BRICS 2024

Editor's Note:

Amid the shifting tides of global change, the BRICS nations are forging ahead with science, technology and innovation as their driving force, aiming for shared prosperity.

As BRICS keeps expanding its membership worldwide, it is writing a new chapter of innovation and cooperation in a multipolar world. We trace the pulse of tech-powered growth and envision a future where sci-tech advancements will guide global progress, and the wisdom and strength of BRICS will stand out.

BRICS STI Contributes to Global Wellbeing

Eleven years ago, at the fifth BRICS Summit in South Africa, the *eThekwini Declaration and Action Plan of March 2013* was adopted. Following this, the BRICS Science, Technology, and Innovation (STI) Ministers and their representatives met for the first time in February 2014 in Cape Town. This was the official start of the BRICS cooperation on STI.

Since then, a wide range of fields have been added to BRICS cooperation. Up to now, three cooperation platforms, 13 specialized working groups activities, 10 main initiatives and some framework programs have been integrated under the BRICS STI mechanism. Every year, STI leaders from every BRICS nation gather together, discussing topics to foster cooperation and advance joint projects, which directly impact BRICS members' overall development.

STI as the key driver

In March 2015, the BRICS Memorandum of *Understanding on Cooperation in Science, Technology, and Innovation* was signed, establishing a strategic framework for BRICS cooperation in STI to tackle common social and economic challenges. It aims to co-generate knowledge and innovation while promoting international partnerships.

Additionally, it serves as a foundation for building cooperative STI efforts based on the principles of voluntary participation, mutual benefit, equality, and reciprocity.

Four years later, at the 7th BRICS STI Ministerial Meeting in Campinas, Brazil, a new concept of BRICS Science, Technology and Innovation Architecture was adopted. The new architecture consists of the ministerial and senior officials' meetings, the activities of the 13 thematic working groups, and joint calls for research projects.

Additionally, it includes three platforms to enhance collaboration: the BRICS Young Scientist Forum and BRICS Young Innovator Prize, the BRICS Science Academies Meeting, and the Conference on Technology Foresight and STI Policy.

These components work together to strengthen cooperation and drive forward the shared goals of BRICS.

The architecture focuses on four key areas of cooperation: research collaboration, research infrastructure, innovation, and sustainable development.

Today, BRICS is attracting an increasing number of like-minded countries that share its principles, namely, mutual consideration of interests, openness, consensus, the aspiration to form a multipolar international order and the pursuit of collective solutions to meet the challenges of the time. In this context, BRICS STI cooperation provides a unique opportunity for the countries to come together and drive innovation and progress.

Win-win as the key dynamic

BRICS is a potential powerhouse. The last 10 years of fruitful and prosperous cooperation among BRICS countries in STI is a clear testament to their strong status as emerging economies.

One of the reasons is that the BRICS members are highly complementary in trade.

Energy is one of the 13 BRICS STI working groups' focus. In this sector, Russia, Saudi Arabia, the UAE and Iran are major energy exporters, while other BRICS countries are major consumers.

In addition to the thematic working group collaborations, fundamental STI cooperations are essential to BRICS.

Take agriculture cooperation as an example. The original "BRIC" countries are all significant agricultural powers. Together, they account for 40 percent of the world's food output and more than 50 percent of the world's agricultural production. Brazil and Russia are significant exporters of agricultural products. For example, Brazil is a major exporter of soybeans and sugar, while Russia is a key supplier of grain and meat. Saudi Arabia, Iran, and the UAE are agricultural importers, which further highlights the strong win-win dynamic in agricultural trade in BRICS.

China's rapid advancements in agricultural science and technology can offer valuable solutions to the group. This includes providing advanced and practical agricultural technologies, as well as effective methods for controlling animal and plant diseases and pests, thereby enhancing the overall agricultural productivity and sustainability of the BRICS nations.

As BRICS continues to expand its membership and scope, more countries will benefit from the mechanism. When facing global challenges, the BRICS STI framework demonstrates coordination of actions to realize mutual interests. This underscores a strong commitment to common goals and an effective governance system that is resilient to unexpected challenges.

Today, the scientific community is a beacon of hope in a changing world. Its collective efforts are driving innovation, progress, and positive change. Scientists and experts are being called upon to collaborate through international scientific and technological cooperation. In this regard, BRICS has substantial resources, such as working tools, financial mechanisms, dialogue platforms, and partnerships.

13 BRICS STI WORKING GROUPS

- *Astronomy*
- *Photonics*
- *Biotechnology and Biomedicine, Including Human Health and Neuroscience*
- *Materials Science and Nanotechnology*
- *Research Infrastructures and Mega-Science Projects*
- *Information and Communications Technologies and High-Performance Computing*
- *Ocean and Polar Science and Technology*
- *Geospatial Technologies and their Application*
- *Solid State Lighting (Sub Working Group)*
- *Prevention and Monitoring of Natural Disasters*
- *Science, Technology, Innovation and Entrepreneurship Partnership*
- *New and Renewable Energy and Energy Efficiency*
- *Science, Technology, and Innovation Funding*

Making Waves in Ocean and Polar Research

Ocean and polar research is a crucial component of BRICS Science, Technology, and Innovation (STI) cooperation. The Working Group on Ocean and Polar Science and Technology was established during the 5th BRICS STI Ministerial Meeting in July 2017 to implement the related decisions of the BRICS Leaders' Summits and STI Ministerial Meetings.

