

**U.S.-Brazil Bilateral Joint Commission Meeting on
Science and Technology Cooperation
March 12-13, 2012**

The third Meeting of the Brazil – U.S. Joint Commission on Science & Technology Cooperation took place on the 12th and 13th of March, 2012 at Itamaraty Palace, Brasilia. The meeting was chaired by Minister Marco Antonio Raupp, Minister of Science, Technology and Innovation of Brazil and Dr. John P. Holdren, Director of the Office of Science and Technology Policy of the United States of America.

On March 12th, delegations from both countries convened in four working groups covering; i) innovation; ii) prevention and mitigation of natural disasters; iii) ocean science, technology and observatories, iv) measurement standards, v) and a fifth working group on Public Health met on March 9, 2012. The results from discussions by the working groups are included in this Action Plan.

At the end of the sessions, each working group decided on an action plan to be implemented from 2012 to 2013 in the following areas:

Innovation

The Innovation working group was well attended on both sides and included private industry representatives as well as U.S. government and Brazilian government officials. The Council on Competitiveness co-chaired the group for the U.S. with NSF, reinforcing the importance of public-private partnerships in innovation. *Financiadora de Estudos e Projetos* (FINEP – Brazilian Innovation Agency), from the Ministry of Science, Technology and Innovation (MCTI), and the Ministry of External Relations (MRE) co-chaired the group for the Brazilian side.

The working group decided on the following action items:

1. Explore university-industry partnerships, focusing particularly on industries with a presence in both countries, which may be suitable candidates for future enhanced partnerships.
2. Establish an ongoing exchange of best practices between Brazil and the U.S. through actions such as:
 - a. Invite Program Managers from agencies such as CNPq, CAPES, ABDI, EMBRAPPII and FINEP, to spend short-term visits at NSF and other U.S. Government agencies to familiarize themselves and engage with NSF and other agencies' programs related to innovation, focusing particularly on SME, understanding technological risks, R&D, venture capital and metrics.
 - b. Exchange information and policies about the regulatory framework for innovation in knowledge-intensive areas, both in Brazil and in the U. S., such as nanotechnology and biotechnology.
3. Leverage and support existing public-private innovation partnerships, for example,
 - a. Commercial Dialogue.

- b. US-Brazil CEO Forum.
- c. MBC-ABDI-Council on Competitiveness (CoC).
- 4. Support and strengthen the dialogue between the Brazilian Confederation of Industries – Brazilian Business Innovation Mobilization (CNI-MEI – Business – industrial leaders) by working with American counterparts with the help of institutions such as the U.S. Chamber of Commerce and U.S. Department of Commerce. (Lead Agency - DoC, U. S.; MDIC/ABDI, Brazil)
- 5. Help to support, together with Brazilian agencies CAPES, CNPq, and FINEP, a multidisciplinary “Frontiers of Science and Engineering” workshop involving outstanding young scientists and engineers from both sides and organized by the respective Academies of Science and Engineering of both countries.
- 6. Establish a working group to implement the above actions that will meet at the next JCM to report out on progress.

Disaster Management

The Disaster Management Working Group was well attended with representatives from thirteen U.S. agencies and nine Brazilian agencies. Since the representatives had expertise in both science and technology fields and civil defense, the Working Group divided into two sub working groups - Science and Technology collaborations with Brazil's CEMADEN and Science and Technology collaborations with Brazil's Civil Defense Secretariat.

The co-chairs for the first sub working group were Dr. Reinhardt Fuck from CEMADEN and Ms. Jean Weaver from USGS. The first sub working group focused on exchange of scientific models, data, and technological assets concerning the two major types of disasters that Brazil faces, floods and landslides.

The co-chairs for the second sub working group were Dr. Armin Braun from the Civil Defense Secretariat and Mr. Joel Wall from DHS S&T. The second sub working group focused on opportunities for the U.S. interagency to collaborate with Brazil's Civil Defense Secretariat. Areas of mutual interest that were discussed include environmental disaster (flood/landslide) management, health issues related to incident management, special event planning and preparedness to include interagency training and exercises aimed at enhancing incident response at the local/state/national level, and shelters and mortuary affairs.

The two sub groups reconvened for a final report out. The key areas addressed were observation assets (data, innovative technology, and remote sensing), models and applications (floods, landslides, and drought), and capacity building (special event/incident command protocols, Geographic Information System (GIS) tools for flood monitoring, participatory risk and vulnerability workshops, and public health surveillance).

