

Responsible Operations

We are always committed to the principle of "people-centered, quality foremost, safety first, environment prioritized" to achieve "zero defects, zero injuries and zero pollution". We regard minimizing environmental impact, reducing emissions, and providing high-quality products and services as the strategic foundation for the Company's sustainable development. We continue to improve the quality management of products and services, and promote safe, environmentally-friendly and resource-saving operations, in order to promote the construction of an ecological civilization and develop a resource-saving and environmentally-friendly enterprise.

5,800
Rectified more than 5,800 hazards in oil and gas field gathering and transportation pipelines

212
Treated 212 external floating roof tanks with oil and gas concentration in the secondary seal exceeding the limit

0.0018
person/million work hours
Work safety accident mortality rate

Safe Operation

We actively promote the building of a long-acting safety system and comprehensively enhance our work safety management. In 2020, the Company maintained a stable improvement in safety performance.

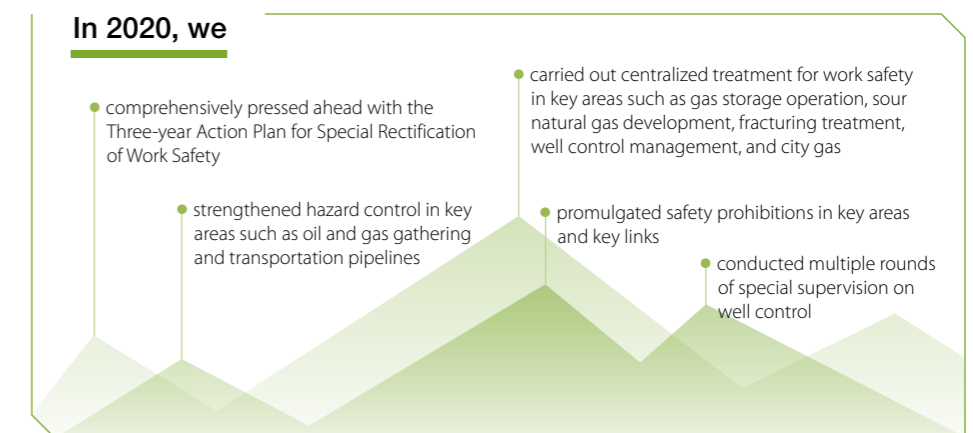
Management System and Performance Assessment

In 2020, we released some rules and regulations on safety management, such as the *Administrative Measures for All-staff Work Safety Scoring in Enterprises* and the *Measures for Administration of Work Safety Contract Points*, strengthened the fulfillment of work safety responsibilities by all employees, continued to promote work safety interviews and debriefings as well as performance assessments, and strengthened the safety performance appraisal of units and all employees. We have increasingly improved our safety management system with distinctive levels, hierarchical responsibilities, and coverage of all employees.

Work safety interviews and debriefings	Content of safety and environmental protection performance assessment
<ul style="list-style-type: none"> Conduct safety debriefing for newly appointed directors of an enterprise, and interview the leadership team of an enterprise with serious safety hazards. 	<ul style="list-style-type: none"> Safety and environmental performance assessment To review the employees' performance in safety and environmental protection, with the assessment results included in performance appraisal Safety and environmental performance capability assessment To review the employees' capability in safety and environmental protection, with the assessment results serving as a reference for determining whether the employees changing positions are qualified for the jobs

Hazard Control

We attach equal importance to both prevention and control of hazards, and build a long-acting mechanism for hazard control, so as to ensure all hazards are timely and effectively treated and enhance the overall safety performance of the Company.



Safety Risk Management

We implement a dual-prevention mechanism covering risk prevention and control and hazard identification and treatment for production safety, and improve the sound classified risk prevention and control system, so as to eliminate safety risks and potential hazards to prevent accidents.



