, welding, painting and logistics. The intelligent manufacturing has enabled centralized process zoning, lean workstation design, more compact process flow, shorter process intervals, and faster material flow, thus improving the overall production efficiency and reducing operating costs.

Through the intelligent manufacturing practice, CRRC ZELC has obtained 4 invention patents and 14 software copyrights, formulated 19 technical specifications, published 13 professional papers and set 10 standards, thereby developing a new quality management mode in the field of high-end equipment.

Managerial Innovation

CRRC has been committed to comprehensively enhancing quality and efficiency, practising lean management, continuously improving the managerial level and operating efficiency of its enterprises, reducing the operating costs and constantly improving its core competitiveness.

Deepening Reform

Keeping pace with the times and pursuing changes while holding fast to its main businesses, CRRC is constantly breaking through the development shackles for its enterprises, enhancing their environmental adaptability, improving their competitive strengths, and activating their endogenous momentum.

In 2019, CRRC Sifang, CRRC ZELC and CRRC Dalian Locomotive & Rolling Stock Co., Ltd. (CRRC Dalian) were included in the second batch of "Double Top 100 Enterprises". As a result, the total number of "Double Top 100 Enterprises" under CRRC had reached 7, ranking first among central enterprises, and the comprehensive reform plans had been successively implemented. CRRC SRI and CRRC Qishuyan Locomotive & Rolling Stock Technology Research Institute Co., Ltd. (CRRC QSYRI) were included the fourth batch of mixed ownership reform pilots, and saw steady progress in internal reforms. Phased results were achieved in the "eliminating zombie enterprises and helping disadvantaged enterprises", and the reform of three systems were continuously deepened. CRRC has played an active role in integrating similar assets, reducing excessive capacity and optimizing the structure of resource elements, thereby ensuring the preservation and appreciation of state-owned capital.

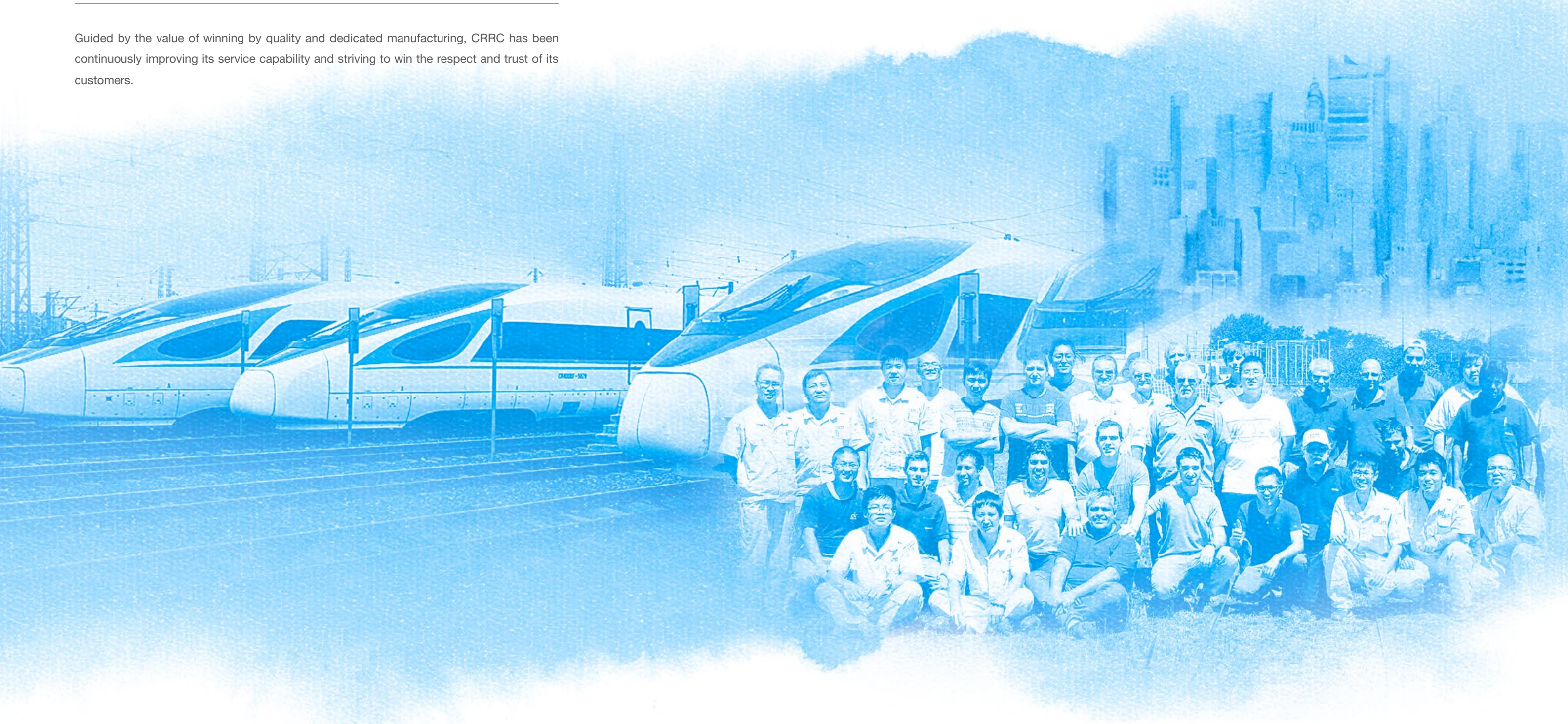
Enhancing Quality and Efficiency

CRRC launched a "1+13" quality and efficiency enhancement initiative on the theme of "Consolidating the Foundation, Improving Quality, and Seeking Progress while Maintaining Stability". "1" means the main line of implementing comprehensive budget management and accomplishing annual business objectives, whereas "13" means 13 special tasks, including treating "enterprises running at a loss", aimed at "seeking steady progress in business performance, further reducing costs and enhancing efficiency". Through this initiative, CRRC highlighted coordinated development, persisted in reform and innovation, intensified operation control, improved the weak areas of its capabilities, enhanced its operating quality, and sped up the high-quality development, thereby laying the foundation for accomplishing its "Double Creation and One Cultivation" and comprehensively improving its operating quality.

Note: * "Double Creation and One Cultivation" refers to creating a respectable international company, creating the CRRC party-building iconic brand, and cultivating a world-leading corporate with global competitiveness.

Pursuing Perfection and Surpassing Expectations

Guided by the value of winning by quality and dedicated manufacturing, CRRC has been continuously improving its service capability and striving to win the respect and trust of its customers.



Quality Management and Control

Adhering to the concepts of creating value for customers, producing high-quality products and sticking to lean manufacturing, CRRC has established a sound quality management system and concentrated its efforts on enhancing the advanced level of its products and ensuring their safety and reliability.

Quality Management System

CRRC pressed ahead with the construction of “CRRC Q” quality management standards, planned to carry out maturity research on its quality management system, and established multi-dimensional, multi-level evaluation models, thereby providing system guarantee for the production of high-quality products. Besides, CRRC participated in the development and revision of international standards to consolidate its leading position in industrial technologies and in the market.

Raw Materials Quality Management

CRRC applied strictly control over the qualifications of its suppliers, took advance quality control measures for incoming raw materials, made exploratory efforts to develop a supplier access mechanism integrating “CRRC and Subsidiaries”, and completed the revision of its administrative measures for supplier qualifications. In addition, CRRC carried out research projects for integrated management of supplier qualifications and put forward the proposal on supplier management framework.

Production Process Quality Management

CRRC implemented intelligent manufacturing project management and carried out information standardization projects, thereby realizing comprehensive control over the existing data on internal matching, standard components, raw materials, and life-cycle data management. Moreover, by substituting machines for human labor, the production efficiency was improved, human errors were reduced and product precision was increased.

Won “Excellent Quality” Award from Customer

Zhuzhou Times New Material Technology Co., Ltd. once again won the “Excellent Quality” award at the 2019 Webtac Corporation Supplier Conference. This event marked the first Chinese suppliers conference following the merge between Westinghouse Air Brake Technologies Corporation and GE Transportation (GET). GET requires its suppliers to implement the Six Sigma standard of controlling the DPMO (Defects Per Million Opportunities) value within 110, while Zhuzhou Times New Material’s DPMO value was 1.

Promoting Lean Production

CRRC has continuously improved its product quality. Based on feedback from the market and customer surveys and through refined production and lean management, we have upgraded our products in terms of performance, speed and other aspects and won customer recognition.

CRRC pushed ahead with the lean management system and lean manufacturing standards, and fully implemented lean production. To date, we have built 9,015 standard work stations, 655 lean production demonstration areas (lines), 289 lean workshops, 167 simulated line projects, 353 key improvement projects, and 33 lean R&D projects.

