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ECONOMY STEADIES AT MID-YEAR P.26

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EMPOWERING INNOVATION

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Envisioning Innovation

As a top exporting country, China is already equipped with strong production capability, but continues to lag behind in innovative capability. Thus, the ability to innovate will to a large extent decide China's economic prospects.

The long-term strategy to develop its science and technology sectors and talent training programs was again stressed at the recent National Science and Technology Innovation Conference. The goal to become an innovation-driven country by 2020 was set at the conference.

The conference is also a historic event on par with those held in 1978 and 2006.

The National Science Conference in 1978 began the reform of the science and technology system, and the National Science and Technology Conference in 2006 set a goal to build an innovation-based economy. This year's conference took place before the convening of the 18th National Congress of the Communist Party of China, a critical moment in China's all-around efforts to build a well-off society and transform its economic development mode.

To deepen the systemic reform of science and technology sectors and accelerate construction of the nation's innovation infrastructure is a major initiative of the Chinese Government. It shows that the country is preparing to enter a new era of science and technology revolution and industrial changes. China hopes to accelerate the transformation of its economic development model, promote the strategic adjustment of China's economic structure and solve the most pressing problems hindering the country's science and technology innovation development.

More than 30 years of reform in the science and technology field has laid a sound foundation for achieving the goal in 2020. Since the late 1990s, more than 1,300 industry and business-related science research institutions have been transformed into enterprises. Meanwhile, a number of "star" enterprises with strong innovative ability and economic performance have become the bellwethers of their respective industries. Enterprises that own independent intellectual property rights, such as Huawei, Datang and Haier, have begun to share a place among global hi-tech giants.

In recent years, China has been actively training or absorbing high-level science and technology leaders. It has also been improving the current talent selection system by introducing incentive mechanisms.

China's total science and technology resources continue to grow. In 2011, China's expenditures on R&D reached 861 billion yuan (\$136.67 billion), up by 21.9 percent over the previous year and accounting for 1.83 percent of its GDP. Many science programs, such as the space mission, deep-sea submergence, super computers, high-speed railway, hybrid rice and genetic sequencing, have scored great achievements.

But some chronic and fundamental problems hindering China's science and technology development remain unsolved. For example, the country lacks in technology storage and is weak in innovation. The planning and cost management in the science and technology field need to be further improved. All these mean that China still has a lot of work to do on the path of building an innovation-driven country. ■

WRITE TO US

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Please provide your name and address along with your submissions. Submissions may be edited.

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“I believe that we can realize the target of 1,000 kg yield per *mu* (1 hectare = 15 *mu*). Scientifically speaking, China’s hybrid rice has the potential.”

Yuan Longping, an academician of the Chinese Academy of Engineering known as the “father of hybrid rice,” expressing his confidence in the development of hybrid rice during an interview with Xinhua News Agency on July 5

“China’s huge market can be both a blessing and a curse for local information technology firms. It’s a blessing in that it’s usually difficult for foreign firms to navigate and compete, and it is a curse in the sense that its size makes it difficult for a firm to enter the overseas market once it has successfully optimized for the Chinese market.”

Lee Kai-Fu, Founder of Innovation Works and former President of Google China, at the Future China Global Forum in Singapore on July 9

“Films can’t always be about entertainment. During the past decade, Chinese films have been too focused on solely entertaining. It is unhelpful to children.”

Feng Xiaoning, a renowned film director, during an interview with *Qilu Evening News* on July 6

“Although oil is an important part of our economy, it is not the Achilles’ heel of the Iranian economy and it never will be. Iran’s GDP totaled \$930 billion in 2011. A total economic boycott of a country with that kind of economic volume is practically impossible.”

Hassan Tajik, newly appointed Iranian ambassador to Austria, asserting that the West would be unable to back Iran into a corner with its sanctions in an interview with the Austrian Press Agency in Vienna on July 11

Jumping for Jordan

Chinese acrobats perform in an open-air theater in Jerash, an ancient city of Jordan, on July 10.

At the invitation of the Organizing Committee of the 27th Jerash Festival, a 30-member team from China’s Hebei Acrobatic Troupe visited the city and presented a stunning performance for a local audience.

Quake Warning System

Chengdu in Sichuan Province has started constructing the country's first urban earthquake early warning system, local authorities announced on July 11.

