ABOUT THE REPORT

This is the sixth sustainability report published by China National Chemical Corporation ("ChemChina"). The Report systematically discloses information about the social responsibility philosophy, practices and performance in 2015 of ChemChina in aspects such as the business management, technological innovation, work safety, environmental performance, employee care and social harmony.

Normative References

Scope of Report
The Report covers ChemChina’s activities from January 1 to December 31, 2015. In some instances content and information from outside the stated period may be included. The Report covers ChemChina headquarters and its subordinate units.

Data Sources
All data used in the Report comes from official documents and statistical reports of ChemChina.

References to ChemChina
Unless otherwise stated, all references to "ChemChina", "Group", "Company" or "We" refer to China National Chemical Corporation.

Report Improvements
Focus on the innovation of agrochemical products and services to demonstrate the latest performance of the Company;
Illustrate responsibility cases in the main body to enhance the readability and affinity of the Report;
Add disclosure on the compilation process of the Report to further respond to stakeholder concerns.

Report Language
The Report is released in both Chinese and English. If any inconsistency or discrepancy exists between the two versions, the Chinese version shall prevail.

Accessibility of the Report
To view or download the Report, please visit the official website of ChemChina at www.chemchina.com.

Compilation Process of the Report
Collection of Issues:
- to collect internal and external CSR indicators

Identification of Issues:
- to identify substantial issues according to the demands from the internal and external stakeholders

Compilation of the Report:
- to collect and analyze data;
- to formulate Report framework;
- to draft and design the Report;
- to conduct internal and external audit

Release of the Report:
- to release and distribute the Report;
- to collect feedbacks;
- to make plans for improvement of the Report

The report is printed on recycled paper.

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2015 has witnessed a year of overcoming all difficulties and making arduous progress for ChemChina. In the intricate and complex conditions of international and domestic economy, we conscientiously implement the decisions and deployments of the CPC Central Committee and the State Council to accomplish remarkable achievements in various aspects and fulfill the main target and tasks of the year by actively adapting to the New Normal of economic development, deepening reform and promoting sustainable development under the leadership of SASAC and the supervision and guidance of the Board of Supervisors of state-owned enterprise.

2015 is the ending year of 12th Five-Year Plan, during which, ChemChina closely followed the target of establishing a world-leading enterprise with international competitive edge and duly achieved the main development target raise in the 12th Five-Year Plan with continuous development of production, gradually improvement on quality, accelerated transformation and upgrading and breakthrough in internationalizing operation. Sales revenue stood at RMB 260.2 billion with annual increase of 17.12%; the annual increase in total assets reached 21.53%; rankings on the global top 500 stood at 265 with an increase of 210.

Constantly optimize industrial distribution, successfully implement internationalization strategy.

We establish a “3+1” business pattern that takes materials science, life science, and advanced manufacturing as core business but is supported and safeguarded by basic chemical engineering; the three core business sectors respectively accounts for 17.5%, 11.2%, and 20.3%, with 10% increase from the early 12th Five-Year Plan. We accomplished 5 international acquisitions, implemented 14 overseas reinvestment projects, total assets ratio of the overseas enterprises raised from 9.37% to 46.31% and sales revenue ratio raised from 12.91% to 55.36%.

Promote in-depth corporate reform, achieve prominent restructuring effects.

We actively attract strategic investment of 24.1 billion and accomplish corporate restructuring of 4 companies including Haohua with the carriers of specialized companies. The Group and 3 specialized companies set up board of directors and regulate operation, preliminarily establishing a modern corporate system. The “4+1” integration of pesticide companies in China is substantially finished with ADAMA being the lead; the integration of silicon industry is preliminarily finished with Elkem being the lead; Adisseo completed the industrial distribution in China; the information center and data center merged to forge a leading service provider of chemical information.

Constantly increase the scientific research capability, achieve fruitful results in patent development.

We boast 2 state key laboratories, 9 national engineering (technology) research and development centers, 10 national recognized enterprise technology centers, and 10 post-doctoral research centers. We also won 1 first prize and 5 second prize of National Award for Progress in Science and Technology, and 1 second prize of National Award for Technological Invention. We filed for 4013 pieces of patent, including 2315 patent for invention, and won 17 Excellence Award of China Patent.

Value safety and health, realize green development

Kernoes SHE System has been deeply promoted among chemical enterprises in China, and the SHE targets have been incorporated into the corporate strategy and operation plan as the key factor for overall success of the whole system. We gradually form a safety culture which regards safety, health and environment as the corporate management cores. With significant effects, we achieve the energy conservation and emission reduction target of the 12th Five-Year Plan in an all-round way, accomplishing the energy conservation task of 10000 enterprises.

Stick to corporate social responsibility, devote to public welfare for contributions to society.

While promoting the constant development of the Company, we actively assumes the social responsibility to carry out in-depth probe into ecological environment protection, education cause development, cultural and sports activities promotion, public welfare popularization and other aspects. We ensure the transparency of charitable donation, create asocial environment of mutual help, and promote the sustainable development of communities.

With all these hard-earned achievements in the 12th Five-Year Plan, we will keep on striving for new heights in the 13th Five-Year Plan. We express earnest gratitude to the attention and support from all sectors of the society and appreciate the continuous inspection, and would like to work together with all of you for the sustainable development of ChemChina!
Human beings cannot live without clothing, food, housing and transportation, and these things cannot be possible without the integration of various materials. Among these materials, some are naturally existed substance, while more are artificially synthesized with chemical processes, such as fertilizers, pesticides, plastics, synthetic rubbers, synthetic fibers, etc. In all shapes and colors and being ubiquitous, they have transformed the original production technology and transportation, improved people’s living conditions, and made our material lives even more rich and colorful. Chemical products have not only provided convenience to people’s lives, but, more importantly, promoted the development of the national defense industry and related industries, as well as science and technology, and have greatly raised national economic benefit.

We provide building plastics, coatings, sealants and adhesives, waterproof materials, concrete additives and other new building materials to make your living condition more secure, more reliable and more environmentally friendly.

We provide chemical products for the manufacturing of automobiles, ships and airplanes; and we provide asphalt additives, concrete admixtures and other chemicals for transportation construction. When you are out on the road, we shall accompany you all along the way until you reach your destination in a safe and comfortable manner.

We Manufacture fertilizers and pesticides to support the increase of crop output and farmers income; we provide food additives and packaging containers in conformity with the health standards to diversify your food choices and to facilitate the organizing and storage.

We help to beautify your closet. We provide various fibrous materials, dyestuffs, coating agents, and printing and dyeing auxiliaries, etc. for textile industry and tanner industry to satisfy all your individualized demands by diversifying your choices in materials and colors for clothes.

We help to renovate your house. We provide building plastics, coatings, sealants and adhesives, waterproof materials, concrete additives and other new building materials to make your living condition more secure, more reliable and more environmentally friendly.

We help to safeguard your food. We help to facilitate your travel.

Provide a series of auxiliary organic materials of high-performance and high-energy clean liquid propellants for the national defense industry.

We help to renovate your house.

Develop innovative products for the medical industry, and provide solutions for various applications and designs.

Provide the new materials, technologies and equipment to support the development of new energies, particularly the solar energy and maritime energy, for the environmental industry.

We provide chemical products for the manufacturing of automobiles, ships and airplanes; and we provide asphalt additives, concrete admixtures and other chemicals for transportation construction. When you are out on the road, we shall accompany you all along the way until you reach your destination in a safe and comfortable manner.

Provide 18 categories of electronic chemicals such as ultra-clean high-purity agents, ultra-clean high-purity gas and metal organic compounds for the electronics industry.

Provide materials and processing technologies for the hardware that enables data acquisition, transmission, storage, processing and displays for the IT industry.
Company Profile

Headquartered in Beijing and approved by the State Council in May 2004, China National Chemical Corporation is a large state-owned enterprise formed out of enterprises affiliated to the former Ministry of Chemical Industry under the governance of SASAC. As the largest enterprise in China’s chemical industry, ChemChina operates six business units covering new chemical materials and special chemicals, basic chemicals, oil processing, agrochemicals, tyre and rubber, and chemical equipment.

We have production and R&D facilities in 150 countries and regions worldwide and enjoy a well-established marketing network. ChemChina, a national innovation-oriented enterprise, operates 6 strategic business units (SBUs), 2 directly affiliated units, 112 production and operation enterprises, 9 overseas enterprises, 26 research institutes and design academics, and controls 9 A-share listed companies. The Company has established a relatively complete pattern of chemical industry, integrating research and development, engineering design, production and operation, domestic and international trade. Boasting a business income of RMB260.2 billion in 2015, the Company ranked 265th among the global top 500, achieving a promotion of 11 rankings from 2014, and once again led China’s top 500 chemical enterprises.

As the leader in “zero emission” management, we will minimize the pollution and carbon emission through advanced management and technologies. During the implementation of 13th Five-Year Plan, we will accelerate the industrial restructure in accordance with “new science and new future” and establish a “3+1” business pattern incorporating “materials science, life science, advanced manufacturing and basic chemical engineering”, striving to become a world-leading chemical enterprise with international competitive edge.
New chemical materials and special chemicals

- Own production and development facilities for dozens of high-tech and high-value-added products such as silicone, fluororubber, methionine, metallurgical-process solar-grade polysilicon
- World’s second largest methionine producer
- World’s third largest silicone producer
- Asia’s largest PBT resin producer
- China’s largest producer of fluororubber, neoprene and epoxy resin

Basic chemicals

- Low-cost, recycling and clean production of chlorine and alkali plants

Petrochemical and refinery products

- Combined annual crude oil processing capacity of 25 million tons, and use the “oil-to-chemical” processing route
- Own the first 500,000 tons per year DCC facility and the first 500,000 tons per year CPP facility in China

Agrochemicals

- Products cover herbicides, pesticides, bactericides, plant growth regulators and other ranges, capable of producing more than 120 varieties of original medicine and more than 800 preparations, with nearly 5,000 registered products and more than 6,000 trademarks in 120 countries worldwide
- World’s largest non-patented agrochemical manufacturer
- Rank first in China in terms of market share of products such as dichlorvos, dipterex, pymetrozine, ethephon, ureaformin, endosulfan emulsion, dimethyl tetrachloro sodium, 1-Nitrotoluene and toluidines

Rubber products

- Operate multiple tyre & rubber products and latex products manufacturers that produce a variety of high-tech and high-value-added products such as tyres, polysulfide rubber, special rubber products and new-process carbon black
- The combined production capacity of all-steel radial tyre, semi-steel radial tyre, aviation tyre and giant engineering tyre ranks in the top three in the Chinese tyre industry
- Rank second in China in terms of belt and tubing products such as high-strength conveying belt and braking tube
- Rank first in medical glove and meteorological balloon productions in China

Chemical equipment

- Enjoy technological superiority in chemical machinery manufacturing field and own the only ion membrane caustic soda plant production technology in China
- World’s third largest rubber machinery manufacturer
- Yixiangji series is the best-selling Chinese-made rubber machinery in the international marketplace
- Ion membrane caustic soda unit ranks third in the world in terms of output and sales volume; and metal anode electrolyzer accounts for 90% domestic market share

Key Performance Matrix

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Unit</th>
<th>2015年</th>
<th>2014年</th>
<th>2013年</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business income</td>
<td>RMB100 million</td>
<td>2602</td>
<td>2545</td>
<td>2440</td>
</tr>
<tr>
<td>Technology</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R&amp;D spending</td>
<td>RMB100 million</td>
<td>52.20</td>
<td>38.83</td>
<td>41.50</td>
</tr>
<tr>
<td>R&amp;D spending as a percentage of business income</td>
<td>%</td>
<td>2.01</td>
<td>1.62</td>
<td>1.80</td>
</tr>
<tr>
<td>Number of patents granted</td>
<td>piece</td>
<td>1286</td>
<td>743</td>
<td>605</td>
</tr>
<tr>
<td>Number of invention patents granted</td>
<td>piece</td>
<td>691</td>
<td>398</td>
<td>250</td>
</tr>
<tr>
<td>Safety</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mortality per 1000</td>
<td></td>
<td>0.03</td>
<td>0.04</td>
<td>0.08</td>
</tr>
<tr>
<td>Spending on occupational safety</td>
<td>RMB10,000</td>
<td>593000</td>
<td>48900</td>
<td>53700</td>
</tr>
<tr>
<td>Environment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comprehensive energy consumption per RMB10,000 output</td>
<td>Tons of standard coal per RMB10,000</td>
<td>0.97</td>
<td>1.05</td>
<td>1.09</td>
</tr>
<tr>
<td>Total volume of effluent discharge</td>
<td>10,000 tons</td>
<td>9582.95</td>
<td>10270.01</td>
<td>10502.11</td>
</tr>
<tr>
<td>COD emissions</td>
<td>tons</td>
<td>11558.72</td>
<td>12168.35</td>
<td>12462.46</td>
</tr>
<tr>
<td>Employee</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total number of employees</td>
<td>person</td>
<td>128989</td>
<td>119838</td>
<td>125002</td>
</tr>
<tr>
<td>Percentage of female employees</td>
<td>%</td>
<td>23.8</td>
<td>28</td>
<td>29</td>
</tr>
</tbody>
</table>
STRATEGY AND GOVERNANCE

1. VISION AND VALUES

Company Vision
To become a world-leading, resource-efficient, environmentally friendly, and intrinsically safe chemical enterprise that creates continuous economic and social value.

