



BRICS

REALIZING THE BRICS
LONG-TERM GOALS:
ROAD-MAPS AND PATHWAYS

A proposal by the BRICS
Think Tanks Council

REALIZING THE BRICS
LONG-TERM GOALS:
ROAD-MAPS AND PATHWAYS

A proposal by the BRICS
Think Tanks Council

© 2017 by **Observer Research Foundation**

Realizing the BRICS Long-Term Goals: Road-Maps and Pathways

ISBN: 978-81-86818-30-5

Design:

Simi Jaison Designs

Printed by:

Vinset Advertising, Delhi

The opinions expressed in this publication are of exclusive responsibility of the authors.

Reproduction of this text and the data contained within is allowed as long as the source is cited.
Reproduction for commercial purposes is prohibited.

CONTENTS

FOREWORD	7
-----------------------	----------

CHAPTER 1

PROMOTING COOPERATION FOR ECONOMIC GROWTH AND DEVELOPMENT	10
---	----

CHAPTER 2

POLITICAL AND ECONOMIC GOVERNANCE	34
---	----

CHAPTER 3

SOCIAL JUSTICE, SUSTAINABLE DEVELOPMENT AND QUALITY OF LIFE	50
---	----

CHAPTER 4

BRICS CURRENT AND FUTURE ROLE IN MAINTAINING INTERNATIONAL PEACE AND SECURITY	68
--	----

CHAPTER 5

PROGRESS THROUGH SHARING KNOWLEDGE AND INNOVATION: POLICY RECOMMENDATIONS	85
--	----

FOREWORD

2015 was a pivotal year with countries signing the United National General Assembly's Post-2015 Development Agenda and the holding of the Conference of Parties 21 (COP21) in Paris. In 2016, the norms and frameworks around international trade were significantly altered as the World Trade Organisation continued to be weakened and new trading regimes flourished. This two year period also witnessed dramatic shifts in international security with countries across geographies facing the impact of increasing radicalisation and extremism. Given this reality, the BRICS Think Tank Council (BTTC) members agreed that the BRICS nations should play an even more critical role than before in ensuring economic prosperity of the developing and emerging community at large, and in establishing peace and stability of the international order.

This project is a continuation of the proposal made by the BTTC Members in 2015 titled "Towards a Long Term Strategy for BRICS". Under the Russian Presidency in 2015, BTTC members decided to build on the theoretical perspectives brought out in the proposal and put forth practical and implementable models for BRICS cooperation. This project, like its predecessor, focuses on five pillars: (i) promoting cooperation for economic growth and development; (ii) political and economic governance; (iii) social justice, sustainable development and quality of life; (iv) peace and security; and (v) progress through sharing knowledge and innovation.

The BTTC members decided that each of the five think tanks – one from each member nation – that would undertake the project, would author a chapter on one of the five pillars. These chapters were then shared with all five members for their inputs and suggestions, making them a collaborative and peer-reviewed process. Topic 1 was taken up by the China Centre for Contemporary World Studies; Topic 2 by the Observer Research Foundation, India; Topic 3 by the South Africa BRICS Think Tank; Topic 4 by the Russian National Committee on BRICS Research; and Topic 5 by the Institute for Applied Economic Research, Brazil.

This joint activity of the BTTC seeks to inform the governments of member countries about areas of mutual benefit, both from an economic and strategic perspective, and provide pathways to achieving the goals set.

The chapter on Promoting Cooperation for Economic Growth and Development identifies a range of sectors where knowledge sharing and mutual cooperation between member nations can lead to mutual prosperity. It provides for expanding the scope of intra-BRICS trade, both in commodities and services; it details how intra-BRICS investment can be increased, and how BRICS nations can plug themselves into global value chains. The chapter also highlights how members can cooperate in critical sectors such as agriculture, infrastructure development, and small and medium sized enterprises.

