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13th Five-year Plan on Science, Technology and Innovation

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State Council Ratifies Special Projects Under 13th Five-year Plan on Science, Technology and Innovation

On July 20th, 2016 Premier Li Keqiang presided over an executive meeting of the State Council to ratify the special projects under the 13th Five-year Plan for Scientific and Technological Innovation, which underscores China's vision to develop itself into an innovative country.

The meeting pointed out that innovation is the primary driving force of development. In order to further put into practice the requirements of the National Conference on Science, Technology and Innovation, and theOutline of the13th Five-year Development Plan, the S&T authorities laid out a systematic framework with a forward-looking vision and proposed the national innovation plan. These are strategic steps to implement the strategy of innovation-driven development and build an innovative

Monthly-Editorial Board:54,Sanlihe Road Beijing 10045,china
Contact: Liu Bin E-mail:liub@cstec.org.cn nis@cstec.org.cn http://www.cistc.gov.cn

country, and are of great significance to enhance China's comprehensive S&T strength, bolster the new economy, upgrade the economy and develop a prosperous and well-off society.

The special projects ratified at the meeting set out four primary missions. The first is to improve original innovation capabilities, advancebasic research and frontier technologies, integrate and optimize resource distribution to target strategically important areas that determine the future of S&T development, build a batch of S&T facilities, national research bases and innovation hubs, increase the size and quality of the innovation talent pool, reinforce regional and international cooperation to significantly elevate China's comprehensive innovation capability. The second is to gain first-mover advantages and make good use of comparative advantages to meet national strategic needs and the public's demand and to improve their livelihood, launch S&T projects in key areas like quantum communication and precision medicine, develop core technologies for the seed industry, clean coal, 5G mobile communication and intelligent robots, advance innovation of disruptive technologies, nurture new growth momentum to drive the transformation and upgrade of the traditional sectors, increase the contribution of scientific and technological progress to 60% of economic growth, and improve the quality of life. The third is to build a platform to encourage entrepreneurship and innovation, strengthen enterprises' leading role in S&T innovation, develop an efficient and coordinated ecological chain, optimize business startup services, develop makerspaces and the incubation system, build an open and unifiedmarketof technology trade and inputmore resources to foster innovation. The fourth is to accelerate the reform of the S&T system and mechanism, mobilize personnel to do a better job, improve policy measures about the management and use of research funds and the distribution of economic benefits derived from research achievements, eliminate the institutional barriers impeding innovation and translation of researchfindings, enhance the efficiency of research funds, strengthen protection and application of intellectual property, intensify efforts to promote science popularization and innovative ideas and develop a favorable climatefor innovation.

(Source: People's Daily,
July 20, 2016)

13th Five-year Plan on Science, Technology and Innovation Issued

The 13th Five-year Plan on Science, Technology and Innovation was issued on August 8th, 2016, setting out the guidelines, requirements, strategic tasks and reform measures in the coming five years.

The Plan highlights the synergy between S&T and economic development, and aims to advance S&T innovation in a holistic, coordinated, farsighted and targeted manner. Strategically, innovation will proceed in tandem with industrial development trends. Reform measures targeting at problems in the innovation chain will also be rolled out.

The Plan stresses that innovation is the primary driving force of development; the reform of the S&T system will continue with emphasis on carrying out the innovation-driven development strategy and supporting the supply-side structural reform; comprehensive innovation, with a focus on S&T innovation, will be promoted to create more innovation-driven development models that enable first-mover advantages, so as to develop China into an innovative country and lay a solid foundation for becoming a S&T powerhouse.

The Plan maps out the blueprint for S&T innovation in the next five years, proposing that China aims to be among the world's 15 most innovative countries by 2020, with the contribution of scientific and technological progress up from 55.3% in 2015 to 60% of economic growth, the output value generated by knowledge-intensive services accounting for 20% of GDP, the number of Patent Cooperation Treaty (PCT) applications doubling from 2015 and the total R&D investment reaching 2.5% of the GDP.