Core Values
To create values for shareholders and create jobs for the wider society.

2. STRATEGIC OBJECTIVES

Adhering to the guideline of “new science and new future” and the mainline of “strengthening internal integration and structural adjustment”, we accelerate the industrial restructure aiming at “3+1” (materials science, life science, advanced manufacturing + basic chemical engineering) and create five core competitiveness (capability for business portfolio optimization and adjustment, capability for world-class manufacturing and internationalization, capability for comprehensive service of whole value chain management, capability for innovation motivation and capability for capital operation), dedicated to becoming the leading chemical enterprise with international competitive edge.

3. ORGANIZATIONAL STRUCTURE

4. CORPORATE GOVERNANCE

We have established and regulated the system of board of directors and have adopted the system of director-general responsibility in accordance with the Law on Industrial Enterprises Owned by the Whole People of the People’s Republic of China and other applicable laws and regulations, with the general manager’s office meeting as the decision-making body for the Company’s operation and management to thoroughly consider and decide the major operation and management issues. The Group set up nine special committees including the budget committee and the investment decision appraisal committee, to provide support and advice for the decision-making body. SASAC fulfills its duties as the sponsor on behalf of the central government, and the State Council assigns the board of supervisors for key large state-owned enterprises to ChemChina to supervise the Company’s performance in the value preservation appreciation of state-owned assets in accordance with the Interim Regulation on Board of Supervisors of State-owned Enterprises.
SOCIAL RESPONSIBILITY MANAGEMENT

1. GOVERNANCE OF RESPONSIBILITY

Attaching importance to and actively promoting social responsibility work, ChemChina has established a Social Responsibility Promotion Work Committee, with the general manager as the first person responsible, in charge of the overall leadership and coordination during the social responsibility promotion process of the Company. The committee has set up a subordinate office which consists of relevant personnel from the Office of Production & Operation and the Planning Department. The Social Responsibility Promotion Work Office is responsible for routine work such as establishing systems in relation to social responsibility promotion, organizing social responsibility trainings, and compiling and releasing annual sustainability reports of the Company.

2. CSR AWARD


3. STAKEHOLDERS MANAGEMENT

(1) Determine key issues

In order to further enhance the practicability of the Report, we take a full consideration of the industrial features with the focus on the operational facts and in accordance with the demands and suggestions from stakeholders and CSR experts, so as to analyze the importance of different CSR issues on the development of stakeholders and the Company, and identify and filter the substantial issues of the Report, enhancing the effectiveness and values of the Company’s CSR work.

- **Standards and guidelines evaluation:** benchmarking and analyse CSR information disclosed by domestic and international peers, identify issues of high relevance to chemical industry

- **Peer analysis:** interpret national policies in relation to chemical industry, analyze media coverage with connection to the Company in 2015, identify industry features with the focus on the operational facts and in accordance with the demands.

- **Environmental impact:** evaluate the environmental impact of the Company's operations, consider the potential environmental risks and opportunities, and identify key environmental issues.

(2) Respond to the appeals and concerns of stakeholders

- **Stakeholder management:** engage with various stakeholders to understand their needs and expectations and develop strategies to address them.

- **Communication and reporting:** communicate effectively with stakeholders and report on the Company’s social responsibility performance.

- **Compliance with laws and regulations:** ensure compliance with relevant laws and regulations.

- **Risk management and control:** identify and manage risks associated with social responsibility activities.

- **Transparency and accountability:** promote transparency and accountability in social responsibility practices.

- **Stakeholder engagement:** engage with stakeholders to understand their needs and expectations and develop strategies to address them.

SASAC

- **High quality products and services:** prioritise the development of high quality products and services.

- **Ensure diverse demands:** address the diverse demands of different stakeholders.

- **Maintain and increase the value of national assets:** ensure the maintenance and increase of national assets.

- **Green development:** promote green development and sustainability.

- **Energy conservation and emission reductions:** focus on energy conservation and emission reductions.

- **Drive regional employment and economic development:** drive regional employment and economic development.

- **Strengthen fixed-point protection:** strengthen fixed-point protection.

- **Reinforce technology innovation:** reinforce technology innovation.

- **Promote enterprise reform:** promote enterprise reform.

- **Strengthen the establishment of SHE management system and promote "zero emissions" management:** strengthen the establishment of SHE management system and promote "zero emissions" management.

- **Comply with requirement of external regulators such as SASAC, Auditing Administration, and China Institute of Internal Auditors, etc.:** comply with the requirements of external regulators.

- **Audited by CSR experts:** ensure the audit process is conducted by trained and experienced CSR experts.

- **Strategic planning and implementation:** develop strategic plans for social responsibility activities and ensure their implementation.

- **Corporate culture:** promote the company's corporate culture.

- **Trade union activities:** participate in trade union activities.

- **Safeguarding interest of stakeholders:** safeguard the interests of stakeholders.

- **Promote China’s voice abroad:** promote China’s voice abroad.

- **Satisfy diverse demands:** address the diverse demands of different stakeholders.

- **Maintain and increase the value of national assets:** ensure the maintenance and increase of national assets.

- **Promote cultural fusion:** promote cultural fusion.

- **Release annual reports:** release annual sustainability reports.

- **Promote the combating of corruption and upholding integrity:** promote the combating of corruption and upholding integrity.

- **Provide support for social welfare and charity:** provide support for social welfare and charity.

- **Maintain contact with regulatory agencies:** maintain contact with regulatory agencies.

- **Distribution of report:** distribute the report to stakeholders.

- **Regular work:** participate in regular work.

- **Vital clients:** maintain relationships with vital clients.

- **Promote enterprise reform:** promote enterprise reform.

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(4) RESPONSIBILITY MATRIX

<table>
<thead>
<tr>
<th>Good operation creates new value</th>
<th>Technological innovation drives new growth</th>
<th>Work safety sets new benchmark</th>
<th>Green environment expands new space</th>
<th>Employee growth starts new business</th>
<th>Social harmony shares new achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ChemChina</strong></td>
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<tr>
<td>Accelerate “3+1” industrial restructure</td>
<td>Promote reform and innovation</td>
<td>International operation</td>
<td>Build platforms for technological innovation</td>
<td>Promote application of science and technology innovation achievements</td>
<td>Optimize SHE system construction</td>
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<tr>
<td><strong>New chemical materials and special chemicals</strong></td>
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<tr>
<td>Actively expand business overseas</td>
<td>Launch construction of Integrated Product Development (IPD) system</td>
<td>Strengthen work safety inspection and standard operation specification management</td>
<td>Systematically promote process optimization, raise comprehensive efficiency</td>
<td>Devote more efforts to the attraction of professional managers</td>
<td>Improve supply chain management</td>
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<tr>
<td><strong>Agrochemicals</strong></td>
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<tr>
<td>Establish digital “smart factory”</td>
<td>Open up public WeChat platform “Anpon Electrochemical”</td>
<td>“Kind safety message”</td>
<td>Strive to conserve resources</td>
<td>Strengthen employee assistance mechanism</td>
<td>Offer assistance for poor areas</td>
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<tr>
<td><strong>Tyre and rubber</strong></td>
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<tr>
<td>Whole value chain management</td>
<td>Protect intellectual property rights</td>
<td>Construct national level enterprise technology center</td>
<td>Launch safety and troubleshooting assessment</td>
<td>Cleaner production</td>
<td>Enrich spiritual and cultural lives of female employees</td>
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<td><strong>Chemical equipment</strong></td>
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<tr>
<td>Accelerate marketing integration</td>
<td>Increase input of technological innovation</td>
<td>Safe management network construction</td>
<td>Lower greenhouse gas emissions</td>
<td>Actively recruit fresh graduates</td>
<td>Promote supplier responsibility</td>
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<tr>
<td><strong>Basic chemicals</strong></td>
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<tr>
<td>Carry out continual improvement among all staff and whole process</td>
<td>Integrate resources to promote the construction of scientific and technological platform</td>
<td>General survey of basic safety work in the whole system</td>
<td>Strengthen energy efficiency management</td>
<td>Promote careers planning projects for employees</td>
<td>Strengthen fixed-point poverty alleviation</td>
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<td><strong>Oil processing and refinery products</strong></td>
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<tr>
<td>Strengthen DCS application optimization</td>
<td>Pursue “customer manager management mode”</td>
<td>Strongly implement technological transformation and operation programs</td>
<td>Strengthen cost management for work safe</td>
<td>Release “SHE Post Responsibility for Oil and Gas Company”</td>
<td>Promote performance management system construction</td>
</tr>
</tbody>
</table>
As a pillar industry of agriculture, agrochemical industry plays a crucial role in enhancing agriculture industry’s capability of disaster prevention and relief and in improving food production and food security. We attach great importance to innovation, pursue global industry development, adopt proactive policies in products, services and technology innovations, continuously explore new methods and forms, and provide products and services of better qualities, striving to become a model of sustainable agrochemical service.
Actively engaged in research and development

The initiative of Nanjing Adisseo Methionine Project fills the blanks in China

Nanjing Adisseo Liquid Methionine Luodimei (AT88) Production Line, the first set of liquid methionine integration device in China with largest capacity in the globe, has been put into operation at all fronts. The quality of its products can be compared to that of products of Spanish Burgos Factory, which fills the blanks in China in terms of relevant products and changes the situation that our country’s liquid methionine is entirely dependent on imports. Therefore, China’s feed industry chain has extended to the upper steam, bringing strong development momentum for feed processing industry and breeding industry.

Having six production factories for solid methionine and liquid methionine in France, Spain and other places, Adisseo set its first factory in Asia here at Nanjing. Adisseo has not only introduced world-class technologies, products, industry standards and services to Nanjing Methionine Project, but also selected outstanding technical and management personnel from its factories around the world to Nanjing. Over 100 members from more than 20 countries have formed a project management team to learn from and cooperate with each other in the process of mechanical construction, production preparation and commissioning test, jointly promoting efficient operation of the project.

Over 100 members from more than 20 countries have formed a project management team

Best innovation service

Adisseo: Diversified service channels

Through diversified service modes and channels, Adisseo provides its customers with comprehensive services.

E.LAB

E.LAB is an online service for ADISSEO clients. E.LAB can help ADISSEO clients propose requests for analysis, and accurately identify the sample bacteria or viruses and then transport them to ADISSEO labs (CARAT in France and CEAN in Brazil). Clients can have a real-time follow up of the processing (sample collecting, analyzing, and the announcing date of results …) and have access to the analytical result directly.

PNE

PNE (Precise nutritional assessment) is a special and quick service based on NIRS analysis. PNE aims to predict the nutritional quality of feedstuff. ADISSEO PNE can analyze all the herbal medicinal ingredients of feedstuff and have a real-time prediction of different characteristics that influence its nutritional quality.

DIM

DIM (sincerely Dimension) is a service portfolio provided by ADISSEO to help clients effortlessly transform from using solid methionine (Rhodimet® NP99) to using and liquid methionine(Rhodimet® AT88).