The Administrative Center for China's Agenda 21 (ACCA21) carries out China's work under the guidance of the Department of International Cooperation of the Ministry of Science and Technology of China. Over the past seven years, the ACCA21 has organized and participated in international activities including hosting the 4th meeting of the BRICS Working Group on Ocean and Polar Science and Technology. Its work has promoted the construction of China's ocean cooperation platforms, collaborative research projects, joint expeditions, and the cultivation of leading and young talents. The ACCA21 also promoted the initiatives of flagship projects such as the "Deep-Sea and Hadal Trench Joint Cruise Plan" and "Climate Prediction and Marine Disaster Prevention and Mitigation".

The marine research institutions and universities led by the Ministry of Natural Resources, Chinese Academy of Sciences and Ministry of Education have conducted in-depth studies among BRICS countries, especially on sustainable ocean development, healthy oceans and global climate change, and ocean disasters.

These collaborative research efforts have facilitated exchanges among BRICS scientists, paving the way for a new innovation and cooperation mechanism in ocean and polar science and technology in the greater BRICS era.

2024 Summit Underscores BRICS' Growing Clout

The 2024 BRICS Summit will take place in Kazan, Russia, from October 22 to 24, with the theme "Strengthening Multilateralism for Just Global Development and Security."

This is the first BRICS summit after the membership expansion. According to a Sputnik report on October 14, 33 countries have already announced their participation in the summit, highlighting the growing influence of the group. Brazil, Russia, India, and China established BRIC in 2006 and South Africa officially joined in 2011, making it "BRICS". New members Saudi Arabia, Egypt, the UAE, Iran, and Ethiopia joined on January 1, 2024, doubling the membership from five to 10.

During the upcoming summit, admitting around 10 more new members will be discussed, according to Belarusian Foreign Minister Maxim Ryzhenkov.

Sri Lankan Foreign Minister Vijitha Herath said on October 14 that Sri Lanka will place on record its request for membership at the outreach BRICS summit.

Malaysia and Turkiye have already submitted their request for membership in July and September respectively. So far, around 30 countries have applied for membership.

As BRICS expands, its influence on global affairs continues to grow, offering a platform for like-minded countries to drive the establishment of a multipolar world order. Innovation and technology cooperation offers unique opportunities for BRICS members to pursue shared progress.

BRICS Technology Transfer Center Facilitates Innovation

The BRICS Technology Transfer Center in China was proposed during the 2017 BRICS Conference on Technology Transfer and Innovation Cooperation and was written into the Durban Declaration and Programme of Action, the outcome document of the 2018 BRICS Ministerial Meeting on Science, Technology and Innovation.

In September 2018, the second meeting of the BRICS Working Group on Science, Technology, Innovation and Entrepreneurship Partnership was held in Kunming, Yunnan province in southwestern China. After the meeting, the BRICS Technology Transfer Center was unveiled by representatives of the five countries. So far, BRICS technology transfer meetings have been held in Kunming for six consecutive years.

The BRICS Technology Transfer Center online platform was launched in 2019. It has automatic translation functions in 17 languages including the languages spoken in BRICS countries, South Asian countries, and Southeast Asian countries.

The BRICS Technology Transfer Center has contributed to a series of international cooperation projects. A long-term mechanism for training and introducing international talents has been established.

The BRICS Technology Transfer Center has established cooperation mechanisms with 35 official technology transfer agencies in seven countries. Establishing cooperation mechanisms in medical health and intellectual property is under discussion.

The China-BRICS Science and Innovation Incubation Park for the New Era was opened in Xiamen, Fujian province in southeastern China, in December 2023.

Main Platform to Drive BRICS Scientific Cooperation

The three STI platforms exemplify the advances in scientific cooperation within BRICS.

The BRICS Young Scientist Forum was proposed in 2015 during the second STI Ministerial Meeting, where BRICS member states agreed the country holding the BRICS presidency each year would host it. This forum is designed for scientists under 40 from BRICS countries to exchange ideas and leverage their expertise to address societal issues through research and innovation. Its goal is to strengthen BRICS leadership in science and technology by fostering a generation of innovative youth capable of driving change, reinforcing national and regional STI policies, and promoting initiatives related to youth development, skill enhancement, and entrepreneurship.

Additionally, it aims to enhance the global standing of BRICS in science and technology by tapping into the potential young innovators. To further this, the BRICS Young Innovator Prize was established in 2017.

The BRICS Conference on Technology Foresight and STI Policy is a crucial step towards addressing common global and regional socio-economic challenges by capitalizing on shared experiences and complementary strengths.

The conference brings together experts, policymakers, and industry leaders from various countries for in-depth exchanges on key issues related to technology foresight and STI policy. This collaborative effort will not only strengthen the ties among BRICS nations but also contribute to the development of a more inclusive and sustainable global economy.

The BRICS Academies of Science Meeting offers evidence-based scientific counsel to governmental bodies and executive organizations focused on STI.

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