In 2020, we

- Improved the dual-prevention mechanism covering risk prevention and control and hazard identification and treatment for production safety, and carried out classified supervision and targeted responses to risks in our subsidiaries
- Comprehensively identified any changes in safety hazards during the reform and adjustment such as the oil and gas pipeline network reform and "water/power/heating supply and property management"
- Developed a work plan for strengthening safety hazard control in increasing oil and gas reserves and production capacity
- Carried out spot checks on the implementation of prevention and control measures for key risk wells such as oil and gas wells in densely populated areas
- Carried out targeted inspections on work safety and special safety risk assessments for key projects for offshore oil and gas production in spring, and strengthened emergency protection against typhoons



Supplier Safety

We include suppliers and contractors in our safety management, and conduct systematic management of their access, selection, training, use, evaluation and assessment, in order to prevent and reduce accidents caused by suppliers and contractors. In 2020, we strengthened the selection of high-quality strategic contractors, strictly implemented measures for "zero tolerance for unqualified contractors", and carried out training for key positions of contractors and refused to hire those who failed the examination.



Overseas Security Management

Personnel safety has always been an overriding priority in our operations. We established and improved the social security management system, fully strengthened social security risk prevention and control, and continuously enhanced emergency response capabilities. In 2020, in response to COVID-19 and through measures such as establishing a four-level overseas joint prevention and control mechanism and regional coordination groups covering 78 countries (regions) around the world, we registered no deaths from COVID-19 overseas or social security fatalities in our overseas projects.

Key Actions for Overseas Security in 2020

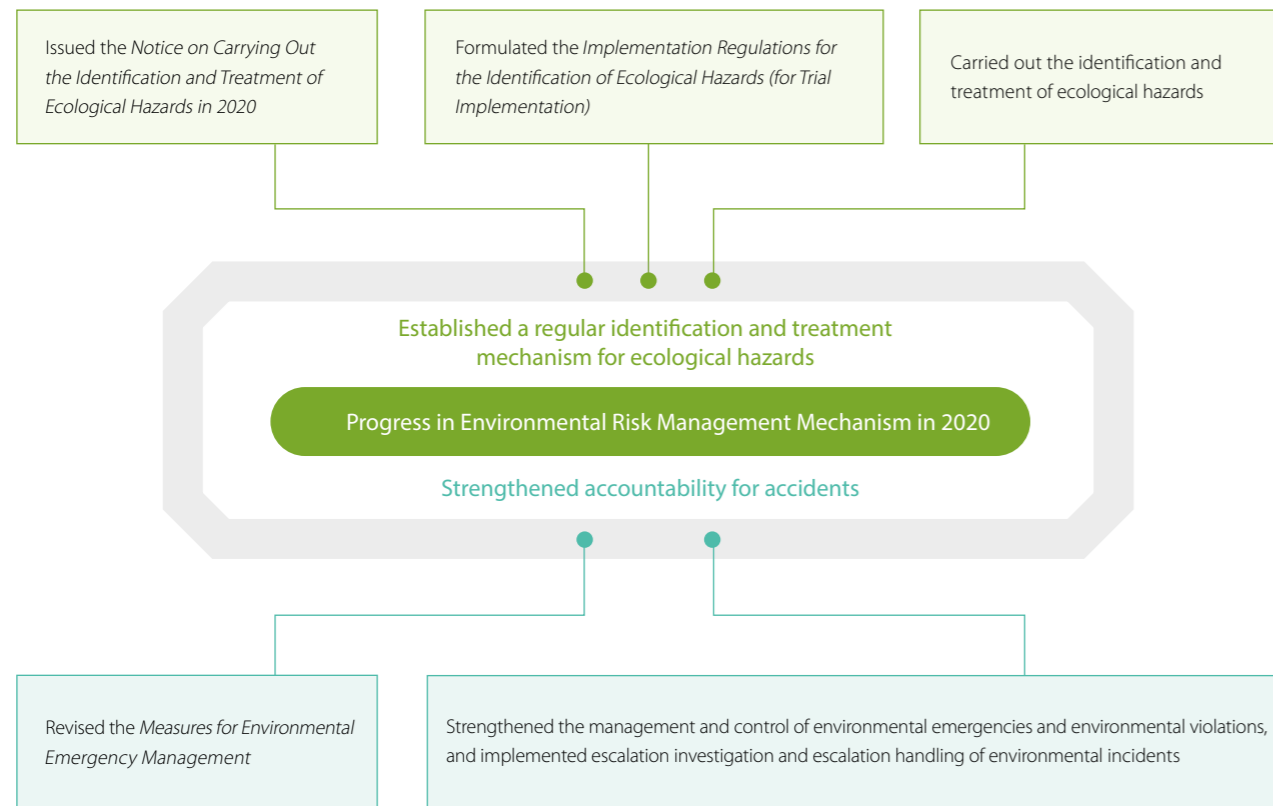
<p>Strengthening social security risk response</p>	<ul style="list-style-type: none"> ● Reviewed the five-dimensional performance appraisal and emergency response plan of social security management, and upgraded 6 social security management standards at the CNPC level ● Improved country-specific risk assessment indicators, continued to follow security situation of key countries, carried out security risk assessments, and adjusted the security risk levels of 13 countries (regions) ● Organized video seminars on kidnapping risk response and hotspot situation analysis against the background of regular pandemic prevention and control, and shared security resources ● Issued 11 safety alerts ● Strictly reviewed and approved the establishment of security risk control and security plans for new projects in the countries (regions) with high and above risks
<p>Properly responding to emergencies</p>	<ul style="list-style-type: none"> ● Updated and released CNPC's <i>Special Emergency Plan for Foreign-related Security Emergencies</i> and <i>Special Emergency Plan for Foreign-related Public Health Emergencies</i> ● Carried out strict contractor management, serious travel management and inspection of the quality of bulletproof vehicles in Iraq ● Upgraded local security management for CNPC's projects in Azerbaijan, Mozambique and Kyrgyzstan
<p>Strengthening anti-terrorism safety training</p>	<ul style="list-style-type: none"> ● Organized 130 overseas anti-terrorism safety training sessions for 9,841 people; anti-terrorism safety training rates for overseas employees: 89.24% of management personnel and 97.38% of operating personnel (lower than previous years as working in shift of overseas projects was seriously impeded by COVID-19)