ADAMA: Bringing life to “QR code” information

ADAMA’s US branch added more information to the existing QR code on products, allowing farmers to obtain specific information about the crops in a real-time manner when working in the field. The innovation team of MANA, ADAMA’s US branch, offered dynamic statistic for intelligent labels, the contents of which can be downloaded to the application of “OneSmart”, developed by ADAMA for smart phones. Then, the application would connect farmers via mobile applications and the internet. Those QR codes have been endowed with more practical information and transformed from “static” to “dynamic.”

Scanning the QR code and entering the application of “OneSmart” of ADAMA would lead to a 30-page snapshot version of the file that introduced the company’s product portfolio and a drop-down list of crops available for selection. “OneSmart” has greatly saved farmers’ time and helped them to make better decisions in shorter time.

QR code

Dynamic database

OneSmart

Client

Decision making

Dropdown list

A 30-page snapshot version of the file

More efficient

More convenient

More environmental-friendly

Lower toxicity

Easier to use

Safer

Crops and product portfolio

100 billion yuan losses

ADAMA

NIMITZ® nematicide

Nematicide

Crops

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Sustainability Report 2015 Of China National Chemical Corporation

Story: Take the lead to realize “Made in China 2025”

ChemChina acquired German KraussMaffei Group, completing the largest investment project of China in Germany and practicing the implementation of “one belt one road” and “international industrial capacity cooperation”. By acquiring this leading rubber plastic machinery producer with 178 years of history, ChemChina would accelerate products combination and business integration, taking the lead to realize the goal of “Made in China 2025”. In the process of internationalization, we would continue to make overall plans and strategic layouts, enhance systematic analysis and research of new materials, special chemicals, agriculture and energy, etc., and promote the cooperation with world-leading corporates, incessantly pursuing the stability of global industry structure and the path for healthy development.

1.1 Optimize industry structure

We constantly optimize industry distribution, speed up industry integration, enhance the synergistic effect of upstream and downstream and promote the competitiveness of the industry chain. Firmly seizing the strategic opportunities in the “one belt one road” construction and international capacity cooperation, we achieve resource allocation in the global context, improve enterprise value chain and expand the international market in depth.

Honors (Selections):

- The Group’s acquisition of Pirelli, a high-end tyre-production enterprise in the world has become a model of strategic cooperation of “one belt one road”, winning the “Best M&A Transaction Award of 2015” of Asian Finance and the award of “Outstanding Investors of 2015” of Italy-China Fund.
- Sanonda won the prize of “Top Ten Pesticides Exported from China of 2014” in the 16th China International Agricultural Chemicals and Plant Protection Exhibition.

Typical measures:

- Encourage integration of ChemChina’s rubber tyre sector and equipment sector under the lead of international advantageous brand enterprises including Pirelli and KraussMaffei.
- Complete the delivery of REC, optimize the value chain of Elkem polysilicon and REC solar value, strengthen the silicon industry chain with Elkem as the leader, and improve profitability.
- Establish the cross shareholding system between Petrochemical Corporation with Mercuria, a world-leading crude oil trader, improve the anti-risk ability of bulk commodities trading, and expand the crude oil supply channels and trade platforms.
- Integrate carbon fiber and aramid fiber businesses, and realizes unified operation and management.
1.2 Prevent and control operation risks
We are constantly strengthening the prevention and control of operation risks, pushing forward the integrity culture construction, implementing the mechanism of internal auditing supervision and improving the enterprise’s ability of preventing and controlling legal risks, hence providing effective guarantee and supervision for the enterprise compliant operation, management efficiency promotion and stable and healthy development.

1.2.1 Risk management
We deem major risk prevention as our core task and set risk management information system as the platform to carry out risk management and internal control in a comprehensive way. We have formulated legal approval management measures for economic contracts, rules and regulations, and major decisions to push forward the informatization of risk management.

Typical measures:
- Strengthen coordination of major legal disputes and solve issues left from history in a gradual process, retrieving economic loss of RMB 198 million in total.
- Explore legal methods to track down accounts receivables, centering on the embezzlement of “two compensations”.
- Reinforce the construction of risk internal control system, update and improve internal control manuals and organize trainings on internal control network with 536 participants from the whole system.
- Formulate internal control evaluation indexes, comprehensively evaluating and grading the internal control materials, internal control system constructions and implementations of 8 listed companies.

1.2.2 Promote anti-corruption and clean governance
We strengthen the construction an honest and uncorrupted Party and the education of clean governance, improve risk prevention and control in a gradual manner and build a systematic defense by strengthening supervision and regulating management.

Typical measures:
- Implement responsibility system for the construction of party conduct and integrity. The Group has signed 18 letters of responsibility for party conduct and integrity, and letters of commitment on honest practicing with key position personnel of subordinate enterprises. All these have further refined job responsibilities, objectives and tasks.
- Advance the construction of integrity culture, hold exhibitions of duty crime preventions and strengthen the dissemination and implementation of important spirits on platforms including newspapers, networks, Internal Reference.

1.2.3 Audit management
We have established and improved the two-tier audit systems at the level of the Group headquarters and specialized companies; supervised and guided specialized companies and their subordinate enterprises to carry out self-examinations. 88 of them have reported their examination results. The self-examination covered 237 auditing projects of the past five years and the audit reports revealed 1,971 problems. The whole system implemented 760 audit projects in total, involved 178.5 billion yuan and offered 1,299 pieces of audit recommendation.

1.3 Improve management level
By deepening management reform, carrying out information construction and improving management level in a comprehensive way, we have laid a solid foundation for the construction of a world first-class enterprise.

1.3.1 Continuous improvement
We regard world-class manufacturing and continuous improvement as major breakthrough points and subordinate our management into six categories such as Six Sigma management, lean management, equipment management, supply chain management, innovation management and “debottleneck”, which effectively promoted the Company’s industry transformation and upgrading.

Typical measures:
- Carry out about 1,000 projects of continuous improvement in the whole system, realizing a profit of approximately 500 million yuan.
- Achieve a year-on-year increase of 60% in the number of employees who passed the online training of Yellow Belt, with the coverage rate of employees with Belt reaching over 15%.
- BlueStar continues to improve its 32 sets of key equipment and enhance the efficiency of raw materials and energies, realizing a profit of approximately 100 million yuan.
- Petrochemical Corporation reduces its per unit consumption of crude oil processing with significant processing loss through benchmarking management, realizing a profit of over 100 million yuan.
- Rubber Company made an annual profit of 150 million yuan by continuously improving its potential efficiency; 5 enterprises including Lanzhou Silicon Materials saved 67.16 million yuan of electricity in a year by increasing direct supply of electricity for major clients.

1.3.2 Reduce costs and improve efficiency
We are full concentrated on reducing costs and improving efficiency, carry out cost management in the whole value chain and the whole life cycle in aspects of Human resource, finance, purchasing, sales, operation and so on, improve the cost control responsibility system and the target evaluation mechanism, reduce non-productive expenditure and strive to improve the rate of comprehensive cost to profit.

1.3.2.1 Strengthen investment management
We optimize the investment decision-making procedures, refine investment management system and build a perfect system of investment control and management to realize scientific decision-making, standardized process and regulated implementation.

1.3.2.2 Reduce non-productive costs
We have further reduced non-productive costs by strengthening production management, making a profit of 126 million yuan in 56 technological upgrading projects.

Typical measures:
- Edited and implemented Regulations of Management of China Chemical Industry Corporation Technology Transformation Projects (provisional) and Encourage Methods of China Chemical Industry Corporation Technology Transformation (provisional), organized the selecting activity of “Outstanding Projects of Group Company Technology Transformation” of 2014, in which SANONDA Acephate Production Technology Innovation Project and Blue Star Dongda Polyether Polyois Intermittent Production process Innovation Project won the first prize.
- Nanjing Xingrui completed the technological upgrading of Bisphenol A, which reduced the per-ton cost by 300 yuan and significantly improved the quality.
- Innovation Project of Daohu Shahe low pressure steam Lithium bromide units significantly reduced the emission of low pressure, realizing a profit of over 4 million yuan in a year.
1.4 Enhance service ability

We actively responded to the dual pressure of sluggish market and increasingly fierce competition, strengthened the construction of marketing system, changed marketing concepts, adjusted marketing strategies and stimulated market demand with services.

Typical measures:

- Focused on strengthening the construction of marketing system, broadening marketing channels, optimizing the structure of customers and promoting the business model to transform a market-driven one.
- Continued to conduct “One-hundred-day Marketing Competition”; deepened the application “eight marketing tools” and improved the data-basing marketing management system.

1.3. Informatization construction

We integrated business processes, deepened the application of information system, improved the efficiency of management, provided smooth information channels and reduced management costs.

Typical measures:

- We promoted ERP application and made progress in aspects including “three currents combination” and cost accounting, strengthened ERP operation examination and improved application effects. Another 13 enterprises adopted ERP system.
- We improved OA office platform, implemented mobile application solutions and promoted working efficiency.
- We enhanced the management of information security and completed 121 information system safety ratifications.

Case: Petroleuim Corporation created the new pattern of Internet finance

The e-business team of Petrochemical Corporation adopted the thinking mode of “Internet Plus”. introduced Internet Finance E-business mode in the field of bulk raw material trading, cooperated with China Construction Bank and established a comprehensive e-business platform of online financing, online purchasing and online payment. This financial mode broke away from traditional receipt financing mode, allowing clients to pay back loans and restore their credit at will after completing sales and obtaining market profits. This improved clients’ purchasing motivation and tightened the link between clients and the company.

Case: Pirelli enhanced cultivation of clients

Pirelli was devoted to cultivation of clients in various markets, including visiting point of sale (POS), Pirelli factories and R&D labs, as well as experiencing tyre performance simulation. For example, 4,500 distributors from 17 countries visited Pirelli factories in Sestino, Torino, Italy and in Izmir, Turkey. Besides, they also visited the R&D center in Vizzola, Milano, Italy. The online clients training platform also continued to expand, with the slogan being “The tyre colleague will lead you to success”. At present, it has covered 23 markets and offered services in 16 languages. In order to support the training courses of product trainers in the market, Pirelli will set up a library named “Tyre Campus Case”. It will cover the technical content of training courses to display characteristics and raw materials of Pirelli tyres as well as the differences and similarities between various Pirelli tyre treads.

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Case: Blue Star Donada Chemical Industry relied on informatization to improve project management

Blue Star Donada Chemical Industry implemented informatization in the general thinking mode of innovation, optimized the efficient linkage mechanism of supply, production, sales and research of then enterprise’s system, improved basic control by analyzing and making conclusion from big data information, promoted the construction and implementation of key projects, hence increasing the enterprise’s efficiency and profitability in a comprehensive way.

Case: Shenyang Paraffin Refinery Plant realized full coverage of BI platform application

Shenyang Paraffin Refinery Plant realized a 100% coverage rate of BI platform application, implementing functions including real-time display, data warning, process tracking, online display and so on and providing strong information guarantee for improving efficiency and promoting management of production and operation. With the help of BI platform, authorized accounts could get to know the situation of upstream and downstream equipment, environment protection indicators and production trends. The platform played an effective guiding role in obtaining large amount of data information and timely grasping production and management situation.

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Story: Northwest Institute independently implemented the research and development of sealing material, contributing to C919 domestic large aircraft to break from foreign monopoly. On November 2, 2015, China’s first C919 large passenger plane was formally produced in Shanghai, which was a milestone of China’s independent development of large aircrafts and also a breakthrough of China’s high-end manufacturing industry. The sealing material of Northwest Institute was applied in most cabin doors, active wing surfaces and outer wings of C919 aircraft. The Institute has every right to be proud. As the only C919 rubber sealing material enterprise in China, the Institute spent five years of hard work to realize the breakthrough “from 0 to 1” in various key technologies, hence making such material possible. In the future, the Institute will rely on unremitting efforts and advanced technology to continue to contribute to China’s large aircraft projects.