High-Quality Services

Relying on its own technical strength, CRRC strove to provide customers with full life-cycle services and full industry chain services through technical platforms such as the cloud intelligent management platform, big data analysis platform, and vehicle health management platform.

Thanks to our first-class project management and control capability, we were able to quickly respond to customers’ requirements, and fully protect their privacy as well as their rights and interests.

1,350 Open-Top Wagons Delivered in 70 Days

To meet the vehicle demand of Shenhua Railway Freight Transport Co., Ltd., CHN Energy for the “100-day Campaign”, CRRC Qiqihar Co., Ltd. (CRRC Qiqihar) made overall planning and boosted the daily output of C80 aluminum alloy Open-Top Wagons to a historical high of 32 vehicles, setting a record of producing 1,350 wagons in 70 days. In the past 30 years, CRRC Qiqihar has provided Shenhua Group Company Limited with over 17,000 wagons of more than 10 models, as well as maintenance services for a variety of models, thus promoting the rapid development of its heavy-load freight truck technology.

CRRC continued to strengthen the supply and storage management of spare parts, constantly increased the speed of response to demands, and met the requirement of “getting spare parts on demand” to the greatest extent. In 2019, CRRC accelerated the informatization of its spare parts centers, established an informatized platform for spare parts supply, and put 7 high-power locomotive spare parts centers and 7 EMU spare parts centers into operation, striving to build a safe, efficient and economical spare parts supply and guarantee system.

CRRC took the initiative to fulfil its responsibility of ensuring safe travel for the general public. By preparing and mobilizing corporate resources from the perspectives of organizational guarantee, service guarantee, technical guarantee, logistics guarantee, emergency response guarantee, safe production guarantee and information guarantee, we have developed comprehensive after-sales service plans to ensure the safe operation of our products and the travel safety of passengers.



CRRC and customers jointly built spare parts center

Intelligent Support

CRRC stepped up its technical R&D efforts, and successively introduced a number of intelligent systems including the SAI Behavior Analysis System and the intelligent display system. Relying on intelligent operation and maintenance and intelligent management, it has been committed to building more intelligent, more convenient and more environmental-friendly trains.

CRRC Intelligent Transportation Solutions Appear at the First Internationale MES Expo Berlin

In November 2019, CRRC participated in the First Internationale MES Expo Berlin. Focusing on the theme of "Intelligent Transportation Solutions Create Value for You", CRRC displayed its signaling systems, braking systems, network control systems, intelligent operation and maintenance systems, fire control systems, driving behavior analysis system, intelligent display screens, and IGBT at the show and attracted the attention of all participants.

Intelligent Display Technology

Thanks to the atomic layer deposition coating technology, the thin film electroluminescent display screen produced by CRRC SRI is the most durable and transparent display screen, with an over 85% transmittance ratio and a 360-degree viewing angle, securing the best display effect in extreme environments.

Take "Smart Subway" to the Seaside

Manufactured by CRRC ZELC, the first train for Shenzhen Subway Line 8 rolled off the production line. With substantial details of standardized and modularized design, the model realized interoperability between different systems and components. As an intelligent train, it features main components that may promptly transmit operating data to the train health management system on the ground during operation. After completing data analysis, the train health management system will evaluate the running status of the train and "give" such instructions to the administrators, technicians or maintenance staff as whether the train is in good running condition, and whether there are failure points or maintenance requirements, etc., thus realizing integrated operation and maintenance featuring "intelligent transmission + intelligent analysis + intelligent monitoring".



Supply Chain Management

CRRC adhered to win-win cooperation, played a leading role in the supply chain, placed high priority on protecting the rights and interests of suppliers, strengthened supplier management, engaged in responsible procurement, minimized liability risks in the supply chain, joined hands with its suppliers to create greater value, and enhanced its competitiveness in the industry chain.

Improving Procurement Management

We pressed ahead with material procurement and supply chain management and control, defined the annual business management targets for the material supply chain, and broke down and applied performance evaluation indicators for the material supply chain. In addition, we pushed ahead with the E-Procurement Platform Optimization Project Phase II for supply chain management.

CRRC has built a supply chain e-commerce coordination platform for the rail transit industry, namely "www.crrcgo.cc", to promote open, transparent and traceable procurement business management, ensure timely supply of raw materials and reduce procurement costs. Making full use of information technologies such as cloud computing, mobile Internet, and big data, the "www.crrcgo.cc" platform has integrated outstanding enterprises in the rail transit industry, realized networking and cooperation between high-end supply chain resources and purchasers around the world, and provided full-process electronic intelligent synergy solutions for upstream and downstream enterprises along CRRC's supply chain.

Promoting Procurement in Compliance with Regulations

While continuously improving its supplier management code, CRRC held special meetings to combat procurement chaos, published the negative list of supervisory powers over procurement, continuously promoted compliance of procurement with regulatory requirements, stepped up efforts in tendering and contract audits, advocated clean procurement, and strictly controlled the procurement process. In addition, we organized training in laws, regulations on and practices of tendering and procurement and sessions on tendering and procurement to further improve the compliance awareness of our employees and their insights into relevant policies and regulations, thus effectively helping our enterprises further regulate their tendering and procurement management. We paid more attention to factors such as environmental protection, safety, and energy conservation in the procurement process and urged our suppliers to fulfil their responsibilities, so as to jointly build a high-quality, efficient, flexible and green supply system.

Work Together to Build a High-quality Supply Chain System with Solidarity and Integrity

CRRC QSYRI held the 2019 Supplier Conference, which was attended by the representatives of more than 160 key supplier representatives. The Conference put forward specific requirements for the supplier representatives from four aspects, i.e. stabilizing supply to meet the demand, deepening centralized procurement, strengthening standardized management and promoting common growth, and released typical cases related to suppliers in terms of quality, supply, cost reduction and integrity.

CRRC QSYRI released an integrity reminder of "Work Together to Build a High-Quality Supply Chain System with Solidarity and Integrity" and added commitment signing session, emphasizing the necessity of integrity in business, fair competition, green development and win-win cooperation.

More than **160** key supplier representatives attended the meeting

Green and Low Carbon for a Shared Future

CRRC attaches great importance to environmental protection. Adhering to the concept that “Lucid waters and lush mountains are invaluable assets” and aiming to build a “green CRRC”, we have been taking solid steps to implement the action plan for resources conservation and environmental protection, actively responding to climate change, promoting efficient use of resources, developing environmental-friendly products, building environmental protection industries and creating a better ecological environment through joint efforts.



Environment Management

CRRC has included plans for energy conservation and emission reduction in its *13th Five-Year Plan* and convened the annual environmental protection work meeting, with a view to fulfilling environmental protection requirements and firmly taking the new path of green development with priority given to ecology. CRRC has strictly abided by the *Environmental Protection Law of the People's Republic of China* and other relevant laws, instituted the *Energy Management Regulations* and the *Environmental Protection Management Regulations*, established a sound environmental management system, and constantly tightened environmental risk management and control.

Comprehensive Environmental Risk Evaluation

CRRC organized its subsidiaries to conduct pollutant discharge surveys and environmental risk surveys, and prepare subsidiary environmental risk assessment reports; formulated assessment criteria against which all environmental risks are evaluated and classified; prepared lists of corporation-level and subsidiary-level environmental risks; carried out environmental risk assessment and classification among its subsidiaries; put forward environmental risk countermeasures; and developed the *CRRC Environmental Risk Assessment Report*.

Optimizing Basic Data Reports

CRRC established an expert team to revise a number of statistical statements on energy conservation and environmental protection and develop a statistical information system for energy and environmental protection; organized training in the statistical statements of this regard; and strengthened monitoring, evaluation and anomaly analysis of the new statements after they were put into use.

Tightening Environmental Protection Control over Projects

CRRC builds a platform for autonomous environmental inspections of completed construction projects and developed relevant acceptance standards to improve the quality of acceptance inspections. Relying on the energy-conservation monitoring center for the railway industry, CRRC carried out environmental inspections of 10 construction projects to enhance the capability of its enterprises for autonomous acceptance inspection.

Inspection and Supervision

CRRC continued to carry out energy conservation and environmental protection evaluation and inspection. We set up a professional inspection team and conducted energy conservation and environmental protection evaluation and inspection of 10 subsidiaries from 13 aspects, with a view to urging them to continuously improve their respective energy conservation and environmental protection management systems. Furthermore, we organized five rounds of environmental protection supervision covering a total of 98 subsidiaries at all levels, and required them to make comprehensive rectification and launch key campaigns of pollution prevention and control. In addition, we intensified energy auditing, energy efficiency testing, energy-consumption statistics verification, as well as pollution source supervision and monitoring of 32 subsidiaries.