Environmental Protection

We take the initiative to evaluate the environmental impact of our management and activities, and make efforts to reduce adverse effects on the environment and climate. We endeavor to enhance resource utilization efficiency, resolutely win the battle against pollution, promote energy conservation and emission reduction, strive to achieve environmentally-friendly and resource-saving operations, and vigorously advocate ecological civilization, in order to achieve harmonious development with the environment.

Strengthening Risk Prevention and Control

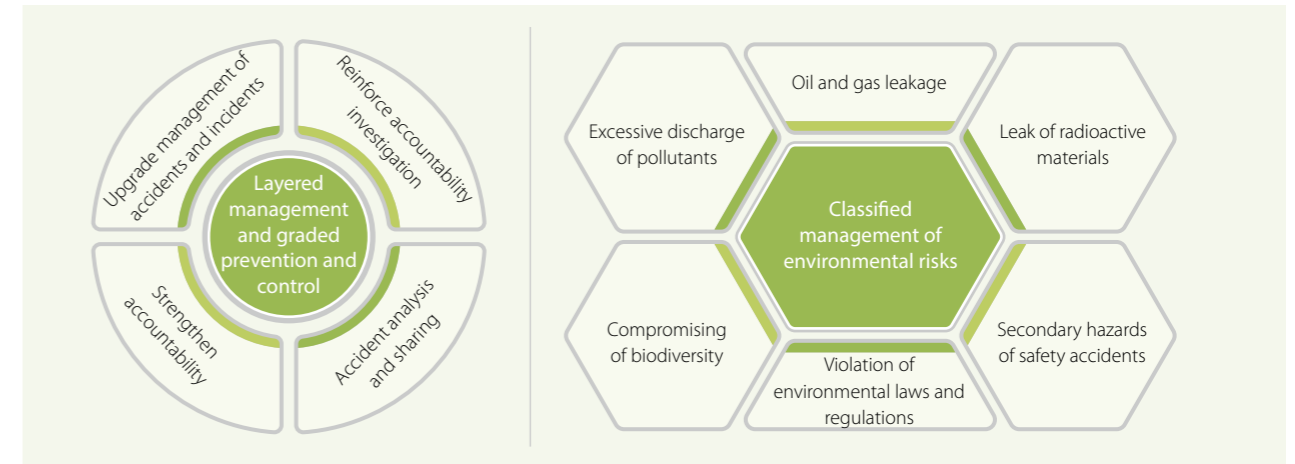
We carried out environmental risk identification and assessment and implemented a risk prevention and control management model focusing on environmental forecasting, pre-warning and monitoring. We began the environmental risk management at an earlier stage and established a sound risk management mechanism featuring "layered management and graded prevention and control", in order to ensure overall control over environmental risks. In 2020, no major environmental accidents were reported.



