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SPECIAL ISSUES

More Reforms for S&T Management

To ensure the state treasury appropriation for S&T activities deserves what

it pays for, the Ministry of Science and Technology recently issued the Comments on the Reform of National S&T Project Management, in an attempt to enhance the reform in the area.

The Comments makes the following the priorities:

1) Establishing a unified information platform to provide seamless for national S&T projects management. From now on, national S&T projects shall be applied through this platform, rather than through an application interview at the physical project management authorities.
2) Establishing a unified consultation, review, and approval database for national S&T projects. The selection of experts who involve in consultation, review, and approval, shall be made on a random basis, following the principle of avoidance.
3) Enhancing the support for industrial technology innovation activities. Encouraging industry to be part of the implementation of national S&T projects. Supporting industry to head the projects of commercial application perspectives. Encouraging and supporting industry to establish independent or joint national engineering centers, in collaboration with research institutes and universities.
4) Strengthening the functions of management and supervision, and establishing an effective responsibility system. A number of key links, including consultation, decision making, implementation, and supervision, shall be defined with clear terms of reference, in an attempt to track down the responsibility to person, when a target project is not soundly implemented or supervised.
5) Personnel training and construction of S&T infrastructures shall be made important indicators for measuring a project. Changing the past practice that uses technical breakthrough as the only indicator.
6) Strengthening the management of intellectual property, and making patents and innovations an important basis for establishing a project. Intellectual property and technology standards shall become the major indicators for measuring the implementation of projects.
7) Results or findings reviewing process will be abolished at the national level. National S&T projects shall be wound up through an approval process. The approval process shall focus on the realization of required targets and the completion of the project. The technical level assessment will not be taken as part of the approval process.

Enhanced Recycled Water Utilization

Not long ago, the Chinese Ministry of Science and Technology and the Ministry of Construction jointly issued a circular, asking local authorities taking care of construction and S&T affairs to work together, and enhance

their inputs in developing and diffusing innovative recycled water technologies.

In the Technical Policy set up by the two Ministries for utilizing urban recycled water, it is stipulated that China's recycled water utilization will pursue the following general goals: taking full advantage of urban sewage water resources, reducing the volume of contaminated water, practicing water efficiency, facilitating the cyclic utilization of water, and raising the efficiency of water utilization. Under the said target, by year 2010, the direct utilization of recycled water shall reach 10%-15% of the urban sewage emissions in the northern cities where water shortage prevails, and 5%-10% in the southern coastal cities claming a water shortage. Further to 2015, the same indicator shall be up to 20%-25% for the northern cities, and 10%-15% for the southern coastal cities. In the meantime, other cities in the country shall work on the same technologies and associated diffusions on an incremental basis.

To ensure the realization of the above-mentioned targets, the Technical Policy asks cities having very limited water resources to work on recycled water utilization projects that aim at increasing water resources, while encouraging the cities short of quality water to reduce the volume of contaminated water, and introduce recycled water projects aiming at improving the water quality. In the meanwhile, recycled water shall be the first source for urban environmental utilities. Recycled water shall also find an active application in industrial and other urban activities. The newly built residential areas, or the public structures that reach a required scale, shall establish a comprehensive recycled water use system, though they are outside of the major recycled water supply system. The secondary water produced by the urban sewage treatment plants shall also be part of the water system used by farming activities.

In addition, the Policy asks relevant authorities under the State Council and local government to prepare legislations and policies, favoring the utilization of urban sewage water resources, reducing contaminated water, water efficiency, cyclic utilization of water, and raising the efficiency of water utilization. In the meantime, efforts shall be made to promote the construction and operation of urban recycled water utilization infrastructures, and establish an effective supervision and control system. Water pollution control planning at the national, basin, or regional levels, and urban swage treatment planning shall include the part of recycled water utilization. While working on general layouts for the urban utility infrastructures involving water supply, sewage treatment, and ecological and environmental protection, detailed objectives and layouts for urban

recycled water utilization shall be added. The urban sewage pipeline design and planning shall have the room for recycled water.

Green Paper for Environmental Protection

The Chinese Association for Promoting Environmental Culture published on June 1, 2006 a green paper for China's environmental living index.

The Index, a gathering of feelings or impressions from people's direct experience or other channels, makes a quantitative reflection of people's knowledge of, participation in, and assessment of environmental protection activities. It is believed that the Index provides a quantitative means to understand environment issues that are difficult to be evaluated in a quantitative manner, using modern polling and statistic methods. It is not only a basic project of scientific and visionary nature, but is also a barometer depicting Chinese people's awareness of environmental issues.

The Index shows people's great expectation for strengthening environmental protection related legislations and an enhanced input in the same activities. Referring to the most effective approaches to address China's environmental issues, most people believe that legal sanctions shall be the first option, which mirrors China's outdated and less feasible legislation status for environmental issues, that are not powerful enough to impose a forceful impact and punishment. In this context, updating the existing environment laws and regulations, and strengthening law enforcement shall be a focus for the future. The Index also shows that 20% of the investigated do not know what kind of environment rights they are entitled to, nor related regulations in the civil laws. This calls for an enhanced public awareness campaign for the legal aspects of environmental issues.

To ensure the scientific and authoritative nature of the survey, the Index is established, using an internationally advanced polling method made up of 3 primary indexes, 8 secondary indexes, and 34 tertiary indexes, concerning environment related awareness, behavior, and retrospective thinking. A multi-level random sampling is made in 20 large and medium sized cities, townships, and rural areas, covering China's 7 major regions. 3,777 candidates were finally selected to answer the questionnaires. The green paper is the fruit of the comprehensive study of the survey results. To be published on a yearly basis, the Index will see a continuous improvement.