The Plan also proposes the establishment of an

efficient and coordinated national innovation system bynurturing vigorous innovators, setting up innovation bases in systematically important locations, creating innovation-driven growth poles, building open and coordinated innovation networks, constructing a modern and innovative governance structure and maintaining a favorable environment, in a move to ensure that there are participants and favorable policies and environment to expedite innovation-driven development.

The Plan sets out tasks in six aspects: strengthening China's first-mover advantages while striking a balance between current and long-term strategies; enhancing original innovation capabilities with a focus on encouraging strategically important innovations; expanding the scope for innovative development at home and abroad in a coordinated manner; creating a favorable ecosystem to pave the way for mass entrepreneurship and innovation; furthering the reform of the S&T system to remove obstacles that constrain innovation and the translation of innovative ideas; and stepping up efforts to popularize science and nurture an innovative culture to improve the public's awareness.

The Plan puts forward measures to implement and improve innovation-related policies and regulations, optimize the mechanism for investment in S&T innovation as well as enhance plan implementation and management, including improving innovation-friendly and inclusive policies, carrying outstrategies on intellectual property and technological standards and establishing diversified S&T investment systems.

(Source: Science and Technology Daily, August 9, 2016)

MOST Officials Introduce 13th Five-year Plan on Science, Technology and Innovation

The 13th Five-year Plan on Science, Technology and Innovation issued by the State Council is the first of its kind since the 18th National Congress of the Communist Party of China.

MOST officials introduced the Plan from different perspectives in an interview.

Policy targets

The Plan focuses on carrying out the innovation-driven development strategy and supporting the supply-side structural reform as well as creating more innovation-driven development models that foster first-mover advantages. The Plan proposes the establishment of an efficient and coordinated national innovation system by nurturing vigorous innovators, setting up innovation bases in systematically important locations, creating innovation-driven growth poles, building open and coordinated innovation networks, developing a modern and innovative governance structure and maintaining a favorable innovation environment.

The coming five years is a critical period for China to become a moderately prosperous society and an innovative country. The Plan sets out 12 targets, including increasingthe contribution of scientific and technological progress from 55.3% to 60% of economic growth and the proportion of output generated by knowledge-intensive services to the GDP from 15.6% to 20%. The latter is an important indicator measuring whether industries are climbing toward the upper end of the value chain.

Characteristics

The Plan is up to date rather than ivory-towered, and highlights the synergy between S&T and economic development. It is an innovative plan that supports China's transformation from a large country into a powerful country, with emphasis on meeting strategically important national needs as well as developing key S&T projects, national laboratories, andinternationalbigscienceprograms and projects. The Plan covers the whole innovation value chain, from upstream fundamental research, mid-stream technological innovation all the way to downstream technological application.

The most prominent characteristic of the Plan is that it focuses not only on the reform and development of

S&T research but also economic development, advanced technologies and the country's important needs. For instance, past S&T plans directed little attention to combine finance with R&D, while the Plan mentions both and also mass entrepreneurship and innovation, touches on how to support the development of venture capital, intermediaries and service providers. The Plan notes the development of the new economy in the new normal and the transformation of traditional industries via modern technologies.

Guiding principles

We upheld the philosophy that innovation is the primary driving force of development when formulating the Plan, striving to work out a plan that aims high at the very beginning. According to the Plan, 15 key innovation projects are set towards 2030, in addition to important special projects; a modern industrial technology system will be established to bolster ten major industries, including agriculture; a technology system for five sectors, such as environmental protection, will be set up to support livelihood improvement and sustainable development; a technology system for the development of deep space, deep sea, deep underground, and deep blue will be established to safeguard national security and strategic benefits.