Case

CNPC Contributed to the Battle for Clean Land and Was Affirmed by the Ministry of Ecology and Environment

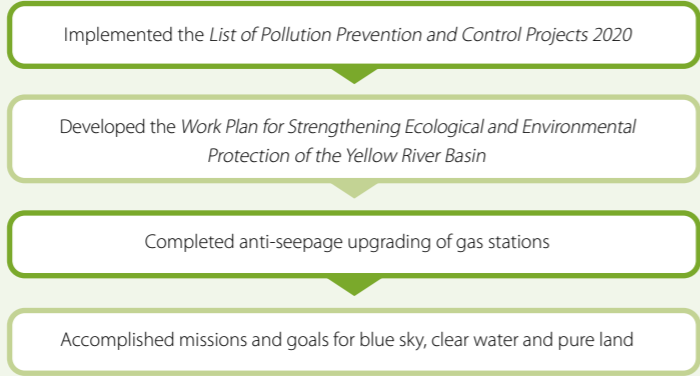
As a test unit for national enterprise land survey and in active response to the requirements of the Ministry of Ecology and Environment, CNPC has developed the *CNPC Work Plan for Soil and Groundwater Environmental Investigation*, and invite national-level experts to regularly conduct special training for corporate personnel to ensure that the participants master the management and technical requirements in a timely manner. By the end of 2020, CNPC had completed all investigations, with a pass rate of 100% as checked by the Chinese government. In February 2021, the Department of Soil Ecology and Environment of the Ministry of Ecology and Environment praised CNPC for its outstanding performance in the investigation of the soil pollution status of land of enterprises in key industries across the country.



CNPC Intelligent Environmental Management System

- Environmental risk management platform
- Pollution source online monitoring system
- Solid waste management and control platform
- Management System of Environmental incidents
- VOCs control platform
- Ecological environment hazard investigation and control dispatching platform
- Comprehensive VOCs management supervision platform

In 2020, we completed the Pollution Control Upgrade Plan



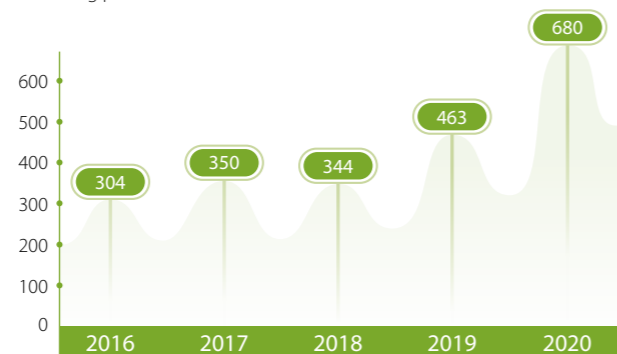
Case

Online monitoring of pollution sources

CNPC's online pollution source monitoring system is an advanced technology that is flexible, efficient, intuitive and intelligent. It integrates the Internet Plus and big data for automatic identification and judgment of missing and abnormal data, classification alarms for excessive emission abnormal data, intelligent prediction of pollutant emission data, calibration and statistics of multi-parameter emission data and other functions. With this system, the pollutant discharging units can realize all-round and intelligent management and control of major equipment and emission sources.