Refining the Emergency Drill Procedure

CRRC refined its emergency response procedures for environmental risk prevention and control and energy security, formulated contingency plans for heavy-pollution weathers and energy security, strictly fulfilled the local governments' requirements for emergency response to heavy-pollution weathers and off-peak production for key industries in autumn and winter, and organized its affiliated enterprises to conduct drills so as to increase the speed of emergency response.

Exporting Environmental Standards and Enhancing Environmental Awareness

CRRC assisted the Evaluation Center of the Ministry of Ecology and Environment of China and the China Association of Railway Engineering Construction in preparing environmental protection standards; independently developed two technical standards for waterborne coatings; and served as a co-organizer for the Rail Transit Traction Power Green Development Forum.

The enterprises affiliated to CRRC developed their respective environmental protection training plans, and carried out special training sessions on "three-wastes" management, standardized management of hazardous wastes and risk prevention and control, environmental statistics, garbage classification, and lean energy efficiency. Besides, CRRC organized a variety of activities such as the World Environment Day (June 5), the Energy-conservation Publicity Week and the Low-carbon Day, with a view to enhancing its employees' sense of mission and responsibility for energy conservation and low carbon, and contributing to its goal towards a green and low-carbon corporation.



Environmental-friendly Products

Applying the development concept of "green and innovation", CRRC continued to organically integrate green and energy-saving technologies in rail transportation equipment, advance the rail transportation equipment industry in a green and energy-saving direction, promote the upgrading of relevant green technologies and environmental-friendly products, and provide "green support" for national strategies aimed at building national strength in transportation, technology and manufacturing.

R&D of Environmental-friendly Products

Rail transportation equipment has the advantages of large capacity, low energy consumption, less emissions and less pollution, and can effectively slow down climate change. CRRC has played an active role in applying new-generation information technology and energy-conservation and environmental protection technologies, adheres to the integration of the two technologies, and develops green products and smart products. When the "Fuxing" EMU runs at the speed of 350 km/h, the per capita energy consumption per hundred kilometers is only 3.64 kWh, which is equivalent to one fourth of that by passenger planes and one sixth of that by cars.

The First R&D Center for Green Energy Efficiency Technology of the Ministry of Transport Settles at CRRC Dalian



CRRC Dalian's R&D Center for Green Energy Efficiency Technology of Rolling Stock Equipment in Transportation Industry is the only ministerial-level sci-tech innovation platform for the rolling stock equipment sector in China that focuses on the development of green energy efficiency technologies. On the basis of building a technological research and product manufacturing platform for energy-saving and environmental-friendly hybrid locomotives, the R&D Center is committed to researching application technologies for novel clean energy in the field of rolling stock, and developing a new generation of medium- and high-speed engines with high efficiency and low emissions and a new generation of low- and medium-speed maglev trains, with a view to developing into a technology research center, technology introduction center, technology transformation center and technology radiation center in the direction of new energy green energy conservation in China's rail transportation equipment industry.

CO₂ Air Conditioning Unit Successfully Installed on High-Speed EMUs



CO₂ is a natural and environmental-friendly refrigerant. More than 10 patent applications have been filed by CRRC Dalian that has engaged in the R&D of CO₂ trans-critical cycle green high-efficiency EMU air conditioning system, and 5 patents thereof have been granted. In July 2019, two CO₂ air conditioning units, with the greatest refrigeration capacity in the world, were installed on high-speed EMUs.

Development of HXD 2B Electric Locomotive

The HXD 2B electric locomotive developed independently by CRRC Datong can operate stably and continuously under the climate conditions of sand dust, freezing rain, and extremely low or high temperature, supplying traction for many trunk railway lines in China such as Beijing-Kowloon Railway and Beijing-Shanghai Railway. With a traction power of 9,600 kilowatts, HXD 2B electric locomotive has obvious advantages of low noise, less pollution and emission, higher energy efficiency, and greater environment-friendliness. The traction of a single locomotive may reach 10,000 tons, which may effectively improve the transportation efficiency and release the capacity of railway transportation. In 2019, HXD 2B electric locomotive was put into operation on the Xuancheng-Hangzhou Railway, the eastern starting point of China-Europe Railway Express.

CRRC SRI Won Environmental Award by China Energy Conservation Association

The "Hybrid Regenerative Braking Energy Conservation System for Urban Rail Transit " developed by CRRC SRI won the Technical Invention Award for Energy Conservation and Emission Reduction as presented by the China Energy Conservation Association. CRRC SRI took the lead in introducing such a system, which was put into use for the first time in China. The system has enabled efficient recovery of the train braking energy and improvements in the electric power quality and energy consumption reductions of the traction power supply system. Besides, it has reduced the wear of brake shoes caused by regenerative braking failure, the use of on-board or ground braking resistors, and the secondary energy consumption by the environmental control system due to line temperature rise, and solved the noise pollution brought by the start-up of on-board brake resistors.

Contributing to Ecological Protection

Placing a high priority on environmental protection, CRRC has engaged in comprehensive environmental governance focusing on water environment management and solid waste management, as well as in soil and groundwater recovery and marine environment management to facilitate ecological civilization.

Powered by Green "Heart"

CRRC Yongji Electric Co.,Ltd. (CRRC Yongji) and Changjiang Wuhan Waterway Bureau signed a strategic cooperation agreement on promoting the green development of the Yangtze River and leading the upgrade of inland river shipping technologies, with a view to exploring ways of applying novel clean energy to waterway maintenance vessels. CRRC Yongji has provided a whole package of system solutions and multiple pollution prevention measures for the 18-meter pure-electric waterway speedboat (Yangtze River Waterway Electric 001). As a result, a single pure-electric vessel is expected to reduce the usage of diesel oil by about 60 tons, oil and sewage discharge by more than a hundred kilograms, and carbon dioxide emission by nearly 200 tons on a yearly basis.

The World's First Hydrogen-Powered Tram Put into Commercial Operation

In December 2019, the hydrogen-powered tram developed by CRRC Sifang was put into operation in Foshan. It takes only 15 minutes to top up the hydrogen-powered tram, which then can continuously operate for about 100 kilometers. With the technical advantages of long endurance, full-line operation without "overhead lines", and "zero emission", the tram has provided a brand-new solution for urban rail transit.

Highly Integrated Electric Drive System for New-Energy Vehicles Successfully Developed

The successful development of the highly integrated electric drive system for new-energy vehicles marks yet another revolutionary breakthrough that CRRC Zhuzhou Electric Co., Ltd. has achieved in the field of high-end permanent magnet motors. With the advantages of exceptional performance, stable operation, low noise, less vibration, light weight, low cost and high reliability, the system represents the highest level of R&D, manufacturing technology and testing capability of the company for drive motors of new-energy vehicles.



Intelligent tram running across the city of Zhuzhou

Green Operations

CRRC has played an active role in implementing national energy conservation and environmental protection policies and carrying out special pollution control tasks.

CRRC Tangshan and CRRC ZELC were included in MIIT's list of the fourth batch of "Green Factory Model Enterprises"; CRRC ZELC and CRRC Zhuzhou Institute Co., Ltd. won the title of "Environmental Integrity Enterprise in Hunan Province"; CRRC SRI won the title of "Water-saving Enterprise in Shandong Province"; and CRRC Dalian won the title of "Advanced Entity for Energy-Conservation Management in Dalian".

CRRC prepared a *Green Factory Evaluation Guideline* with industry characteristics and issued pilot standards to guide its subsidiaries in creating green factories. Besides, it conducted pilot operations and standard verification at CRRC Sifang and Zhuzhou CRRC Times Electric Co., Ltd. In the future, it will fully engage in the creation and popularization of green factories and set a benchmark thereof. To date, two pilot companies have attained the green-factory standards.

In 2019, CRRC organized 528 environmental protection training sessions attended by more than 38,000 participants.

Energy Conservation and Emission Reduction

The major pollutants emitted by CRRC met the national or local emission requirements, and the total amount of pollutants emitted met the total emission control target.



