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Headline news

Liu Yandong: An Era of Frequent Exchange and Close Cooperation on Satellite Navigation Systems

The Seventh Meeting of the International Committee on Global Navigation Satellite Systems (ICG-7) was opened on November 5th in Beijing. China's State Councilor Liu Yandong attended the opening ceremony and made opening remarks, which pointed out that an era of frequent exchange and close cooperation on global navigation satellite systems (GNSS) has come.

Liu Yandong said that satellite navigation systems, as important space infrastructure, can provide all-weather and highly accurate location and time information. They have been widely used in transportation, marine fishery, disaster relief and mitigation, social management, national security, etc., which profoundly influences human life and production. The Chinese government has attached great importance to the development of satellite

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navigation systems, included Beidou Satellite Navigation System into National Science and Technology Key Project, and created a series of satellite navigation products with proprietary intellectual property rights, which promotes the development of emerging industrial clusters and brings about considerable economic and social benefits.

"In the field of satellite navigation system, an era of frequent exchange and close cooperation has come," Councilor Liu said, adding that it is shared understanding and responsibility of the GNSS family to intensify coordination and cooperation, and raise service level of navigation systems. She advocated all-round, multi-tiered and high level exchange and cooperation under the principles of equality, mutual benefit and win-win cooperation so that we can share resources, draw upon each other's strength and seek common development, thus helping satellite navigation systems better serve the whole world and benefit the mankind. China is willing to work with other countries to uphold opening up and cooperation, share achievements of satellite navigation development, jointly formulate standards, strengthen compatibility among different systems, spread good practices, explore new areas of service, and promote the extensive application of satellite navigation systems worldwide in order to provide strong support for global economic development and improvement of people's life.

The International Committee on GNSS (ICG) is an intergovernmental informal body established with the advocate of the United Nations, for the purpose of enhancing cooperation on satellite navigation while promoting global application of satellite navigation. China joined the ICG in September 2007.

(Source: Xinhua News Agency)

(Source: Science and Technology Daily, November 6, 2012)

MOST will Establish an Innovation System Dominated by Enterprises

Minister Wan Gang of Science and Technology said in his keynote speech of Pujiang Innovation Forum 2012 that Ministry of Science and Technology (MOST) will deepen the reform of scientific and technological system, and accelerate the establishment of an industrial technology innovation system dominated by enterprises. "We have recognized that the key to combining scientific and technological development on the one hand, with economic and social development on the other, is enterprises' active participation. We will create innovation environment for fair competition among all types of enterprises, and support innovative activities of small- and medium-sized enterprises and microenterprises. We should formulate policy guidelines to encourage enterprises to establish their own research and development (R&D) institutions, promote the inflow of innovation factors to enterprises, and encourage scientific and technological talents to make innovation in business sector," he said.

Minister Wan Gang listed 5 points to deepen the reform of scientific and technological system: 1) strengthen collaborative innovation to increase the overall efficiency of the innovation system; 2) reform the science & technology management system to efficiently use scientific and technological resources; 3) improve the talent development system; 4) enhance research integrity and foster innovation culture; 5) open up further, encourage mutually-beneficial and win-win cooperation, improve innovation policies and create favorable environment.

Minister Wan Gang added that MOST will as

usual support international academic institutions and multinational corporations to establish R&D institutions in China, build a platform for joint research by R&D institutions of domestic and foreign universities, and attract talents from both home and abroad for enterpreneurship. He said that foreign R&D institutions in China are part of China's innovation force, and they will be given equal treatment as usual. China will encourage them to participant in China's national science and technology key projects.