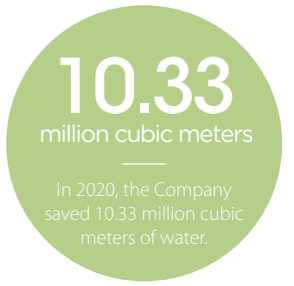
As of the end of 2020, 680 pollution sources were monitored through the network, all the key pollution sources on the List of Enterprises subject to Intensive Monitoring and Control of the State were put under control; all elevated sources in the Beijing-Tianjin-Hebei region and its surrounding areas were under control. The automatic monitoring of pollution sources covered all major equipment and pollution sources of CNPC.

Number of online monitoring points



Sustainable Use of Resources

We attach great importance to the protection and rational utilization of resources. We strengthen the protection of water, conservation of freshwater and rational use of land, and strive to improve energy and material utilization efficiency to minimize resource consumption.



Water Resources

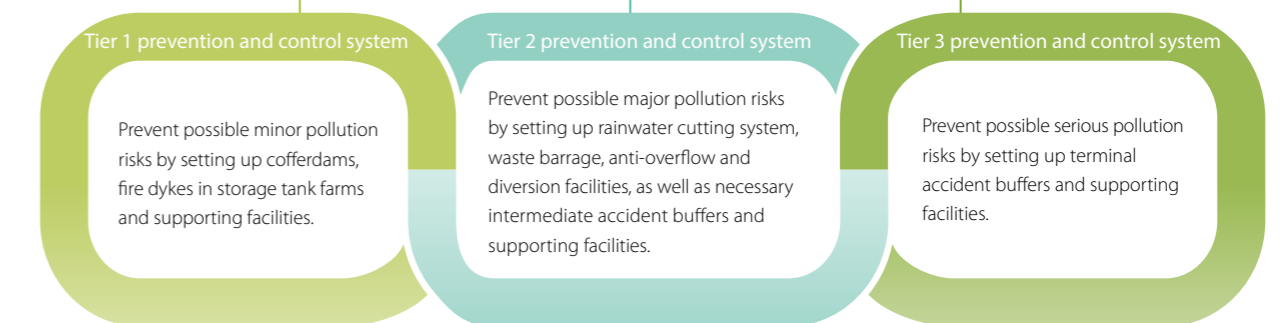
We endeavor to improve water utilization efficiency and realize sustainable use of water throughout various links in our production and operation activities. Through strengthening water utilization process management, adopting technologies for water-saving and wastewater treatment and recycling, and integrating water-saving indicators into performance evaluation and other measures, we worked to reduce the use of fresh water. Our fresh water consumption decreased by 4.47% year-on-year. Dushanzi Petrochemical Company was awarded the "Water Efficiency Leader among Key Water-using Enterprises in the Ethylene Industry in 2020" by four ministries including the Ministry of Industry and Information Technology.

Water Resources Management throughout the Industry Chain

<p>Exploration and Development</p>	<ul style="list-style-type: none"> ● In oil and gas development, equal importance was given to both water pollution prevention & control and water recycling. After the oil-water separation and filtration treatment of the recycled wastewater, oil recovery and water reinjection were both realized, preventing groundwater and surface water contamination. ● We carried out water system maintenance and revamping, improved the water qualification rate, optimized operation programs, upgraded wastewater discharge and treatment processes to reduce water discharge, and promoted the application of new technologies for water treatment to maximize water conservation.
<p>Pipeline Operations</p>	<ul style="list-style-type: none"> ● We focused on managing the impact on water resources by construction projects and the risk of leakage accidents during pipeline operations. Environmental impact assessments (involving water environment) were conducted, and water conservation and protection concepts and awareness were integrated into construction and operation activities.
<p>Refining and Chemicals</p>	<ul style="list-style-type: none"> ● We improved water consumption efficiency by promoting clean production processes, saving water at the source, and optimizing water consumption systems. We increased the concentration time of circulating water to reduce water supplement, and strengthened steam condensate water recovery to achieve water saving. In addition, we emphasized wastewater treatment and reuse to reduce wastewater discharge and improve the industrial water recycling rate; and enhanced underground pipelines to reduce groundwater leakage rate.

