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Latest news of international science and technology cooperation

China and Nigeria Sign an MOU on S&T Cooperation

On 12 April 2016, President Xi Jinping held talks with Nigerian President Muhammadu Buhari. After the talks, Mr. Wang Zhigang, Vice Minister of Science and Technology of China, and Dr. Christopher Ogbonnaya Onu, Minister of Science and Technology of Nigeria, signed an Intergovernmental MOU on Science and Technology Cooperation under the witness of the two heads of state. According to the agreement, the two sides

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will set up a joint committee to promote various forms of cooperation in science, technology and innovation between governmental departments, research institutions, universities and businesses, including supporting joint pilot and research programs, facilitating exchange of visits between scientists and research personnel, organizing thematic seminars and exhibitions and conducting technical training. The signing of the agreement has laid the foundation for the two countries to plan and promote the relevant cooperation within the framework of China-Africa Science and Technology Partnership.

(Source: Website of Ministry of Science and Technology, 20 April 2016)

Minister of Science and TechnologyWan Gang Attends Sino-German Innovation Conference

On 13 April 2016, the fourth Sino-German Innovation Conference was held in Berlin. Dr. Wan Gang, Minister of Science and Technology of China, and Dr. Georg Schütte, State Secretary at the Federal Ministry of Education and Research of Germany, attended and addressed the conference. In his speech, Minister Wan Gang identified "innovation" as the key component of Sino-German cooperation, and called on the two sides to:

1. advance open cooperation in basic research and S&T infrastructure;

2. build a platform of innovation cooperation;

3. strengthen cooperation on science parks, maker space and other new types of business incubators, and encourage the innovation and entrepreneurship endeavor of young people;

4. deepen dialogue and cooperation in innovation policies and continue to engage in dialogue and research on innovation strategies and policies.

The conference was divided into three sessions, respectively on national innovation system, innovation relevant to urbanization, and priorities of R&D cooperation. The delegates focused on the hot issues of present and future Sino-German cooperation in science, technology and innovation, shared the latest progress in ICT, intelligent manufacturing, smart lighting, electric vehicles, and bio-technologies among others, and discussed the prospect of future cooperation.

(Source: Website of China International Science and Technology Cooperation, 20 April 2016)

Collaboration between MOST and Queensland Cemented

On 11 April 2016, Chinese Vice Minister of Science and Technology Xu Nanping met with the visiting Premier of Queensland Annastacia Palaszczuk.

Vice Minister Xu pointed out that both the governments of China and Australia attached great importance to science, technology and innovation. In recent years, the two sides have made smooth progress in scientific and technological cooperation and achieved fruitful results by setting up science and research funds and joint laboratories. While strengthening ties between research institutes and academies, the Ministry of Science and Technology (MOST) is ready to work with the Queensland government to advance the industrial partnership program, and facilitate personnel exchanges between science parks in order to unleash the full potential of innovation.

Premier Palaszczuk echoed the points made by Vice Minister Xu and stated that the visit of research personnel

from Queensland to China could benefit the development of science, technology and innovation in both China and Australia. After the talks, Vice Minister Xu and Premier Palaszczuk signed the Supplementary MOU between MOST and Queensland State on Industrial Partnership Program.

(Source: Website of Ministry of Science and Technology, 19 April 2016)

19th China-Denmark Joint Committee Meeting on Science and Technology Held in Copenhagen

The 19th China-Denmark Joint Committee Meeting on Science and Technology was held in Copenhagen on 15 April, 2016. Wan Gang, Chinese Minister of Science and Technology, and Ulla Tørnæs, Danish Minister of Higher Education and Science, reviewed the progress of bilateral cooperation in science, technology and innovation over the past few years, presented the latest development of science and technology in their respective countries, and discussed the priorities and direction of future partnership. The two sides also exchanged ideas on innovation policies during the meeting. China and Denmark see each other as an important science and technology partner. Relevant departments of the two countries have signed a number of cooperation agreements or MOUs and conducted fruitful cooperation in clean energy, bio-medicine, nano-technology, food safety and information technologies. The two countries are highly complementary in a wide range of areas, and enjoy huge potential in scientific and technological cooperation. The two sides should expand cooperation to achieve more fruitful results for the benefit of the two countries and peoples.