The chapter on Political and Economic Governance uses a regime complex model to define the nature of the BRICS grouping. The chapter outlines key developments in the global political and economic space over the past one year, as well as the challenges going forward. On economic governance, the authors recommend that BRICS should push for greater linkages with the WTO and the Bretton-Woods institutions – the International Monetary Fund (IMF) and the World Bank. They argue that BRICS must jointly seek the incorporation of new rules of the monetary game – aimed at protecting emerging markets (EMs) and least developed countries (LDCs) – at the IMF itself. On political governance, a case has been made for reform of the United Nations Security Council. The authors also make a case for greater coordination of BRICS members on new frontiers such as cyberspace and outer space, given their successful collaboration on climate change at the COP 21.

The chapter on Social Justice, Sustainable Development and Quality of Life recognises BRICS as more than just a “growth alliance”, and sees its efforts as social and political imperatives that influence the broader societies of the five BRICS countries and across the global South. Second, as envisaged in the 2015 BRICS declaration at its meeting in Ufa, Russia, it recognises that cooperation between the five BRICS countries is mutual and premised on a shared and common vision of an alternative world economic and development system that is sensitive to the interests of the South. Therefore, the authors argue, it becomes important that the BRICS nations develop a methodology to uniformly measure their progress over time and a set of development indicators through which such progress can be assessed. Aligned to these development indicators should be a set of well-defined targets that are both unambiguous and measurable towards the attainment of, among others, the 2030 Long Term Strategic ideals. Each BRICS nation should be in a position to annually report its progress against the set indicators and targets.

The chapter on Peace and Security argues that BRICS should strive to create

a new order based not on the notion of exclusivity, but on principles of inclusivity and indivisibility of security for all, cooperative and sustainable security behaviour, and sovereign equality of all states. It recognises the nexus between peace, security and development. It makes a case for cooperation among BRICS members to ensure that the international system is based on supremacy of international law and norms rather than the use of force.

The chapter on Progress through Sharing Knowledge and Innovation recommends that BRICS members should facilitate visas for researchers by making special arrangements such as a BRICS researchers' exchange. It also identifies specific areas of research such as public-private partnerships, and comparative assessment of financing options, particularly in the context of start-ups. It also provides policy insights into how BRICS can strengthen cooperation under the Patent Cooperation Treaty, including setting up a fund to finance patent applications.

A project of this magnitude, bringing together authors and experts from five different countries, calls for efforts of several people, and their contributions ought to be recognised. Topic 1 was authored by Luan Jianzhang, Zhao Zhongxiu, Lanqingxin, Sun Jingying, Liyang, Peng Yiran and Wangbo; Topic 2 by Dr. Samir Saran and Dr. Abhijnan Rej (with inputs from Dr. Harsh Pant); Topic 3 by Prof. Godfrey F. Netswera, Dr Elias Phaahla, Idah Makukule and Dr. Jaya Josie; Topic 4 by Prof. Georgy Toloraya, Dr. Leonid Grigoryev, Victoria Pavlyushina, Lobanova Anna, Maxim Starchak, Irina Yarygina, Andrey Baklitskiy, Dr. Pavel Gudev and Valeriia Gorbacheva; and Topic 5 by the Instituto de Pesquisa Econômica Aplicada, Brazil.

The consolidated version of this publication was prepared by the Observer Research Foundation.

Ambassador HHS Viswanathan,
Distinguished Fellow, ORF

Shubh Soni,
Programme Coordinator, ORF

CHAPTER 1

PROMOTING COOPERATION FOR ECONOMIC GROWTH AND DEVELOPMENT

PILLAR

To safeguard the gains BRICS countries have made, they should consider promoting cooperation for growth and development among themselves, and through dialogue with other like-minded partners. To this end, BRICS could consider market integration in the areas of trade, foreign investment and capital markets to counteract the effects of negative global trends. In addition, member states could work towards greater BRICS consultation and cooperation in economic and financial bodies such as the World Bank, the World Trade Organization (WTO) and the International Monetary Fund (IMF), and collaborate, using existing cooperative frameworks, to foster intra-BRICS consensus on issues of mutual agreement.