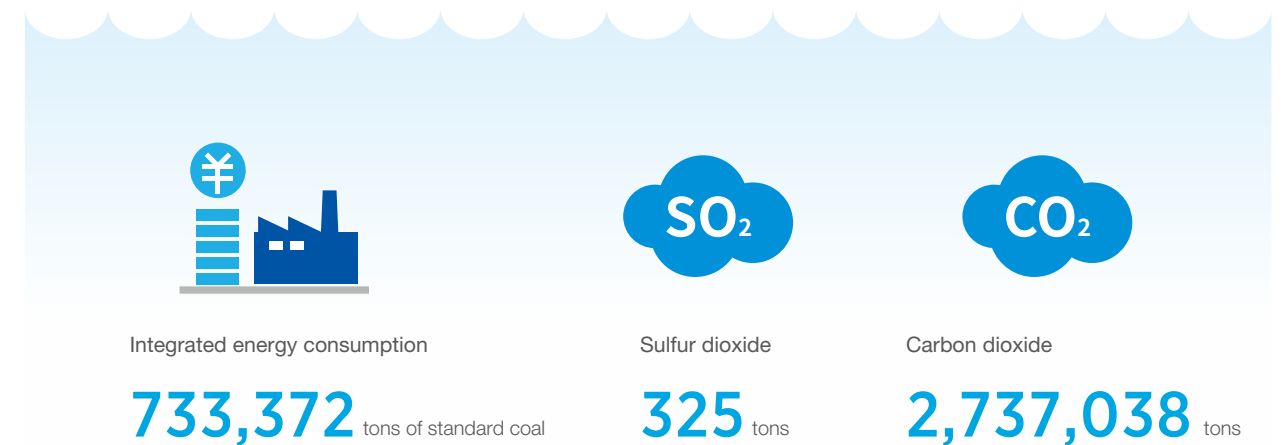
Energy Conservation

Nine new modules were included in CRRC's energy and environmental information reporting system, enabling more precise monitoring of enterprise data, energy and environmental information, energy utilization and pollutant emissions.

According to the standards for energy control and key equipment performance monitoring systems, CRRC revised 9 key energy consumption index standards and developed the energy and environmental statistical information system and management system. Meanwhile, its subsidiaries developed and expanded their energy information systems to improve energy efficiency.

Emission Reduction

CRRC has supported 12 key projects, including the elimination of coal-fired boilers, modification of water-based paint use, treatment of casting fume and dust, treatment of waste gas and dust in key and sensitive areas, and corporate supervisory monitoring. The industrial waste water, waste gas, boiler fume and other pollutants emitted by CRRC were all effectively treated and discharged in compliance with relevant standards.



Technical Reform for Energy Conservation and Environmental Protection

- The Lvshun New Factory of CRRC Dalian, CRRC Tangshan, and CRRC Shijiazhuang implemented the contracted photovoltaic power generation project respectively. In only half a year, they generated 12.57 million kWh of electric power and saved RMB 942,000 in electricity bills.
- CRRC Tangshan and CRRC Sifang adopted the "Catalytic Combustion Organic Waste Gas Treatment Technology" and invested RMB 9.06 million and RMB 6.23 million respectively to modify the areas of organic waste gas treatment and spraying operations for the purpose of reducing waste gas emissions.
- To treat the smoke generated by motor drying kilns, CRRC Qiqihar built sealed cabins using fireproof rock wool to isolate and collect the waste gas, which will then be subject to innocuous treatment by the photo-oxygen purification equipment before being emitted in compliance with relevant standards.
- CRRC SRI upgraded oil-fired boilers to gas-fired boilers, thus greatly reducing sulfur dioxide and nitrogen oxide emissions.

Being an Enterprise of Green Operations

CRRC Datong issued the *Three-Year Key Action Plan for Ecological Protection and Pollution Prevention*. By taking a series of measures including constantly strengthening the supervision and inspection of its energy and environmental protection system, phasing out coal-fired boilers, recycling residual heat and pressure, and promoting the use of water-based coatings, the Company has turned “energy conservation and emission reduction” from single option into multiple options, and made all-out efforts to save coal, electric power and water consumption to the greatest extent possible. As a result, CRRC Datong has seen a steady decline in its energy conservation and emission reduction indicators year by year and no environmental pollution accidents.

Waste Water Management

CRRC called special meetings on waste water treatment, formulated implementable, scientific and reasonable measures from the perspectives of diversion, throttling, storage and treatment, instituted comprehensive accountability-based control systems, and established and properly operated sewage pipelines and treatment facilities. The main pollutant in CRRC’s waste water is COD. By launching special campaigns for waste water treatment and upgrading waste water treatment facilities, CRRC has seen a continuous decline in COD emissions. In 2019, CRRC emitted 750 tons of CODs and consumed 18.02 million tons of fresh water.

Waste Management

CRRC carried out surveys on the methods for solid waste management, transfer, transportation and disposal, and conducted in-depth analysis regarding the types and quantities of solid waste and hazardous waste. Besides, it stepped up supervisory efforts, implemented full-process supervision over hazardous waste, safely disposed of hazardous waste, non-hazardous solid waste and domestic waste, and vigorously promoted the comprehensive utilization of solid waste. In 2019, CRRC disposed of 21,458 tons of hazardous waste through eligible companies, and disposed of 408,745 tons of non-hazardous solid waste.

CRRC widely applied smart and circular logistics, thereby saving 90,000 packing cases throughout the year, which is equivalent to saving 37,000 cubic meters of wood and protecting 470 hectares of forest resources, with economic and environmental benefits beginning to emerge.

CRRC Resources Recycling E-Commerce Platform Promotes Waste Recycling

Since the CRRC Resources Recycling E-Commerce Platform was launched, it has been revolving around the core of “Internet + resources recycling” to realize the value of waste and idle materials. As the trading data of the platform are authentic and traceable and the transaction processes are open, transparent and compliant with relevant regulations, thus solving the common difficulties of insufficient buyers and high trading cost of waste materials faced by enterprises. The businesses of the platform have been expanded to cover more than 1,000 categories of resources in four major types, i.e. waste materials, second-hand equipment, overstocked materials and idle office facilities. From bulk industrial waste materials to paper shells, slag and waste soil, enterprises may trade almost all kinds of waste on the platform.

By the end of 2019, more than 1,000 enterprises had “settled” in the platform, posting a cumulative trade volume of RMB 354 million and reaching out to most provinces, municipalities and autonomous regions and more than a hundred cities across China. The e-commerce platform has now become a central enterprise member of Shanghai United Assets and Equity Exchange (SUAEE), and its business scope has been further expanded.



An Ideal Home for Talents

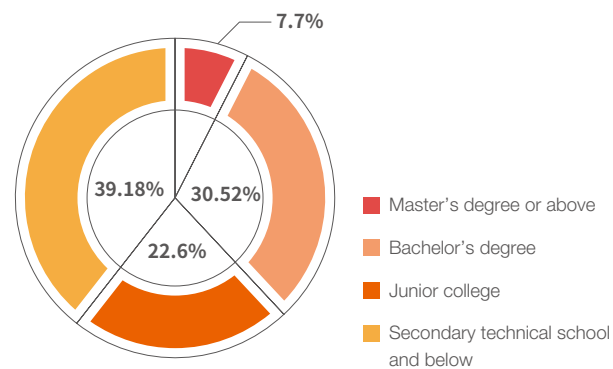
Placing a high priority on employee growth and development, CRRC has been committed to creating an enabling environment for talent growth, including providing them with a stage to show their talents, a safe and healthy working environment, and a warm and harmonious working atmosphere.



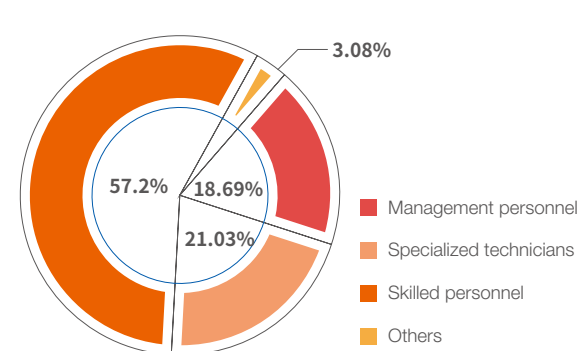
Creating Development Opportunities

By introducing the concept of “human capital management” and highlighting the thought of “introducing strategies, creating models, building platforms, establishing mechanisms, valuing use, and tightening up assessment”, we have trained outstanding talents one batch after another, thus highlighting the corporate values of CRRC and spirit of Chinese high-speed railway, and contributing to the goal of making it the “most admirable” and “respectable” enterprise.

Employees by educational background



Employees by post



Talent Management System

We have further highlighted our scientific, digitalized, practical and internationalized orientation, given full play to the basic advantages of big data on human resources, carried out research on the basic characteristics and growth laws of various talents, promoted the establishment of talent models with CRRC characteristics and proprietary innovation brands, and improved our human capital management system.

Placing a high priority on talent management and following the general guideline of “one blueprint, two approaches, three-step evolution, four-step circulation and five-star creation”, we have instituted the *2019 Action Plan for the Construction and Implementation of an Integrated Global Human Capital Management System*, the *Implementation Opinions on the Construction and Reform of CRRC Industrial Workforce in the New Era*, implemented the *CRRC 13th Five-Year Strategic Plan for Human Resources* (Revised in 2019), actively carried out projects including “Two-System, One-Contract (tenure system, appointment system, contract)” management, medium- and long-term incentives, talent-trait branding, construction of human resources sharing center, and cultivation of technical leaders, and further promoted the Three System Reformation, with a view to motivating our employees and providing a fair working environment for them.