Honors (selections)

- Changsha Institute of Chemical Industry’s “Technology of Efficient Utilization of Low-grade and Difficult-to-develop Leopoldite in Qinghai Salt Lake” won the second prize of National Scientific and Technological Progress.
- Petrochemical Corporation’s “Industrial Application of Cool Regeneration Recycling Technology of Heavy Oil Catalytic Unit” won the second prize of National Scientific and Technological Progress.
- Petrochemical Corporation and Luoyang Weida Petrochemical Engineering Co., Ltd. jointly declared “Industrial Application of Cool Regeneration Recycling Technology of Heavy Oil Catalytic Cracking Unit” and won the first prize of Scientific and Technological Progress of 2014 of China Petroleum and Chemical Industry Federation.
- Nantong Xingche Chemical Industry’s “Key Technology and Application of Green Production of 200,000 tons/year Bisphenol A-Epoxy Resin” and Southwest Institute of Chemical Industry’s “Technological Development and Industrialized Application of Natural Gas produced from Coke Oven Gas Methanation” won the first prize of Scientific and Technological Progress.
- Units including Zhonghao Guangming Institute of Chemical Industry and Spaceflight Fifth Institute jointly declared “Change Number Three Moon Lander Thermal Control Subsystem”, which won the first prize of Scientific and Technological Progress of China Aerospace Science and Technology Company.

2.1 Improve the system of scientific and technological innovation

We actively promote and improve the organization systems of scientific and technological innovation and the construction of management systems, establish an open platform for scientific and technological innovation that integrated production, learning and research, with enterprise as the main body, make great efforts to create a culture atmosphere that encouraged innovation. In 2015, science and technology investment reach 5.22 billion yuan, an increase of 34.4% from the previous year. 666 scientific research projects of various kinds are implemented, including 125 national key projects, 126 key projects of provincial and municipal level and 415 enterprise projects.
2.1.1 Strengthen the management of scientific and technological innovation

In response to the national strategy of “Wide involvement of innovations and entrepreneurship”, we focus on the management of scientific and technological innovation, performance and inspire creativity.

Typical measures:

- Formulate and implement "Incentive Policies of Innovation and Entrepreneurship of ChemChina" and "ChemChina Innovation and Entrepreneurship Fund Plan".
- Hold conferences of innovation and entrepreneurship on a regular basis and push forward many market-oriented technologies and application projects with bright market future.
- Organize general meeting of innovation and entrepreneurship & young talents and promote the “Two Innovations” activities by adopting methods of venture capital funds, sharing resources of research and development and employee activities.

Scientific management of performance:

- Formulate corresponding incentive plans for National Science and Technology Awards and put forward indicator system and implementation plans of evaluation for social science and technology incentives.
- Analyze key scientific and technological achievements and projects and organize declarations of national scientific and technological awards in accordance with the target that “Improving the ability of research and development and the performance and science and technology and striving for National Scientific and Technological Progress Award”.

2.1.2 Build platforms for scientific and technological innovation

We constantly accelerate the construction of platforms for scientific and technological innovation to further enhance our independent innovation ability.

By the end of 2015, there were altogether 126 institutions for research and development, including 2 national key laboratories, 9 national engineering (technology) research centers, 10 national-recognized technology centers and 10 post-doctoral scientific research workstations.

2.1.3 Cultivate talents of scientific and technological innovation

Talents of scientific and technological innovation are the driving force of the Company’s scientific and technological innovation. We enhance the training and introduction of talents of scientific and technological innovation to gradually form a team of such talents that fit the development of the Company. By the end of 2015, there were altogether 8,156 talents of research and development, including 2 academicians of Chinese Academy of Engineering and 7,302 senior technicians.

Case: Guangming Institute cooperated with Dalian Polytechnic University to build Training Base for Graduates

Guangming Institute has implemented the national, provincial and municipal education plans and the 13th Five-year Plan for its own development, actively cooperated with Dalian Polytechnic University to build a training base for graduates, offering talent and technology support to the education of talents and scientific and technological innovation of both sides. The base will follow the principle of resource sharing, complementing each other’s advantages and win-win cooperation to give full play to the research advantages and resources of both sides, constantly enrich the contents and forms of cooperation and make joint contributions to the improvement of education science and the deepening of innovation reform.

2.1.4 Strengthen Intellectual Property Rights management

We stick to the combination of creation, application, management and protection of Intellectual Property Rights, strengthen Intellectual Property Rights management and push forward scientific innovation with the creation of patents. In 2015, we filed 1,286 patent applications, including 919 invention patents. 1,007 patents were authorized, including 691 invention patents. The heat-resistance level of High-temperature Resistant Flanged Conveyer Belt of Qingdao Rubber Six Conveyor Belt Co., Ltd. was improved by 4 times, making it the first case in the world. Gaining invention patent authorizations from United States, European Union, Japan, etc.; it is the only international patent in China’s rubber industry.

During the 12th Five Year Plan, the whole system has filed 4,013 patent applications, including 2,315 invention patents, respectively achieving an increase of 112.8% and 107.8% from the 11th Five Year Plan. By the end of 2015, there have been 9,025 patents in the whole system, 8,656 of which are invention patents, accounting for 73.8% of the total number; we have boasted 17 awards of Chinese Outstanding Patent.
2.2.1 Enrich the achievements of scientific and technological innovation

We constantly expand the platform and bring new momentum to the scientific and technological innovation team, steadily increase investment in scientific and technological innovation, further enrich the achievements of science and technology and promote their industrialization, turning the achievements into realistic productivity.

Typical measures:

- Promote the application of scientific and technological innovation achievements

We implement the strategy of enhancing development with innovation in depth, analyze the opportunities of rapid growth of industries such as “one belt one road”, high-speed railway, domestic large aircraft and automobile, give full play to our advantages, gradually establish and improve the market-oriented mechanism of technological innovation and accelerate the industrialization of scientific and technological achievements.

Typical measures:

- The rubber material and relevant products developed by Southwest Research Institute have been successfully applied to CRH5 and CRH380 high-speed trains, replacing imported products.
- Nanjing 7425 rubber hose brake products have been successfully applied to CRHS and CRH388.
- PBT synthetic material of Nantong Xingchen have passed the certification of Toyota Motor for the first time and been applied to main vehicle models.

Case: The technology of “Off-gas Separating Tower” of Tianhua Institute has been promoted and applied in industries including lignite and catalyst

“Off-gas Separating Tower” of Tianhua Institute has been granted patent authorization by the United States Patent and Trademark Office, making it the fifth US patent of the Company, and has been promoted and applied in industries including lignite and catalyst. It is an inventive technology to process dry gases of moisture contents, realizing cleaning separation of moisture contents and non-condensable industrial gases in the tower. Relevant equipment occupies small space but can solve the major problems of traditional separating technology including the complexity of the technology itself, high costs and frequent congestion problems and traditional methods of scrubbing and cooling the tower including large number of equipment required and large occupation of spaces.

Case: Southwest Research Institute was among the first to get the authentication of Enterprise Intellectual Property Right Management Regulation

Southwest Research Institute established Intellectual Property Right Management Office and the Patent Operation Workgroup to strengthen the strategy planning and implementation of intellectual property rights, improve the dissemination and implementation of intellectual property rights protection, further perfect relevant systems and enhance the routinemanagement of patents trademarks, and other intellectual property rights, hence laying a strong foundation for the standardization and certification of intellectual property rights.

In 2015, Southwest Research Institute successfully passed the examination of audit team of Enterprise Intellectual Property Rights Management Regulation and became one of the first batch of enterprises to get the authentication of the Enterprise Intellectual Property Right Management Regulation.
2.3 Promote scientific and technological progress in the industry

We regard strengthening the status of innovation as the focus, vigorously promote collaborative innovation of industry, academia, research and application, urge the Company to carry out in-depth cooperation with universities and academies, accelerate resource integration of the upstream and downstream of industry chain, continuously enhance technological competitiveness of the Company, and transform and upgrade the chemical industry with scientific and technological achievements.

2.3.1 Carry out scientific and technological exchange and cooperation in the industry

We take an active part in various international conferences and forums, incessantly strengthen cooperation and communication with peer companies, complement each other’s advantages and promote the competitiveness of the Company while continuing to explore the scientific and technological development of global chemical industry.

2.3.2 Host and participate in standards formulation

We actively take advantage of enterprise technology, take the initiative to participate in the research, planning and standards formulation of industry development in China, promote the upgrading of industrial structures and contribute to industry development. In 2015, we have been involved in the formulation of three international standards, 91 national standards and 51 industry standards.

Typical measures:

- Blue Star has participated in and pushed forward researches of national standards, releasing 25 national standards.
- Synthetic Resin Industry Pollutant Discharge Standard of Lehigh Institute has become a national compulsive standard.
- A special fibre standard of Chengrand Research Institute has become a national military standard.
- Chemical Mine Salt Lake Brine Mining Design Standard and Chemical Mine Drilling Soluble Water Design Standard, two industry standards formulated by Changsha Institute, have played a guiding role in promoting the standardization and technological progress of chemical mining projects in China.
- Guangming Institute participated in the formulation of Gas Used in Electronic Industry, High-purity Chlorine and the amendment of Gas Used in Electronic Industry, Hydrogen Chloride, which, as national standards, regulated the research, development, production and application of high-purity Chlorine and Hydrogen Chloride.

Case: Two technology standards of military products of Zhonghao Northern Institute filled the blanks in China

As a scientific and technological enterprise focusing on the research and development of coating materials, Northern Institute takes an active part in the formulation of many national standards while continuing to make efforts in scientific and technological innovations. Epoxy Ablation-resistant Putty Regulation and Spherical Hinge Abrasion-resistant Coating Lubricant Regulation filled the relevant blanks of technology standards in the market. By the end of 2015, Northern Institute has participated in the formulation of 8 national standards as the first responsible unit.
Story: Your safety is my happiness

As an old saying goes: Safety links the heart of everyone; safety binds the concern of families. I will always tell you over and over again to bear safety in mind before you go to work, to wear protective clothing and to think of safety measures in whatever hurries. Though you tease me about being so nagging in safety issues, I hope that you can remember my words. After all, your safety is so important to my happiness and the prerequisite for our happy life.

Honors (Selections)

- Petrochemical Corporation and Zhenghe Petrochemical won the third prize in the knowledge competition of “Carrying out New Work Safety Law and Strictly Implementing All Legal Responsibilities” of State Administration of Work Safety.
- Special resin polymerization team at ZhonghaoChenguang Third Fluorination Factory won the title of “National Youth Model Post of Production Safety”.
- Heilongjiang Haohuwon the honorary title of Advanced Unit in the “Ankang” competition of safety knowledge of Heilongjiang Province and was honored as the municipal model unit of production safety by the Municipal government of Qiqihar.
- Zhuzhou Institute was honored as the advanced unit of safety production management of Hetang District, Zhuzhou, Hunan.

3.1 Intensify safety management

We strictly implement the production safety responsibility system of “five implementations and five in-places”, comprehensively promoting the construction operation and standardization of SHE system in high-risk enterprises to strengthen the foundation of production safety.

Case: Petrochemical enterprises actively implement safety responsibilities

Petrochemical enterprises actively implement safety responsibilities and gradually realize the transformation from “safety being a compulsory responsibility” to “safety being a voluntary demand”.

- Huaxing Petrochemical issued the “most rigorous” safety management regulation, requiring the presence of firefighters when hot work of extra grade was carried out. On-site permissions of safety managers and relevant personnel were needed before the work.
- Tianjing Petrochemical implemented safety risk mortgage system among all employees and carried out SHE management responsibility in a comprehensive way, urging all employees to fulfill SHE responsibility and obligations consciously.
- Zhenghe Petrochemical included SHE as an important indicator in the selection of “Red Flag Groups”, signed SHE duty agreements in each level of employees, assigned SHE indicator to the evaluation of performance of departments and employees, hence improving employee’s sense of responsibility and motivation.
- Changyi Petrochemical signed safety production responsibility agreements with all offices and departments, covering all employees to make sure that they had targets of safety production responsibilities.
- Nantong Xingchen emphasized on the dual responsibilities of certain positions, major safety responsibilities and dependency administration, further improved SHE performance evaluation system and strictly implemented responsibility system in cases of accidents.
3.2 Carry out security operations

We strengthen safety inspection supervision, continue to identify the hidden hazards, improve emergency management and the management of dangerous chemicals, promote employees’ occupational health and safety, carry out the contractor safety management, hence implementing comprehensively various measures to prevent safety accidents in production.

