

High-tech Zones: New Poles of Economic Growth

Policy

By Staff Reporters

The report to the 20th CPC National Congress says that to build a modern socialist country in all respects, China must, first and foremost, pursue high-quality development. This should be achieved through closer enterprise-led collaboration between industries, universities, and research institutes, and promotion of the industrial application of scientific and technological advances.

National high-tech zones, as China's innovation hubs, have specific experiences and contributions to ensure the country's innovation-driven high-quality development.

Baoji manufacturing going global
Over the past 30 years, Baoji High-tech Industrial Development Zone (BHZ) in northwest China's Shaanxi province has implemented the mission of "developing high technology and realizing industrialization." Its independent innovation capability has been significantly enhanced, with the titanium and titanium alloy industry entering the middle and high end of the global value chain.

BHZ is home to 261 high-tech enterprises and has gathered more than 100,000 engineering and technical personnel



Workers assemble parts at a mining vehicle manufacturing workshop in north China's Baotou Rare Earth High-tech Zone. (PHOTO: VCG)

in the zone, who become the intellectual capital for its continuous development.

By 2025, BHZ will strive to form three industrial clusters of titanium and titanium alloy, automobile and parts, and high-end equipment manufacturing, each valued at 100 billion RMB.

In addition, it plans to build 28 industrial parks and manufacturing bases such as rail transit and new energy equipment manufacturing, accelerate the building of demonstration parks for digital economy and intelligent manufacturing, and promote Baoji manufactur-

ing to "equip China and go global."

Developing rare earth industry

In the Baotou Rare Earth High-tech Zone in north China's Inner Mongolia Autonomous Region, a number of measures have been introduced to improve the business environment and spur innovation in the rare earth industry.

The Zone has moved from the initial stage of rough processing raw materials to high-quality development of new materials and applications. In 2022, the rate of rare earth raw materials processed locally is expected to rise to over

85 percent.

A rare earth industrial cluster is being developed, which integrates rare earth research, production, testing and trading, covering six main functions of rare earth, including permanent magnet, hydrogen storage, catalysis, polishing, luminescence, and alloy materials.

The Zone will continue to focus on expanding and strengthening the rare earth industry, so as to improve the resilience and security of the rare earth industrial chain and supply chain.

Optimizing innovation ecology

In recent years, Changzhi High-tech Industrial Development Area in north China's Shanxi province has maximized its role as the engine of regional sci-tech innovation.

Centering on the four leading industries of electronic information, photovoltaic, high-end equipment manufacturing, and biomedicine and health, the Area plans to optimize its industrial innovation ecology, aimed at achieving large-scale development of the strategic emerging industries.

By the end of the 14th Five-Year Plan period (2021-2025), the number of high-tech enterprises in the area is expected to exceed 200. More than 50 R&D institutions at or above the provincial level will contribute more to the country's sci-tech self-strengthening and self-reliance goals.

Open Competition Helps Qinghai Solve Tech Problems

Case Study

By Staff Reporters

Qinghai province, located in northwest China, is home to numerous salt lakes. One of these is Qairhan Salt Lake, covering more than 5,800 square kilometers, and boasting deposits of more than 60 billion tons of various resources, such as magnesium, potassium, sodium and lithium. However, due to its remote location, there is a relative shortage of scientific personnel to work on unlocking the salt lake's industrial benefits.

Luckily, Qinghai has managed to find a way to take advantage of its resources by implementing an open competition mechanism.

The open competition mechanism was initially put forward in 2016. Many provinces in China have adopted the mechanism, under which governments at all levels publish specific research obstacle issues submitted either by public institutions or private companies. It breaks the geographical restrictions and recruits qualified personnel across the country to solve these problems irrespective of their age, educational qualifications and job positions.

This mechanism gives eligible researchers and scientists more opportunities to use their expertise, and earn an income while helping remove technological obstacles.

In April 2021, Department of Science and Technology of Qinghai Province made public the first project list, which seeks breakthroughs in adaptive study of salt lake brine as raw materials

and its refining.

It just took less than six months to complete all the processes, including selecting candidates and testing the feasibility of potential technologies. The project gradually succeeded in opening up the industrial chain from electrolytic metal magnesium to magnesium alloys, and overcame the challenge to dehydrate magnesium chloride.

This is a solid step taken by Qinghai to solve technical obstacles encountered in local development, and demonstrates its resolve to deepen the reform of science and technology plan management.

In 2022, another follow-up project was initiated.

As the dehydrating device upstream always ran below capacity and operated unstably, the electrolyzer was often in insufficient processing capacities, which worsened the condition of the electrolyzer and forced it to breakdown.

In addition, a large amount of sodium hypochlorite was produced in the process of trial production, which was difficult to dispose of and created major environmental problems.

In response, the Department of Science and Technology of Qinghai released a notice in November 2022, to call for solutions nationwide, to resolve the technological challenge of electrolyzing the anhydrous magnesium chloride in a salt lake.

Currently, Qinghai is accelerating the building of a world-class salt lake industrial base. The province has combined its actual needs with the open competition mechanism, which will help enhance the utilization of magnesium resources and advance the construction of the industrial base.

Piloted Industrial Parks Contribute to Designing the Future

By CHEN Chunyou

Recently, a pilot program to build 10 science parks featuring future industries was released by the Ministry of Science and Technology and Ministry of Education. This will include aerospace, energy, robotics, medical healthcare, and transportation, in several regions such as Beijing, Shanghai, Jiangsu, Shaanxi and Heilongjiang.

The program is an important mea-

sure to lay out future industries and aims to generate disruptive technologies to drive socioeconomic development.