The system is expected to provide the public with timely information so they can avoid danger before destructive seismic waves arrive, said Wang Dun, Director of the Institute of Care-Life, a Chengdu-based organization that studies earthquakes.

There is no exact timetable for the completion of the system. It will go into operation after all related rules, technology and conditions have matured.

Early warnings will be publicized through a variety of channels, including local television stations, mobile phone messages and the Internet. The information will also be provided to subway and high-speed railway authorities so that they can halt services in response to possible danger.

Fifty-seven early warning stations are scheduled to be completed within this year. Most of the facilities will be located on fault zones. The warning system will use radio waves to detect comparatively slower seismic waves before they reach urban areas.

Disability Access

The Central Government issued a new regulation on July 10 to improve accessibility for

physically challenged people.

Parking lots, commercial centers, living quarters, transportation facilities and other public infrastructure facilities must be accessible to physically challenged people, according to a regulation posted on the Central Government's website.

The regulation, which goes into effect on August 1, encourages public venues to offer free services for the less-abled.

Official statistics show that China has 85 million people with some form of disability. Last year, the government issued a five-year blueprint for improving their lives.

Reducing Recidivism

Judicial authorities are planning to introduce personalized correctional services and evidence-based practices for offenders in an effort to help them return to society.

According to the Ministry of Justice, these practices will complement other methods of corrections and help offenders readjust to society after being released.

The ministry's statistics show that community corrections services have been provided to inmates in more than 98 percent of cities, with a total of 1.02 million inmates receiving community corrections.

Community corrections refers to a range of alternatives to incarceration and services for non-violent offenders that are designed to help them boost their employment potential and ability to function in society after being released.

Since the community corrections system was established by an amendment to China's Criminal Law in May 2011, the amount of offenders receiving the service has increased by 8,000 to 10,000 monthly on average, according to the ministry.

GO! A farmer takes aim in a mounted archery competition during the Ongkor Festival, celebrated annually by farmers praying for harvest, in Gonggar County of Shannan Prefecture, Tibet Autonomous Region, on July 5



NEW ART ZONE The 791 art zone opens in Nanchang, Jiangxi Province, on July 9. A total of 68 art organizations and more than 50 well-known artists have settled in the art zone



Graduate Turned Editor in Chief

Jiang Fangzhou, a 23-year-old college graduate and famous youth writer, was hired as associate editor in chief of *New Weekly* magazine after graduating from Tsinghua University. Jiang's appointment spurred public disputes on whether it's appropriate for a fresh graduate to be a leader of a magazine.

Born in October 1989, Jiang started writing at the age of 7 and has published nine pieces of work including several novels. At the age of 9, when her peers were just learning to write, Jiang published her first collection of essays. She began her first novel at 11 and became a columnist for newspapers and magazines at 12. She earned first prize in a writing competition for teenage writers in 2004 and became the first president of the China Teen Writers' Association in 2005. In 2008, Jiang was accepted into the prestigious Tsinghua University.



Subsidies for Tombs

A senior finance official announced on July 10 that the government will provide solid financial support nationwide for the protection of “martyr tombs,” or places where revolutionary heroes are buried.

Special subsidies for the protection and maintenance of these tombs, as well as the management costs of related facilities, should be included in government budgets in the future, said Wang Baoan, Vice Minister of Finance, during a video conference held to discuss the initiative.

During the conference, civil affairs authorities also reaffirmed their goals of relocating 300,000 martyr tombs and renovating 2,000 cemeteries by the end of this year.

The Central Government has pledged to subsidize 5,000 yuan (\$786) for each tomb and 200,000 yuan (\$31,446.55) for each cemetery, while the rest will be covered by local authorities.

The protection project was launched in 2011 after a national survey revealed that 610,000 martyr tombs are not located in cemeteries. A total of 12,000 memorial facilities were found to be in poor condition.

The project is expected to be finished by October 1, 2014, with a mechanism to be put in place for management and protection, according to a previous statement from the Ministry of Civil Affairs.

Online Video Regulation

Chinese Internet and broadcasting authorities have ordered intensified efforts to regulate online video content.

The State Internet Information Office and the State Administration of Radio, Film and Television (SARFT) jointly issued a circular asking online video content providers to closely examine their videos before making them available for viewing, according to a statement from SARFT on July 9.