3.2.1 Hidden hazard inspection

We carry out hidden hazard inspection and rectification in a comprehensive way with the emphasis laid on hazard against oil and gas pipeline safety, hazard inspection and rectification for elevator operation safety and other special activities. The rate of rectification of oil and gas pipeline reaches 100%. In 2015, the whole hazard inspection system has identified 40,045 safety hazards, with a rectification rate of 96.2%.

Ringing the alarm bells: Learn from lessons of safety accidents and value safety management

We timely disclose domestic accidents, make a accidental analysis and formulate special reports. As for the safety management problems exposed in Shandong “7.16” Accident and Tianjin “8.12” Accident, we organize companies in the whole system to learn from the lessons, formulate special measures for hazardous chemical storage tank area, flammable and explosive chemicals, and illegal rule violations. We learn from the lessons of safety accidents and carry out hidden hazard inspection in order to guarantee the safe and stable operation of the company.

Typical measures:

- Accident analysis. We organize relevant personnel to compile The Accident Case Analysis Collect. The rules and fundamental causes of these accidents are summarized so as to explore and formulate rectification measures. Moreover, we supervise the consequent implementation.
- Hidden hazard inspection. According to the requirements of State Council Safety Commission, State Administration of Work Safety and State Asset Regulatory Commission, we have deployed the work of “hidden hazard inspection and rectification of oil and gas pipelines” and spotted 46 hidden hazards, 46 of which have been rectified to reach a rectification rate of 100%, accompanying ahead of timetable first-year goal of the three-year rectification work on oil and gas pipeline stipulated by State Council Safety Commission.
- Specified rectification. By carrying out large-scale and comprehensive examination and safety supervision of hidden hazard in 16 key enterprises, we have identified 604 hidden hazards, offered 93 suggestions for rectifications within a time limit and issued 16 notices of rectifications.

3.2.2 Emergency Management

We establish and improve the emergency plan system and strengthen emergency drills to improve our ability of dealing with emergencies. In 2015, the whole system has carried out all together 325 emergency drills with involvement of 12,410 people.

Case: Ongoing emergency drills of various positions

Centering on “Unexpected failure, overpressure, sudden pause and restart after emergency stops,” enterprises at all levels organize thematic activities to improve employees’ practical skills, laying a strong foundation for safety production and operation.

Centering on issues including instrument malfunction, container overpressure and medium overheat, Changya Petrochemical organized emergency drills and relevant activities.

Centering on problems found in corresponding activities in 2014, Qingdao Anbang organized specific activity in response to emergencies in 2015 to lay a strong foundation for production safety.

Case: Guangming Institute promotes Emergency Card

Guangming Institute has designed Emergency Card in hazardous positions of chemical production and issued them to the employees on 10 major hazardous positions. The Emergency Card informs how to identify hazardous chemicals, how to deal with emergencies in early stages and offered information of relevant contacts including accident rescues.

Case: Zhenghe Petrochemical strengthened the source management of transportation vehicles of hazardous chemicals

Zhenghe Petrochemical handled out Registration Form of Inspection and Examination of Vehicles Transporting hazardous Chemicals to relevant vehicles. According to the qualifications of their units, safety configuration, loading amount and other index, the company examined every aspect of these vehicles, issued permission with regard to loading amounts and refused to issue permissions over the maximum amount of loading, hence effectively reducing and preventing traffic accidents relevant to hazardous chemicals.

Case: Enterprises take various measures to push forward rectifications against hidden hazards

Combining safety production reality and innovating working methods, enterprises have organized rectifications with each own characteristic against hidden hazards and greatly improved their effectiveness.

Zhenghe Petrochemical’s professional groups carried out joint inspections. The company newly established four professional groups of environment protection safety, technology and equipment, maintenance stability and management supervision to carry out all-dimensional inspections in a comprehensive way.

Hangzhou Water Treatment promoted base patrol system. The company adopted combination of daily examinations and regular examinations, and of comprehensive examination and specific examination to monitor the implementation of rules and regulations. The results are published in the Patrol Notification every month, hence strengthening the management of base sites.

PenglaiAnbang adopted monthly examination system to eliminate “low standards, old troubles and bad habits”. Targeting at “low standards, old troubles and bad habits”, the company made efforts to find hidden dangers and formulated monthly incentive system, getting rid of 14 hidden dangers and correcting 5 bad habits.
Case: ChemChina Storage and Transport upgrades the safety management of delivery and loading of oil products

ChemChina Storage and Transport improves the safety management of delivery and loading of oil products and hazardous chemicals, strictly implementing 5 management regimes of inspection, verification, registration and others to ensure the safety of all links.

- Before loading oil products, the company will examine loading units in terms of their main qualification and reject those unqualified units. Relevant personnel will examine the vehicles’ conditions to make sure that the safety equipment for vehicle repair and emergency protection reach the national standard.
- After loading oil products, the company will require drivers of the transportation units and operators of storage and transport to be on site. It would follow operation procedures, control the number of vehicles and forbid overloading, mixed loading and misleading. The loading amount must not exceed what is required in Permission for Transporting Dangerous Chemicals.
- After loading oil products, based on Registration Form of Inspection and Examination of Vehicles Transporting Hazardous Chemicals, the company will keep records of the examinations and verifications of delivery, loading and unloading, creating a strict and standardized working atmosphere.

Case: Changyi Petrochemical upgrades safety level in oil tank areas

Changyi Petrochemical has incessantly pursued the rules and methods of strengthening management of petrochemical safety, implemented the supervisions of hazardous technologies in oil tank areas, hazardous chemicals and major sources of danger. In 2015, the company has organized employees at the production line to participate in drills at the company level for twice and drills at the group level and emergency drills.

- Hardware equipment. The company installed automatic cold water spraying devices in liquefied hydrocarbon spherical tank area, implemented remote control of valves and reduced risk index to the minimum. It also finished the recycling and transformation of oil and gas in 21 loading platforms of oil, gas and benzene and four gas stations, hence realizing operations within a confined space, reaching an oil and gas recycling rate of 99% and getting rid of hidden hazards in case of explosions due to oil and gas volatilization.
- Emergency drills. The company has formulated and perfected emergency plans, attached great importance to trainings on emergency plans and organized drills on a regular basis. Problems exposed in drills have been timely handled to establish a complete, scientific emergency plan that adapted to emergency rescue of petrochemical industries.

3.2.5 Contractor safety management

We regard contractors’ safety as an important part of safe production for the Company and improve the contractors’ ability and level of safe production with diversified methods including perfecting systems, improving assessment and carrying out in-depth trainings, etc.

Case: Huaihe Chemical Industry strengthened the management of outsourcing personnel

Huaihe Chemical Industry has attached great importance to the management of outsourcing personnel, constantly improved the quality of outsourcing teams and enhanced the company’s safety of productivity in a comprehensive way.

- Training. When the outsourcing team is firstly introduced to the company, we create the name list of employees, keep training journals and carried out trainings of rules and safety knowledge on responsible persons of outsourcing units and outsourcing personnel.
- Emergency drills. Emergency rescue drills of outsourcing personnel targeted at the special nature of chemical industries are carried out on a regular basis, improving their ability of dealing with emergencies.
- Evaluation. We manage outsourcing teams in a dynamic way, carry out evaluations of them on a regular basis in terms of production safety and qualification, and take rationalization measures once we found problems, which would be remedied after a certain period of time.

3.2.4 Occupational health and safety

We adhere to the philosophy of “love life, cherish life and refuse profits at the risk of employees’ safety”, improve the system of employees’ occupational health and safety, increase relevant investment, strengthen facilities of occupational health and safety, organize health check-up for employees and popularize the knowledge of occupational health and safety, hence improving the level of employees’ occupational health and safety.
Considering the number of construction projects and the diversity of outsourcing construction teams, Zhenghe Petrochemical has adopted strict contractor admission system and bidding system, improved trainings on contractors, enhanced inspections and implemented relevant measures including evaluations, hence regulating the management and supervision of contractors and establishing an all-dimensional safety network that covered the whole process.

3.3 Cultivate safety culture

We attach great importance to the construction of safety culture and improve employee safety consciousness through education training, introducing safety measures to families and other measures, hence making safety culture take root among employees.

We organized a photography collection activity of “Looking out for Safety” among all employees and their families, improving the dissemination of education of safety culture, promoting their safety consciousness and helping them to hold a proper attitude to safety issues. Photographs in the activity involved different fields including production sites, safety labels, family safety, emergency drills, people and sceneries, etc.

Case: Zhenghe Petrochemical strengthened its management of contractors

<table>
<thead>
<tr>
<th>Units</th>
<th>Measures and achievements of safety education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue Star</td>
<td>Manual compilation. The company organized trainings on Safety Production Law, Environment Protection Law and so on, and edited 37 textbooks. All enterprises organized 2,208 trainings in total in a year and involved over 40,000 people.</td>
</tr>
<tr>
<td>Petrochemical Corporation</td>
<td>External trainings. The company participated in “Bhopal Warning Education Activity” of the State Safety Commission, 141,000 people at all levels in various enterprises were involved, a year-on-year increase of 5.7%.</td>
</tr>
<tr>
<td>Equipment Company</td>
<td>Knowledge competition. The company organized 2,273 personnel of safety management of all levels to participate in the knowledge competition of new Work Safety Law to strengthen the learning and understanding.</td>
</tr>
<tr>
<td>Zhenghe Petrochemical</td>
<td>Knowledge tests. The company summarized new Work Safety Law and Environment Protection Law into 385 knowledge points, which were included in the company’s test system. 125 employees were organized to take part in the test.</td>
</tr>
<tr>
<td>Blue Star Dongda</td>
<td>Training on SHE Punishment Regulations. The training covered Blue Star Dongda SHE Disciplinary Punishment Regulation and picture studies of 12 unsafe behaviors.</td>
</tr>
<tr>
<td>Guizhou Crystal</td>
<td>Text Message reminder. The company sent group messages to inform employees of safety production management, safety rules and regulations and relevant knowledge of safety skills, establishing a new platform for safety education.</td>
</tr>
</tbody>
</table>

Case: “Looking out for safety”

The company organized a photography collection activity of “Looking out for safety” among all employees and their families, improving the dissemination of education of safety culture, promoting their safety consciousness and helping them to hold a proper attitude to safety issues. Photographs in the activity involved different fields including production sites, safety labels, family safety, emergency drills, people and sceneries, etc.

Case: “Spokesman of safety around us”

To push forward construction of safety culture, create an atmosphere where everyone concerns safety and everyone requires safety, and enhance employees’ safety consciousness, the company organized the activity of poster design of “Spokesman of safety around us”, which had three themes, including “safety behaviors”, “safety environment” and “safety communication”. Enterprises have been targeting at each link of operation, focused on safety operations, looked for spokesman of safety around us and promoted safety culture.

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Hi, everyone! I am M100 Methanol clean fuel, the cleaning product of Lanzhou Bluestar. I have been used on 150 GEELY SC7 seascape cars. Compared with the exhaust pollutant emission of petrol fuels, I reduce the emission by 25% to 35%. I am favored by car owners because I am more economical and powerful than petrol and more convenient and secure with longer filling interval than compressed natural gas. I will complement and partly replace petroleum fuels, which is indeed an effective way to ease national energy tense situation, to improve comprehensive utilization of natural resources and to protect ecological environment.

Honors (Selections)
- Adisseo was honored with “the Responsibility Award” by International Council of Chemical Associations.
- Changyi Petrochemical was honored as “the Outstanding Enterprise of Energy Conservation Contribution in Shandong Province” in 2014.
- Linery Research Institute of Chemical Industry was honored as “the Advanced Unit of Energy Conservation and Emission Reduction in Henan Province”.
- Anpon Electrochemical was honored as “the Advanced Unit of Energy Conservation of Huai’an City in 2014”.
- Shenyang Paraffin Chemical was honored as “the Advanced Enterprise of Energy Conservation and Emission Reduction” in Shenyang City.
- Yuxing Chemical was honored as “the Advanced Unit of Energy Conservation and Emission Reduction” by Shandong Petrochemical and Medicine Labor Union.