1 CURRENT SITUATION

At present, the five BRICS countries account for over 40 per cent of the world's population. Despite their recent deceleration, Brazil, Russia, India, China and South Africa have contributed to more than half of the global growth in the last 10 years. The BRICS countries have often been regarded among the fastest growing economies of the world and the engines of the global economic recovery, which underscores the changing role of these economies in the world. They were also influential at the G20 in shaping macroeconomic policies in the aftermath of the recent financial crisis. Promoting cooperation for economic growth and development is a long-term strategy of the BRICS countries, which is also reflected in the Fortaleza Declaration.

Despite BRICS's well-regarded economic driving engine role, the growth of BRICS' nations has recently encountered some hiccups. Only China and India maintains positive growth rate. The GDP growth rate of Russia and Brazil turned negative since 2015, while South Africa's growth was still miniscule. Greater intra-BRICS economic cooperation is necessary for BRICS to lead the world economy.

1.1 Overall scenario

The BRICS' countries comprise a huge share of the world's land mass, and as a result own a vast amount of natural resources. Each of the BRICS countries has some unique attributes. Each has great prospects for developing in its own way.

The inherent strength of the BRICS' countries emanates from their strong domestic-demand-driven growth model, in the cases of India and Brazil, and the significant outward linkages of China and Russia. South Africa benefits from its large resource base and proximity to the untapped growth potential of the African continent.

1.2 Economic growth and development of the BRICS countries

Among the BRICS countries, China, followed by India, is the fastest-growing economy in the current decade. Between 1978 and 2009 the Chinese economy grew at an average annual rate of 9.9 per cent, well above the world average for that period. The economic performance of Russia and Brazil also improved significantly after the financial crises of the 1990s. Continued economic reforms and improved macroeconomic fundamentals, along with a buoyant macroeconomic environment, contributed to the growth performance of the BRICS' nations over the past decade (IMF, 2011).

The salient features of the BRICS economies are their large geographical area and the size of their population. It is widely perceived that all the BRICS markets have great potential for establishing a prosperous middle class, which serves as a stabilising force in society. This middle-income group in each of the BRICS countries is growing at varying rates, but the direction is clear: the middle-class population will continue to expand in both size and disposable income, providing a solid base for further growth.

1.3 BRICS in the global economy

The BRICS countries' role as an engine of new consumption-driven growth may increase more dramatically and quickly than many analysts expect. Their average growth in the past two decades makes BRICS countries a powerful and prominent force in the global economy. The dollar-denominated GDP rankings of Brazil, Russia, India and China were within the top 10 in 2015.

The five BRICS countries participate in the international market in different ways. Manufactured goods account for 94.3 percent of total exports from China, compared to 68.4 percent from India and 40.6 percent from South Africa. Export of manufactured goods by Brazil and Russia accounts for 36.1 percent and 22.3 percent, respectively, of their total exports. Russia's export basket is dominated by fuel and mineral exports (nearly 67.4 percent), while agricultural products, fuel and mining products account for nearly 61 percent of exports in

Brazil. The demand for South Africa's manufactured goods (nearly 40.6 percent of total exports) has boosted the country's exports and contributed to its economic growth. (See table 1).

Technological developments across sectors in the BRICS economies are more visible over the past two decades, and may also be responsible for the changes in the composition of BRICS exports. The share of high-technology goods in the export baskets clearly indicates an upward trend. A large percentage of the BRICS nations' import baskets consist of capital goods, indicating the process of large-scale industrialisation in these economies, which is also reflected in the changing composition of their commodity exports (see table 3).

TABLE 1
BRICS Exports Composition (2015)

Country	Merchandise Exports (\$ billion)	Share in World Total Exports	Share by Commodity				Share by Origin			
			Agricultural Products	Fuels Mining Products	Manufactures	Other	China (18.6)	EU (17.8)	US (12.7)	Argentina (6.7)
Brazil	191.1	1.2	41.9	19.1	36.1	3.0	China (18.6)	EU (17.8)	US (12.7)	Argentina (6.7)
Russia*	340.3	2.1	8.0	67.4	22.3	2.3	EU (39.8)	China (8.2)	Japan (4.2)	Rep. of Korea (3.8)
India	267.1	1.6	13.2	15.7	68.4	2.7	EU (16.9)	US (15.2)	UAE (11.3)	Hong Kong SAR, China (4.6)
China	2,275.0	13.8	3.2	2.4	94.3	0.1	US (18.0)	EU (15.6)	Hong Kong SAR, China (14.6)	Japan (6.0)
South Africa	81.7	0.5	11.7	29.8	40.6	17.9	EU (21.8)	China (8.3)	US (7.5)	Namibia (5.5)