According to the circular, video content providers will be held responsible for the videos posted on their websites.

The circular also instructed relevant industry associations to step up self-disciplinary efforts regarding video content.

The statement said that the circular was issued upon requests from the public, as videos with vulgar or obscene content are believed to have had a negative impact on young people and the development of online video content providers.

Low Birth Rate

China had a birth rate of 4.79 infants per 1,000 people in 2011, with 16.04 million newborns, according to a report released on July 9 from



HIGH IN THE SKY J-10 jet fighters of the 8-1 Aerobatic Team of the Chinese People's Liberation Army Air Force stage an air show in Xi'an, Shaanxi Province, on July 11

the National Population and Family Planning Commission.

According to the report, the gender ratio among newborns, which is used to calculate gender imbalances, dropped for the third year to 117.78 male infants for every 100 females born in 2011. The number of married women of child-bearing age reached 277.69 million in 2011, an increase of 4.42 million over 2010.

The report said efforts have been made to improve family planning services for migrant workers, with more than 85 percent of the country's migrant population having access to free family planning services in 2011.

More Parking Spaces

Beijing is planning to add 110,000 parking lots downtown by the end of 2013 in a bid to accommodate its 5 million cars, the *Beijing Morning Post* reported on July 7.

The national capital has only 2.48 million parking spaces for 5 million vehicles, according to the 2011 Development Report for Chinese cities.

To encourage the building of parking spaces, Beijing offers a one-time sum of 2,000 yuan (\$314) for each parking lot built in new residential quarters, the report said, citing the Beijing Municipal Commission of Transport (BMCT).

By September this year, about 9,000 parking spaces will be built in 68 downtown residential communities, BMCT said in a no-

tice posted on its website on July 4.

Authorities in Beijing have tried to put the brakes on the number of new vehicles in the city. In 2011, the city began to distribute car plates by a lottery system, limiting the number of new cars to 240,000 each year.

PRETTY STONES Visitors look at jade jewelry at the 2012 China (Kunming) Pan-Asian Stone Expo, which kicked off in Kunming, Yunnan Province, on July 10





CHEAPER FUEL A worker updates the oil price table at a gas station in Hefei, capital of east China's Anhui Province, on June 9. China cut retail prices of oil by about 5 percent on July 11, the third cut since May

Export Slowdown

China's exports rose 11.3 percent year on year to \$180.21 billion in June, slowing from the 15.3-percent spurt in May, according to the General Administration of Customs (GAC).

Imports increased 6.3 percent to \$148.48 billion, against a growth of 12.7 percent a month earlier.

Trade surplus jumped 42.9 percent year on year to reach \$31.73 billion in June, surpassing market expectations.

In the first half of 2012, total foreign trade reached \$1.84 trillion, a rise of 8 percent year on year, lower than the 10-percent increase targeted by the government for the whole year.

Combined trade surplus surged by 56.4 percent year on year to \$68.92 billion in the first half.

GAC attributed the trade slowdown to the persistent impact of the global financial crisis, saying China's trade with the EU and Japan almost stalled in the first half.

"We are still facing a more complicated and severe situation in foreign trade," said GAC spokesman Zheng Yueheng at a press conference on July 10. "But China's core competitiveness in manufacturing will not see significant changes in the short term."

"If the world economy, particularly the European debt crisis, does not become worse, we will hopefully achieve the 10-percent growth goal in foreign trade this year," Zheng added.

WTO Complaint

The Ministry of Commerce announced on July 8 that it would soon start formal talks

with the United States on 22 countervailing measures against Chinese exports.

A consultation request was filed by China to the Dispute Settlement Body of the WTO on May 25. It is the first stage of a formal dispute settlement.

According to WTO rules, China can apply to set up a WTO panel to hear and rule on the case, if the two countries fail to produce satisfactory results in 60 days following the request.

The consultation will run from July 18 to 19, and 22 product categories, including steel, solar cells and paper, worth \$7.29 billion collectively, are involved, according to the ministry.

Li Chenggang, head of the ministry's Department of Treaty and Law, said the case reflects persistent wrongdoing by the United States in violating WTO rules.

Under the WTO mechanism, the United States has received 116 complaints from nations including Japan, South Korea and India, 60 of which are on its trade remedy measures, he noted.