Two impediments to cooperation were identified and discussed. Participants agreed that there needs to be a better understanding of each country’s priorities, experiences, and expertise in disaster management. Participants also discussed the difficulty in obtaining funding for joint

meetings and workshops, and decided to look into ways in which each country can make this more efficient.

The top four priority items for consideration in the final “Action Plan” are the following:

1. Training workshop on GIS Tool for Flood Inundation Modeling (dependent on funding);
2. Training workshop on risk and vulnerability participatory process (dependent on funding);
3. Targeted visits by Brazilian delegation to appropriate emergency operations centers in the U.S. for exchanging expertise in integrated risk management, communication protocols, and incident command expertise and training opportunities;
4. Identify key counterpart points of contact from both U.S. and Brazilian agencies to continue technical exchanges and send to Jean Weaver by June 1, 2012.

Brazilian agencies intend to send their points of contact to Jean Weaver, Acting Director, International Programs and Regional Specialist for Central America/South America/Caribbean, USGS, by June 1, 2012. The Brazilian agencies also intend to identify the workshops in which they have interest in pursuing, at which time funding mechanisms are to be discussed.

Potential areas for future collaboration were identified. These areas include:

1. Interchange of observation assets such as:
 - Complete archives of Landsat imagery for Brazil;
 - High resolution digital elevation datasets (30 meters);
 - Pursue the potential to improve the bandwidth transfer rate of GeoNetcast sensors in collaboration with NOAA;
2. Technical Exchange of Modeling Processes:
 - Transfer of NASA-USGS Realtime Landslide prediction models for regional applications in Brazil;
 - USGS GIS Tool for Flood Inundation Modeling;
 - Remote sensing applications for drought monitoring as applied in the Famine Early Warning System;
 - National Weather Service precipitation forecasting and modeling capabilities.
3. Capacity Building (to include but not limited to):
 - Integrated risk management and communication protocols
 - Incident command expertise and training
 - Participatory risk and vulnerability workshops process:
 - CDC – focused public health surveillance and response capacity building;
 - FEMA HAZUS infrastructure inventory model;
 - DHS S&T - Information exchange concerning capabilities, operational requirements, and technology transition/transfers across all Homeland/Civil Security domains.

Ocean Science, Technology, and Observatories

The working group on Ocean Science was co-chaired by Dr. Gustavo Goni from NOAA (US) and by Dr. Janice Trotte-Duhá from MCTI (Brazil). The long history of collaboration between oceanographic Brazilian and American Institutions was highlighted during the working group presentations. Discussions during the meeting led to the establishment of three Action Items to allow the continuation of the current strong collaboration and to enhance the cooperation to cover gaps and to initiate new enterprises that have been identified in research, technology, and operations.

The following are three activities that the members of the Working Group decided upon:

1. Enhancement of Oceanographic Observations.

Collaborate in the maintenance and enhancement of the current targeted and sustained ocean observations for climate, weather, ecosystem studies (For example, the South Atlantic Meridional Overturning Circulation array at 35°S, continue the expendable BathyThermograph transect between Rio de Janeiro and Ilha de Trinidad, the PIRATA array, CLIVAR hydrographic sections, pCO₂ systems, coral reef monitoring, etc).

The members of the Working Group decided that the U.S. should provide training opportunities to Brazilian technicians on current, new, and emerging technologies, such as Underway CTDs, deep ocean observations data retrieval systems, pCO₂ systems, coral reef monitoring stations, among others.

This Working Group endorsed:

- a. Bilateral support for the South Atlantic Meridional Overturning Circulation (SAMOC) and South American Climate Change (SACC) Programs, and;
- b. U.S. and Brazilian agencies participation to continue with their commitments with the Prediction and Research Moored Array in the Tropical Atlantic (PIRATA)

2. Research and Engineering Collaboration.

Encourage and maintain close scientific and technological partnerships between U.S. and Brazilian government agencies and universities, in particular to investigate the role of the ocean on weather patterns in Brazil and regional impacts of climate on sea level and ecosystems, and to help improve and/or develop oceanographic observational platforms to make the observing platforms logistically manageable and cost efficient. The US intends to initiate collaboration with Brazil to advance cooperative and research developmental activities that including the transition of mature scientific products into operations. For this, both the U.S. and Brazil intend to seek funding opportunities to contribute with travel funds to cover the trip of 2-3 Brazilian scientists and managers to visit the U.S. and learn about institutional paradigms and procedures regarding research and operations.