Source: WTO Statistics Database, available at <<http://stat.wto.org/Home/WSDBHome.aspx?Language=E>>.

TABLE 2
BRICS Import Composition (2015)

Country	Merchandise Imports (US\$ billion)	Share in World Total Imports	Share by Commodity				Share by Origin			
			Agricultural Products	Fuels Mining Products	Manufactures	Others				
Brazil	178.8	1.1	6.2	17.9	75.9	0.1	EU (21.4)	China (17.9)	US (15.6)	Argentina (6.0)
Russia	194.0	1.2	14.2	3.9	75.5	6.4	EU (35.8)	China (19.3)	US (6.3)	Belarus (4.4)
India	392.0	2.3	7.1	33.1	47.8	12.0	China (15.8)	EU (11.2)	Saudi Arabia (5.5)	Switzerland (5.4)
China	1682.0	10.1	9.5	21.3	64.4	4.8	EU (12.4)	Rep. of Korea (10.4)	US (9.0)	Taiwan, Province of China (8.6)
South Africa	104.6	0.6	7.0	20.0	64.3	8.7	EU (29.1)	China (18.3)	US (6.7)	Nigeria (5.8)

Source: WTO Statistics Database, available at <<http://stat.wto.org/Home/WSDBHome.aspx?Language=E>>.

TABLE 3
Export Linkages of BRICS (\$ billions)

Exports from Russia	Brazil	China	India	South Africa	Advanced Economies	Euro Area
1990	-	-	-	-	-	-
2000	0.3	5.2	1.1	0.03	60.6	39.0
2010	1.7	19.8	5.4	0.05	210.7	141.0
2015	1.9	28.6	5.6	0.27	197.9	133.3
Exports from India	Brazil	China	Russia	South Africa	Advanced Economies	Euro Area
1990	0.0	0.0	-	0.0	11.1	3.0
2000	0.2	0.8	0.9	0.3	27.4	7.6
2010	3.7	17.5	1.4	3.6	100.1	32.5
2015	3.1	9.7	1.6	3.9	32.5	32.2
Exports from China	Brazil	India	Russia	South Africa	Advanced Economies	Euro Area
1990	0.1	0.2	-	0.0	52.0	5.1
2000	1.2	1.6	2.2	1.0	208.3	30.6
2010	24.5	40.1	29.6	10.8	1108.0	235.0
2015	27.4	58.3	34.8	15.9	1500.3	250.7
Exports from Brazil	China	India	Russia	South Africa	Advanced Economies	Euro Area
1990	0.4	0.2	-	0.2	22.9	8.1
2000	1.1	0.3	0.4	0.3	34.6	13.0
2010	30.8	3.5	4.2	1.3	83.1	36.8
2015	35.6	3.6	2.5	1.4	76.8	29.0
Exports from South Africa	China	India	Russia	Brazil	Advanced Economies	Euro Area
1990	-	-	-	-	-	-
2000	0.3	0.4	0.0	0.2	15.7	6.2
2010	8.1	3.0	0.3	0.7	41.2	14.2
2015	10.0	3.7	0.4	0.7	35.7	13.4

Source: Directory of Trade Statistics, IMF.

2 Main Challenges

2.1 External Challenges

2.1.1 Global economic slowdown

With emerging market economies (BRICS included) rapidly integrated into the global economy, changing global conditions highlight the increasing sensitivity of these economies. Affected by the global financial crisis of 2008, the world economy slowed down and export demand became weak, posing great challenges for emerging economies dependent on the world market. Meanwhile, many advanced economies started a re-industrialisation strategy that also put great pressure on developing countries.