Regarding a U.S. complaint on China's anti-dumping and anti-subsidy duties on cars imported from the United States, Li said it's normal for trade partners to solve disputes through multilateral rules.

But he argued that, no matter how the case ends, the United States will not be able to achieve its multiple ambitions placed on the case, which include seeking to strengthen trade enforcement and boost auto sector jobs.

Money for Publishing

China will continue to push private capital into the publishing industry to boost the cultural sector, said the General Administration of Press and Publication (GAPP) on July 10.

GAPP vowed further support for private investment in establishing printing and publishing enterprises, as well as in publication distribution businesses.

GAPP will also support digital publishers, including online gaming, mobile reading, e-book and software industries.

Numbers

73

A total of 73 Chinese firms joined the ranks of *Fortune* Global 500 for this year, 12 more compared with that of 2011, according to a list released by fortunechina.com on July 9.

16.04 million

China had a birth rate of 4.79 per 1,000 people in 2011, with 16.04 million newborns. The birth rate has remained stable and low, according to the National Population and Family Planning Commission.

Under the condition that state-owned capital accounts for more than 51 percent of the total share, authorities will encourage private funds to go to marketing and advertising businesses of official newspapers and magazines.

Private investments are also welcome in listed state-owned publications and media organizations via the stock market.

The government will support non-governmental publishers in expanding their overseas businesses.

Boosting Investment

The 16th China International Fair for Investment and Trade (CIFIT) will be held from September 8-11, in Xiamen, southeast China's Fujian Province.

As China's only international investment promotion event aimed at facilitating bilateral investment, the fair is the largest of its kind approved by the Global Association of the Exhibition Industry.

The fair will include investment and trade exhibitions, authoritative investment forums and seminars, and investment project match-making symposia.

"Over 70,000 business people from over 120 countries and regions are expected to come to this year's fair and over 1,000 investment institutions are expected to meet there," said Ni Yuefeng, Vice Governor of Fujian Province.

"A major highlight of 2012 CIFIT is the international investment forum, which aims at integrating resources and discussing hot topics worldwide," said Wang Chao, Vice Minister of Commerce.

Overseas Expansion

Chinese automaker FAW Group will broaden its market in South Africa and Russia through exporting technology and capital.

FAW has invested 500 million yuan (\$78.54 million) to establish a plant in South Africa in March this year, which will produce 5,000 trucks

a year, said Xu Jianyi, Chairman of FAW.

The plant will be expanded as an overseas manufacturing base with an annual output of 50,000 passenger vehicles.

"The program of developing a manufacturing base in Russia is ongoing, and Western Europe as well as the United States have also showed willingness to cooperate with

our company," said Wang Lizhi, General Manager of FAW Jiefang Automotive Co. Ltd., a truck-making subsidiary of FAW.

Founded in 1953, the state-owned enterprise is now one of the largest vehicle manufacturers in China and ranks among the top 500 corporations worldwide.

Freethinking Philanthropist

Huang Nubo, Chairman of Chinese real estate giant Zhongkun Group, revealed in an interview with *Forbes* magazine that he would donate half of his wealth to Peking University, his alma mater, in a snub to government-run charities.

"Most of the charity organizations in China are run by government agencies," said Huang in the interview. "It seems like you have to beg them for an opportunity to donate. I no longer trust them."

The 56-year-old entrepreneur made a donation of 900 million yuan (\$141.3 million) worth of assets to Peking University in June 2011.

Huang ranked as China's 161st richest man in *Forbes* in 2010, with a net worth of \$890 million. He graduated from Peking University in 1981, and worked in government outfits before entering the business world. Huang is also a productive poet. He has published many collections of poems, which have been translated into English, French, Japanese and Mongolian. He is also an adventure-seeker, having traveled to the North and South poles and climbed the Mount Everest.



HARVEST TIME
Machine harvests rice in Xinjiang County, Jiangxi Province, on July 9. Farmers in the province have 22-million-square-km of rice to be harvested

1.28 trillion yuan

Tourism revenue totaled 1.28 trillion yuan (\$202 billion) in the first half of this year, up 17.3 percent from last year's same period, the National Tourism Administration said on July 11.