4.1 Enhance Environmental Management
We have deepened the environmental management system, implemented responsibility of environmental protection, strengthened the management of environmental risks and optimized the environmental management model, striving to establish a long-term mechanism of environmental protection.

Typical measures:
- Improve management system. We have standardized the SHE information reporting and revised China National Chemical Corporation’s Energy Conservation & Emission Reduction Performance Assessment Measures and Management Measures of Safety, Health, and Environmental Protection Information Submission; we have introduced the restricted pollutant emission targets into the performance appraisal program of superintendents of all levels and signed the letters of responsibility for achieving energy conservation and emission reduction targets.
- Establish the environmental risk appraisal system. We have gradually quantified the corporate appraisal index of environmental risks, covering inherent environmental risks, external sensibility analysis, environmental protection management, environmental emergency plan and implementation of laws and regulations, etc. We have formulated appraisal model by quantifying corporate environmental risks, preliminarily establishing a corporate environmental risks appraisal system.
- Pursue the specialized environmental protection fund. We have pursued support in technological modification, energy conservation and emission reduction, cleaning production policies and specialized capital; we have enhanced capital investment, supported project management and drafted the Nature on Acceptance and Appraisal of the Completed Demonstrated projects of Industrial Cleaning Production Application.
2015 SUSTAINABILITY REPORT

Case: Every enterprise actively participated in the knowledge competition of the new Environmental Protection Law

Every enterprise actively participated in the knowledge competition of the new Environmental Protection Law organized by relevant governmental departments in order to improve employees’ awareness of environmental protection.

- Zhuzhou Institute organized all its employees to join in the online knowledge competition of the new Environmental Protection Law organized by the environmental bureau of Hunan Province. The medium- and high-level leaders were organized to study the new Environmental Protection Law. As a result, the atmosphere to study the new law was cultivated.

- Hunan Haohua organized 150 people, including the main leaders, security specialists, and the main operating technicians at the basic level, to participate in the knowledge competition of the new Environmental Protection Law organized by the Environmental Protection Bureau of Zhuzhou City, winning an award of the outstanding unit of organization.

4.2.1 Green service

We have vigorously conducted research and development and promoted green products and services, accelerated the green development of the chemical industry, and realized the win-win situation between economy and environment.

4.2.2 Carbon Asset Management

Actively responding to national policies, the Company has carried out carbon asset management in stages, conducted intensive work on carbon inventory, and achieved a full control and development of technological transformation assessment. The work of carbon inventory was conducted in three parts, carbon inventory investigation, CCER project combing, and energy conservation technological transformation assessment.

Case: Hangzhou Water Treatment signed another contract of the desalination project with a Vietnam Power Plant

Dedicated to serving its clients with the global leading water treatment technology and efficient holistic solutions, Hangzhou Water Treatment has consecutively undertaken various water treatment projects in countries and regions such as Indonesia, Tunisia, Philippines, Saudi Arabia, and Vietnam, etc. In 2015, our company signed the contract of ”the 14,400 cubic meters/ton desalination project – the supporting project of Vietnam Yonggen Coal-fired Power Plant BOT (Build, Operate, and Transfer) Phase I” with Guangdong Electric Power Design Institute Co., Ltd. According to the contract, Hangzhou Water Treatment shall provide industrial and fire-fighting water supplies, domestic water supplies and its own fresh water needs of the boiler make-up water treatment system. We will spare no effort to build the project into a demonstration power plant, which is “advanced, reliable, green”, to complete an exquisite project along “one belt one road”, and to promote China’s top technology and advanced construction and management experience across the world.

An officer in charge of Hangzhou Water Treatment

Case: Dezhou Shihua benefited from innovative utilization of afterheat

Dezhou Shihua utilized the corporate afterheat to provide heat for enterprises in local industrial parks and residential communities. The company has signed heat supply agreements with 15 enterprises, aiming to serve the corporate need of heat supply, reduce cost of operation, and thus to make active contribution for the protection of local environment, energy conservation and emission reduction. The north line of the heat supply project has already begun to supply heat for two companies. Being energy-efficient, a high-temperature and high-pressure CFB steam boiler in the south line of the project can produce 220 tons of steam per hour and 960 thousand tons per year, which realizes an annual increase in sales revenue of 130 million yuan.

Case: Every enterprise actively participated in the knowledge competition of the new Environmental Protection Law

Overall planning. We have formulated the Work Program of Carbon Asset Management, and divided carbon asset management into three stages, namely “conducting carbon inventory”, “actively pursuing carbon emission quota and establishing a sound carbon asset management system” and “participating in domestic markets and realizing normalization of carbon asset management”.

Carbon inventory. We have adopted the model of “domestic carbon consultation institutions + consultation organizations within the system”, set up a work group, and developed new business areas. The work of carbon inventory was conducted in three parts, carbon inventory investigation, CCER project combing, and energy conservation technological transformation assessment.
4.2.3 Energy conservation and emission reduction

We have practiced the philosophy of “Zero emission”, enhanced investment in environmental protection and energy resources conservation, and thus improved resource utilization efficiency. In 2015, the investment in environmental protection facilities is 382 million yuan, including 333 million yuan of investment in air pollution prevention and control; the energy consumption per RMB 10,000 turnover declined by 7.62% year-on-year. The emission of effluent, COD, NH3-N, and NOx, respectively declined by 6.69%, 5.01%, 6.25%, 3.38% and 7.88%. We fully realized goals of energy conservation and emission reduction in the 12th Five-Year Plan and completed tasks of energy conservation of thousands of enterprises.

4.2.4 Cyclic Economy

We have strived to develop cyclic economy, reduce emission of the three wastes (waste gas, waste water, industrial residue), and improve the recovery rate of raw materials and energy utilization rate. Waste is reused to reduce cost of production and increase output value.

Case: Changyi Petrochemical initiated the highest level of emission reduction to serve “Parade Blue”

In order to guarantee air quality in full swing during the 70th anniversary of the anti-Japanese war, Changyi Petrochemical implemented the highest level of emission reduction measures. Its achievement in contingency emission reduction was acknowledged by the Environmental Protection Bureau of Shandong Province during an on-site inspection.

- Facility operation. The 1.4 million-ton catalytic cracking waste heat boiler desulfurizing unit and four 75-ton circulating fluidized bed coal-fired boiler five gas desulfurization and denitrification devices in energy department initiated the highest level of operation, in order to ensure that the emission density of SO2 shall be less than 50 mg per cubic meter, which is much lower than the national standard.

- Contingency measures. Four 75-ton coal-fired boilers in energy department have reduced 50% of operation loads, further cutting down the emission of pollutants such as SO2, NOX, and smoke dust; Contingency meetings were held and every operation department increased the frequency of its inspection tours, from every two hours to every hour. The key parts of devices were inspected every half an hour, avoiding any dropping and leaking and reducing the emission of VOCs; In order to solve problems of dust in coke fields, coal fields, coal cinder fields, 3200 square meters of dust control room has been prepared for emergency to reduce dust pollution.

- Tianjin Petrochemical launched the oil gas recovery device and the flue gas treatment system of sewage aeration basins. The emission of 170 tons of VOC will be reduced every year.

4.2.5 Green Office

We have vigorously promoted green office, cultivated employees’ habits of conservation of paper, electricity and water, and created a green office working environment.
4.3 Practice environmental protection welfare

We have actively conducted environmental protection welfare activities such as science popularization and afforestation; while getting a full participation from all employees, we have promoted the green and low-carbon environmental protection ideal and longed to make joint efforts to create a green environment with people from all walks of life.

Case: Hangzhou Water Treatment conducted science popularization activities of caring for oceans

Hangzhou Water Treatment cooperated with China Sea Water Desalination and Water Reuse Institute to carry out various multi-leveled science popularization activities, striving to promote popularization of sea water desalination and water reuse knowledge among the public. In 2015, Hangzhou Water Treatment was honored as the national marine science education center by Chinese Society for Oceanography.

► Protect the sea beach and share the blue sky. The science popularization activity of “Protect the sea beach and share the blue sky and blue sea” was held to introduce science knowledge of sea water desalination, the present situation of sea pollution and healthy beach activities to the public through ways of free scrolls, environmental protection signatures, pictures and materials, on-site consultation and surveys, etc. 60 volunteers initiated the activity of cleaning Mount Yangsha beach and aroused people’s awareness of life caring and ocean protection.

► Care for oceans and practice green bicycling. Cooperated with China Sea Water Desalination and Water Reuse Institute, we initiated the science popularization activity of “Care for oceans and practice green bicycling”. Over 20 volunteers promoted science and sea knowledge among citizens through green bicycling, spreading the philosophy of “Care for oceans and practice green bicycling” in society.

Case: Voluntary activities of tree planting

Each enterprise actively participated in voluntary activities of tree planting, adding green to Spring and sowing seeds of hope.

► 14 young employees from Liming Institute participated in the tree planting activity of “young forests” in Chaoyang Town Mengjin County. 108 trees were planted, making a contribution for the activity of “Protect Mother River” in Luoyang City in 2015.

► Tianhua Institute implemented the popularization activity of Tree Planting Day themed as: “Create ecological safeguard and build a beautiful Lanzhou.” promoted by the government of Xigu District of Lanzhou City. We also organized employees to participate in the tree planting activity held in Mount Bulush in Xigu District, in order to improve the self-awareness of caring for trees, planting trees, protecting trees, and advocating tree planting of the employees.

► Guillin Robber Machinery organized young volunteers to participate in tree planting activities near Lijiang. The young volunteers carefully listened to the interaction of garden commissioners so as to guarantee the survival rate of seedlings.
Story: Three miraculous gadgets of packers

We are packers from the polyether branch of BlueStar Dongda. Therefore, a wrench, a flashlight, and an oil pen are three indispensable gadgets for us, as they are the necessary instruments for packers in the installation procedure. The wrench is used to open and tighten lids of paint buckets; the flashlight is used to inspect every blue paint bucket, in order to guarantee the high quality of finished products; the oil pen is used to mark on the bucket to ensure the access to products traceability when problem occurs. Every packer will be rigorous to safeguard the last protective defense of finished products, making their contribution on ordinary positions.

5.1 Protecting the interests of our employees

We strictly comply with the Labor Law of the People’s Republic of China, the Labor Contract Law of the People’s Republic of China, the Trade Union Law of the People’s Republic of China, relevant international conventions and laws and regulations, as well as relevant laws, regulations and regimes at local business locations. Upholding equal and non-discriminatory employment policies, we treat our employees with equality and fairness, regardless of different nationalities, races, genders, religious beliefs and cultural backgrounds. We forbid and reject the employment of children labor, avoid compulsory labor and promote the employment of the female and the minorities. No serious labor dispute occurred in the company all the year round. In 2015, there are a total of 128,989 employees in the Company, including 73.2% of male employees, 26.8% female employees and 3,044 employees from minorities, occupying 3.75% of the total; There are altogether 47,831 employees overseas, accounting for 37.1%; And 735 fresh graduates are hired.

Honors (Selections)

- Lin Zhineng, Wang Dazhuang, Wang Feng, and Zhang Jianxin were honored as “the National Labor Model”.
- Wang Ling was honored as “the National Female Labor Model”.
- Chen Yingjun from Hebei Xinji Chemical was honored as “the Outstanding Dedicated Employee of State-owned Enterprises”, jointly issued by the Publicity Department of the Communist Party of China (CPC) Central Committee and State-owned Assets Supervision and Administration Commission of the State Council.
- Yang Ping from Heilongjiang Heihua Group Co., Ltd was honored as “the National Technical Expert”.
- The Engineering Department of Hangzhou Water Treatment was honored as “the National Civilized Youth Group” by the Central Committee of the Communist Young League.

Employee Growth Creates New Business Opportunities

ChemChina regards employees as the most precious resource and treasure. ChemChina protected the basic interests of employees and strived to create an environment for talent development, which was full of vitality, harmonious and mutually beneficial, efficient and practical. Moreover, the employees’ career development system was improved. ChemChina cared for its employees in an all-round way, trying to unite every employee with culture and ultimately to achieve growth with employees.
Among 81,158 domestic working employees, there are 13,946 personnels from management, 12,086 professional technicians and 55,126 operation technicians, respectively occupying 17.2%, 14.9% and 67.9%.