Universities are seen as key players in implementing this pilot program. The science parks will be built based on existing university science parks, relying on their dominant academic fields.

This new model will accumulate talented individuals, technology, funds, data and other innovative factors, and in-

crease collaboration and dialogue across industry sectors.

Local governments and leading enterprises will be invited to join this program, building platforms to advance the commercialization of research results and the integration of industry and education.

To ensure the quality of establishment, universities are required to deepen the pilot reforms of relevant systems and mechanisms to improve the indus-

trialization level of research achievements, such as granting researchers the ownership or long-term rights of using their research achievements, and establishing specialized technology transfer institutes in campuses.

It is expected to lead the upgrading and development of university science parks, and create a future industrial innovation and incubation hub in selected regions after years of efforts, according to the pilot program.

More National Demo Zones Set Up to Promote Imports

By LI Linxu

As part of its efforts to advance higher-level opening up, China will set up 29 more national demonstration zones to promote imports.

The Beijing Capital International Airport Economic Zone, Tianjin Economic-Technological Development Area, Shanxi Transformation and Comprehensive Reform Demonstration Area, and Zhengzhou Airport Economy Zone

are on the list jointly released by eight government bodies, including the Ministry of Commerce (MOFCOM).

Developing national demonstration zones to promote imports is an important measure to advance high-quality development in trade, carry out high-level opening-up, and expand win-win cooperation, according to MOFCOM.

The zones are responsible for promoting trade in imports, industries and consumption, and facilitating innova-

tion in trade, such as policy innovation, service innovation and model innovation.

In recent years, China has continuously brought down the overall tariff levels, improved trade facilitation, and expanded imports.

Now, it is the second largest import market in the world. In the first half year of 2022, the proportion of Chinese imports accounted for 11.3 percent of the world's total, up 0.8 percent year-

on-year and a record high, according to statistics from WTO, indicating China's enormous market and potential.

Despite the COVID-19 pandemic and complex trade situation, China is still committed to actively expanding imports and developing national demonstration zones to promote imports, said an official from MOFCOM, demonstrating the country's strong resolve to deepen opening up and promote trade liberalization.



Qairhan Salt Lake, located in Qinghai province, is the largest salt lake in China. (PHOTO: XINHUA)

Sci-tech Innovation Vital for Disaster Management

By LI Linxu

In recent years, China has made great progress in enhancing its capability in disaster prevention and mitigation.

A specialized plan has been unveiled to enhance the country's sci-tech innovation capability in the fields of public safety and disaster prevention and mitigation, vowing to lay a solid foundation for the Peaceful China Initiative.

By the end of 2025, major breakthroughs are expected to be made in the basic research, R&D of key technologies and core equipment, according to the plan.

Meanwhile, the innovation system for the prevention and control of major disasters or accidents would be further improved, and the technological level of relevant emergency rescue equipment would be significantly elevated.

With the establishment of a national strategic sci-tech force, the goal of precise monitoring, early warning, prevention and control, as well as highly efficient response and rescue, is expected to

be achieved during the 2021-2025 period.

To achieve these goals, the plan has put forward a series of key tasks, such as advancing basic research and theoretical research, enhancing R&D of core technologies and equipment, and promoting the application and transformation of sci-tech achievements.

The establishment of high-level sci-tech innovation bases, as well as national demonstration bases for safety emergency industries, are high on the agenda.

Great importance is also attached to the role of talent in the plan, calling for continuously improving the talent cultivation and evaluation system for sci-tech innovation.

In the report to the 20th CPC National Congress, China vows to enhance its capabilities in public safety governance and disaster prevention, mitigation, and relief.

The new plan, released shortly after the conclusion of the 20th CPC National Congress, is one of specialized policies to advance the implementation of the Peaceful China Initiative.

Blueprint of Xiongan Becoming Reality

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To create a favorable business environment, Xiongan New Area greenlighted enterprise registration by setting up an online application system and one-day settlement procedure. Digital ID and electronic seals were also introduced to improve public service efficiency.

Communities have also set up employment service centers, which regularly carried out skill trainings of 174,000

personal times and provided 150,000 jobs for local residents.

Ecological governance

Xiongan New Area is home to Baiyangdian, one of the largest freshwater wetlands in north China, highlighting the fact that eco-protection has been a priority during construction.

More than 140 ponds and lakes are scattered in Baiyangdian, which are important habitats for migratory birds. Nine key habitats were designated for

birds, and hunting is banned throughout the area. Currently, 248 species of wild rare birds are found and are under protection in Baiyangdian, an increase of 42 species compared to before the establishment of the new area.

There are more than 2,000 volunteers devoted to bird protection, and a large number of the rare birds were found by them, said Tian Yongchang, deputy director of the Anxin County Natural Resources Bureau.

Space Rice Experiments Reveal Cultivation Secrets

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"The experiments lasted for 120 days in micro-gravity environments," said Zheng Huiqiong, researcher at CAS, adding that they recorded the full lifecycle of rice, from flowering to seeding, and discovered the effects of micro-

gravity on a variety of agronomic traits including plant height, growth rate, water regulation and response to light.

According to the research, rice is expected to flower earlier in space than on the earth. The key genes that control flowering respond differently to micro-

gravity environments compared with normal gravity on the ground.

"This provides a new direction for future use of modified flowering genes to promote plant adaptation to space micro-gravity environments," said Zheng.

The seeds of ratoon rice were also produced successfully in the experiments, opening new rooms for efficient production of space crops, said Zheng, adding that this is also world's first attempt of applying ratoon rice technology in space.

All collected seed samples will be transferred to the laboratory in Shanghai for further scientific research, according to the CAS.