The comparative study of global scientific research and industrial development shows that China, who hadlong been a follower, has outrun, kept pace with andbeen catching up with other countriesin S&T development. Therefore, the Plan pays greater attention to the influence of advanced, leading and disruptive technologies that would prompt industrial transformation. For instance, research on leading technologies, such as quantum communication, quantum computing, brain science and brain-like intelligence technology, are listed as key projects.

Arranging innovation projects in four aspects

China's total R&D investment has exceeded RMB 1.4 trillion, and the number of scientific researchers is the largest in the world. Yet China, with a shortage of high-end talents, still needs to improve the quality of talent, and core technologies are still controlled by foreign nations. It is urgent to eliminate the old-fashioned thoughts and systems that have impeded innovative development.

We must step up efforts to push ahead with reform and innovation, strengthen the capacityforinnovation and catch up or even overtake leading countries. In the coming five years, China will pursue S&T innovation by carrying out the 13th Five-year Plan and the national innovation-driven development strategy, supporting the implementation of national strategies, including the "Manufacturing in China 2025", "Internet Plus" and space superpower, laying out key national strategies and boosting economic and social development.

Firstly, implement important and long-term key S&T projects. China will implement 16 national major S&T projects and launch the S&T innovation 2030 project, striving to make breakthroughs in such key aspects as aero-engine, gas turbine, deep-sea space station, quantum communication, quantum computing, brain science and brain-like intelligence research.

Secondly, build a globally competitive industrial technology system. The country will enhance integrated development in sectors, such as modern agriculture, new-generation information technology, intelligent manufacturing and energy resources, as well as promote disruptive technologies.

Thirdly, optimize a technology system that supports livelihood improvement and sustainable development. The country will step up efforts to develop and apply core technologies in such sectors as resources and environment, human health, new urbanization and public security.

Fourthly, establish a technology system that safeguards national security and strategic interests. The country will lay outplanning for deep-sea, deep-underground, deep-space and deep-blue technologies.

Encouraging innovation and improving regional innovation capabilities

In the next five years, China will create a sound ecosystem that encourages mass innovation and entrepreneurship, build a business incubation system that serves the real economy, optimize the financial system that supports S&T innovation and entrepreneurship, and improve services for S&T innovation and entrepreneurship.

China will guide the spaces for mass innovation and entrepreneurship to seek professionalization and sub-division, and create an industrial innovation ecosystem with leading enterprises as the backbone and active participation of higher education institutions, boosting the development of SMEs. In terms of financial innovation, China will build diversified and differentiated S&T innovation financing modes for the whole process of lab researches, pilot production and mass production. As for services for the innovation value chain, the country will set up a unified and open technology trading market system, with emphasis on research and development, technology transfer, testing and certification, business incubation, intellectual property and S&T consulting.

In the five years ahead, China will also strive to develop a batch of regional innovation bases to lift local innovation capabilities. For instance, the country will set up globally influential S&T innovation centers in Beijing and Shanghai, establish national innovation demonstration areas in the eastern, central and western regions, build regional, provincial and municipal innovation centers and push ahead with comprehensive innovation reform.

The leading role of enterprises in innovation should be strengthened. China will speed up efforts to cultivate world-class innovative enterprises, promote the sound development of SMEs, establish national technological innovation centers with the joint participation of enterprises, higher education institutions and research institutes, and deepen synergy of enterprises, universities and research institutes and the cooperation among upstream, mid-stream and downstream sectors as well as large enterprises and SMEs. In order to improve innovation capabilities, it is necessary to establish efficient R&D organizing system, promote the development of world-class universities and disciplines, reform research institutions, and improve the autonomy of higher education institutions and research institutes.

(Sources: People's Daily, August 9, 2016; Science and Technology Daily, August 12, 2016)

National Innovation Index Report 2015 Released

The National Innovation Index Report 2015 was released on June 29, 2016. The report indicated the global innovation landscape largely remained steady last year. China's innovation index ranked the 18th in the world, up by one notch from the prior year, suggesting its gap with the leading innovative nations has been further narrowed. In recent years, China has kept increasing investments in innovation resources, and as a result, its ability to generate economic output through the use of knowledge has significantly improved along with the enterprises' capabilities to innovate, and S&T innovation has been making greater contribution to China's economic development.

