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SPECIAL ISSUES

RMB 4.6 Billion for Climate Change

Since the implementation of the 11th Five-Year plan (2006-2010), the Chinese Ministry of Science and Technology has invested RMB 4.6 billion to address climate change issues, said WAN Gang, Minister of Science and Technology at a State Council news conference held on June 14, 2007. WAN told reporters that during the 10th Five-Year period, MOST had invested RMB 2.5 billion on a combined basis to work on climate change related research, observation, and technology development. In the 11th Five-Year period, MOST has enhanced its effort in the area, and secured an investment worth RMB 4.6 billion for climate change projects so far initiated.

According to WAN, while enhancing its efforts in addressing climate change issues, MOST has also enjoyed support from other government departments, including the State Development and Reform Commission for infrastructures, the Chinese Academy of Sciences for knowledge innovations, and the State Environmental Protection Administration for environmental technologies. In addition, local authorities at different levels have made their investment available for concrete projects in response to climate change.

WAN said that he was pleased to see industry becoming a more active part of energy efficiency and greenhouse gas emission reduction. Some enterprises have introduced cyclic economy in their operation, while others working on energy efficiency and environment friendly technologies, all striving to reduce energy consumption and emissions. WAN said China plans to establish a new investment mechanism for climate change that is guided by national policy, and works under collaborations between different government agencies, and between local authorities and enterprises.

S&T Action Plan for Climate Change

14 Chinese government agencies, including the Ministry of Science and Technology, and the State Development and Reform Commission, published on June 14, 2007 a special action plan to address climate change. The action plan says that while responding to global climate change, China shall strengthen its international S&T cooperation, and facilitate technology transfer, by taking full advantage of the global resources. It also asks to make climate change related S&T collaborations part of bilateral or multilateral intergovernmental S&T collaborations, in an attempt to raise the level of international S&T cooperation in the area.

According to the action plan, China will further open up S&T programs or projects initiated at the national, local, departmental, and sectional levels. China will initiate in due time international S&T cooperation projects in some areas of climate change studies, under the principle of "with China as a key player, working for mutual benefits, and spurring up proprietary innovations". It also encourages Chinese scientists, research institutes, and enterprises to initiate or to be part of international or regional efforts in response to climate change.

In addition, the action plan encourages China to be an active part of

international technology transfer market, so as to obtain affordable advanced and environment friendly technologies to cope with climate change, and work on the combined process of importation, digestion, absorption, and re-innovation.

Chinese scientists and S&T management personnel are also encouraged and supported to compete for senior positions at international organizations. China is willing to host major international workshops or seminars on climate change, make itself the home to Headquarters or branches of related international organizations, and initiate an international forum on climate change and S&T.

INTERNATIONAL COOPERATION

China-Canada Joint S&T Fund

During his visit to Canada, SHANG Yong, Chinese Vice Minister of Science and Technology, met on May 29, 2007 with Gagnon-Tremblay, International Relations Minister of Québec, and Raymond Bachand, Minister of Economic Development, Innovation and Export Trade from the same province. SHANG and Raymond Bachand jointly announced that the Chinese Ministry of Science and Technology and Québec government will establish a joint S&T fund.

According to the accord, both parties will share the investment of 1.6 million Canadian dollars (or RMB 11.5 million) in the coming three years, to support joint research projects in the area of biology, genomics, proteomics, marine science, and information and communication technology.

SHANG and Colin Hansen, Minister of Economic Development of British Columbia also jointly announced on June 1, 2007 that the two parties will establish a joint S&T fund with an amount of 4 million Canadian dollars, or RMB 28.8 million, to support collaborative researches in the area of marine technology, agriculture, biotechnology, information and communication technology, environment, mining, energy, and advanced materials.

China-Russia Atmospheric Physics Lab

An inauguration ceremony was held on June 9, 2007 to celebrate the opening of China-Russia Atmospheric Physics Lab at the premises of the Institute of Atmospheric Physics, part of the Russian Academy of Sciences in Moscow. LU Yongxiang, President of the Chinese Academy of Sciences was present at the event. LU hoped that the new joint lab will contribute to raising the research level of both countries in the area, and nurturing out more high caliber experts. He believed that while serving both countries and international communities, the joint lab will become a role model in S&T cooperation between the two countries.

Prof. Georgii S. Golitsyn, Director of the Institute of Atmospheric Physics, part of the Russian Academy of Sciences, said the establishment of the joint lab is a fruit derived from S&T cooperation between the two countries. Scientists from the two countries will work together closely, through this platform, to facilitate the development of atmospheric physics.

LU made a proposal to establish a China-Russia joint lab during his visit to Russia in July 2004, which was responded favorably by his Russian counterparts. The Chinese Academy of Sciences and Russian Academy of Sciences jointly signed on September 16, 2006 an official accord on establishing a joint lab for atmospheric physics. The joint lab works on 11 topics, including climate change in Asia and Europe, climate change and human health, air pollution and the development of large cities among many others. On May 17, 2007, an inauguration ceremony was held for the joint lab at the premises of the Institute of Atmospheric Physics, part of the Chinese Academy of Sciences.

International Cooperation for Desertification Control

New technologies and approaches and associated applications in desertification control is an international cooperation project between Beijing Normal University and Italian National Agency for New Technologies, Energy and the Environment (ENEA). The project has established a quantitative evaluation and dynamic monitoring system for desertification control, through integrating the existing S&T findings and the state-of-the-art technologies both at home and abroad. It has become a supporting tool for revealing the disasters forming mechanism of desertification, and for working out desertification control plan and associated implementation.

As a financier to the project, ENEA sent Italian experts to work on desertification control training in Beijing. It also invited Chinese scientists to visit Italy, and endowed a SAND-MODEL software to them. ENEA has collected desertification data of the southern part of Italy for a long time, with rich research findings. The collaboration allows Chinese scientists to learn from their Italian counterparts, and an accessibility to the data.