(Source: Ministry of Science and Technology, November 13, 2012)

S&T Management Information

China Adopts the 12th Five-Year Plan for Energy Development

On October 24th, 2012, Premier Wen Jiabao chaired the State Council Executive Meeting. This meeting discussed and adopted the 12th Five-Year Plan for Energy Development, reviewed and readopted the Nuclear Power Safety Plan (2011-2020) and the Medium-and Long-Term Development Plan of Nuclear Power (2011-2020). The adopted 12th Five-Year Plan for Energy Development states that during the 12th Five-Year Plan period, China should speed up the transformation of energy production and utilization pattern; give priority to energy conservation strategies; comprehensively increase the efficiency of conversion and utilization in energy development; reasonably control the aggregate energy consumption; and build a safe, stable, economical and clean modern energy industrial system. The major tasks shall be: 1) intensify exploration and development of domestic resources; 2) promote the efficient and clean conversion of energy; 3) further change the energy supply model; 4) speed up the construction of energy storage and transportation facilities to enhance the ability of providing emergency supply; 5) implement the "energy for public livelihood" projects and provide universal access to basic public energy services for both urban and rural population; 6) reasonably control the aggregate energy consumption; 7) advance the reform in several key areas such as electricity, coal, petroleum and natural gas, rationalize the energy pricing mechanism, and encourage private capital to flow into the energy industry.

(Source: the State Council General Office of China, October 24, 2012)

The 12th Five-Year Plan for NC Generation Mechanical Products Innovation and Application Demonstration Project

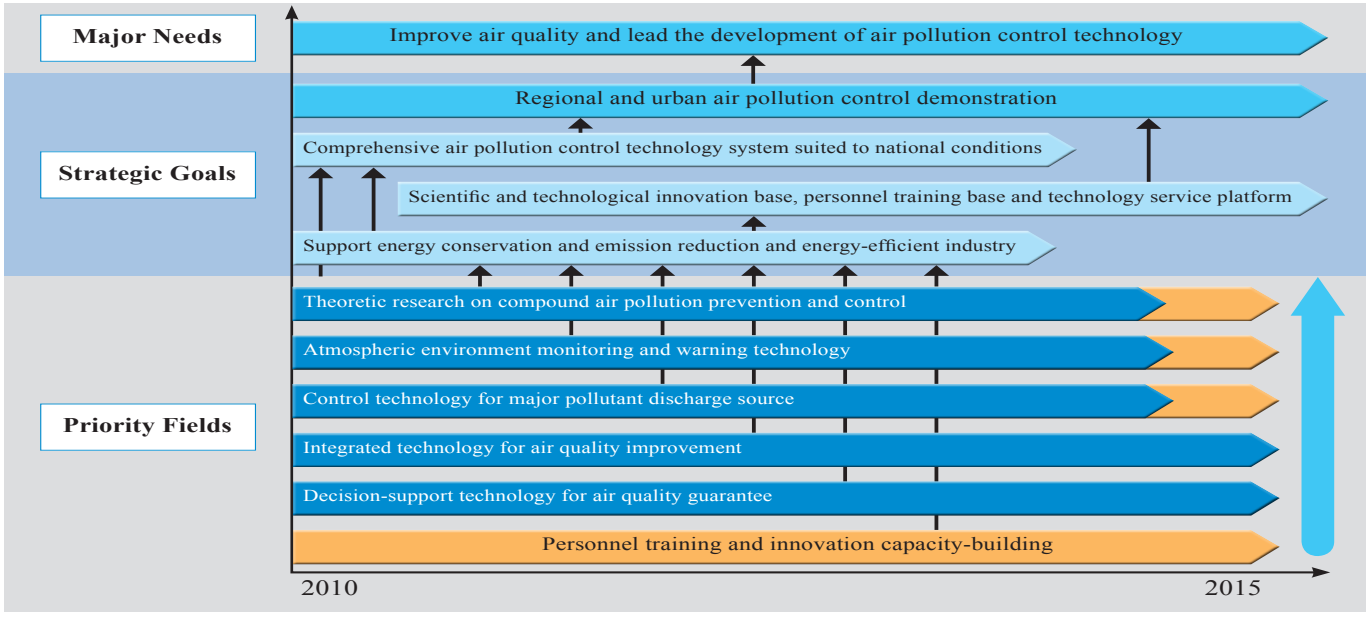
The 12th Five-Year Plan for Numerical Control (NC) Generation Mechanical Products Innovation and Application Demonstration Project is issued for the purpose of implementing the Outline of the National Program for Medium- and Long-Term Scientific and Technological Development (2006-2020), accelerating

