CONCLUSIONS

2nd MEETING OF THE
BRICS WORKING GROUP ON RESEARCH INFRASTRUCTURE

Date: 1-2 March, 2018

Venue: Brazilian Center for Research in Energy and Materials (CNPEM), an institute of the Brazilian Ministry of Science, Technology, Innovation and Communication (MCTIC), Campinas-Brazil.

Organizer: Brazilian Ministry of Science, Technology, Innovation and Communication (MCTIC).

1. REPRESENTATIVES OF THE BRICS WG AND PARTICIPANTS:

Brazil:

- **Alvaro Toubes Prata (HD)**, Vice-Minister for Technological Development and Innovation of MCTIC
- **Luiz Davidovich**, President, Brazilian Academy of Science
- **Adalberto Fazzio,** Director-General Pro-tempore of the Brazilian Center of Research in Energy and Materials
- **Armando Zeferino Milioni**, Director for Development and Innovation Policies in Structuring Technologies of MCTIC
- **Antonio José Roque da Silva**, Director of the Brazilian Synchrotron Light Laboratory (LNLS/CNPEM)
- **Wanderley de Souza**, Director of Scientific and Technological Development of FINEP
- **Ricardo Magnus Osório Galvão**, Director, National Institute for Space Research (INPE)
- **Ronald Cintra Shellard**, Director of the Brazilian Center for Research in Physics (CBPF)
- **Augusto Cesar Gadelha Vieira,** Director of the National Laboratory for Scientific Computing (LNCC)
- **Eduardo do Couto e Silva**, Director of the Brazilian Bioethanol Science and Technology Laboratory
- **Luiz Carlos Delgado**, Rear Admiral from the Directorate-General for Nuclear and Technological Development / Brazilian Navy
- **Wallace Affonso Alves**, Captain from Directorate-General for Nuclear and Technological Development / Brazilian Navy
- **Kleber Gomes Franchini,** Director of the Brazilian Bioscience National Laboratory (LNBio/CNPE)
- **Andrei Polejack**, General-Coordinator for Ocean, Antarctica and Geosciences (SEPED)
- **Luis Fernando Corrêa da Silva Machado**, Head of the Division of Science and Technology of the Ministry of Foreign Affairs (DCTEC/MRE)
- **Carlos Eduardo Higa Matsumoto**, Coordinator for International Multilateral Cooperation (MCTIC)
- **Felipe Silva Bellucci**, Coordinator of Innovation in Converging and Enabling technologies (SETEC)
- **Alessandro Carioca de Araújo,** Executive Manager of LBA at National Institute of Amazon Researches (INPA)
- **Fernanda Wolter**, Advisor to the President of the Brazilian Academy of Science

- **Rodrigo Moraes Lima de Araújo Costa**, Advisor to the Director of Scientific and Technological Development of FINEP
- **Edson Roberto Leite,** Scientific Director of the Brazilian National Laboratory of Nanotechnology LNNano
- **Cláudio Ballande Romanelli,** General Coordinator of Core Skills of CTI-Renato Archer

Russia:

- **Irina Kuklina (HD),** Executive Director, International Center for Innovations in Science, Technology and Education
- **Dmitry Kamanin,** Head of International Cooperation Department, Joint Institute for Nuclear Research;
- **Valentin Nesterenko,** Leading researcher of Laboratory of Theoretical Physics (Scientific Secretary of JINR for contacts with Brazil), Joint Institute for Nuclear Research
- **Vitaliy Vorobyov,** Senior Researcher, Budker Institute of Nuclear Physics
- **Yakov Rakshun,** Scientific Secretary, Budker Institute of Nuclear Physics
- **Igor Yashin,** Dean of Higher School of Physicists named after N.G. Basov, National Research Nuclear University MEPhI

India:

- **Sadhana Relia (HD),** Head of International Multilateral and Regional Cooperation Division (IMRC), Department of Science and Technology
- **Praveer Asthana,** Head of the Mega Science Division, Department of Science and Technology
- **Jitendra Singh Rawat**, Consul, General-Consulate of India in São Paulo

South Africa:

- **Neville Arendse (HD)**, South African BRICS STI Coordinator and Chief Director: Overseas Bilateral Cooperation, Department of Science and Technology
- **Charles Mokonoto**, Director: Research Infrastructures, Department of Science and Technology
- **Mahomed Moolla,** Head of Strategic Partnership, Office of the Deputy Vice Chancellor/ Research and Postgraduate Affairs, University of the Witswatersrand.