### Typical measures

- Enhance the management of labor contracts, and optimize the labor employment system. The signing rate of labor contract is 100% and the signing rate of collective contracts is 100%.
- Strengthen democratic management, constantly enrich the communication channels for employees and bring employees’ initiatives into full play. The establish rate of labor union is 100% with 100% enrollment of all employees. The expenditure of labor union is 254.2 million yuan; 137 employee congress meetings are held and 5,367 pieces of advice and suggestions are collected. The adoption rate of advice and suggestions is 92.1%.
- Establish an effective initiative and restraint mechanism, explore the model combining annual performance related pay and individual performance appraisal results, and specify its specific principles. The annual business performance assessment shall be taken into consideration to determine the total performance related pay of each unit.

Hubei Sanonda organizes the top management team to the front line, to communicate with employees “face to face”, and to make exchanges on employees’ concerns in order to solve problems related to the immediate interests of employees. During the last three years, the employees at the grassroots level make their initiative to participate in the management of production and operation and to offer suggestions on each task. As for the technological challenges in production, they come up with 4,531 pieces of reasonable proposals to pursue the corporate development.

### Case: Hubei Sanonda Co., Ltd regularly listens to employees’ opinions

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### 5.2 Achievement of Employees’ Value

We pay much attention to employees’ growth, optimize the training system, expand the employee career development channel, and enrich the talent incentive programs, establishing a platform for employees to display their talent.

#### 5.2.1 Diversified Education Training

We highly value the education training of employees, establish the targeting training system covering each level, and cultivate a diversified talent team with modern management awareness and professional skills.
According to the practical needs of corporate operation, Sichuan Danchi has constantly tried recruitment of college graduates and the corporate independently cultivated talent development model, formulated and implemented the Management Measures of Professionals, encouraged employees’ active participation in online further education, which is in accordance with their majors and can be applied in practical work, to help them achieve a higher degree and improve the basic education level of employees. During the recent five years, the company has financially assisted over 20 employees with full amount of their tuition to complete their in-service education of college or university level, vigorously improving the quality structure of the employees and facilitating the enterprise transformation from human resource to talent capital and intellectual capital.

5.2.2 Optimize employees career development channels

The Company highly values the employees career development, provides diversified career development channels, and cultivates employees according to their actual situation, individual development orientation and work position, creating good conditions for the development of all talents.

Typical measures

- Expand talent recruitment channels, and enlarge the recruitment scope of professional managers and marketized talents. The whole system embraced 89 new professional managers and marketized talents, who have played an active role in aspects such as production and operation, corporate management and scientific technological innovation.
- Adhere to the 13th Five-year Plan of the Company, formulate the human resource plan, give priorities to both talents introduction and talents cultivation, constantly optimize talent team structure, and lay emphasis on the construction of the professional manager team, the marketing team and the R&D team, who will guide the corporate development.
- Rubber Company has introduced the human resource management system of Pirelli and sorted out the organizational structure and function setting of four tyre companies according to the Pirelli standards. Furthermore, talents with high potential are tested and assessed given their performance in projects.

Case: Petrochemical Corporation conducted diversified training

Petrochemical Corporation has enriched the methods of talent cultivation, organized 275 trainings covering production and operation, corporate culture, and career planning, etc. The employees competence has been constantly improved.

- Organize leadership improvement training with professional institutions, improve corporate organizational atmosphere, and formulate the compilation of cases of management in practice.
- Exchange symposium for representatives of excellent young employees, establish the learning and exchange platform for young talents, and accelerate the cultivation of young talents.
- Carry out 68 hours of trans–corporate technology synergy training courses in catalytic atmospheric and vacuum technologies and coking technologies.
- Hold on-job training courses through various methods such as practical operation, electric tests and skills competitions.

5.3 Care for our employees

We value the building of corporate culture, care for our employees in individualized ways, and create a warm and harmonious working environment, improving the living quality of employees and enabling them to feel the Company’s caring.

5.3.1 Create a harmonious corporate culture

Centered on the core values of “create value for shareholders and create employment for society”, we establish a cultural platform, organize cultural activities, create a harmonious atmosphere and reinforce the corporate centripetal force and cohesive force.

Typical measures

- Carry out internal and external promotion activities of the Group Song Mission. Altogether, we received 35 pieces of MV works from 30 enterprises in the Mission MV competition. The workers at the production line of BlueStar sang Mission in the story exchange activity for frontline workers held by SASAC, and won the award of the best creation.
- Organize the selection for the most dedicated employees and touching employees. Taking “the grassroots and the workers at the production line” as the first standard, a total of 135 candidates from the whole system have been recommended for the awards of “Dedicated ChemChina Personnel” and “Touching ChemChina Personnel” and 20 workers at the production line won the honors.

Case: Sichuan Danchi helped employees complete their college dreams

Sichuan Danchi has constantly tried recruitment of college graduates and the corporate independently cultivated talent development model, formulated and implemented the Management Measures of Professionals, encouraged employees’ active participation in online further education, which is in accordance with their majors and can be applied in practical work, to help them achieve a higher degree and improve the basic education level of employees. During the recent five years, the company has financially assisted over 20 employees with full amount of their tuition to complete their in-service education of college or university level, vigorously improving the quality structure of the employees and facilitating the enterprise transformation from human resource to talent capital and intellectual capital.

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- Rubber Company has introduced the human resource management system of Pirelli and sorted out the organizational structure and function setting of four tyre companies according to the Pirelli standards. Furthermore, talents with high potential are tested and assessed given their performance in projects.
ChemChina conducted the activity of “one position one world” and let employees describe their work and express their feelings through the catchy and earthy "vocational literacy", so as to motivate them be more dedicated and proud about their work. The activity collected over 600 essays of vocational description, covering various areas of chemical engineering, mechanical manufacturing, metal refining, vehicle repair and engineering technical services. The collected essays covered the whole process and all professions in corporate production and operation. The activity has enhanced recognition among different positions, displayed the charm of the Company and employees and spreaded positive energy.

5.3.2 Care for employees

We have carried out various cultural activities, balanced employees’ work and life, and solved the most fundamental problem of employees, enabling employees to feel the warm family of ChemChina.

Case: Daqing Zhonglan ignited the better development of female employees

Daqing Zhonglan has actively created a good environment for the development of female employees, encouraged them to make outstanding achievements, and displayed the important role of female employees in corporate production and operation.

- **Caring and warmth.** The company has set up recordations for disadvantaged female workers, and given away approximately 20,000 yuan to assist 50 disadvantaged female employees as hardship allowance; a special fund has also been set up for physical examination and health recordations of female employees; female employees are covered by special disease insurance, which enables them to devote themselves to work and life in sound physical and mental state.

- **Cultivation and talent development.** Through activities such as “female employees’ contribution”, we organize female employees to participate in various labor competitions and improve the skill and operation level of female employees in an all-round way.

- **Culture and passion.** Enrich female employees’ life by activities such as yoga training classes, carshenics competitions and professional etiquette training classes as well as books particularly bought for them.

Employees’ recreational and sports activities

The recreational and sports activity unite our employees.

- BlueStar Dongda held the Mission Poetry Recitation Contest (left)
- Zhenghe Petrochemical organized training for Young League members (right)
- Hunan Xiangwei Youth League held the 2nd cooking competition for Young League members (left)
- Xinghuo Plant held the 26th “Guyu” poetry recitation contest (right)
- Qingdao Anbang held the 3rd employees talent show themed as “Celebrate National Day · Chinese Dream · Beauty of Labor”, displaying over 70 pieces of work.
Story: Love along the way

As time flies, it has already been a year since the foundation of the young volunteer team from Liming Institute. In this year, we developed along with the volunteer team, experienced a lot of happiness and touching moments and made plenty of friends. We jointly helped children in orphanages realize their new year’s wishes, planted trees, guarded at Luoyang Station, and donated water and clothes to disadvantaged people in mountainous areas. It is the one-year voluntary life that makes us realize what charity and public welfare are. Public welfare is the link to another life with awe and respect, and is the sharing between life and life. Throughout the year, we made reflections and took actions in order to make further progress on the road of voluntary service. This is a road without ending. With love, we keep moving forward.

Social harmony shares new achievements

Registered products in the world (unit: piece)

Registered products in the world (unit: piece)

6000

120

Categories of produced original medicines (unit: piece)

6.1 Enhance strategic cooperation

We innovate cooperation patterns, share development achievements, realize mutual benefits with partners, and jointly promote the sustainable development of environment and society.

Typical measures

Kerneos signed the 10-year supply agreement, which was worth several million dollars, with BOC’s Oxygen Company (BOC), the subsidiary company of the biggest global gas supplier Linde Group. According to the agreement, the ethylene produced by Kerneos shall be sold to large natural gas plants in Australia.

Tianjin Petrochemical and Beijing University of Chemical Technology cooperate to conduct the ionic desulphurization industrial experiment project. The project is aimed to urge every relevant enterprise to implement the non-hazardous treatment of the sulphur-bearing waste gas. It will exert an important role in promoting chemical enterprises to realize a second upgrading of environmental protection.

6.2 Safeguard the rights and interests of our suppliers

We integrate corporate social responsibility into the supply chain, actively guide partners in the value chain to shoulder their social responsibility, practice responsible procurement and create a healthy industrial environment.

Case: Pirelli develops the online supplier training platform

Through e-learning, Pirelli has constantly conducted training projects for strategic suppliers. In 2015, Pirelli provided training courses for strategic suppliers such as supporting material suppliers, purchase agents and mould suppliers, with content covering labor laws, human right, respect of environment and commercial ethics, etc. With ID account and password, the supplier can access to Pirelli’s specially designed training platform and attend the online training courses. The training courses involve various cases, which enable participants to prove the compliance level of its organization according to each ESG element. When the training is over, the trainees need to complete a questionnaire of self assessment to guarantee the effectiveness of the learning.

6.3 Serving rural development

We improve the development of the rural market system, research and develop new products, and promote new technologies, providing powerful support to guarantee the increase of food yield, farmers’ income and investment efficiency.
6.4 Promote cultural integration

We respect different cultures, actively promote cultural integration and the inheritance and exchange between Chinese and foreign cultures, and enhance the recognition of overseas employees for corporate culture. As a result, all employees will emerge into the big family of ChemChina no matter where they are.

Under the theme of “Cultural Heritage Preservation, Together We Practice”, the 26th BlueStar International Summer Camp set 22 sub-camps in 18 cities across the nation, welcoming 940 children of BlueStar employees from approximately 10 countries. Little campers shared experiences and befriended with each other in activities such as National Theme Day, Day of Chinese Culture, Friendship Families, and Hiking Training, jointly experiencing a beautiful summer.

With a history of as long as 26 years, the BlueStar Summer Camp is the only summer camp held by companies for employees’ children in China. The camp has now expanded across the world, not only revealing BlueStar corporate culture, but also forging a bridge for domestic and foreign culture integration. For 26 years, the BlueStar Summer Camper have cultivated and offered waves of talents for society. Among them, some become employees of BlueStar. The campers grow and develop in BlueStar Summer Camp and serve the country as talents. The constant integration and inheritance of BlueStar companies at home and abroad make the company shine with greater vitality.

Case: “Cultural Heritage Preservation, Together We Practice”—the 26th BlueStar International Summer Camp

6.5 Be enthusiastic about public welfare

We adhere to the belief of being a good enterprise citizen, and actively take part in public welfare activities primarily through public welfare donations and voluntary activities.

6.5.1 Poverty and disadvantage alleviation

We persist in fixed-point poverty alleviation and matching assistance, constantly improve the charitable activity mechanism, and actively promote the public welfare cause, boosting the construction of a harmonious society.
6.5.2 Voluntary activities

We make full use of internal resources, offer voluntary services, and pay back to society, improving social welfare. In 2015, there were 2,097 young volunteers, who altogether completed 39,876 hours of voluntary services.