500,000

China has set a target of producing and selling 500,000 energy-efficient and alternative-energy vehicles annually by 2015, and 5 million such units by 2020, according to a blueprint released by the State Council on July 9.



XINHUA/AFIP

THE UNITED STATES

Tourists look up at a building on Broadway during a hot day in New York City on July 6. According to the U.S. National Oceanic and Atmospheric Administration, the first six months of 2012 accounted for the warmest January-through-June period in the U.S. mainland since record keeping began in 1895.



XINHUA/AFIP

Officials display seized drugs in the port city of Klang on July 9. Malaysian customs officials made the country's biggest drug bust in a decade, seizing \$18.4 million worth of illegal drugs.

MALAYSIA



XINHUA/AF

Japanese Prime Minister Yoshihiko Noda (center) is applauded during his opening speech from Afghan President Hamid Karzai (left) and UN Secretary General Ban Ki-moon at the Tokyo Conference on Afghanistan on July 8. Donors pledged more than \$16 billion in development aid for Afghanistan through 2015 at the conference

JAPAN



XINHUA/AF

An Ariane-5 rocket blasts off from the Kourou space center on July 5. The rocket placed two satellites into orbit

FRENCH GUIANA

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XINHUA/AF

A bull charges into a pool of water during the traditional Running of the Bulls in Denia on July 8

SPAIN



XINHUA/AF

Participants pose during the World Body-painting Festival in Poertschach on July 8. More than 200 artists from 44 countries showed off their creations at the event

AUSTRIA

GROWTH THROUGH INNOVATION

A high-level national science and technology innovation conference calls for deepening scientific and technological reforms and accelerating the building of a national innovation system By Tang Yuankai

Situated in Shenzhen, Guangdong Province, the Shenzhen Institute of Advanced Integration Technology aspires to spearhead science and technology innovation and the application of new technologies.

On July 7, it launched a project to apply cloud computing technology to the machine tool industry, the first of its kind in the country. The technology, jointly developed by the institute and ACL Machinery Group in China, was adopted by U.S. National Aeronautics and Space Administration (NASA), General Motors and Chinese company Huawei Technologies Co. Ltd.

Founded in 2006 under the Chinese Academy of Sciences, it is the only state-owned research institute in Shenzhen. Currently, the institute employs more than 1,600 researchers. So far, it has successfully spawned 60 companies in new technologies such as cloud computing, the Internet of Things, alternative energies and new materials.

“Since its inception, the institute has been committed to institutional innovation, conducting basic and applied research, and commercializing more research results,” said Pan Jianping, a researcher and president of the institute.

Pan said that to convert science and technology into productivity, they must closely wed science and technology with production.

The institute is deemed as a successful example in commercializing science and technology.

Policy-directed innovation

One day before the institute launched its cloud computing technology application project, a national science and technology innovation conference was convened in Beijing. The two-day meeting saw the passage of the Opinions on Deepening China’s Scientific and Technological System Reform, Accelerating the Building of National Innovation System, with guidelines for a new round of reform.

A conference on scientific and technological innovation at such a high level and of such a grand scale is unprecedented.

While attending the conference, President Hu Jintao urged China to enhance scientific and technological innovation capacity, and to integrate science and technology with social and economic development.

The president proposed suggestions for accelerating the construction of an innovative country, such as promoting innovation-driven development, improving indigenous innova-



OK SHUTTER

tion capacity and a system for cultivating talented people, deepening reform of scientific and technological systems, optimizing the environment for innovation, and expanding international cooperation.

Innovation became a buzzword in China several years ago. In June 2004, at a Central Economic Work Conference, President Hu said that scientific and technological innovation capacity is a decisive factor for a country’s development, and the core of a country’s competitiveness. In the last week of that year, he mentioned the word “indigenous innovation” on three occasions related to science and technology.

At the end of 2005, China published the Guidelines on National Medium- and Long-Term Programs for Science and Technology



A TECHNOLOGY GIANT: A researcher tests equipment in the laboratory of Huawei Technologies Co., Ltd. Every year, the company invests at least 10 percent of its revenue in research and development

Development (2006-20). The meticulously drafted document said that the goal of deepening scientific and technological system reform is to push forward and improve the construction of a national innovation system.

At the beginning of 2006, at the National Science and Technology Conference, the Central Committee of the Communist Party of China and the State Council published the decision on implementing the guidelines and enhancing the country's indigenous innovation capacity.