2. GENERAL INFORMATION:

The 2nd Meeting of the BRICS Working Group on Research Infrastructure (hereinafter – 2nd Meeting of the WG) was held in Campinas-Brazil, in 1-2 March 2018. Representatives of four member countries (Brazil, Russia, India and South Africa) attended the event. The meeting was hosted by Brazil. Chinese delegation sent apologies for not being able to attend the meeting.

As host, Brazil welcomed the delegates from BRICS countries.

3. SESSIONS OF THE 2ND MEETING OF THE WG:

In the **preliminary session**, Russia reported on the 1st Meeting of the BRICS Working Group on Research Infrastructure, which was held on 16-17 May 2017, in Dubna.

In **session I**, Brazil presented multiuser infrastructures of intermediate scales of Brazilian Science and Technology Institutions and five facilities with potential to join the BRICS Platform/Web Portal on the sharing of infrastructure: (i) Sirius, the new Brazilian Synchrotron Light Source; (ii) Laboratory of Integration and Testing – LIT; (iii) Amazonian Tall Tower Observatory (ATTO); (iv) Santos Dumont supercomputer; (v) Hydro-oceanographic research vessel Vital de Oliveira.

In **session II**, Russia, India, and South Africa presented facilities with potential to join the BRICS Platform/Web Portal on the sharing of infrastructures. Russia presented (i) Complex NICA in Dubna;

(ii) National Research Center "Kurchatov Institute", (iii) Big Data Consortium, (iv) Complex NEVOD, (v) Neutrino Physics Network, (vi) Consortium in Life Sciences; (vii) Super Charm-Tau Factory, and (viii) Siberian Synchrotron Radiation Facility. India presented the existing research infrastructures including accelerator-based facilities, astronomy and astrophysics facilities, materials and nanoscience and technology facilities and bioinformatic network, next generation sequencing facilities, database development for crops and live stocks and opportunities for software development. India mentioned that these facilities were, in principle, open for use by scientists from within the country and abroad. South Africa has presented: (i) South African Large Telescope (SALT); (ii) MeerKAT – Precursor telescope; (iii) iThemba Laboratory for Accelerator Based Sciences; (iv) South African National Research Network (SANReN); (v) Centre for High Performance Computing (CHPC); and (vi) Centre for High Resolution Transmission Electron Microscope (CHRTEM)

In **session III**, delegates went on a technical visit to the CNPEM facilities, they were introduced to the Brazilian Synchrotron Light Laboratory (LNLS); Sirius Mega-Science Project (new Brazilian Synchrotron Light Source); Brazilian Bioethanol Science and Technology Laboratory (CTBE); Brazilian Nanotechnology National Laboratory (LNNano); and Brazilian Biosciences National Laboratory (LNBio).

In **session IV**, delegates debated the operational model of the BRICS RI platform/web portal, its characteristics, creation, maintenance and information to be made available. The mobility of researchers and concerns on transfer of samples were also discussed.

In **session V,** BRICS representatives raised proposals for listing facilities on the BRICS RI platform/web portal and discussed the means and extent of coordination of these facilities; and how to engage BRICS in Mega-Science Projects.

In **session VI,** delegates discussed strategies to engage this Working Group with other BRICS STI thematic working groups and other international multilateral fora. The discussion included actions within the BRICS Programs, relationship with other similar Groups (GSO, ESFRI, GSF, etc), and development of communication with BRICS working groups.

4. CONCLUSIONS

- The 2nd Meeting of the WG agreed on the creation of a BRICS RI platform/web portal, as a first step towards the development of BRICS Global Research Advanced Infrastructure Network (GRAIN).

- A task force led by Russia, comprising representatives of each one of the BRICS countries, will be created to implement the platform/web portal. BRICS countries shall nominate the representative to take part in the task force by 15 March 2018.

- The provisional date for the conclusion of the first version of the BRICS RI platform/web portal will be 30 June 2018.

- The BRICS RI platform/web-portal will include research infrastructures that countries voluntarily want to give access to stakeholders of other BRICS countries.

- The task force will define the requirements for the BRICS RI platform/web-portal and structure the information for stakeholders. This information shall at least include access protocols, cost-related issues, sample transfer procedures and RI focal points.