the reform of manufacturing industry, upgrading the mechanical equipment with NC technologies and promoting the progress in mechanical engineering. The overall objective of this demonstration project is to, through the extensive application of NC technologies and products, enhance the innovation capability of enterprises in mechanical equipment industry, change the mode of production, increase productivity and the added value of mechanical equipment, upgrade the products and mechanical equipment, and ultimately to facilitate the scientific and technological progress in mechanical engineering. The main tasks in the 12th Five-Year Plan period are listed as follows: 1) Make breakthroughs in key generic technologies for NC transformation of mechanical equipment. 2) Carry out demonstration projects in major industries to promote the extensive application. 3) Carry out demonstration projects in pillar industries of key areas to promote the extensive application. 4) Establish an industrial technology standards system (including the development of key technology standards). 5) Improve the application service and training system of NC technologies.

(Source: Ministry of Science and Technology, October 24, 2012)

The 12th Five-Year Special Development Plan for Blue Sky Project

In order to implement 12th Five-Year Plan for Environment Protection and the National 12th Five-Year Plan on National Scientific and Technological Development, Ministry of Science and Technology and Ministry of Environmental Protection formulated the 12th Five-Year Special Development Plan for Blue Sky Project to guide and promote the scientific and technological innovation in air pollution prevention, foster and develop energy-conservation and environmental-protection emerging industries of strategic importance, and improve the quality of atmospheric environment. The overall objective of this Blue Sky Project is to, with improving air quality and safeguarding public health as the core, substantially enhance innovation capability on atmospheric environment; form a preliminary technology innovation system for air pollution prevention and control that suits the national conditions, including scientific theories on atmospheric environment, pollution control technologies, monitoring and warning technology and decision-support policies; and basically establish an innovative personnel training system for Blue Sky Project and a service system that commercializes technological achievements. The picture below is the "Blue Sky Scientific Development Roadmap".



(Source: Ministry of Science and Technology, October 24, 2012)

China's Fiscal Expenditures on Science and Technology in 2011

Expenditures on S&T in 2011

	Expenditures on S&T (billion yuan)	Year-on-Year Increase (%)	As a Share of Total Expenditures on S&T (%)
Total	490.26	19.2	—
Expenditures on S&T	382.80	17.8	78.1
Expenditures on S&T included in other items	107.46	24.3	21.9
State Expenditures	246.90	20.7	50.4
Local Expenditures	243.36	17.7	49.6

In 2011, China's fiscal expenditures on science and technology (S&T) totaled 490.26 billion yuan, a year-on-year increase of 78.82 billion yuan and up by 19.2%. This part accounted for 4.49% of the year's total government expenditures.

(Source: Communiqué on National Expenditures on Science and Technology in 2011 by National Bureau of Statistics, Ministry of Science and Technology and Ministry of Finance, September 25, 2012)

Note: Before 2007, fiscal expenditures on S&T include S&T Promotion Fund, Operating Expenses of Science, Capital Construction for Science Research and Other Science and Research Expenses; after the reform of the classification system of government revenue and expenditures in 2007, fiscal expenditures on S&T consist of the item of "Expenditures on Science and Technology" and those included in other items; the S&T expenditures of the fiscal years before 2007 basically covers all the items of those after 2007.

Scientific Research Progress and Achievements

Progress Made in Chinese Survey on Resources Devoted to Scientific and Technological Activities

It has been 4 years since the national survey on resources devoted to key scientific and technological (S&T) activities was conducted in 2008. In order to further open and share S&T resources and promote the building of an innovative country, the survey of 2012 was adjusted and extended based on the original one. Meanwhile, it focuses more on the use and study of survey data, as can be seen in the S&T Resources Information System developed by the National Science and Technology Infrastructure Center, the study on the Annual Report of the National Survey on Resources Devoted to Key S&T Activities and other efforts. To date, the following detailed information has been collected: over 2,200 independent scientific research institutions funded by government finance; 35,000 large scientific instruments and equipment originally worth 500,000 yuan; 6,247 experimental bases of various types approved by provincial level government agencies or above; 508 preservation institutes at all levels for the germplasm resources of plants, animals and microorganism; 480,000 high-level talents with vice-senior title or above, or with doctor's degree, and their structure, distribution, utilization and dynamic changes. All these were used to establish a resource information data base.

