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Remarkable achievements made over five years since BRI inception

Over the past five years, we have made remarkable achievements on all fronts of the Belt and Road Initiative (BRI). Up till now, China has signed BRI cooperation agreements with over 100 countries and international organizations. Jointly developing BRI and upholding its core concepts have been incorporated into the outcome documents of major international mechanisms like the UN, G20, APEC and SCO.

The establishment of efficient and convenient international routes has been accelerated. China-Laos Railway, China-Thailand Railway and Hungary-Serbia Railway have been built in a steady manner, and Jakarta-Bandung Hi-speed Rail has started to be built. The second phase of Hambantota port was completed, the Colombo Port City project more than half-completed and the Piraeus port was built into an important transit hub. China-Myanmar crude oil pipeline was put in place, which can pipe the oil from Indian Ocean to China. The double-track of China-Russia crude oil pipeline was officially put into use and the natural gas pipeline project was pushed forward as planned. Over 9,000 Sino-EU trains reached 42 cities in 14 European countries.

In terms of trade and investment cooperation, China and countries along the Belt and Road have constantly strengthened the cooperation featuring mutual benefit and win-win outcomes. In the first half of this year, the import and export volume of goods trade stood at 605.02 billion dollars, an increase of 18.8%; non-financial direct investment reached 7.4 billion dollars, an increase of 12%. At present, China and countries along the Belt and Road have established over 80 overseas economic and trade cooperation zones, which created 244,000 job opportunities.

As for connection of the peoples, China has put in place the Silk Road Scholarship, founded a Belt and Road green development alliance and launched the official website of the BRI which can realize simultaneous operation of six UN official languages. The multi-tiered and multi-area people-to-people exchange has brought about conveniences and opportunities to friendly ties of the peoples, trade, culture, education and tourism development, thus promoting mutual learning and cultural integration and innovation among different civilizations.

With regard to closer financial cooperation, we have facilitated the currency circulation and financing, created a stable financing environment, guided involvement of various kinds of capital in real economy development and value chain creation and advanced healthy development of the world economy. By June 2018, China has put in place RMB settlement in seven countries along the Belt and Road. Over 11 Chinese-funded banks have set up 71 first-level agencies in 27 such countries.

Four actions launched under Belt and Road STI Action Plan

In September 2016, to give full play to the supporting and leading role of STI in advancing the Belt and Road Initiative, the Ministry of Science and Technology, National Development and Reform Commission, Ministry of Foreign Affairs and Ministry of Commerce have complied the Plan for Advancing Belt and Road STI Cooperation. At the opening ceremony of the Belt and Road Forum for International Cooperation in May 2017, President Xi Jinping announced the launch of the Belt and Road STI Action Plan, which covers S&T people-to-people exchange, joint lab development, science park cooperation and technology transfer. In the past one year, MOST has aligned with all sectors to facilitate Belt and Road STI cooperation based on platforms of inter-governmental STI committee and S&T partnership programs. We will arrange 2,500 young scientists to conduct short-term research in China within five years, train 5,000 scientific and managerial staff and put in place 50 joint labs.

SKA sets role model for China-South Africa STI cooperation

On July 24 2018, with the accompany of Minister of Science and Technology Wang Zhigang and his South African counterpart Minister Kubayi, President Xi Jinping, who was paying a state visit to the country, attended the opening ceremony of the China-South Africa Scientists High Level Dialogue and Exhibition on the Achievements of China-South Africa STI Cooperation together with President Ramaphosa. At the photo exhibition, both Ministers reported on the progress of SKA project. SKA will become the world's most advanced radio telescope after its completion. As the most cutting-edge international mega-science project in astronomy in future decades, SKA will contribute to human exploration of the universe and the response to challenges of common concern. Established by an inter-governmental international organization built by 12 member states, SKA is now under preparation. At the opening ceremony of the China-South Africa Scientists High Level Dialogue, President Xi observed that SKA represents a major project involving scientists from countries including China and an important S&T cooperation project between China and South Africa. The two heads of state encouraged continued efforts by scientists for success of the project.

During the visit to South Africa, Minister Wang arrived at the site in the desert region of Karoo, visited the site, dish and data center of MeerKAT, precursor of SKA, and conducted on-site study of the SKA medium frequency dish prototype being built by China.

35th and 36th Beidou navigation satellites launched successfully

On August 25 2018, the 35th and 36th Beidou navigation satellites were launched with one rocket at Xichang satellite launch center. These two satellites will operate on a medium-earth orbit. They are the eleventh and twelfth BDS-3 networking satellites.

The successful launch of the Beidou 3 experimental satellites in 2015 has fully proved the key technologies of the global network. Having made initial success, the Beidou system accelerated the efforts of global development. November of 2017 witnessed the first launch of two satellites with one rocket. Since then, four more such launches have been made possible. The Beidou system is making concrete progress toward the goals of serving countries along Belt and Road by the end of 2018 and the whole world by 2020.

The Beidou system has done a great job, bringing tangible benefit to the local people – from transportation in Pakistan to precision agriculture and port management in Laos and from land planning in Myanmar to urban development in Brunei. Nowadays, the Beidou system has been confirmed by UN as one of the four major suppliers of global satellite navigation systems, with the other three systems being GPS from the US, GLONASS from Russia and Galileo system from the EU. With further application and promotion, the Beidou system will offer more basic and application services for ASEAN and Arab league countries.

Important breakthroughs in organic solar cell made by Chinese scientists

As an effective approach to resolve environmental pollution and energy crisis, organic solar cell is regarded as new-generation green energy technology with great industrial prospect. However, the relatively low carrier mobility of organic materials limited the thickness of active layer, which resulted in low photo-absorption efficiency. Currently, the rate for converting light into electricity has been increased to around 14%, but how to further increase it still remains a big problem for scientists.

Supported by National Key R&D Program, Chen Yongsheng's and Wan Xiangjian's teams from Nankai University and Ding Liming's team from

National Center for Nanoscience and Technology used semi-empirical model to predict in theory the parameters required for actual highest efficiency and ideal active layer material of organic solar cell. Based on solution processing method featuring integration of low cost and industrialized production, the organic solar cell with a conversion rate of 17.3% was made. This was a new world record for conversion rate of organic/polymer solar cells. Having gone through tests for 166 consecutive days, the performance loss was only 4%.

The research provides a new way of thinking for basic research of organic solar cells and strong technical support for industrialization of such cells. On the Science Magazine of August 10, those research outcomes have been published.