Reducing water pollution risks through three-tiered pollution prevention and control system

We set up a safe, timely and effective pollution prevention and control system, conducted environmental risk assessment, and adopted necessary prevention measures to control water pollution risks and prevent oil spill accidents.



Land Resources

Based on the principle of scientific siting, efficient use, proper protection, and timely restoration and through innovation in land-saving technologies and management models, we made careful and intensive use of land during production, strictly controlled land use growth, made good use of land in various ways, proactively reclaimed land, carried out environmental treatment and recovery in mining areas, and enhanced land use efficiency. In 2020, we saved 1,190 hectares of land.

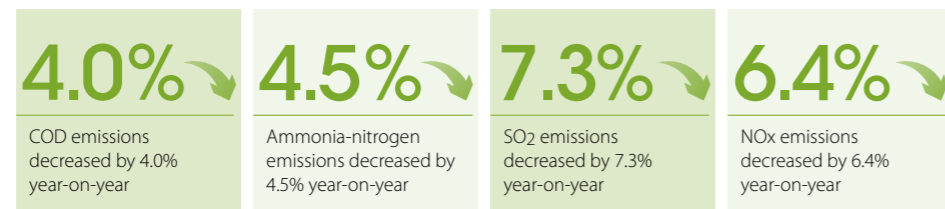


Waste Disposal and Ecological Restoration

We attach great importance to the supervision of hazardous waste and realize the whole-process management in key areas under ecological and environmental risks. We have established a unified whole-process management and control platform for hazardous waste, and put in place a three-level management and control mechanism for hazardous waste. We adopt the whole-process management and control for collection, storage, transportation, utilization and disposal of solid wastes such as oily sludge, drilling waste and used catalysts, and improve pollution prevention and control facilities. In 2020, our solid waste management platform was put into operation.

In 2020, we

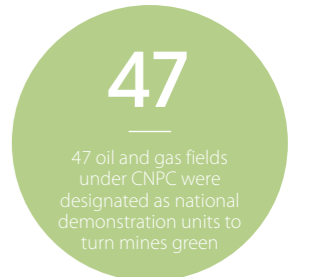
Strengthened VOCs emission control and promoted VOCs management and control and benchmarking actions of refineries. Refined oil sales companies carried out "oil unloading at night, off-peak refueling" in key areas in summer, which was highly recognized by the local ecological and environmental authorities.



Conservation of Biodiversity and Natural Habitats

We are devoted to reducing the potential influence on the environment and biodiversity during production and operation. We exercise management and control at source and implement environmental management in the full life cycle throughout the industry chain. We make an all-out effort to identify and address environmental pollution and ecological damage, and reduce the impact on the ecological environment by various means, including reducing noise and emissions.

We withdraw from environmentally sensitive areas in an orderly manner, do our utmost to reduce the occupation of cultivated land, protect water and land, and restore vegetation, so as to conserve the ecological environment in the working areas. In 2020, we demobilized 281 oil, gas and water wells in environmentally sensitive areas, and completed the anti-seepage reconstruction of 20,300 active service stations.



Protecting the Environment and Promote Green Development

Dagang Oilfield

Dagang Oilfield is located on the coast of the Bohai Sea, home to a variety of environmental forms such as wetlands, reservoirs, river courses, tidal flats, and farmland. Every year, hundreds of thousands of birds inhabit and stay in the Beidagang Wetland, including endangered birds such as Oriental Storks. To protect the local environment, Dagang Oilfield:

- Innovated production methods and implemented clean production. All wastewater and waste gas from fixed sources were discharged in compliance with specified discharge standards and all solid waste treated in compliance with standards
- Applied the technology "with no mud on ground", which doesn't need mud pit
- Changed the production mode from "one pad for one well" to "one pad for multiple wells", and kept the source far away from environmentally sensitive areas

Case

Daqing Oilfield

The Ecological Demonstration Zone of Daqing Oilfield was originally in an area with many dry lakes, saline-alkali land and other bare land, making its ecological treatment far more difficult and complex than other areas in the oilfield.