Career Development Path

CRRC has established a platform for realizing the value of human capital and implemented performance-oriented evaluation and creator-oriented distribution of value, so as to exploit the role of human capital in value management and fully improve the motivation and creativity of employees.

We have developed the *Administrative Measures for Employees' Career Development Path*, established a multi-level and multi-channel promotion management system, and completed the two-way selection between work and employees, evaluation and grading, and re-employment of employees. Besides, we have formulated the *Implementation Measures for Performance-Based Payroll System* to make the salary distribution more scientific, effective and motivational.

Talent Promotion

- Selecting and training reserve cadres;
- Intensifying the training of core talents;
- Further implementing the Ten Rules for Young Cadres. Training, promoting and engaging outstanding young cadres.

Incentive Mechanism

- Promoting the implementation of medium- and long-term incentive mechanisms, and further enriching and improving the medium-and long-term incentive “toolbox” and “case library”;
- Issuing and implementing the *CRRC Guideline on Medium- and Long-Term Incentive*; three subsidiaries have instituted the post-based bonus scheme or ESOP to improve incentive mechanisms and motivate employees.

Through multi-level linkage and targeted efforts, CRRC has improved its labor and skill contest system, allowing labor and skill contests to integrate with staff innovation and efficiency enhancement, talent development, production and operation, thereby promoting employee growth. By the end of 2019, CRRC had established 194 innovation studios for gold-collar, blue-collar and model workers, including 27 at the national level and 54 at the provincial levels. These studios have achieved remarkable results in carrying over skills and tackling difficulties.

CRRC Held 3rd Vocational Skills Competition



CRRC has developed the *CRRC Guideline for Promoting Vocational Skills Competition*, and held the 3rd Vocational Skills Competition & Youth Vocational Skills Competition. 140 employees from 29 subsidiaries competed in the final of the competition. As a national Category II competition and an integral part of CRRC's effort to promote the reform of industrial workforce in the new era, the competition is aimed at carrying on the craftsmanship spirit in the new era, speeding up the training, promotion and team building of highly-skilled personnel for China's rail transit equipment industry, and fully demonstrating the ultimate spiritual pursuit of Chinese high-speed rail workers to “serve the country, take bold moves to innovate, and speed up the realization of the Chinese dream”.

Diversified Training

Attaching great importance to enhancing employees' capabilities and giving priority to the cultivation of skills leaders, we have continuously strengthened training for specialized talents and teams capable of giving both “theoretical teaching and practical instructions”, actively explored high-end talent cultivation methods, and provided diversified training channels for employees by such means as organizing high-end pairing, building demonstrative platforms, assigning responsibilities, practising job rotation, and adopting diverse ways of coaching, so as to encourage the growth of employees.

In 2019, CRRC invested more than RMB 300 million in training programs that covered nearly 570,000 person times and the average training hours completed per employee are 52 hours.

We planned and organized 90 corporation-level key training programs and delivered a total of 3,800 training sessions. Relying on domestic and overseas key universities and exceptional enterprise resources, we launched a series of training programs at home and abroad for outstanding leadership, international talents, core technical talents, core management talents and core skilled talents. 570,000 person times, including about 103,000 person times of management personnel, 122,000 person times of specialized technicians and 345,000 person times of skilled personnel participated in subsidiary-level and workshop-level training sessions at branch factories organized by enterprises affiliated to CRRC.



“631 Project” - Advanced Training Program for International Talents

Since 2016, CRRC has worked with University of Nottingham Ningbo China (UNNC) and Xi'an Jiaotong - Liverpool University (XJLU) for the fourth time on the “631 Project”, an advanced training program for international talents of CRRC, and seen an increase in the number of trainees to 883. Relying on their internationalized faculties and based on global business vision and cutting-edge business insights, UNNC and XJLU have provided CRRC with tailor-made international talent training courses, including a 110-day international business leadership course and a 30-day overseas study tour featuring visits to top enterprises and experts in the global railway industry.

Optimizing the Working Environment

Sticking to the concept that “development must not be achieved at the expense of human lives”, CRRC takes safe development as the prerequisite, follows the guideline of preventing and alleviating major safety risks, and sets “three zeros (zero injuries, zero accidents, zero losses)” as its goal, so as to provide a safe and reliable working environment for its employees.

Safe Production

Under the guidance of President Xi Jinping's important statement on safe production and in accordance with the *Guideline on the Development of Corporate Safety Culture* and the *Guide to the Development of Corporate Safety Culture*, CRRC has made continuous efforts to create a stable environment and good atmosphere in terms of safety, earnestly fulfil the responsibilities for safe production level by level, and develop a long-term mechanism for the development of self-restrained and constantly improving safety culture. By doing so, we have achieved positive results in improving the safety competence of all its employees, encouraging autonomous learning, and exploring observation of dynamic safety behaviors. After 3 years of experience, we compiled and issued 704 technical rules for safe operations in 20 categories, made solid efforts to ensure safe production, and strove to create a safe, stable and harmonious production environment. In 2019, CRRC invested RMB 12.068 million in safety training. 110,416 person times, 9 categories of safety training such as special operations were provided. 1,549 emergency drills were conducted, attended by a total of 72,525 person times.

Safety Supervision and Inspection

CRRC has issued the implementation plan for the reform and development of safe production, formulated 18 specific reform measures for safe production, and carried out regional safety inspections and experience sharing at all levels, with a view to promoting the high-quality development of safe production.

Carrying out three types of special safety supervision

Special Rectifications	Special Inspections	Special Evaluations
<ul style="list-style-type: none">Conducting special rectification of operations in limited space;Conducting special safety rectification of equipment and facility maintenance and commissioning;Conducting special rectification of high-altitude operations for safe production.	<ul style="list-style-type: none">Conducting special inspection of motor vehicles and mobile equipment;Conducting special inspection of occupational health and safety in casting workplaces;Implementing closed-loop management, reviewing the special rectifications and conducting special inspection of flammable and explosive safety.	<ul style="list-style-type: none">Engaging external experts to troubleshoot the construction site of Taizhou project;Conducting special inspection and risk evaluation of dangerous buildings (structures);Evaluating the effect of the anti-collision system for the rail vehicle commissioning line and promoting the application of the system.

Cultural Activities on Safe Production

CRRC has organized a variety of cultural activities on safe production themed on “preventing risks, eliminating hazards and curbing accidents”. CRRC Changchun organized the launch ceremony of the Month of Production Safety in Jilin Province; CRRC Sifang hosted a youth lecture series on the theme that “youth should take the lead in delivering safety and environmental protection responsibilities”; CRRC Tangshan participated in the national contest for knowledge on hazardous chemicals and safety emergency response and achieved good results, gaining more than 200,000 points on a cumulative basis.

CRRC Chengdu's Modified Vehicle for Road Purpose Participated in Comprehensive Earthquake Emergency Rescue Drill

On October 25, China Railway Chengdu Group Co., Ltd., CRRC Chengdu Co., Ltd. and other units jointly launched a comprehensive earthquake emergency rescue drill for the Sichuan railway system. The 12-hour drill tested the emergency response, disaster reporting, on-site handling and other emergency rescue and comprehensive support capabilities of the railway system, and enhanced CRRC Chengdu's capability to serve the railway market. In this drill, CRRC Chengdu's modified vehicles for road purpose withstood the tests in terms of service capability and equipment quality.

Health Management

With a high sense of responsibility, we have always placed a high priority on the health and safety of our employees in the operation process and endeavored to manage occupational safety and health in a scientific and normalized manner, reduce the operational risks for our enterprises and safeguard the safety of our employees. We have completed the *CRRC 2019 Annual Assessment Report on Safety Risks to Occupational Health*, formulated safety management plans for occupational health against all important risk points, and put forward 13 improvement recommendations.

Safeguarding the Rights and Interests of Employees

Strictly abiding by relevant laws and regulations, we have provided basic security for our employees such as pension, medical insurance, work injury insurance, unemployment insurance and maternity insurance.

Placing a high priority on open communication, we have been striving to create an open communication environment, effectively protected our employees' rights to participate in corporate decision-making, management and supervision, increased their motivation to engage in corporate management, and enhanced cohesion and their sense of belonging. CRRC has 165,715 employees in total, of which 17.6% are female employees and overseas employees account for 3.46%. Among technical management staff, the female employees account for 30.8%.

Diversified Cultural Life

By organizing a variety of cultural and recreational activities, caring services for front-line staff, and campaigns to assist employees in difficulty, CRRC has built a cohesive corporate culture and enhanced the sense of belonging, achievement and happiness among its employees.

Care for Employees

We have been devoted to working for the well-being of our employees and treated them as "family members". Particularly, we have given more care and concern to impoverished employees, female employees and retired employees, taking various measures to increase their happiness index. In 2019, CRRC provided RMB 41.74 million to the aid of 62,724 people.