2.1.2 The rise of trade protectionism

Beset by shrinking GDP and rising unemployment, individual countries tends to erect barriers against foreign trade, hoping to protect domestic industries. According to WTO's reports on trade developments between October 2014 and October 2015, nearly 15 new trade-restrictive measures were introduced per month during this period. The total number of restrictions rose to 2,557 as of October 2015, up 17 percent from the corresponding previous period. The rise of trade protectionism makes export-oriented BRICS countries subject to ever-increasing trade barriers and conflicts. Besides, several trade strategies newly adopted by the Trump administration, such as withdrawing from the TPP and renegotiating the North American Free Trade Agreement (NAFTA), have released trade protective signals towards the world, which may lead to the further rise of trade protectionism.

2.1.3 Exclusive free trade agreements dominated by developed economies

The Trans-Pacific Partnership (TPP), the Transatlantic Trade and Investment Partnership (TTIP) and the Trade in Services Agreement (TISA), bearing the same features of wide coverage and high standards, are supposed to promote reform of

international trade and investment rules in the near future. The TPP was signed in Auckland in February 2016. The 12 countries involved represent almost 40 percent of the global economy and one third of all international trade. However, the withdrawal of the US from TPP in January 2017 makes the ratification and eventual implementation of the TPP almost impossible. The TTIP is a proposed trade agreement between the EU and the US, which is still under negotiation. These two economies account for 40 percent of the global economy and half of all international trade. The TISA is a proposed trade treaty involving 24 parties, which includes 52 countries, and is said to be the largest ever of its kind in history. The combined GDP of the TISA parties comprises two thirds of the world economy.

BRICS countries have been excluded from these “big three” tie-ups dominated by the advanced economies. These “big three” are intended to marginalise emerging economies represented by BRICS countries and deprive them of a voice in the making of these new international trade and investment rules, which are likely to be implicitly discriminatory. Despite the possible failure of the TPP due to the US withdrawal, the high-standard templates set by the TPP will have potential long-term impacts on future free trade agreements, which may disadvantage BRICS countries in the short term. Apart from that, taking the wide coverage of the TTIP and TISA into account, once these two are eventually signed, BRICS countries may become passive followers of future trade rules, which could be a blow to their interests.

2.2 Internal Challenges

2.2.1 Declining trend in growth rate and lack of new development-driven forces

The rapid growth trend among the BRICS countries since the 1990s has been tempered following the global financial crisis. Since 2010, by the external environment, BRICS countries have encountered difficulties in their economic development. Russia has experienced sharp decline in growth rate since 2013. Its economy shrank by 3.7 percent in 2015. Brazil has undergone stagflation (as has Russia), with its economy contracting 3.8 percent in 2015 and 3.6 percent in 2016. The growth rate of South Africa has dropped under 2 percent since 2014. Although it is good to see China and India with a relative high growth rate, both of them are still facing the pressure of structural reforms.

TABLE 4

Economic Growth Rate of BRICS (%)

	2010	2011	2012	2013	2014	2015	2016	2017
Brazil	7.5	2.7	1.0	2.7	0.1	-3.8	-3.6	0.5
Russia	4.3	4.3	3.4	1.3	0.7	-3.7	-0.2	1.1
India	10.1	6.3	4.7	6.9	7.2	7.3	7.6	7.6
China	10.4	9.3	7.7	7.7	7.3	6.9	6.7	6.2
South Africa	2.9	3.5	2.5	2.2	1.5	1.3	0.3	0.8

Source: IMF World Economic Outlook (October 2016, p.2-3; October 2015, p.3; October 2014, p.2); apart from India, economic growth rates of 2016 of the other four are achieved from its individual statistical department.

Note: India's economic growth rate of 2016 and economic growth rates of 2017 of BRICS are expectations by IMF.

2.2.2 Pressure of structural reforms

The economic slowdown and recession of several BRICS countries are mainly due to structural factors. Demand-side policies aimed at limiting the impact of cyclical fluctuations can hardly solve the underlying structural problems.