3. Scientific and Technical Opportunities.

Support and enhance current scientific exchange by providing support to graduate students, early career scientists, technicians, and senior researchers to work with scientists at U.S. and Brazilian governmental and university oceanographic institutions.

The objectives presented under this Working Group can be greatly enhanced by the possibility offered by the program Science Without Borders. It is recommended for the Brazilian side to seek participation of the science and research sector of the Brazilian Navy. Additional topics were identified, which included the exchange of knowledge on sea floor mapping science and techniques.

In order to establish and follow the implementation plan, the members of the Working Group have decided to establish a standing Working Group on ocean science, ocean observations, and technology.

Measurement Standards

The Measurement Standards working group was co-chaired by Ms. Magdalena Navarro from the National Institute of Standards and Technology (NIST) and Dr. Kevin Geiss from the US Air Force, and Mr. Jorge A.P. Cruz and Dr. Wanderley de Souza from the National Institute of Metrology, Quality and Technology (INMETRO). Both NIST and INMETRO are charged by their respective governments with promoting innovation and industrial competitiveness by developing and advancing cutting edge measurement science (metrology) to facilitate the development and dissemination of standards and technology in ways that enhance economic security and improve quality of life. Given the expanding responsibilities of both institutions, collaboration and benchmarking of measurement methods and standards in strategically important areas are mutually beneficial.

NIST and INMETRO decided to continue to advance cooperative activities in chemical, physical, and engineering measurement standards as first set out in the 2009 MOU signed by NIST and INMETRO. These Institutes intend to expand their work on measurement science, standards and data needs for biofuels (including aviation biofuels and biomass), the environment, smart grid, and bioscience/health with an emphasis on examining industry needs and government roles. Brazil has approached NIST for collaboration in these areas given their importance in preventing technical barriers to trade.

NIST and INMETRO intend to continue information exchange and cooperation in the following areas:

1. Biofuels:

- a. Research and Data for Next Generation of Biofuels made from new feedstock and using different fuel blend;
- b. Thermophysical and Thermochemical property data to support more efficient development and use of cellulose-derived biofuels;
- c. Sustainability metrics for renewable fuel development;

- d. Investigate collaboration to include reference methods, reference materials and Thermophysical property data of Aviation Biofuels;
 - e. Brazil participation at the 4th International Conference on Biofuels Standards to take place at NIST in November 2012. The organizers (NIST, INMETRO and European Metrology Research Program of the European Commission [EC]) will also invite the Department of Energy (DOE), Commercial Aviation Alternative Fuels Initiative (CAAFI), Federal Aviation Administration (FAA), US Air Force and Industry, and their counterparts in EC and Brazil to this workshop.
2. **Smart Grid:** in the U.S., NIST has the coordination role for the development of a framework to achieve interoperability of smart grids devices and systems, which includes the definitions of protocols and standards for information management. INMETRO has been working with ABINEE (Brazilian Electrical and Electronics Industry Association) and ABNT (Brazilian Association for Technical Standards) with the goal of establishing standards and protocols for smart meter networks. Therefore NIST invited INMETRO to participate in the Smart Grid Interoperability Panel (SGIP) sub-committees. The INMETRO research team is to collaborate in the development of cybersecurity standards and bring expertise in technologies and equipments that could be used in Brazil.
3. **Bioscience and Health:**
- a. Staff visits and information sharing concerning:
 - Standards for Lab Medicine;
 - Medical Imaging Standards;
4. **Nanotechnology and GHG:** NIST and INMETRO to explore future collaboration opportunities in nanotechnology and Greenhouse Gases (GHG) measurements.
5. **Scientific exchange:** Exchange of junior scientists, senior scientists and post docs between NIST and INMETRO in areas of mutual interest.

The representative of the U.S. Department of Defense highlighted the importance of discussing the signing of the Master Information Exchange Agreement between the Brazilian Ministry of Defense and the U.S. Department of Defense for the bilateral exchange of Research & Development information which will also include biofuels.

Public Health

The Public Health working group met on March 9, 2012. Five U.S. agencies and ten Brazilian agencies participated in the working group. The group discussed highlights of ongoing areas of collaboration including a Joint Action Plan to Eliminate Racial Disparities (JAPER), participation of NIH and CDC in “Science without Borders”, Stop Transmission of Polio (STOP) partnership in training for polio eradication and immunization initiatives against other vaccine preventable diseases, The Latin American Cancer Research Network, collaborations between U.S. CDC and Brazil SVS, and the Implementing Arrangement for the Working Group on Public Health.