Case: Zhenghe Petrochemical launched the “Wish Bus” for disadvantaged students

Zhenghe Petrochemical launched the “Wish Bus” for disadvantaged students in Guangrao County. Through pair assistance, Zhenghe Petrochemical consecutively donated and delivered school supplies for 20 children from disadvantaged households, such as schoolbags, books, and stationery, helping them realize their little “dreams.”

Case: Pirelli actively participated in the world public welfare charity activities

In Brazil, Pirelli has constantly participated in social projects held in local communities, offered financial support for after class plans of 15 different activities, and benefited about 150 children around Pirelli Plant in Feira de Santana. Pirelli supported Doctor Klade to establish nurseries in Santo André and Escadinha, offering 280 children support in education, medical care, dentist and dental care and mental examination.

In Russia, the employees of Pirelli in Moscow provided support for orphanages by organizing recreational activities, donations and cooking courses for the children there. In Britain, Pirelli employees participated in lots of community activities, for example, the project of Burton Albion Community Trust Ghana encourages young people to offer assistance for local communities, such as home building and school teaching. Moreover, the flood-stricken Cumbria Community received their support, including financial support and donations of food, clothes, water, and toys for dispersed people.

Case: Liming Institute made progress in facilitating industrialization projects in villages

Liming Research Institute of Chemical Industry innovated the pattern for poverty relief. The company’s work group in Niusuan Village, Jiahe Town, Luanchuan County attached much importance to the “hematopoiesis” function of the village economy. Adhering to the new idea of poverty relief work, which is “attracting external investment and conducting internal reform, centering on projects and integrating village and industry”, the company consecutively helped Niusuan Village apply for poverty relief projects such as “Rare seedling plantation base”, “Pearl corn” plantation, “Whole village advancement” and “Food for Work”. The first introduced industrialized project — “Rare seedling plantation base” — has achieved initial success. Through the implementation of projects, the villagers can earn about 500 thousand yuan from transferring land every year, over 3,000 opportunities annually can be offered for disadvantaged households and the labor income is over 200 thousand yuan per year.

In 2015, the project was listed as “the demonstration project of industrialized poverty relief” by Luanchuan County.
Prospects

In 2016, ChemChina will continue to comprehensively implement the decisions made at the 18th National Congress of the Communist Party of China, the Third, Fourth and Fifth Plenary Sessions of the 18th CPC Central Committee, the Central Economic Work Conference and Central Enterprise Person in Charge Conference. Moreover, ChemChina will firmly set up and implement five development ideals of innovative, coordinative, green, open and sharing, comprehensively improve the corporate performance and development quality, enhance the capability of risk resistance and international competitiveness, and take fruit in good beginning for the development during the 13th Five-Year Plan.

Comply with the market and establish a sustainable commercial model. Centered on overseas companies, ChemChina will integrate and reform the present business sections, and build a new pattern with leading corporate champions, rational labor division, shared technological management and global market distribution. ChemChina will regard the building of a reliable commercial model as the key threshold of structural transformation, and realize its market-oriented and customer-led transformation from a product provider to a systematic product solutions provider, from a manufacturing enterprise to a manufacturing and service enterprise. At the same time, ChemChina will vigorously promote the application of e-commerce, artificial manufacturing and big data cloud calculation to accelerate the building of the e-commerce marketing system.

Drive innovation and promote significant scientific progress. ChemChina will improve the research and development mechanism, integrate scientific resources, establish platforms for innovation. A scientific innovation system, which targets at the Group, serves the main industry and integrates production and research, will be built to improve the scientific research and development ability and the capability of industrialization. A strategic union in technological innovation dominated by enterprises will be established, and relevant R&D bases will be built for key technologies. At the same time, the intellectual property rights will be protected and scientific resources within the system will be open to share. ChemChina ensures that the key R&D projects during the 13th Five-Year Plan will be successfully initiated. And the Company will actively participate in the implementation of the key outline R&D plans and technological innovation guiding projects in order to promote the practice “starting business by the public and making innovation by the masses”.

Optimize the structure and enhance the building of the talent team. ChemChina will continue to adhere to “the three introductions”, promote the system of professional managers, and increase the ratio of marketized recruitment. ChemChina will improve the salary incentive mechanism which is in accordance with the labor market and related to the economic benefits and labor productivity of the enterprise. Besides, ChemChina will establish multi-level talent development and training systems and provide diversified career development channels.

Adhere to green environmental protection and safe cleaning production. ChemChina will constantly increase the investment in safe production, improve the risk checking and management system and the contingency management system, and establish a long-term mechanism for safe production. ChemChina will conduct exclusive safety management for contractors, reinforce the supervision of project construction, and prevent safety accidents of contractors. ChemChina will constantly improve the SHE system, strengthen the effort in corporate promotion and application, and improve the inspection and environmental risk assessment capabilities of and SHE system. In the future, ChemChina will continue to deepen environmental protection work, focus on green product development, and implement tasks of energy conservation and emission reduction.

Pay attention to communities and fulfill social responsibilities. ChemChina will pay attention to the building of the livelihood in communities, and fulfill the corporate responsibilities in key areas such as education, employment, and property relief. ChemChina will take an active role in public welfare, build efficient poverty relief projects, and endeavor to pay back to clients and communities. ChemChina will actively respond to expectations and appeals from relevant interested parties, and promote the harmonious development between the Company and the community.

During the period of the 13th Five-Year Plan, ChemChina will shoulder its glorious missions by completing harder tasks. In 2016, we will make a profound analysis of the present situation and take into account the realistic situation of the Company. We will endeavor to gain a deep understanding of the market and make our initiative to adapt to it, in order to achieve the sustainable development in the 13th Five-Year Plan.
As the biggest chemical enterprise in China, China National Chemical Corporation has endeavored to promote the development of national economy. In the meanwhile, ChemChina has actively fulfilled its social responsibility. Centered on concepts of "Chemicals make life better", Sustainability Report 2015 of China National Chemical Corporation has systematically disclosed social responsibility concepts, practices and performance of the Company, including corporate operation management, scientific and technological innovation, production safety, environmental protection, employee growth and social harmony, etc.

As the benchmarking enterprise, ChemChina has led the development trend of the whole chemical industry. Firstly, ChemChina has actively promoted scientific and technological innovation. The Company has implemented strategies of scientific and technological innovation, comprehensively improved the capability for independent innovation and gradually established the market-oriented technological innovation system, in order to accelerate the industrialization of scientific and technological achievements. Secondly, ChemChina has innovated its safety management concepts. The Company has enhanced and implemented production safety management, cultivated safety culture, and realized the transformation from "You guarantee my safety" to "I guarantee my safety". Thirdly, ChemChina has innovated its development path. The Company has promoted the practices of cooperation on "One Belt and One Road" and "International capacity cooperation". Through the merger and acquisition of the world-leading plastic rubber machinery manufacturer, ChemChina has taken the lead in achieving the goals of "Made in China 2025" and discovered a brand-new development path for Chinese enterprises to "go global".

As a chemical enterprise, ChemChina has taken the initiative to practice green and low-carbon development. Firstly, ChemChina has optimized the environmental management model. Adhering to "Zero Emission" management, the Company has deepened the construction of the environmental management system, established the environmental risk appraisal system, and fulfilled its environmental protection responsibility, striving to build a long-term effective system of environmental management. Secondly, ChemChina has promoted energy saving and emission reduction. According to the principles of "Overall Control and Emission Source Treatment", the Company has improved the comprehensive pollutant treatment and utilization level to guarantee legal discharge. Thirdly, ChemChina has substantially developed circular economy, improved recovering rate of raw materials and energy utilization rate, and endeavored to realize greenization of the whole production and operation process, contributing to "Beautiful China".

As a state-owned enterprise under the Central Government, ChemChina has actively promoted the construction of a harmonious society. Firstly, ChemChina has conducted poverty and disadvantage alleviation work. The Company has paid close attention to public needs, actively participated in community construction, and persisted in fixed-point poverty alleviation and matching assistance. Furthermore, the Company has constantly improved the charitable activity mechanism, innovated industrialized projects of poverty alleviation and promoted the construction of a harmonious society, sharing corporate development fruits with the society. Secondly, ChemChina has conducted voluntary activities. The Company has kept on expanding the volunteer team, fully displayed its advantages and integrated relevant resources, and carried out abundant voluntary activities such as "Wish Express", paying back to society and promoting the social welfare.

It is hoped that China National Chemical Corporation will constantly improve its sustainable development capability, increase economic, social and environmental value in the comprehensive manner, with the aim to build itself into a world-class chemical enterprise with international competitiveness.

Sustainability Report 2015 of China National Chemical Corporation is the sixth sustainability report released by ChemChina. After reading the report, I realize that ChemChina has persisted in making innovation and breakthrough in responsibility fulfillment model, scope and depth, optimized responsibility fulfillment measures and enhanced responsibility fulfillment performance. I deeply believe that this is a high-quality report designed to communicate with shareholders with honesty.

Manifold Practices of Responsibility Fulfillment. The report has systematically disclosed responsibility fulfillment practices of the Company in six areas such as corporate operation, scientific and technological innovation, production safety, environmental protection, employee growth and social harmony. Under each topic, the report demonstrates how the company has closely followed the global agrochemical development and the new trends of products and manufacturing innovation, striving to become the model of sustainable agrochemical service and continuous advancement. In the section of "enthusiasm for public welfare", with detailed cases, the report comprehensively demonstrates the responsibility fulfillment actions of the Company such as poverty and disadvantage alleviation and voluntary services.

Respond to Hot Issues. The report has adequately disclosed information about the concerns of shareholders. For example, in the section of "production safety", as production safety has always been a great concern of shareholders, the report discloses information on corporate efforts in aspects such as safety management and safety culture. With plain language and detailed statistics, the report lucidly responds to worries and concerns of shareholders in a better way.

Improve Reading Experience. The report has been designed to improve its readability from several aspects including design. In the body part, the elements in the beginning of every chapter correspond with those on the cover, which improves the holistic design of the report. All the design elements make it easier for shareholders to read and comprehend, including the simplified format of inside pages, the clearly positioned information, concise words, diversified pictures and diagrams, as well as their reasonable collocation. The information on key performance is placed in the beginning of every section, which enriches content and format of the report and thus improves reading experiences of the audience.

In a word, the report has not only managed to manifest corporate ideals, but also displayed characteristics of responsibility fulfillment in the chemical industry. It has also demonstrated in a better way the characteristic chemical practices that make life colorful. Finally, I hope that China National Chemical Corporation will continue to enhance social responsibility fulfillment and to accelerate the transformation and upgrading of the development model, making greater contribution to the sustainable development of the Chinese Chemical Industry.
Global Reporting Initiative (GRI) Index

Note: ● Fully disclosed, ○ Partly disclosed, ○ Not disclosed, N Not applicable

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HR7 Operations and significant suppliers identified as having significant risk for incidents of forced or compulsory labor, and measures to contribute to the elimination of all forms of forced or compulsory labor ○
Respected readers,

Thank you for reading this report. This is the sixth sustainability report we have released. To improve our efforts relating to corporate social responsibility and enhance our fulfillment thereof, we hope very much that you could spare some time from your busy schedule to comment on this report and make suggestions to help us improve it.

1. What is your overall evaluation on the ChemChina Sustainability Report 2015?
   □ Very Good □ Good □ Fair □ Not good

2. Do you think this report is a complete reflection of the work we have undertaken in promoting economic, environmental and social coordination and sustainable development?
   □ Very Good □ Good □ Fair □ Not good

3. What do you think about our work in saving energy and environmental protection?
   □ Very Good □ Good □ Fair □ Not good

4. What do you think about our work in employee care?
   □ Very Good □ Good □ Fair □ Not good

5. What do you think about our work in making social contributions?
   □ Very Good □ Good □ Fair □ Not good

6. Do you think this report has disclosed sufficient data and information?
   □ Very Good □ Good □ Fair □ Not good

7. What do you think about the design of the contents and the layout of this report?
   □ Very Good □ Good □ Fair □ Not good

8. Your are welcome to give your comments and suggestions about the ChemChina Sustainability Report 2015:

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FEEDBACK FORM

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You can submit your feedback in any of the following ways:
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