To address this challenge, Daqing Oilfield made preparations for voluntary tree planting and planted trees. Today, in the Ecological Demonstration Zone of Daqing Oilfield, there are:

- **346,000** seedlings
- **5.017** million purple osiers on the banks of rivers, canals and lakes
- More than **1,000** mu of Gesang flower
- More than **30** hectares of seedlings

Case

Create Green Fields and Build Ecological Demonstration Oilfields

Changqing Oilfield is China's largest oil and gas field. In the process of increasing production to 60 million tons, we continue to focus on the creation of green fields, strengthen the prevention and control of oil and gas field pollution and take concrete action to implement ecological protection and high-quality development in the Yellow River Basin.

Environmental protection	<ul style="list-style-type: none"> Nearly 1,000 oil, gas and water wells and dozens of stations have been demobilized from environmentally sensitive areas and ecological restoration has been carried out in time for the demobilized wells and stations 20 ecological environment protection zones and more than 800,000 mu of carbon sink forest were built in Longdong oil area 3 million square meters of green plants are added every year in the oil and gas development area, with a green coverage rate of 95%
Green production	<ul style="list-style-type: none"> 5 natural gas purification plants with exhaust gas treatment devices, reducing SO₂ emissions by thousands tons per year 142 site heating furnaces changed from coal (oil) to gas From 2018 to 2020, removed 3,968 coal-fired heating furnaces at the wellhead



Products and Service

Following the quality principle of "Integrity and Excellence", we strengthen the quality management system and improve process quality control to create brand products. In addition, we continue to promote high-quality development for the Company by consistently improving product, project and service quality.

Quality Control

In 2020, CNPC continued to enhance quality management, focusing on quality system audit, quality supervision and inspection, and quality culture building. No major quality accidents were reported.

Major Progress in Quality Management in 2020

Key work	Content
Improve product quality	<ul style="list-style-type: none"> 25 aviation fuel production companies passed the airworthiness certification of civil aviation fuel issued by the Civil Aviation Administration 4 sets of jet fuel production equipment passed the jet fuel certification of the National Aviation (Naval) Fuel Appraisal Committee, adding 2.66 million tons of jet fuel per year Carried out quality supervision and random inspections such as special inspections over national VIB oil quality focusing on external oil production
Initiate centralized improvement of oil, gas and water well quality	<ul style="list-style-type: none"> Prepared the <i>Three-year Action Plan for Centralized Improvement of Oil, Gas and Water Well Quality</i> Initiated 4 special rectification actions (including the action for treating casing damage wells and casing deformation wells) Established the oil (gas) well engineering quality supervision station Clarified the seven red lines for the determination of unqualified well quality and cementing quality
Carry out quality culture building	<ul style="list-style-type: none"> 10,800 QC teams, 3,626 teams, 187,000 employees participated in mass quality activities Over 550,000 employees attended the quality management contest organized by the State Administration of State-Owned Assets Commission Conducted customer satisfaction surveys

Product Management

We provide consumers with products according to legal provisions and industrial standards in a responsible way. While providing products, we put emphasis on the influence on consumers and guarantee product safety. Meanwhile, we actively communicate with consumers, publish product safety risk evaluation results and make great efforts to protect consumers' legal interests.

Quality Products and Services

Providing Quality Products. By strengthening technological innovation and optimizing the product mix, we provided safe, reliable, high-quality and environmentally friendly products for our customers. In 2020, we further increased the proportion of high-end, high-performance products. The output of high-grade gasoline increased by 524% over 2015; the output of chemical products increased by 29% over 2015; the output of high-performance products such as PX, synthetic resin and synthetic rubber increased by 21.1%, 7.4% and 10%, respectively.



