

Summary Report: *Innovation in Brazil, India and South Africa: A New Drive for Economic Growth and Development*

On July 15th, 2009, the International Centre for Trade and Sustainable Development (ICTSD), in collaboration with the Brazilian Centre for International Relations (CEBRI), Prospectiva Consulting, and the Brazil Institute of the Woodrow Wilson Centre for Scholars, hosted a dialogue entitled *Innovation in Brazil, India and South Africa: A New Drive for Economic Growth and Development*.

Innovation has become one of the main drivers for growth and development in some emerging economies. However, designing and implementing coherent and effective innovation policies that complement a nation's wider development objectives and socioeconomic needs can be a challenging task. In this regard, Brazil, India, and South Africa have made important efforts in recent years to promote such systems of innovation, modernizing their science and technology (S&T) infrastructures to increase their competitive advantages in the global marketplace. Their efforts have given rise to encouraging results in academia and in the private sector. This dialogue brought together representatives from governments, the private sector, international organizations, civil society, and academia to discuss the challenges facing innovation policies in these countries, taking into consideration their development objectives and the changing global landscape. The extent to which these policies are conducive to achieving a qualitative change in the positioning of these countries in the global knowledge economy and what lessons could be drawn for other developing countries seeking to promote innovation were also questions addressed during the seminar.

Ambassador Roberto Azevedo, Permanent Representative of Brazil to the WTO in Geneva, opened the dialogue by describing how the term “innovation” refers to not only new scientific research and development (R&D), but also the adoption of “technologies and practices which are new to a given context, not in absolute terms”. Implementing policies that promote such innovation in developing countries is a particularly complex challenge. He described the Brazilian Agricultural Research Corporation as a successful example of an alternative model: innovation funded by government direct investment. He also addressed the impact of the Agreement on Trade Related Aspects of Intellectual Property (TRIPS) on innovation, and noted that the international community needed to determine how it could be “exploited to accommodate the needs and interests of developing countries”, both promoting access to technologies and protecting the rights of researchers and entrepreneurs. He emphasized that the TRIPS system is two-sided – that it is “not only about rights”, but also about “obligations: obligation of disclosure, of dissemination and transfer of technology”, and that both sides need to be respected in order to promote the public interest.

Mr. Rafael Oliva, Advisor to the President of the Brazilian Development Bank (BNDES), discussed the public policies that the Brazilian government and the BNDES are currently implementing to promote innovation. He made reference to the state's Action Plan for science, technology, and innovation (S, T & I) as part of its broader Plan for Growth Acceleration, emphasizing that one of its priorities is the “promotion of technological innovation in enterprises”. This is an area that has been neglected in Brazil's previous development strategies, so that national expenditure on R&D is less than half of that in the EU, and almost two-thirds of researchers work in academia rather than in the private or government sectors. The state aims to have private R&D comprise 0.65% of the national GDP by 2010. To complement the government's advances in expanding and funding S, T & I, the BNDES itself is prioritizing the development of a socially inclusive innovation infrastructure. It supports companies of varying sizes across economic sectors, providing financing and capital for the development of physical infrastructure and technological capacity; it couples these funds with management support and assessment systems. Mr. Oliva recognized that, looking forward, the state's and the bank's main challenges would be coordinating their policies and their various institutes, mobilizing the private sector, and maximizing the impact of their innovation process.

Mr. Sergio Queiroz, Special Advisor for Technological Innovation at the Sao Paulo Research Foundation (FAPESP) presented the bioenergy industry as a case study of successful innovation in Brazil. The country derives its biofuel from sugarcane and is currently the world's second-largest producer of ethanol; as such, it has been very successful in reducing greenhouse gas emissions and shifting away from non-renewable energy sources towards a crop that requires only 1% of Brazil's arable land, experiences a 4% increase in productivity each year and, because of innovative water-extraction processes, is becoming largely self-sustaining. In addition, the use of sugar cane based ethanol does not lead to an increase in food prices. Mr. Queiroz cited Brazil's commitment to “incremental rather than radical innovation”, as well as the state of Sao Paulo's financial contributions to R&D and collaborations with FAPESP, as crucial to the continued development of S&T infrastructure that does “less with more” and that holds potential for technology transfers and cooperative innovation.

Dr. Yonah Seleti, Deputy Director General of South Africa's Department of Science and Technology, discussed his country's 10-Year National Innovation Plan up to 2018. The plan is key to this phase of South Africa's development from a resource-based to a knowledge-based economy. Dr. Seleti emphasized that scientific growth must relate to social imperatives to close in the chasm that currently exists between innovation and the real economy. He identified the development of human capital, particularly increases in PhD outputs – and therefore research and patent outputs – as key drivers of the Plan, especially when coupled with a strengthening of the informational infrastructure and institutional regime. These outputs would be expected to generate knowledge on a

few “grand challenges”: the development of a pharmaceutical industry based on biodiversity and traditional knowledge; food and energy security; a space program; and climate change.

Mr. N. N. Prasad, until recently Joint Secretary at the Department of Industrial Policy and Promotion, Ministry of Commerce (DIPP) in India, and currently Chief of Staff to the Director-General of the World Intellectual Property Organization (WIPO), addressed the intellectual property (IP) strategies India had implemented to foster innovation and enhance competitiveness. He emphasized that these strategies were meant to not only build a legal and administrative framework for R&D, but also to meet international obligations, safeguard national interests, and build awareness about the IP office’s work. He also outlined some of the relevant provisions of the Indian Patents Act which take advantage of TRIPS flexibilities. He went on to describe the impact of the first \$35 million phase of India’s IP modernization strategy: significant increases in the number of patent and trademark applications and grants, and in the office’s processing and filing speeds, partially as a result of the digitization of the necessary facilities. The \$80 million second phase is currently under implementation and includes further expansion of the IP infrastructure and human resources, the establishment of a National Institute of IP Management, and increased international bilateral and multilateral cooperation. Mr. Prasad concluded by describing some of the economic growth indicators that could be correlated with these phases, demonstrating significant jumps over recent years in GDP, foreign direct investment, foreign exchange reserves, and the industrial growth rate.

Professor Dominique Foray, Chair in Economics and Management of Innovation at the Ecole Polytechnique Fédérale de Lausanne, examined the global landscape of S&T innovation in industries such as biotechnology, nanoscience, and drug discovery. He argued that these “less routinized” and most inventive activities were expected to remain clustered at their current locations in developed countries, primarily because of the proximity of existing markets and research hubs. Therefore, even as developing countries expand their R&D infrastructure, these clusters will shift much more slowly than the more routinized technological hubs – those that do not require skilled labour. Prof. Foray stated that combining incremental and radical innovation with “smart specialization” – the expansion of locally oriented activities and local entrepreneurship across economic sectors – was the best way for emerging economies to take advantage of the spill-over from these technological shifts.

A lively discussion followed with the participants.