(Source: Ministry of Science and Technology, October 17, 2012)

New Concept HPC Gains Performance Much Higher Than Traditional HPC

At the 2012 International forum on High Performance Computer (HPC) challenges in China was held in Shanghai on October 10th, Wu Xingjiang, president of the forum and academician of the Chinese Academy of Engineering published new concept HPC Architectures, namely Proactive Reconfigurable Computing Architecture. The initial proof-of-principle certified that its performance is ten times higher than that of the original HPC.

The research team of new concept HPC architectures and system implementation project, which belongs to 863 Program approved in 2009, came up with Proactive Reconfigurable Computing Achitecture (PRCA) after five years' dedicated effort.

PRCA has 3 highlights. 1.The amazing physical realization structure. Due to allotropic structure and the remodeling material based on the various structural arrangements, PRCA can balance function, performance, efficacy and flexibility. 2. The structure-reengineering ability resulting from material cognition. PRCA is able to recognize and sense the temperature, power consumption and then instruct the operation by cognitive decision systems. 3. The high performance. The physical realization structure of PRCA leads to structure-reengineering, which realize the possibility of high application performance through the adaptation of hardware or software processing structures. As certified by the initial proof-of-principle, the performance of new concept HPCis ten times higher than that of the original HPC and therefore considerable electric bills will be cut after its application.

The hardware of the proof-of-principle sample machine has been manufactured and is under vital technology test and application test.The whole project is expected to be completed at the end of this year.

(Source:Science and Technology Daily, October 11, 2012)

32 Priority Fields Identified in Bioindustry

To further ensure social funds are invested in priority fields of the strategic emerging industries and to implement the relevant policies supporting the strategic emerging industries, National Development and Reform Commission published *List of Priority Products and Services in Strategic Emerging Industries (draft)*. 139 priority fields are included in the document among which 32 are related to biomedicine.

Zhang Xiaoqiang, Deputy Director-General of National Development and Reform Commission, said that China strives to raise the proportion taken by the strategic emerging industries in GDP to 8% by 2015 and 15% by 2020, making it a vital driving force of social-economic development.

18 priority fields in the list are related to sub-field of medicine manufacture, particularly new vaccines, biotech medicine, chemical medicine and Active Pharmaceutical Ingredient (API) manufacture, modern Chinese medicine and ethnomedicine, biological separation medium and pharmaceutic adjuvant. These 18 priority fields touch upon genetic engineering vaccine, nucleic acid vaccine, antibody drugs, genetic engineering protein and polypeptide drugs, new anti-infective agents, new Chinese medicine for serious diseases which may gain more effective recovery by using Chinese medicine, new auxiliary material, coating material for solid dosage form, new injection auxiliary material, auxiliary material for pharmaceutical preparations premix and so on. Besides, another 14 priority fields belong to the sub-field of medical equipment, like imaging equipment, advanced treatment equipment, medical test instrument,

biomaterial for medical implantation. And those 14 priority fields involve digital radiology, imaging equipment, oncotherapy machine, digital operation equipment, implantation electronic treating device, rehabilitation equipment, medical test instrument, biochemical detector, molecular detector, bio-based products for medical implantation, biomaterial for medical implantation.

(Source:China Science Daily, October 23, 2012)

1,000 Genomes Project Publishes Inventory of Human Genetic Variation

The latest result of the large-scale international cooperation program, 1,000 Genomes Project, co-sponsored by China, US and UK was published on the website of the Nature Magazine on October 31. The cooperation team makes public the most complete integrated linkage map of human genome sequence variation , which will lay a solid foundation for the application of genomics in human disease and health and personalized health care. The cooperation team conducted detailed DNA analysis on genetic variation of 1,092 people drawn from 14 populations around the world, including Africa, Asia, Europe and America. By using the whole genome sequencing, exon target sequence capture and SNP typing and other technologies, a variation map based on the analysis results took shape. It will help human beings find genetic reason for both rare and common diseases.