- The members of the WG recognized the need to develop a Strategic Plan on RI coordination. South Africa agreed to lead this process and to submit a draft to the other members of the WG by 28 March 2018.

- The members of the WG recognized the importance of mobility of researchers, the organization of workshops, visits and joint projects that would involve the global research advanced infrastructures of the BRICS countries and the need to explore funding possibilities to support these activities.

- In addition to the focal points provided by Brazil, Russia and China, India and South Africa designated their focal points to this working group, as follows: Dr. Praveer Asthana (Head of the Mega Science Division, Department of Science and Technology) and Ms. Sadhana Relia (India BRICS STI Coordinator and Head of International Multilateral Cooperation Division, Department of Science and Technology) from India, and Dr. Neville Arendse (South African BRICS STI Coordinator and Chief Director: Overseas Bilateral Cooperation, Department of Science and Technology), Mr. Charles Mokonoto (Director: Research Infrastructures, Department of Science and Technology) and Prof. Zeblon Vilakazi (Deputy Vice-Chancellor, University of the Witwatersrand), from South Africa.

- The BRICS WG on RI will request inputs on recommendations arising from other BRICS STI thematic working groups.

- The BRICS WG on RI will ensure communications with other BRICS STI thematic working groups. This process will be facilitated by BRICS STI coordinators.

- The WG proposed for consideration to the 4th Meeting of the BRICS STI Funding Parties WG to include in the next coordinated call under the BRICS STI Framework Programme: "supporting BRICS collaborative projects on: (i) utilizing existing RI and (ii) designing and prototyping around building and/or upgrading RI. It will be desirable to encourage these collaborative projects in areas of astronomy, physics, materials science and nanotechnology, life sciences, big data, oceans, earth sciences and natural disaster resilience, but not limited to these."

- The 2nd meeting took cognizance of the approved Term of Reference of the BRICS Working Group on Research Infrastructure (annex I).

- The conclusions of the 2nd Meeting of the WG will be communicated to the upcoming STI Senior Officials Meeting as well as the STI Ministerial meeting;

- Brazil and Russia will coordinate the activities of the WG until the 3rd meeting.

- The date and venue of the 3rd WG Meeting will be decided after consultations among the host of the 2nd Meeting of the WG, South Africa and China.

The representatives of Russia, India and South Africa extended their appreciation to the Ministry of Science, Technology, Innovation and Communications of Brazil and the Brazilian Center for Research in Energy and Materials for hosting the 2nd Meeting of the BRICS Working Group on Research Infrastructure.

Annex I

TERM OF REFERENCE

BRICS Working Group on Research Infrastructure

Background Information

In 2015 the Governments of the BRICS countries adopted the Memorandum of Understanding on Cooperation in Science, Technology and Innovation which among other issues included provisions for establishment of three STI governing bodies: the BRICS Ministerial Meeting, the BRICS STI Senior Officials Meeting (SOM), and the BRICS STI Working Groups (WG).

Following the comprehensive dialogue held within these bodies the BRICS science, technology and innovation Ministers at their 3rd BRICS (Moscow, October 2015) adopted the Moscow Declaration encouraging, in particular, i) the cooperation within large-scale infrastructure, including mega-science projects, and ii) coordination of the existing large-scale national programmes of the BRICS countries. Based on the Moscow Declaration and in implementation of the Work Plan 2015-2018 approved at the same ministerial meeting, the Ministers endorsed the establishment of the BRICS WG on Research Infrastructure.

According to the BRICS Jaipur Declaration signed at the 4th BRICS Science, Technology and Innovation Ministerial Meeting on October, 8 2016 (Article 16) and the revised BRICS Work Plan 2015-2018 (Article 5, Article 6.1) as well as Action Plan 2016-2017 it was agreed to convene the 1st meeting of the WG on Research Infrastructure in May 2017.

Goals and Task

The main goals of the WG on Research Infrastructure are:

- to contribute for the implementation of the BRICS Research and Innovation Initiative;
- to promote cooperation within large-scale research infrastructure;
- to support initiatives leading to efficient use, development and management of mega-science projects in the BRICS countries;
- to create a dynamic environment for the development of Research Infrastructures amongst BRICS, countries for providing fundamental and translational research leading to solutions for common challenges among the BRICS countries and the world at large;
- to stimulate the interaction and transferring of scientific knowledge to the productive sector, aiming at increasing of productivity and competitiveness;
- to promote innovative environments associated to the Mega Science Projects, aiming at the creation of high technology-based companies (Start-Ups);
- to engage Global research community in the BRICS Research Infrastructures.