(Source: Website of Ministry of Science and Technology, 19 April 2016)

Embarking on a Path of Agricultural Science and Technology Innovation with Chinese Characteristics

Secretary of CPC Leading Group and Vice Minister of the Ministry of Science and Technology Wang Zhigang shared his views about the new normal of agricultural and rural development in China, measures to be taken by the Ministry of Science and Technology in 2016 and during the 13th Five-Year Plan period for agricultural science and technology policies, and the reform of agricultural science and technology system.

Vice Minister Wang pointed out that China's agricultural and rural development is showing a sound momentum of sustained and accelerated growth in all areas. However, progress of agricultural modernization is still slow compared to the advance of new type of industrialization, urbanization and IT application, and rural development remains the weakest link in the building of a moderately prosperous society. Such a situation is not going to change any time soon. The pressure of rigid demand will continue to weigh on the supply of main agricultural products in China, and agricultural development will face growing resource and environmental constraints. As China's agricultural sector will be deeply integrated into the global market, the escalating international competition of agricultural trade will only exert a deeper impact on the sustainability of China's agricultural development. Adapting to the new normal of economic growth and accelerating the historical process of agricultural transformation and restructuring through innovation will be the most urgent and arduous task for innovation in agricultural science and technology.

The Ministry of Science and Technology will continue to deepen reform of the agricultural science and technology system, speed up the building of a modern agricultural science and technology innovation system, plan for and carry out a number of key and special projects of agricultural science and technology innovation; foster agricultural high-tech industries, build a group of demonstration zones of agricultural high-tech industries and modern agricultural science and technology innovation centers, cultivate a group of agricultural high-tech companies, support the transformation and upgrading of agricultural industries and boost the market competitiveness of the agricultural sector; implement the strategy of county-based innovative development, develop a network of maker's space in agricultural and rural sectors, unswervingly promote the building of beautiful countryside, and boost the scale and strength of county economies; accelerate the implementation of international cooperation on agricultural science and technology within the "Belt and Road" framework, and open the agricultural sector wider to the outside world; launch the science and technology campaign of poverty alleviation, and successfully carry out precision poverty alleviation and reduction through science and technology innovation.

Going forward, in keeping with the strategy of innovation-driven development, the Ministry of Science and Technology will endeavor to break the barriers between different departments, regions and academic disciplines, consolidate science and technology resources, build a mechanism of collaborative innovation, and promote close cooperation between producers, academic and research institutions and integration of agriculture, science and education; apply a new model of agricultural science and technology development featuring the connection between the industrial chain, innovation chain and capital chain based on the science and technology demands in relation to the critical issues of industrial and regional development, expedite the innovation in the organization and management of agricultural science and technology, and institute a new mechanism of collaborative research; build a platform conducive to agricultural science and technology innovation, strengthen the building of key national laboratories,

national research center of engineering technologies and other platforms and bases in the agricultural sector, and build a national science and technology innovation center of agricultural industries; develop an evaluation system for science and technology professionals and outcomes consistent with China's national conditions and the laws governing agricultural science and technology development, study the possibility of formulating talent mobility and intellectual property policies that facilitate the collaborative innovation of universities, research institutes, enterprises and financial institutions, and cultivate an environment attractive to agricultural science and technology innovation and entrepreneurship professionals; promote the reform of prefecture and county-level agricultural research institutions, follow a path of differentiated development that preserves the characteristics of different entities, support prefecture-level agricultural research institutes to participate in the university-based system of agricultural technology promotion services with the support of higher learning institutions in the local communities, and encourage prefecture and county-level research institutes to accept the direct administration of provincial research institutes if they are able to do so.