Chinese scientists worked out quantitative indicators for evaluating desertification in different types, and established a quantitative evaluation and dynamic monitoring system for desertification control, based on field investigations and observations, with the assistance of TM data, ERDAS Imagine8.6, and ARC/INFO. Also derived from the efforts are desertification classification and associated evaluation standards, with a range of maps showing existing desertification areas and their evolutions.

The project will spur up China's efforts in desertification control and warning, providing theoretical evidences and technical support for wind erosion control in sand stricken areas. It will also provide evidences for local authorities and government agencies formulating their plans and policies to deal with wind erosions and desertification, and improving sustainable use of land in sand

stricken areas.

China-Italy Durum Wheat

Genetic improvement of wheat and breeding of novel durum wheat is an international cooperation project between the Agricultural Resource Research Center under CAS Institute of Genetics and Developmental Biology, Shijiazhuang Academy of Agricultural Sciences and Italian ENEA. The project has worked out proprietary durum wheat, which enriches China's wheat germplasm resources, and made basic conditions available for commercial applications of durum wheat in the country.

The research team has bred out 13 diseases resistant materials, 25 fine quality materials, and 16 durum materials, combining conventional technologies with hybriding, tissue culturing, and molecular breeding techniques. It produced 184 combinations using medium materials that would eventually lead to new varieties. Shimai II, a durum wheat variety derived from the project, becomes an important basis for spurring up the durum wheat research and associated commercial applications in the country.

RESEARCH AND DEVELOPMENT

Giant Birdlike Dinosaur Unearthed

Xu Xing, a paleontologist at the Institute of Vertebrate Paleontology & Paleoanthropology in Beijing, and his collaborators from Inner Mongolia have uncovered a fossilized giant birdlike dinosaur in the Erlian Basin of northern China's Inner Mongolia region. The finding was reported in the June 14 issue of the journal *Nature*.

The fossilized dinosaur, named *Gigantoraptor elrianensis*, was found in the sediment rocks formed some 80 million years ago. Fossilized bones show that the specimen is about 8 meter long, 5 meter feet tall and weighs 1400 kg. Based on an analysis of the micro features of the dinosaur, scientists believed that the dinosaur died when it was 11 years old, an age just entering adulthood. They concluded that an adult *Gigantoraptor* shall be much heavier than 1400 kg. Scientists presumed that *Gigantoraptor elrianensis* worked with an accelerated growth strategy, with its growth being even faster than that of formidable tyrannosaur. CT scanning results show that there is a sponge like structure in its backbone, resembling some large plant-eating sauropod dinosaur, indicating a body weight reducing strategy.

Gigantoraptor elrianensis has presented some unique features that are not seen in any other dinosaurs. For example, scientists have so far not yet worked out the functionalities of special holes in its backbones. They also found that the dinosaur's hind limbs are out of normal proportion. Theoretically speaking, when dinosaurs became bigger, their limbs would become stronger, with rear limbs becoming shorter. However, the uncovered dinosaur has slender rear limbs, implying a stronger running capability, compared with other dinosaurs.

What made scientists excited is *Gigantoraptor elrianensis* bears numerous birdlike features. Previous studies show that the size of dinosaurs is noticeably related to the evolution of birds. Prevailing theories believe that dinosaurs became smaller as they evolved into birds, and that bigger dinosaurs had less birdlike characteristics. However, *Gigantoraptor elrianensis* makes an exception. It has more birdlike features, compared even with the much smaller oviraptors. In the evolution process from dinosaurs to birds, different types of dinosaurs have different evolution paths and development mechanisms, which adds to the complexity of the origin of birds.

National Grid Software 3.0 Approved

China national grid software V. 3.0, jointly developed by the Institute of Computing Technology, part of the Chinese Academy of Sciences, Jiangnan Institute of Computing Technology, Tsinghua University, and Beijing University of Aeronautics and Astronautics, passed an experts' approval on June 12, 2007.

As part of the special project for high performance computer and associated grid service environment under the National 863 Program, the initiative is designed to work out an advanced CNGrid COS, with a reliable performance and strong applications, supporting the development, deployment, operation, and maintenance of China national grid environment and associated applications. It also expects productive operations and diverse applications, through CNGrid COS based resources sharing, coordination, and integration. Led by the Institute of Computing Technology, with the participation of six other institutes, the project has produced 7 work packages needed by CNGrid GOS, including requirements/standards and general management, system software, programming environment, grid workflow, data network, engineering process and system integration, and results diffusion. The major tasks assigned to the Grid and Service Computing Center are: master design, network system software, grid programming and application environment, and grid workflow software. Integrated with other applications, the results derived from the project will be made into a grid software package for further

diffusion.

Electronic Whiteboard with Positioning Function

Electronic whiteboard with wireless positioning function, developed by Changchun Jida Boshuo S&T CO Ltd. is able to work on a 2-D positioning on any smooth and solid surface, through the sensors installed on both left and right upper corners of the whiteboard, which transmit data to computer for wireless positioning. Writing on the whiteboard using an electronic signal pen will send data to the computer, which will store the data at the same time. The operation leaves no traces on the whiteboard, saving the labor of erasing.

Electronic whiteboard produces no dust, allowing a teacher to keep his or her traditional way of lecturing. According to a briefing, the electronic whiteboard that has been put into production for 2 years is granted with 7 patents. Thanks to supersonic and infrared techniques it applied, the new whiteboard offers an enhanced resolution, with a speed of 3 meters per second, and a laudable technological sophistication and stability. A number of users, including Peking University, Renmin University of China, and Jilin 208 Hospital, have applied the technology in their daily operation.

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