(Source:Science and Technology Daily, November 2, 2012)

Injection Genetic Recombination Seralbumin Industrialization Begins at Zhangjiang Incubation Base

On October 11, Shanghai Center for Biomedicine Development signed an agreement with Sinret Biomedical technology (Shanghai) Co.,Ltd, which marked the official launch of the *"three major" (major product; major need; major issues) project of biotech medicine, namely* injection genetic recombination Seralbumin industrialization at Zhangjiang biomedical pilot incubation base. *This is a part of the drug discovery initiative project, a major National Science and Technology Project.* The pilot incubation of the injection genetic recombination Seralbumin medicine will fill the major technology gap in injection genetic recombination Seralbumin products.

Sinret Biomedical technology (Shanghai) Co.,Ltd. independently developed new expression strain used for the production of genetic recombination Seralbumin medicine and grasped many new advanced technologies for production and test, particularly new and large-scale purification technology with effectiveness and high purity, new diversified technology for analysis and diagnosis. By applying Seralbumin recombination technology to pharmacy, it also successfully developed the second generation of medicine with the purity of 99.99999999%. Sinret Biomedical technology (Shanghai) Co.,Ltd. is the only enterprise that undertakes the task of manufacturing injection genetic recombination Seralbumin medicine which is among *the "three major" concerns* (major product; major need; major issues) of *biotech medicine of the drug discovery initiative project, a major National Science and Technology Project.*

(Source:Science and Technology Commission of Shanghai Municipality, October 22, 2012)

International S&T Cooperation Base(5): Shanghai Innovation Center of Chinese Medicine

Shanghai Innovation Center (hereinafter referred to as "the center") is a modern research and development institution co-invested by Science and Technology Commission of Shanghai Municipality, Government of Pudong New Area of Shanghai Municipality, Shanghai Zhangjiang Hi-Tech Investment Co.,Ltd, and is among the seven key biomedicine bases greatly supported by the state. The center also serves as the supporting institution of National Innovation Center of TCM Modernization in Shanghai and the base of international S&T cooperation as well as a training hub for postgraduates in Shanghai.

Since 2000 of its establishment, the center has committed itself to the modernizing the Chinese medicine and innovating medicine research, integrating the modern life science, chemistry and information technology with the time-honored experience of traditional Chinese medicine. By doing so, the center gradually builds up a brand-new pharmaceutical R&D system to explore what works, how and why it works, and grows the traditional Chinese medicine into a vital part of the knowledge-based economy. Not only has the center currently formed a R&D group of nearly 60 researchers with Phds and post-graduates as the backbone, but boasts a multi-functional R&D system for new-drug innovation, including laboratories on research information on Chinese medicine, phytochemicals, assay analytical measurement, organic synthesis, pharmacology & toxicology, Chinese medicine genome, drug design, light-heavy weight pilot plant, and sets up the public platform for Chinese medicine R&D information service, screening platform for Chinese medicine genome, and synthetic platform for glycoside chemicals, etc. The center has presently got the go-ahead for clinical trial of two Type-I new drugs, and one new Chinese medicine. Two of them are already under clinical trials. And it has launched one new drug and several healthcare products on overseas markets. It has filed 35 applications for national invention patents, with 14 granted, and filed 11 applications for international patents, with one granted by US and one by Japan.

The research team of the center has initially established a multidisciplinary comprehensive development system on the basis of Post-Absorption and Metabolism Compound(PAMC) through years of painstaking efforts in traditional Chinese medicine innovation. Antidepressant derivant thus gained proves effective and has been put into clinical trials.

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(Editor's Note: All news in the issue are translated from Chinese texts for your reference. They are subject to checks and changes against official release of original Chinese or English texts.)