Impoverished Employees

Sticking to the policy of "Six Offerings and Three Concerns", we pay close attention to employees' needs and give them solid help. "Six Offerings" refer to special care for winter and summer, student aid in autumn, support in case of difficulty, and care for sick employees, while "Three Concerns" refer to attention paid to the difficulties faced by employees in terms of livelihood, work and relevant needs.

Female Employees

The newly-built nursery room for female employees is equipped with tables, chairs, water dispensers, microwave ovens, and other hardware facilities, as well as the "Nursery Room" nameplate and a bulletin for publicity.

Retired Employees

Representatives of retirees are invited to participate in activities such as "Keeping Bonds with CRRC and Stay True to Original Aspiration".

Carried out "Student Aid Program in Autumn" activity

To help impoverished employees reduce their family burdens, CRRC Shijiazhuang visited such employees and their children before the new semester began, and conducted a thorough survey on those children to gain clear insights into their educational arrangements. To date, CRRC Shijiazhuang has implemented the "Student Aid Program in Autumn" for 15 consecutive years and helped 135 children of impoverished employees.

Happy Life

Encouraging our employees to balance their work and life, we have organized a rich variety of cultural activities aimed at enriching our employees' spare-time life in order to consolidate the bonds of friendship among them and enhance their sense of belonging.

Visiting Our Own Factories with Kids

To celebrate its 120th anniversary, CRRC Dalian held the "June the First" parent-child activity of the "Locomotive Open Day". 60 families consisting of employees of CRRC Dalian and their kids walked into the factory together to experience the vicissitudes of the enterprise in the past 100 years. Through this activity, the children developed an understanding of their parents' mission and devotion as well as the corporate culture and products of CRRC Dalian.



CRRC ZELC Football Team won the third place at the "I Love Football" National Amateur Football Game, the largest of its kind in China founded by the Chinese Football Association

Improving Welfare of Society

Insisting on sharing the fruits of development with society, CRRC has been devoted to supporting people's livelihood and improving people's well-being during its development process. We have increased our support for targeted poverty-stricken areas, launched a variety of effective poverty-alleviation projects, and mobilized all resources to win the battle against poverty. We have actively engaged in communication with communities and organized charity activities to give back to society.



Targeted Poverty Alleviation

Guided by President Xi Jinping's important discourse on poverty alleviation, CRRC has been resolutely implementing the decisions and deployments by the CPC Central Committee on combating poverty to fulfil its poverty-alleviation responsibility as a central enterprise.

In 2019, CRRC selected four cadres and one primary village secretary to take up temporary positions in its targeted poverty alleviation areas, and directly invested a poverty-alleviation fund of RMB **13.9** million, in addition to a fund of RMB **7.93** million for poverty alleviation by consumption.

CRRC established a steering group for poverty-alleviation and development headed by its chairman, selected four cadres and one primary village secretary to take up temporary positions in its targeted poverty alleviation areas, and carried out targeted poverty-alleviation tasks in four impoverished counties in Maiji District and Gangu County of Tianshui City, Gansu Province and Jingxi City and Napo County of Baise, Guangxi Zhuang Autonomous Region as planned. The chairman, president and relevant leaders of CRRC paid visits to relevant targeted poverty alleviation areas, where they conducted surveys and brought their cares.

CRRC innovated the modes of cooperation on poverty alleviation, stepped up efforts to promote poverty alleviation by industrial development, consumption, livelihood improvement, relief and education, and consolidated the achievements in the revitalization of cooperative villages, with a view to lifting the poor out of poverty as soon as possible.

Poverty Alleviation through Industrial Development

Focusing on the poverty-alleviation concept of "providing daily necessities for the poor, supporting the development of income-increasing industries, and promoting revenue-contributing industries, and helping impoverished peasants increase income", CRRC promoted the industrialized development of modern agriculture in poverty-stricken areas through innovative measures, actively supported their characteristic and advantageous industries, and quickened the industrialization process of local agriculture through well-targeted efforts, so as to achieve accurate poverty alleviation, precise effort, and precise hat removal.

In Lutong Town, Jingxi City, CRRC helped the locals establish an edible fungus project; in Maiji District, it assisted Caotan Village of Maiji Town in building a Chinese honeybee apiculture base; in Gangu County, it established a model park of modern agriculture, an apple planting base in Houjiashan Village of Pan'an Town, a poverty-alleviation workshop in Liufeng Town, a 10,000-mu Zanthoxylum Industry Park, as well as planting gardens in 12 villages of Jinshan, Xiping and Baliwan Towns. These projects have all been completed, promoting the growth of livelihood-aiding industries.



Liu Hualong, Chairman of CRRC Corporation Limited, inspected poverty-alleviation projects

Diverse Poverty-Alleviation Activities in Shibadong Village

CRRC ZELC has signed a 5-year contract with Shibadong Village of Huayuan County on the purchase of 150,000 cases of mountain spring water. Besides, CRRC ZELC has joined hands with Better Life Company in delivering the "Blue Schoolbag" Student Aid Project for Shibadong Village by donating RMB 5 cents for each bottle of mountain spring water purchased. All the donated funds will be used to aid the students in Shibadong Village. Besides, CRRC ZELC has also aided the village in constructing the "Miaoxiu National Non-legacy Poverty Alleviation Employment Workshop" and developed Miao Embroidery products on the theme of high-speed rail. Today, the workshop has become a must-go for domestic and overseas visitors to Shibadong Village.



Poverty Alleviation by Consumption

Relying on e-commerce as new leverage, CRRC has tackled the difficulties in targeted poverty alleviation. We have launched a "CRRC Poverty Alleviation Mall" on the "www.crrcgo.cc" platform to display and sell high-quality agricultural products produced in CRRC's targeted poverty alleviation areas.

Besides, we have created a "www.crrcgo.cc + specialties + tourism" model to introduce and promote the abundant tourism resources in Tianshui and Baise and help lift the two cities out of poverty at a quicker speed. The core idea of the model is empowerment, i.e. to help the people in impoverished areas acquire the abilities to obtain information and use e-commerce, so as to break down information barriers, "monetize" the high-quality resources in such areas, and let them enjoy the fruits of e-commerce development.

CRRC called on its employees to purchase the poverty-alleviation products and engaged its suppliers in poverty alleviation. In 2019, CRRC purchased RMB 2,242,800 worth of agricultural products from the impoverished areas and helped them sell RMB 3,527,000 worth of agricultural products. In addition, it bought 15,600 coveralls from the poverty-alleviation workshop, at a total price of RMB 2,165,000.

Poverty Alleviation by Education

According to the requirement that "education is a must and should be prioritized in poverty reduction", CRRC has planned a "Tian'e Program" aimed at improving the leadership of outstanding grassroots cadres in CRRC targeted poverty alleviation areas. In 2019, five training sessions under the program were held at CRRC University and various counties, training 368 grassroots cadres and rural technician in total. Further improving the working capacity of grassroots cadres and rural technicians.

Walking out of the Mountains to Take a Look at High-speed Railways

In July 2019, CRRC organized a study tour at CRRC for 32 students from impoverished families in 4 counties (cities, districts) of the targeted poverty alleviation areas. The students visited CRRC's manufacturing factories, took the high-speed rail and developed an understanding of Chinese high-speed railway and national achievement. They also attended the flag-hoisting ceremony at Tiananmen Square, learned about the heroic deeds of the Anti-Japanese Volunteer Army and strengthen patriotism.



Improving Livelihood and Helping the Poor

In Jingxi of Baise City, CRRC focused its efforts on improving the production and living conditions of impoverished villages for poverty alleviation and development. To this end, it persisted in carrying out infrastructure projects such as road construction, renovation of dilapidated houses, and retrofitting of village houses, thus laying a solid development foundation for impoverished households in poverty-stricken villages and significantly improving the production and living conditions of the people there. At Bulington, Kanghe Village, Kuiwei Town, Jingxi City, following the implementation of the village-wide poverty-alleviation project, the village saw a substantial change in its appearance and great improvements in its facilities. It was hence awarded the title of "Green Village in Guangxi" by the CPC Committee and the People's Government of Guangxi Zhuang Autonomous Region.

In Napo County, CRRC launched a campaign of "Helping Those in Urgent Needs and Difficulties", providing aids for 55 people of 15 households. In Shanglong Village of Napo County, CRRC carried out Party building activities. In addition, it allocated RMB 120,000 to 240 impoverished people of four counties on the eve of the Spring Festival.



Sun Yongcai, President of CRRC Corporation Limited, paid a visit to an impoverished family

Communication with Communities

We actively engaged in community communication and held activities such as "Public Open Day" and "Car Fan's Visit to CRRC" to closely interact with our stakeholders and help them develop an understanding of CRRC quality and culture.