A structural drawback that BRICS countries have in common is their reliance on capital investments and exports. Though it was these which fuelled their rapid growth in earlier years, it also makes them vulnerable to external environment alterations. With the global economic slowdown and the normalisation of monetary policy by the US Federal Reserve, export demand has grown weak globally and large amounts of investment are flowing out of emerging economies back to the US. It is imperative that BRICS countries move their focus back to their home economies and conduct structural reforms by increasing investments in infrastructure, public products and R&D, stimulating business by tax cuts and promoting total factor productivity. No doubt structural reforms could take years and could hurt economic growth in the short term. BRICS countries are sure to be exposed to pressures and challenges during the process.

2.2.3 Poor trade complementarity and strong trade substitutability

Mutual trade between BRICS countries continues to grow. Although the volume of trade among BRICS countries increased 14 times from \$21.1 billion in 2001 to \$296.4 billion in 2013, it still constitutes a tiny part of total world trade (0.8

per cent in 2013). In addition, its share of total foreign trade of each country is low. China is one of the main trade partners of all the other BRICS countries, but the volume of trade among the other four is small and complementarities of their products poor (UNCTAD, 2014).

According to Spearman's rank correlation coefficient¹ of the export comparative advantage index of two countries, China's trade relations with Brazil, Russia and South Africa are complementary. However, South Africa and Russia are constantly competitive with each other in international trade, and so are South Africa and Brazil. These two groups have shown a high and increasing intensity of trade substitutability. Brazil-Russia and Brazil-India trade are also competitive, but the extent of substitutability is not as strong in these cases as with the former two groups. Two pairs of countries, namely India-Russia and India-South Africa, have seen a conversion from being competitive to becoming complementary in trade.

TABLE 5

Trade complementarity and substitutability among BRICS countries (2001-2009)

	2001				2005			
	Brazil	Russia	India	China	Brazil	Russia	India	China
Russia	0.2652	-	-	-	0.4831	-	-	-
India	0.2130	-0.1033	-	-	0.0936	-0.0422	-	-
China	-0.1789	-0.2109	0.2720	-	-0.1514	-0.2123	0.1969	-
South Africa	0.3685	0.4934	0.1014	-0.2868	0.4577	0.6467	0.0199	-0.2234
	2009				2001-2009			
	Brazil	Russia	India	China	Brazil	Russia	India	China
Russia	0.3333	-	-	-	0.4245	-	-	-
India	0.1032	0.0169	-	-	0.1214	-0.0910	-	-
China	-0.2866	-0.2634	0.2205	-	-0.2273	-0.2695	0.1681	-
South Africa	0.5433	0.6495	-0.004	-0.3542	0.4285	0.6059	0.0464	-0.2696

Source: The Spearman's rank correlation coefficient adopted from Wu (2012, p.27)..

¹ A negative coefficient generally shows a complementary nature of trade between the two countries whereas a positive coefficient shows a competitive relation. The absolute value of the coefficient shows the magnitude of complementarity and competitiveness.

2.2.4 Few RTAs among BRICS countries

As influential regional powers, the BRICS countries have made significant progress in regional trade and economic cooperation.

TABLE 6
RTAs signed by BRICS

Country	Present number of RTAs in force (until 7 April 2017)	Present number of RTAs involving other BRICS countries ²	Present number of RTAs with other BRICS countries ³
Brazil	5	2	None
Russia	9	None	None
India	15	3	None
China	14	1	None
South Africa	5	None	None

Source: RTA database by WTO

Brazil, with five regional trade agreements (RTAs) covering 47 countries, has been actively promoting and participating in the Latin American integration process. Before joining WTO, Russia was active in economic cooperation with CIS⁴ countries, which to some extent led to lack of cooperation with other regions. This situation is expected change with the official establishment of the Russia-Belarus-Kazakhstan Customs Union in November 2009, which plans to launch FTA negotiations with more than 30 countries worldwide, instead of limiting itself to the CIS framework. However, in sheer numbers of RTAs signed, India ranks first with 15 notified RTAs in force involving 52 countries – 12 of them with other Asian countries. China has signed 14 RTAs until now with 22 countries, including both developing and developed ones. South Africa has signed five RTAs and played an important role in the integration of Africa.