Promoting Service Level. We constantly improve consumer experience and provide consumers with convenient and efficient services. In 2020, we continued to promote smart service stations, and worked to meet consumers' all-round needs: "people, vehicle and life". As of the end of 2020, our 22,600 serve stations provided services throughout 31 provinces (municipalities and autonomous regions) and the Hong Kong SAR.



According to the China Brand Power IndexSM (C-BPI) 2020 brand ranking and analysis report released by Chnbrand, a renowned brand rating institute, CNPC ranked first by overall rating for the fourth consecutive year.

Service network	<ul style="list-style-type: none"> Our services covered 31 provinces (municipalities and autonomous regions) and the Hong Kong SAR Our sales capacity exceeded 110 million tons per year We provided services to 10 million consumers every day
Service category	<ul style="list-style-type: none"> We have 22,600 domestic gas stations We have 20,000 uSmile convenience stores We have issued more than 188 million Kunlun refueling cards
Consumer satisfaction	<ul style="list-style-type: none"> Customer satisfaction rate for follow-up calls of CNPC service hotline 95504 reached 97%

Supply Chain Management

We uphold the supplier management philosophy of global sourcing, open cooperation, resource sharing, mutual benefit and win-win relationships, and exercise a life cycle closed-loop management of suppliers. We incorporate environmental, quality and occupational health and safety management system certification into our Tier 1 supplier standards. We provide guidance to our suppliers on lawful and ethical business operation and fulfillment of corporate social responsibilities. Suppliers and contractors shall comply with CNPC's unified quality, environmental, health and safety standards and relevant anti-commercial bribery and anti-corruption policies and regulations, and continue to improve the reliability and environmental sustainability of products and services, and protect the human rights of employees to fulfill demand for personal development.

CNPC is committed to interconnection and interaction with its suppliers, resorting to various means to understand their concerns and claims via a well-established mechanism for constant communication. In 2020, we spent RMB 168.3 billion in procurement, and cooperated with 23,699 material suppliers at home and abroad.



The proportion of Tier 1 suppliers certified by ISO9000, ISO14000 and ISO18000

Key Initiatives for Supplier Management in 2020

Improved supplier management systems	<ul style="list-style-type: none"> Strengthened the whole-process management of suppliers from supplier admission to supplier withdrawal, continued to optimize the resource structure of suppliers, and gave priority of access to energy-saving and environmentally friendly products and those with independent intellectual property rights Strengthened the supervision and risk control for suppliers over quality, safety, environmental protection and other aspects, and ensured suppliers to operate with goodwill, integrity and compliance
Promoted cooperation with suppliers and established a communication and coordination mechanism	<ul style="list-style-type: none"> Intensified cooperation with suppliers in multiple areas, and communicated with suppliers in various aspects such as environmental protection and sustainable development to seek more opportunities for cooperation Supervised suppliers' health, safety, environmental protection and compliance operations, and communicated with suppliers in a timely manner to improve the coordination in the supply chain
Optimized supplier assessment and promoted supplier performance improvement	<ul style="list-style-type: none"> Evaluated 4,223 products from 1,426 Tier 1 suppliers, with a dynamic quantitative evaluation rate of 100%; incorporated corporate strength, product innovation, and integrity and compliance into the evaluation system, performed classified management for suppliers (A, B, C and D), and applied the evaluation results to supply chain building
Strengthened due diligence and monitoring of third-party intermediaries/agents	<ul style="list-style-type: none"> Implemented professional management and dynamic supervision, strictly regularized market access, real-time online evaluation and annual evaluation, and established and improved the exit mechanism Launched special campaigns to investigate and punish officials and their relatives in violation of regulations for running enterprises, providing convenience and seeking benefits for relatives and friends Used big data platforms to cross-correlate the corporate information of traders, agents, and suppliers, and identified clues to problems Strengthened the functional application of the joint supervision information system, and actively supervised to find clues to problems