The Ministry of Science and Technology will foster a modern system of agricultural science and technology innovation featuring IT application, bio-technology, smart production and sustainable development with a focus on shifting the model of agricultural development and accelerating agricultural modernization. Efforts will be made to facilitate the integration of breeding, cultivation and dissemination, build up the independent innovation capability of the seed industry and protect the seed security of the country; deepen reform of the benefit distribution of research outcomes in the seed industry, and explore the system for the sharing, transfer and conversion of research benefits and classified management of research personnel; implement the seed industry modernization project and independent innovation project, promote the joint scientific research of fine seed varieties in an all-round way, cultivate and promote high-quality, high-yield, multiple-resistant new varieties suited for mechanic production, and accelerate the update of major food crops; reinforce the role of enterprises as the main player in seed variety innovation, and accelerate the development of modern seed enterprises with international competitiveness.

The Ministry of Science and Technology will promulgate the Opinions on Deepening the Implementation of Technical Task Force, and carry out the project of innovation and entrepreneurship of TTF to bring up a team of over 10 million TTFs and help farmers acquire more professional skills; build a network of maker's space, grow new entities of agricultural production such as TTF with legal person status, and promote business start-ups across industries and regions and throughout the industrial chain; build the platform of science, technology, financial, brand and other public services for the agricultural sector based on national agricultural science parks, accelerate the building of a new system of commercialized agricultural science and technology services, and address the "last mile" problem in the conversion of agricultural science and technology outcomes.

(Source: Science & Technology Daily,
February 16, 2016)

New Features of Science, Technology and Innovation in Agriculture

China's agricultural and rural sectors have enjoyed sustained and accelerated growth in all areas over recent years. New features also manifest themselves along with domestic and international developments and profound socio-economic transformation. The speed, scope and impact of such changes are far beyond people's expectation. Science, technology and innovation (STI) is entering a new normal in the agricultural sector.

With the advent of another round of scientific and industrial revolution, varied academic disciplines are further integrated. The extensive application of information, biological, new material and energy

technologies in agriculture and the countryside has accelerated high-tech, smart and mechanized production, and triggered a sweeping revolution of green and smart technologies.

The industrial and innovation chains are more closely linked. Resources of innovation are further integrated. To build a system with enterprises as the main player, market as the guide and synergy forged among production, academia, research and application is the fundamental solution to address weak connections between innovation actors and narrow the gap between innovation and industrial development in agriculture. The agricultural and rural sector has entered a new normal whose key is to develop the innovation chain in line with industrial needs to upgrade the value chain. The aim is to increase yield and efficiency, cultivate fine varieties through advanced production methods, combine mechanization with appropriate techniques, and balance production with ecological protection. The ultimate goal is to promote technological integration, agricultural mechanization, IT-enabled production, and successful commercialization.

In addition, there are growing demands for green technologies of energy conservation and emissions reduction. To enable resource-efficient and eco-friendly production is an important goal of China's agricultural transformation. It is also a concrete action taken by the country to meet its international obligation. In accordance with the China-US agreement on greenhouse gas emissions on November 12 of 2014, China pledged to halt the increase of its CO_2 emission by 2030. To deliver such a solemn commitment, China is obliged to restructure its agricultural sector, and speed up technological R&D to realize energy conservation, emissions reduction for sustainable development.

Both technological development and improved rural livelihood are important. By 2020, China will put an end to the binary structure that separates the cities from the countryside by advancing urban-rural integration. It is imperative for governments at various levels to increase investment in such areas as agricultural infrastructure, living conditions, healthcare, old-age care, public services and waste treatment. Such efforts are expected to increase demands for technologies to improve wellbeing. Therefore, the role of STI must be fully leveraged in the allocation of resources and formulation of major national programs. Only in such a way could China replace the technology-centric old model with a new one that stresses both technologies and rural livelihood.

Moreover, commercialization of research outcomes has received growing momentum. To accelerate technology transfer is an important component of the innovation-driven strategy. New actors in the agricultural sector are in dire need of research achievements, especially technologies that substitute capital investment, enable economies of scale, cut costs, raise efficiency and achieve smart and circular production as such technologies improve efficiency and market competitiveness.