People with Disabilities Invited to Visit High-speed EMU Manufacturing Center

As the 29th National Disability Day approached, CRRC Changchun invited nearly 100 people with disabilities in Jilin Province to visit the "birthplace of Fuxing" - CRRC Changchun High-speed EMU Manufacturing Base. During their visit, volunteers introduced to them the total assembly plant, the basic facts about the Base, its R&D capability, high-speed EMUs, and urban rail vehicle products. Touching the EMUs with their own hands, the visitors felt the industrial beauty of "Made in China".

"Train Fans' Visit to CRRC"

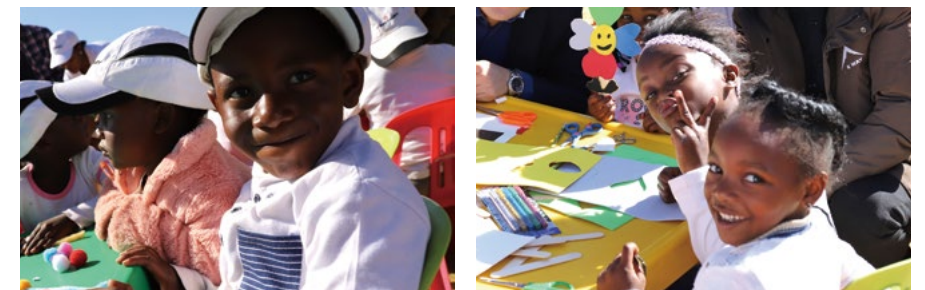
CRRC Tangshan held the "Train Fans' Visit to CRRC" activity, which was attended by employees of five central enterprises and more than 60 train fans from all walks of life. They visited CRRC Tangshan's production lines for high-speed EMUs and aluminum-alloy urban railway car bodies, the total assembly production line, as well as the core manufacturing area of "Fuxing" EMUs, closely observed the advanced manufacturing processes and the superb high-speed rail "craftsmanship", and developed an understanding of the important contributions made by CRRC to China's economic and social development.

Giving Back to Society

Carrying forward the "Lei Feng Spirit", CRRC has been devoted to organizing voluntary service activities, building ties for mutual aid, actively engaging in public welfare projects such as disaster relief, education and environmental protection, helping vulnerable groups, and offering loving care for the growth of young people, thus demonstrating its corporate image through solid actions. In 2019, CRRC had 11,576 volunteers who had provided more than 4,000 hours of voluntary services under more than 100 key characteristic volunteer service projects.

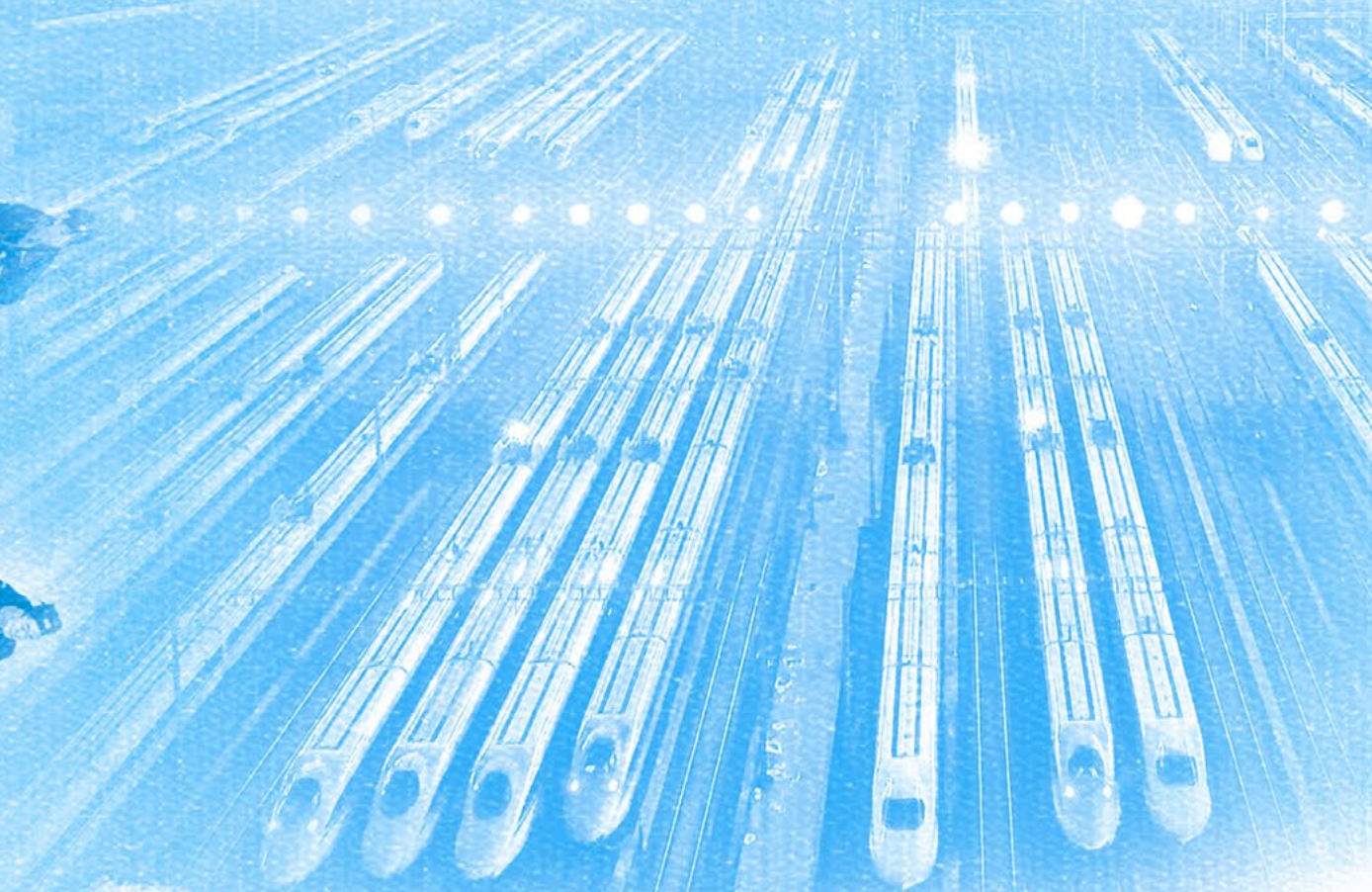
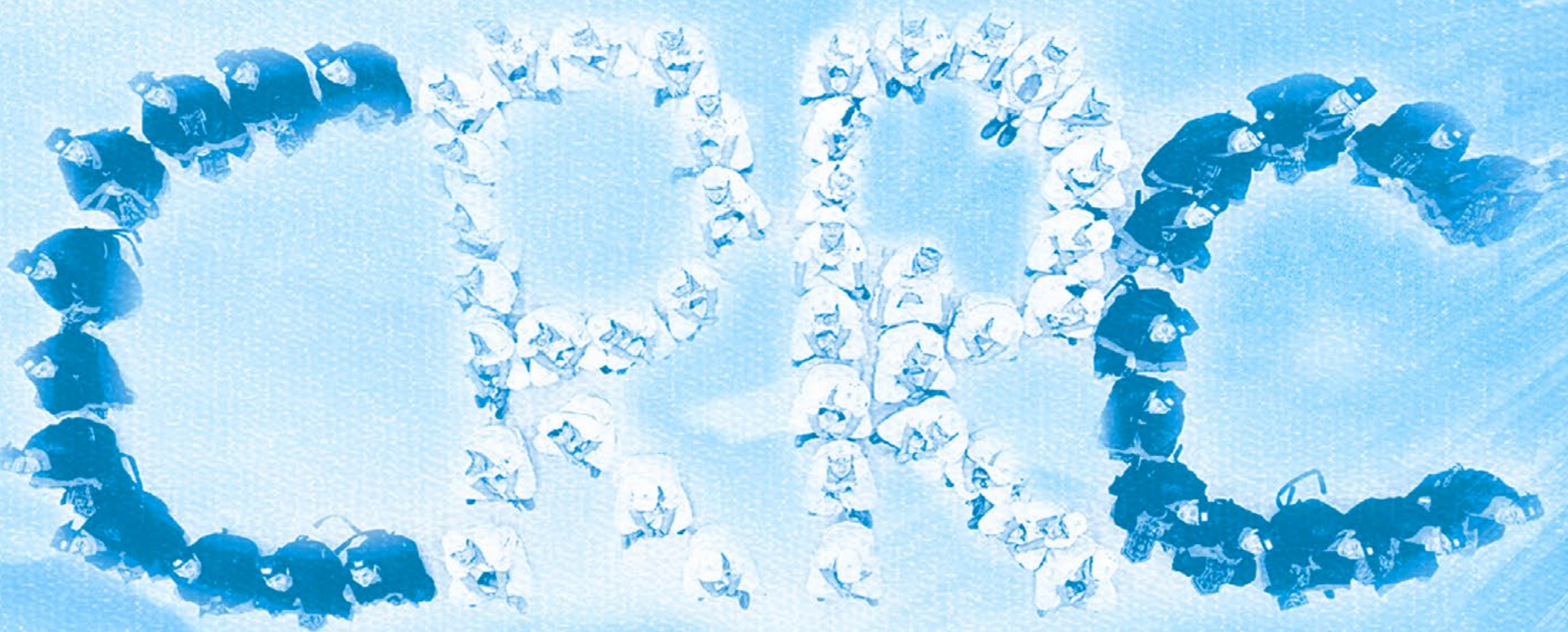
CRRC ZELC Launched "Relay of Love" in South Africa

All employees of CRRC E-LoCo Supply (Pty) Ltd. visited Legae Community Childcare Center in Daveyton, Benoni Town, Gauteng Province, South Africa. They donated daily necessities, stationery, laptops and other materials to the children there and made handicrafts and played games together with them, and share happy hours.