1. The global innovation landscape remains largely stable with the U.S., Europe and Japan in the lead

The report indicated the global innovation landscape remains largely stable with the U.S., Japan and Europe continuing to be the leading innovation powers. The top four innovative countries, the U.S., Japan, Switzerland and South Korea, maintained their position on the list, followed by Denmark, Germany, Sweden, the U.K., Netherlands and Singapore. All the BRICS nations but China were at the bottom of the list. Russia was in the 32nd place, up from 33rd in the previous year; South Africa stayed flat at the 36th place; India and Brazil swapped their positions from the previous year at 38th and 39th.

2. China's national innovation index rose to 18th place, hitting the target of 12th five-year plan on schedule

Based on the analysis of the list of the top innovation countries in previous years, we can divide the 40 nations on the list into three groups. The top group consists of 15 nations with the highest innovation indices and these nations are widely recognized as innovation-driven countries; the secondary group of 15 nations include advanced economies and a few emerging economies; the third group of 10 nations are mostly developing economies.

China ranked the 18th in national innovation index, beating Australia. China is now in a leading position of the secondary group and is narrowing the gap with innovation-driven nations. China's national innovation index was 68.6 points, up 0.2 point from the previous year and 0.7 point higher than Australia. It's trailing behind Ireland by a paltry 0.01 point. In the meantime, its gap with the country in the 15th place has further narrowed to 0.8 point from 2.4 points in the prior year.

China holds a comfortable lead over countries with similar economic conditions in terms of innovation strength. China's per capita GDP was US$7,590 in 2014, less than all the 40 countries but India and South Africa. However, its innovation index is much higher than that of the two nations, and close to that of Austria and Belgium, whose per capital GDP has hit somewhere near US$50,000.

3. China's innovation indicators see a general improvement and innovation environment needs to be enhanced

Among the five first-class indicators that collectively measure a country's innovation index, China saw a rise in the gauges of innovation resources, knowledge creation and business innovation. The ranking of innovation performance was flat from the year before, while that of innovation environment saw a decrease.

Innovation resources are fundamental basis for a country to carry out innovation activities. China was in the 27th place by innovation resources, up by two places from the year before. R&D spending has stayed at a relatively high level.

Knowledge creation and application denotes a country's S&T output and strength. China's ranking in knowledge creation was 12th, up by seven places from the previous year.

Enterprises are important entities to carry out innovation activities. China was in the 12th place in enterprise innovation, up from 13th the year before. The scale and quality of China's business innovation activities have been on a steady rise.

Innovation performance is a collective indicator of the outcome and impact from a country's innovation activities. China's innovation performance stayed the same at the 11th place from the year before. China scored high in valid invention patents and industry structure, but labor productivity and comprehensive energy consumption per unit output lagged far behind compared with innovative countries, ranking the 39th and the 36th respectively. This indicated China's innovation performance was mainly driven by the robust output growth in the high technology sector, and China still has a lot of work to do to restructure the economy.

Innovation environment is a fundamental basis to enhance a country's innovation capabilities. China's innovation environment slipped six places to stand at the 19th among the 40 nations. The three indicators of "macroeconomic environment", "impact of government procurement on technological innovation", "impact of government regulations on business burden" secured relatively higher scores, at the 4th, 4th and 9th place respectively, suggesting China has a sound and stable market and policy environment. However, "innovation project's access to venture capital support" fell sharply from 5th to 11th, which shows the demand for venture capital investment is getting biggeras business startups mushroom across China, while the supply of capital investments remains limited. China also saw a modest decline in the "effort to protect intellectual property", slipping from 25th to 32nd, suggesting the government must strengthen protection of intellectual property as the public awareness increases.

(Source: www.most.gov.cn,
July 25, 2016)