Lastly, demands for agricultural technologies, rather than scattered around the country, has now become more systemic and integrated. Since the beginning of reform and opening-up, land circulation has been accelerated, and the household-based operation has been replaced by the modern practice of large-scale, intensive and mechanized operation. As a result, separated demands for agricultural STI have also given way to an integrated call for systematic technological solutions.

(Source: Science and Technology Daily,
February 1, 2016)

S&T Achievements in Agricultural and Rural Development over 12th Five Years

China has entered a new stage of being a front runner in some fields, a parallel runner in other fields and a follower in still other fields in the world development of agricultural technologies. The contribution of scientific

and technological progress in agriculture to economic growth has increased from 52% in 2010 to over 56% in 2015, and from 43% to 48% in the forestry sector. The average yield of food crops has grown from 331.7 kg/mu in 2010 to 365.5 kg/mu in 2015.

The country has basically enabled the cultivation of fine seed varies in all major agricultural products. The percentage of made-in-China domesticated animals of premium quality has increased year on year. The share of high-quality cow species has increased to around 60%, and the contribution of fine seed varieties to the increase of agricultural production has exceeded 43%.

The project on S&T enabled grain harvests has made important progress. In the 13 main grain production provinces in the plains of northeast and north China and the middle-lower reaches of the Yangtze River, grain production has increased by over 56 million tons, adding over 100 billion RMB yuan of income over the last five years.

The demonstration project launched in 2013 for the Bohai Sea granary covered a total area of 17.569 million mu in Hebei, Shandong, Tianjin, Liaoning and other provinces, increasing total yield by 1.68 billion kg and adding revenue by 2.463 billion RMB yuan.

China's capability of innovation in agriculture has been notably enhanced. Up to date, 38 key national laboratories have been built to promote rice biology and crop genetic improvement among other fields. There are 36 strategic alliances of innovation in agricultural technologies and 83 national research centers of agricultural engineering.

During the 12th Five-year period, 175 S&T achievements in agriculture received national awards. China is ahead of most countries in all the major STI indicators. Agricultural high-tech industries are growing fast, and over 3,100 new varieties have been developed and cultivated on 1.5 billion mu of land.

China now has 729,000 extension service professionals who have formed 51,400 communities of shared interests with local farmers, created 15,900 businesses and set up 16,000 service stations, directly serving 12.5 million rural households and benefiting 60 million farmers.

China approved the building of 246 national agricultural parks where the drive of widespread innovation and entrepreneurship injected new impetus to agricultural and rural development. These parks incubated 6,376 enterprises with an annual output of 482.7 billion RMB yuan and paid tax of 9.55 billion RMB yuan.

The Ministry of Science and Technology (MOST) approved the establishment of 8 national demonstration zones of modern agricultural science and technology, including building Beijing as a modern agricultural science city and a demonstration along the capital-rim belt in Hebei. The State Council approved the project on a demonstration zone of agricultural high-tech industries in the Yellow River Delta.

During the 12th Five-Year period, the Ministry of Science and Technology carried out a poverty alleviation campaign based on industrial development and entrepreneurship, and sent extension workers to poverty-affected areas. Through the implementation of the talent support program and the special S&T professional program for "poverty-stricken remote areas, border areas of ethnic minorities and old revolutionary bases" (three areas), the Ministry dispatched and trained professionals in the countryside of central and western China. The central government allocated a total of 540 million RMB yuan for the dispatch of some 40,000 professionals and the training of over 5,000 professionals in 1,268 counties in the "three areas".

MOST has provided over 30 million RMB yuan of grants for 20 China-US cooperation projects on agricultural science and technology. The Ministry has also signed a protocol of flagship projects and other cooperation agreements with the US Department of Agriculture, and set up 4 joint research centers.

In addition, the Chinese side signed a MOU on strategic cooperation with the Gates Foundation and jointly launched 19 projects. The Ministry also signed a MOU with the Ministry of Agriculture of Ethiopia and approved Ningxia's application to lead the efforts in building the China-Arab States Technology Transfer Center.

(Source: Website of Ministry of Science and Technology, March 2, 2016)