China's White Paper for RFID

On June 9, 2006, a meeting was convened in Beijing to introduce China's

white paper on RFID policies. Experts from the Ministry of Science and Technology, the State Development and Reform Commission, and other agencies attended the meeting.

RFID, or Radio Frequency Identification，is a non-contact automatic identification technology, using radio frequency telecommunication. With a line of merits, including small size, large volume, long service life, and repeatability, the technology supports a range of functions, including fast reading, invisible identification, mobile identification, multi-targets identification, positioning, and long term tracking. Prepared by the Ministry of Science and Technology, in collaboration with the State Development and Reform Commission, the Ministry of Commerce, and the Ministry of Information Industry, the paper is made up of five chapters, including technical status quo and future development of RFID, China's RFID development strategy, Priority fields for RFID development, and commercial applications and macro environment for the technology.

INTERNATIONAL COOPERATION

ITER Accord Initialized

On May 24, 2006, LIU Yanhua, Chinese Vice Minister of Science and Technology, initialized an accord on implementing the ITER project and associated other documents, together with other parties who attended the third ministerial meeting of ITER, at the EU Headquarters.

Since becoming a member of ITER in February 2003, China has made tireless efforts to push forward the negotiations, and an earliest possible implementation. LIU said at the initializing ceremony that China would continue to be an active part of ITER preparations, and work for an earliest possible implementation of the project. During the meeting, LIU exchanged views in details on implementing the ITER project with other participants. The above-mentioned document will be officially signed on November 2006, upon the ratification of participating countries.

RESEARCH AND DEVELOPMENT

Microsatellite Technology

Not long ago, high performance microsatellite ground observation technology and associated applications, a major project under the National

Key Technology Program in the 10th Five-year period(2001-2005), passed an approval.

The project, starting from the November 2002, produced a microsatellite named Beijing-I that was blasted off on October 27, 2005. Both in-orbit test and trial operation has shown a smooth and fine performance of the system. It meets the required design for an effective combination of both wide coverage (600km) and high resolution (4m).

The performance and technical indicators of a line of sub-systems derived from the project, including ground reception, data processing, and application service, have reached the designed requirements. Thanks to a fine match between the satellite and ground control system, the microsatellite makes a fine integration of control, reception, and operation.

The project also involves in a range of application oriented demonstrations, including water resources survey, land use, winter wheat area estimation, floods watch, and archeology, which laid a ground for the further applications of microsatellite data.

The project hits the targets of innovations both technically and mechanically, and enhances China's proprietary capability of developing innovative microsatellites, and forming up new R&D systems.

ENVISAT-ASAR Data Sharing

Under the authorization of the Department of High and New Technology Development and Industrialization, a part of the Ministry of Science and Technology, an expert approval meeting was organized by the National Remote Sensing Center, to review a data sharing project, undertaken by the China Remote Sensing Satellite Ground Station. Experts are happy with numerous merits the system has, including full functions, large storage volume, strong scalability, a rational structure, quick user response, and fast downloading capability.

Equipped with diverse functions, including data conversion, data management, data search, data transmission, and user management, the data sharing platform, derived from the project, has been put into operation. The system allows online surfing and downloading of standard sized full-resolution images. Up to date, the platform has registered users over 1000 in number, with some 17,000 visits, and a download volume of 700GB and 2600 images. With an active surfing population, the platform has played a positive role in facilitating the research and application of

China’s radar remote sensing data.

China’s Nanogenerator

Not long ago, WANG Zhonglin, Director of Overseas Office, China National Nanoscience Center, and a professor at the Georgia Institute of Technology, and SONG Jinhui, his doctorate student, successfully worked out a generator at the nanometer level. The study is financed by the overseas young scholar collaborative study fund, under the Chinese National Natural Science Foundation.

WANG explains that a man’s walking can produce an energy of 67 watts, his finger 0.1 watt, and respiration 1 watt. Some of the energy can be used to drive very tiny equipment. For example, it is possible to obtain 17%-30% of the energy from these movements. Taking advantage of the fact that an oxidized nanowire is easily subject to bending, compressing and stretching movements can be produced inside and outside of the nanowires, which can eventually result in electric currents. When numerous nanowires give out electric currents at the same time, an energy that is sufficient to drive small medical machinery can be produced, even though an individual nanowire only produces a very weak electric current.

GIS Updates

The State Bureau of Surveying and Mapping has recently kicked off the update of the 1:50,000 database, part of the national basic geographic information system. Using a range of proprietary technologies, the project, scheduled for 5 years, will update more than 19,000 relief data at a scale of 1:50,000.

During the 10th Five-year period, the Bureau has created a number of basic geographic information databases at different scales, including 1:1,000,000, 1:250,000, and 1:50,000. Of them, the 1:50,000 database constitutes the most basic geographic information set, with a most extensive and frequent application. As a major component of digital geographic China, the update is important for spurring up the development of China’s national information process.

It is reported that upon the completion of the update, a real-time and dynamic updating mechanism will be introduced for the 1:50,000 database.

Proprietary Drilling Boat

Chinese made 122-meter automatic drilling platform, developed by Dalian

Shipbuilding Industry Co. Ltd, was rolled off and delivered on May 31, 2006 to China National Offshore Oil Corp.

With a 75-feet suspension arm directed under a full automatic system, the drilling platform can make a front and rear movement up to 15 feet, with a position for some 30 wells, at a depth of 400 feet. The manufacturer has found solutions to a range of key technologies, including peg leg, central control system, and high-low pressure slurry system. The 167m tall peg, with an ascending and descending gear box made up of 1,700 components and parts, can complete docking through a lifter. Thanks to strict quality control and painstaking efforts, researchers have overcome technical difficulties, one after the other, and worked out an internationally advanced offshore oil drilling platform that is domestically the largest and fully automated, with a largest operational depth.

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