Law-abiding Operations of Modern Enterprise

Upholding the core values of “being honest and upright; excelling at doing good deeds” and sticking to the rule-of-law principles of modern enterprises such as “putting laws first, matching powers with responsibilities, observing procedures, being honest and trustworthy, and ensuring fairness and justice”, CRRC has been running its business in a stringent and transparent manner, pressing ahead with anti-corruption work, tightening the implementation of relevant policies, and applying the punishment and prevention mechanism, with a view to building itself into an efficient, transparent, clean and law-abiding corporation.



Corporate Governance

In accordance with laws, regulations and normative documents such as the *Company Law*, the *Securities Law* and the *Code of Corporate Governance for Listed Companies*, and in line with the requirements of regulatory authorities, CRRC has continuously improved its corporate governance by regulating the operations of its board of directors, board of supervisors and shareholders' meeting, improving its corporate governance system, strengthening communication with regulatory authorities, and organizing training and learning sessions for its directors, supervisors and executives.

We organized the revision of CRRC's *Constitution* and the rules of procedure for the board of directors, the board of supervisors and the shareholders' meeting, made overall arrangements for their operations throughout the year, and established a mechanism to call for motions before the meetings, so as to comprehensively enhance CRRC's corporate government mechanism from the perspectives of policy system and operations.

Besides, we organized relevant personnel to attend training sessions by specialized institutions such as Shanghai Stock Exchange, China Securities Regulatory Commission Beijing Bureau, and SASAC Bureau of Enterprise Reform, and carried out exchanges on the latest regulatory policies, rules and practices of Shanghai Stock Exchange for information disclosure, reform of state-owned enterprises, and corporate governance, so as to enhance our professionalism and governance level. In 2019, CRRC sent a total of 36 person times to participate in various training sessions organized by the regulatory authorities. We have maintained effective daily connections with the China Securities Regulatory Commission, Shanghai Stock Exchange and Hong Kong Stock Exchange, kept up with the latest regulatory updates and requirements, and provide feedback to the regulatory authorities as required.

Transparent Operation

Following the principle of "authenticity, accuracy, completeness, timeliness and fairness", CRRC, on the basis of daily information disclosure, efficiently prepared high-quality interim reports, organized the compilation and disclosure of periodic reports such as the Social Responsibility Report and Corporate Annual Report, provided training for information disclosure specialists, and established platforms to facilitate and ensure effective communication with investors through diverse means such as road shows, reception of visits, teleconferences, corporate surveys and strategy meetings, so as to promote transparent operations. In 2019, CRRC gained an A rating in the annual information disclosure evaluation of listed companies carried out by Shanghai Stock Exchange.

CRRC published 97 interim reports at Shanghai Stock Exchange and 183 announcements at Hong Kong Stock Exchange, organized 1 road show and 1 reverse road show, received 32 visits, held 77 teleconferences, arranged 13 surveys of subsidiaries, and attended 27 strategy meetings of securities institutions.



Risk Management

Focusing on the prevention and resolution of major risks, CRRC has steadily pushed forward the institution of risk and internal control mechanisms, with a view to effectively preventing and resolving major risks.

Improving Risk Management and Control System

CRRC has established a coordinated risk management and control framework, revised the *Comprehensive Risk Management System*, built the CRRC Risk Control Index (RCI) and CRRC Financial Risk Index (FRI), developed a risk internal control culture, instituted plans for major risk prevention and resolution and plans for reinforcing the risk management and control mechanisms, and issued guidelines and manuals on risk and internal control.

Building Internal Control Mechanisms

CRRC developed the *CRRC Internal Control Evaluation and Rating Measures* and the *Database of Internal Control Defects*, established a closed-loop mechanism of "process combing - internal control evaluation - defect identification - defect rectification", and instituted tool templates including "Risk List, Risk Event Database, Risk Evaluation Form, Internal Control Process, Internal Control Matrix, and Responsibility Form", so as to regulate, standardize and validate its internal control system, and minimize major internal control defects.

Information Security

CRRC published the *Risk Analysis Report on Network and Information Security*, pushed forward the construction of a unified identity management system, developed a dedicated version of cloud communication platform with proprietary intellectual property rights, and comprehensively improved information security protection from the 6 aspects of organizational system, talent team, network security, terminal security, data center security, application system security, and risks of industrial software use.

Outlook 2020

In 2020, CRRC will further deepen the reform, expand its operations, forge ahead with innovation, optimize its structure, improve its business layout, create new value for all of its stakeholders, live up to the expectations of its shareholders, employees, and communities, lead high-quality development by delivering its responsibilities with high quality, and continue to open up new horizons for its business development.

Seeking Progress While Maintaining Stability

We will continue to improve the corporate governance system, enhance the governance level, run our business in good faith and in compliance with regulatory requirements, and ensure high-quality and stable growth, as to guarantee that breakthroughs will be achieved in the state-owned enterprise reform, strong support will be provided for the implementation of national strategies, and no major risks will occur.

Sticking to First-Class Quality

We will put quality first and give priority to making benefits, continuously improve our profitability, operational efficiency, market expansion capability, as well as product and service quality, bring continuous returns to our shareholders, create value for our customers, and constantly refurbishing our "iconic brand".

Sticking to Opening Up and Win-Win Cooperation

We will follow the trend of economic globalization and global integration, embrace cooperation for common development, extensively build communities of shared interests, develop responsibility chains, industry chains and ecological circles for mutual benefits and win-win results, and further open our mind to promote the harmonious development of communities and society.

Pursuing Innovation-driven Development

We will build firmly on technological innovation, take innovation as the first driving force and strategic support for corporate development, and continuously strengthen product innovation. We will enhance our core competitiveness and develop new competitive advantages through sci-tech innovation, managerial innovation, system innovation and mode innovation.

Sticking to Green Development

We will promote green development and ecological protection, actively apply new ideas, materials, processes and technologies, realize green and intelligent manufacturing, and develop green and low-carbon products, so as to build a green and intelligent CRRC and achieve green and low-carbon development.

Sticking to the People-Oriented Principle

We will create a more fair, harmonious and enterprising policy environment and cultural atmosphere, provide a broader platform for employee development, promote the common growth of employees and enterprises, and give them a greater sense of recognition, gain and happiness through co-development and sharing.

Cherish the time and each opportunity to make progress. Looking into the future from a new starting point, we will always take into account the economic, environmental and social impacts, cooperate with our partners from all walks of life with greater sincerity and a more open mind, and provide greener, more environmental-friendly and better quality products and services to promote the connectivity of the world. We will work hand in hand with all parties to achieve win-win results, continuously satisfy people's yearning for a better life, make all-out efforts to build CRRC into a respectable international corporation, and contribute to global sustainable development.



Photographic works of CRRC exhibited at the "Red-crowned Crane in the Eyes of People at CRRC" in Australia

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Feedback from Readers

Dear readers,

Thank you very much for reading the 2019 CRRC Social Responsibility Report. We pay great attention to and expect to hear your feedback on CRRC's management, practice and reporting of social responsibility. Your comments and suggestions will help us to continue promoting the management and practice of corporate social responsibility. We look forward to your reply!

Multiple-choice Questions (please tick ✓ in the appropriate box)

1. Does the Report reflect the significant influence of CRRC on economy, society and environment?

☐ Yes ☐ Somewhat ☐ No

2. Do you think the relation analysis of stakeholders hereof and CRRC is accurate and comprehensive?

☐ Yes ☐ Somewhat ☐ No

3. Was the information provided in this report comprehensive?

☐ Yes ☐ Somewhat ☐ No

4. Was the information provided in this report readable?

☐ Yes ☐ Somewhat ☐ No

Open Question

Please address any opinions and suggestions on the 2018 CRRC Social Responsibility Report.

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**Connecting the World
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