These goals will be achieved through:

i) Sharing of their national strategies among BRICS countries with respect to their large-scale research infrastructure programmes;
ii) Coordination of existing large-scale national programmes of the BRICS countries;
iii) Elaboration of a medium-term strategic plan for the theme "Mega-Projects of Infrastructure", including prospection of new themes and tools to articulate the strengths of each BRICS country;
iv) Establishment of the BRICS Global Research Advanced Infrastructure Network (BRICS GRAIN);
v) Developing synergies with the global research infrastructures.

Function

In pursuing the tasks above, the WG on Research Infrastructure is mandated:

- to elaborate a framework for establishment of BRICS GRAIN;
- to identify the large-scale facilities in the BRICS countries in order to explore the potential for cooperation at multilateral formats;
- to produce and periodically update a directory of ongoing and new mega science projects implemented in BRICS countries;
- to prepare recommendations on best practices;
- to set up a communication mechanism among the members of the WG on Research Infrastructure to enhance information exchange on issues relating to its activity;
- to enhance communication and cooperation with working groups of thematic areas, thus identifing potential areas or projects from BRICS GRAIN.

Responsibility and accountability

The WG on Research Infrastructure will report to the BRICS STI Senior Officials Meeting (SOM) on its main work actions.

Membership

Members of the WG on Research Infrastructure are nominated by each BRICS country.

Experts representing scientific community with specific competences relevant to a subject of the agenda may be invited to attend the WG on Research Infrastructure meetings.

Mode of Operation

The representatives of the host country will chair the WG on Research Infrastructure meetings.

Each side designates a provisional national focal point from government officials or nominated experts and a provisional representatives from designated research institutions to facilitate communication between the members of the WG on Research Infrastructure.

The WG on Research Infrastructure will meet at least once a year, unless otherwise decided by the members.

The participants of the WG would meet at their own international expenses. The local hospitality and expenses on hosting the meeting would be borne by the country hosting the meeting

All decisions shall be taken by consensus and in line with the BRICS rules of procedures.

The working language of the WG on Research Infrastructure is English.

Upon implementation of its tasks, this Term of Reference may be reviewed at the request of one or more members.

Annexure

Focal Points of BRICS Working Group on Research Infrastructure

Country	Focal Point(s)
Brazil	**Dr. Alvaro Toubes Prata** Deputy Minister for Technological Development and Innovation Brazilian Ministry of Science, Technology, Innovation and Communication (MCTIC) **Dr. Felipe Silva Bellucci and Dr. Leandro Antunes Berti** Coordinator and General-Coordinator for Innovation on Converging and Enabling Technologies Brazilian Ministry of Science, Technology, Innovation and Communication (MCTIC) Tel: +55 61 2033 7424 E-mail: felipe.bellucci@mctic.gov.br and leandro.berti@mctic.gov.br
Russia	**Dr. Dmitry Kamanin** Deputy Head of JINR Office of Science Coordination and International Cooperation (Joint Institute for Nuclear Research) Tel: +7 (49621) 65-839, 62-636 Fax:+7 (49621) 65-891 E-mail: kamanin@jinr.ru
India	**Dr. Praveer Asthana** Head of the Mega Science Division Department of Science and Technology E-mail: pasthana@nic.in **Ms. Sadhana Relia** India BRICS STI Coordinator and Head of International Multilateral Cooperation Division Department of Science and Technology E-mail: srelia@nic.in
China	**Dr. Song Yuntao** Executive Deputy Director General Institute of Plasma Physics / Chinese Academy of Sciences E-mail: songyt@ipp.ac.cn **Ms. Li Wenjing** Division for International Organizations and Conferences Department of International Cooperation Ministry of Science and Technology E-mail: 853134596@qq.com

South Africa	**Dr. Neville Arendse** South African BRICS STI Coordinator and Chief Director: Overseas Bilateral Cooperation Department of Science and Technology E-mail: Neville.Arendse@dst.gov.za **Mr. Charles Mokonoto** Director: Research Infrastructures Department of Science and Technology E-mail: Charles.Mokonoto@dst.gov.za **Prof. Zeblon Vilakazi** Deputy Vice-Chancellor University of the Witwatersrand E-mail: Zeblon.Vilakazi@wits.ac.za