After GDP growth soared near 10 percent for 30 years, foreign media hailed the country's move to focus more on the composition and quality of GDP in addition to its growth rate.

To implement the guidelines, the

government has enacted many detailed implementation rules and promulgated relevant policies. They cover a wide range of areas related to science and technology and innovation such as taxation, financing, education, and innovation platforms.

After innovation was declared a national strategy, it quickly became a social consensus and engine for growth.

Official statistics show that government expenditure on science and technology has grown continuously, maintaining an average annual growth rate of 25.2 percent from 2006 to 2010, and reaching 861 billion yuan (\$135 billion), or 1.83 percent of the GDP, last year. Statistics from the Organization for Economic Cooperation and Development indicated that China's research and development expen-

diture is second only to that of the United States.

Xu Heping, Director of the Research Department of the Ministry of Science and Technology, projected that after adjusting for purchasing power parity, China's research and development spending will be more or less equal to that of the United States in 2015.

In 2011, China granted 172,000 patents of invention, up 27.4 percent from the previous year, ranking third in the world, according to the Ministry of Science and Technology. The nation also ranked second in terms of the number of published papers, and seventh in terms of the number of science and technology papers cited, as shown by the Science Citation Index.

According to Beijing-based *Science and Technology Daily*, China ranks second in the ►►



ON THE FAST TRACK: A production line in Tangshan Railway Vehicle Co., Ltd. In 2008, the first high-speed train independently developed and made in China rolled off the production line

world in terms of value added in the hi-tech industry, the first in the export volume of hi-tech products, and second in application for patent of invention.

Enterprise-driven innovation

At the recent national science and technology innovation conference, Premier Wen Jiabao said that the most important task of reforming the science and technology system is integrating science and technology with economy, as well as strengthening enterprises' innovation capacity, which is of strategic importance to the long-term development of the country.

Now the most pressing issue for China is to set up an innovative industry research and development system mainly driven by enterprises, said Wan Gang, Minister of Science and Technology.

In his eyes, only by strengthening enterprises' role in scientific and technological innovation can the overall effectiveness of the innovation system be enhanced.

That enterprises are the mainstay of technological innovation is a widely accepted idea in many countries, yet in China, the concept is far from being well-established, said Liu Li, a reporter from *Science and Technology Daily*, who covered the national science and technology innovation conference held on July 6.

"China had been under a planned economy for decades. The government's industrial management departments took on many responsibilities that it should not shoulder, reducing enterprises to virtually processing workshops. So, over time, enterprises have lost the momentum and ability to innovate," Liu said.

Even today some people still think research institutes should play a major role in innovation. Wan said that on one hand, these people worry that Chinese firms are still too weak in innovative ability to play a key role; on the other hand, they do not have thorough understanding of the basic laws of technological innovation.

In fact, the National Medium- and Long-Term Program for Science and Technology Development (2006-20), published in 2005, called for the construction of an enterprise-centered technological innovation system that combines joint efforts of enterprises, universities and research institutes.

In April 2006, the State-Owned Assets Supervision and Administration Council made technological innovative capacity and research and development spending key criteria in evaluating the performance of executives of state-owned enterprises.

In a market economy, enterprises best understand market needs, said Wan, speaking from his own experience in working at Audi Germany.

"Enterprises can become big and strong only by adapting to market changes, while firms' own development requirements are the source of technological innovation," Wan said.

Many firms have realized the importance of innovation during competition. Recently, Wan visited Gree Electric Appliances, Inc. in Zhuhai, Guangdong Province, whose air conditioner sales have led the world for six consecutive years.

Wan said an air conditioner at his home

was produced by the company. "After many years of use, nothing has gone wrong with it," he said.

In Gree's technology research institute, there is a special laboratory in which various weather conditions can be simulated for air conditioners to be exposed to, such as thunderstorms.

This year, Gree won the National Science and Technology Progress Award for researching and commercializing the one-hertz variable frequency air conditioner. Gree is the first air conditioner manufacturer to win this honor, thanks to its growing scientific and technological spending. Last year, its research and development spending was 3 billion yuan (\$476 million), the highest in China's household electric appliance industry.