Impediments to current cooperation were discussed, including; challenges in prioritizing specific collaborative activities among the many proposed, the need to identify “champions,” on both sides to serve as focal points for specific collaborative activities, and the need to establish timelines and indicators and identify funding for collaborative activities.

Highlights of ongoing areas of collaboration discussed in this session include:

1. Joint Action Plan to Eliminate Racial Disparities (JAPER)—exchange of information and visits by experts to discuss racial and ethnic health disparities;
2. Participation of NIH and CDC in “Science without Borders”—plans are underway for CDC and NIH to host post-doctoral fellows to work on public health and biomedical subjects;
3. Stop Transmission of Polio (STOP) partnership in training for polio eradication and immunization initiatives against other vaccine preventable disease—US CDC and Brazil SVS are working together to improve immunization in Lusophone Africa and Haiti;
4. The Latin American Cancer Research Network—ongoing collaboration on the study of breast cancer;
5. Collaborations between US CDC and Brazil SVS—ongoing work on influenza; evaluation and monitoring of HIV/AIDS programs; surveillance and prevention of noncommunicable diseases; and other topics;
6. Implementing Arrangement for the Working Group on Public Health discussions regarding steps needed to finalize the terms and language of the arrangement.

Additionally, the working group identified potential areas for future collaboration to include:

1. CDC and NIH to host post-doctoral students as part of “Science without Borders”;
2. Establish linkages between the Brazil Ministry of Health and the CDC/Emergency Operations Center to exchange information on public health emergencies preparedness and response;
3. Parallel funding for and collaboration in joint basic, clinical and translational research activities;
4. Trilateral cooperation to support the Public Health Institute in Mozambique and to increase coordination between US and Brazilian immunization efforts in Haiti and elsewhere.

On March 13th, Brazilian representatives presented an outline for three additional areas of bilateral engagement moving forward under the Brazil-U.S. Joint Commission:

1. Biomedicine and Life Sciences
2. Nanotechnology
3. Information Technologies and Communications (ICT)

The Brazilian delegation presented an overview of the status of research and development in the biotechnology, nanotechnology and ICT sectors in Brazil. In regards to biomedicine and life sciences, Brazil proposed the establishment of a specific bilateral Working Group, within the JCM, that will define activities in these areas. The new WG will present the results of its activities at the fourth JCM.

In the field of nanotechnology, both –[delegations?] decided that a Brazilian and an American team of specialists and governmental officers would meet on March 30, 2012, during the “International Symposium on Assessing the Economic Impact of Nanotechnology” seminar, to be held in Washington D. C., on the 27th and 28th of March, 2012. Participants plan to discuss their respective research priorities, infrastructure networks, and existing interactions, and then to explore possible topics, approaches, and mechanisms for future cooperation and collaboration.

Regarding ICT, the U. S. Embassy in Brazil intends to help organize a meeting between Brazilian and American governmental officers and representatives from industry and academia, on the occasion of a visit to be paid by an American ICT delegation to Brazil in the upcoming weeks. The meeting(s) will provide an opportunity to discuss ways and means for future bilateral cooperation in this field.

Women In Science

Participants from the U.S. State Department and the University of Oregon and the Special Secretariat of Policies for Women in the Presidency of the Republic of Brazil gave presentations on the participation of women in science and technological research programs and activities.

Building on the strong bilateral engagement under the U.S.-Brazil Memorandum of Understanding on the Advancement of Women, and as a follow on to the jointly-sponsored event at the 2011 UN Commission on the Status of Women, “Changing Mindsets: New Approaches to Advance Women and Girls in Science,” the U.S. and Brazil highlighted the progress each country has achieved to advance women in science and outlined best practices for recruiting, retaining and advancing women in science through enhanced participation by women and girls in exchange programs and by strengthening networks of women scientists to facilitate collaboration and enhance mentorship opportunities. The U.S. and Brazil discussed the importance of working together on the advancement of women in science and agreed to have future collaboration.

This Action Plan is an integral part of the third meeting of the Brazil – U.S Joint Commission on Science and Technology Cooperation, which was held March 12 – 13, 2012, in Brasília, and is approved by the Working Groups and by the Heads of Delegations, Doctor Marco Antonio Raupp, Minister of Science, Technology and Innovation and Doctor John P. Holdren, Director of the White House Office of Science and Technology Policy.

Washington, April 9th, 2012.

Director of the Office of Science and

Minister of Science, Technology and

Technology Policy

Innovation