"We never cap our research and development spending, and the secret of our success is core technology," said Dong Mingzhu, CEO of Gree.

"Without scientific and technological innovation, a company can only perish," she added. The saleswoman-turned-business-leader was ranked seventh among this year's top 50 women in world business rated by U.K.-based *Financial Times*.

A growing number of Chinese entrepreneurs are generously investing in research and development. Last year, 74 percent of such investments were made by enterprises, according to data from the Ministry of Science and Technology.

Meanwhile, the allocation structure of government funds has also changed significantly. More and more key national projects

Foreign R&D Centers in China

● Innovation-friendly environment in China will not only benefit indigenous companies, but also attract foreign firms to engage in research and development in China. Official statistics show that in 1999, multinational corporations had no more than 30 research and development centers in China, whereas currently, more than 3,000 foreign companies have set up research and development centers in the country.

● On May 25, Microsoft's Asia-Pacific Research and Development Group Headquarters were officially opened in Beijing, symbolizing the company's focus on China as a key growth market and location for future innovation. Steve Ballmer, CEO of Microsoft Corp. commented: "When Microsoft first opened in Zhongguancun in Beijing 20 years ago, it set into action a vision of growth and innovation that we shared with the Chinese Government and emerging local industry. That vision has come full circle with Microsoft's Asia-Pacific Research and Development Group Headquarters—which now lays a vital platform for Microsoft's future and our belief in China's ambitions to transform to an innovation-driven economy."

(Sources: Science and Technology Daily and Website of Microsoft Asia-Pacific Research and Development Group)

in science and technology have been granted to enterprises.

The financial market also plays an increasing role in supporting research and development. The recent high-level conference on innovation also stressed the integration between science and technology and the financial market.

Currently, 52 percent of the 212 Beijing-based A-share listed companies are in the field of science and technology.

In addition, some local governments of Jiangsu, Shanghai and Guangdong have given tax incentives and other preferential treatment to encourage companies to invest in research and development.

In Shenzhen, enterprises begin to play a dominant role in research and development. Data from the Ministry of Science and Technology shows 90 percent of research



POWERING GROWTH WITH SCIENCE: A workshop in XJ Group Corp., a leading power equipment manufacturer in China

and development expenditure was paid by enterprises, and 90 percent of the patents were granted to flagship enterprises in 2009.

Despite the progress, scientific and technological reform should be further deepened, as the 2011 National Innovation Index released by the Chinese Academy of Science and Technology for Development showed that the indigenous innovative capacity and core technology ownership of Chinese firms were still not high.

System reform

The current round of reform will focus on improving indigenous innovative capacity, promoting integration of science and technology with economic and social development, and addressing salient issues impeding scientific and technological innovation, said Wan.

The major hurdles to innovation are weak original innovative capacity and a low self-sufficiency rate in key technologies. Enterprises have not been established as the key innovators, the relations between universities, research institutes and enterprises have not been straightened out, while these actors of innovation should be more closely combined so as to improve their overall effectiveness, he said.

The allocation of scientific and technological resources is still too administration-driven, dispersed and repetitive, which has restrained China's innovative capability. To motivate scientists and engineers to engage in innovation, the government should reform the current science management and talent evaluation systems, adopt better measures to cultivate young talent and attract the best and the brightest, to foster a sound environment for innovation, Wan said.

Currently, a prominent issue in integrating science and technology with the economy is a low commercialization rate of research results.

Official statistics show that every year, nearly 6,000 new techniques in agricultural sectors were approved by provincial and ministerial-level governments, yet during the period from 2006 to 2010, only about 40 percent of these achievements were put into commercial use.

Pan Jiluan, a professor with the Department of Mechanical Engineering in Tsinghua University and academician of the Chinese Academy of Sciences, blamed the situation on the inadequate performance evaluation system in research institutes and universities, where researchers tend to be judged by the number of projects they have worked on and the papers they have published, rather than by how many practical problems they have solved or how much economic value they have created.

Li Xiaolin, a professor with China Agricultural University, said that many of his colleagues are engrossed in writing papers and applying for patents, because papers and patents will help them to win academic titles and research funding, whereas they rarely seriously think about what farmers really need, and how to bring their research result to the field.

"Research results should be converted into productivity," Wan said. He said that research institutes and universities should increase their capability to serve economic and social development. ■

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