Despite these achievements by individual BRICS countries, there are no bilateral RTAs among the BRICS countries themselves. Bilateral cooperation

² This refers to that they are both involved in a plurilateral free trade agreement.

³ This refers to an individual BRICS country signing a bilateral FTA with another BRICS country.

⁴ Commonwealth of Independent States

between BRICS countries is mainly achieved under plurilateral agreements or through other forms. Brazil and India have established a close partnership through the Global System of Trade Preferences among developing countries (GSTP) and through MERCOSUR (a grouping of several South American countries, including Brazil)-India. China and India have finalised a report on the feasibility of establishing a bilateral FTA. Russia has been engaged in economic cooperation with China through the Shanghai Cooperation Organization (SCO). However, the absence of bilateral RTAs remains a major bottleneck retarding the further development of BRICS countries' economic cooperation.

3 Recommendations on areas where BRICS countries could expand cooperation to further foster their economic growth and development

This year, the BRICS cooperation mechanism is seeing a second decade. The BRICS countries should plan the future together, collaborate to usher the second Golden Decade, and strengthen the BRICS cooperation mechanism in the following four dimensions: (1) Enhance political and security cooperation. The BRICS countries should make full use of the meeting of national security advisers, build consensus for holding a formal foreign ministers meeting, and demonstrate the strength of BRICS cooperation to the world; (2) Promote practical cooperation. The BRICS countries should fully implement the strategy for BRICS Economic Partnership, enhance policy coordination at the macro-level, and the complementarity of development strategies, announce a number of solid cooperation initiatives, and add ever more substances to BRICS cooperation; (3) Create People to people exchange mechanism. The BRICS countries should implement the agreement of the BRICS leaders, and hold BRICS culture festival, film festival, sports meets and so on, to expand all areas of people to people exchange, and build stronger public support for BRICS cooperation; Each BRICS member should take measures to facilitate and (4) Build up South-South Cooperation platform. The BRICS countries should explore modality of "BRICS+" by holding outreach dialogues with other major developing countries or groups of developing countries, and hope to establish a more extensive partnership, and widen the BRICS circle of friends, and turn the BRICS into the most influential platform for South-South cooperation.

In term of economic practical cooperation, the following endeavours should be included:

3.1 Commodity trade and service trade

Trade, a powerful engine for economic development, should play an important role in achieving inclusive growth and poverty reduction in BRICS countries. BRICS countries should make efforts to eliminate trade barriers, and take concrete steps to continually promote trade development, trade opening and integration, as well as contributing to global prosperity and sustainable development. They should:

- Establish BRICS Free Trade Area and remove trade barriers step by step, in order to better promote the development of intra-BRICS trade and each country's economy and production;
- Initiate a trade facilitation programme of BRICS countries to lower intra-BRICS trade costs and enhance trade effectiveness. Each BRICS country needs to take concrete actions, and endeavour to achieve no less than a 10 percent reduction in intra-BRICS trade cost by 2020;
- Improve intra-BRICS trade governance. The BRICS countries should endorse the central role of the WTO in global trade governance, remain committed to an open global economy and further trade liberalisation and facilitation, and contribute to working out of RTAs/FTAs among themselves in accordance with existing WTO rules and thereby to energize WTO negotiations;
- Establish a comprehensive multilateral agreement, including goods, services and supplies, completion, intellectual property rights and short-term labour flows, and further enhance the impact of trade liberalisation on investment, production and employment;
- Enhance trade finance with the support of New Development Bank, World Bank and existing trade finance facility programmes of multilateral or regional development banks of BRICS countries to increase trade volume and eliminate trade financing gaps;
- Develop a trade outlook index of BRICS countries as a potential leading indicator of overall economic growth. The index should be used as an “early warning” system to provide real-time information on trade developments, and help BRICS countries assess their trade-related policies;
- Boost trade in services. BRICS countries should commit to launching policies that support a well-regulated and competitive services market, and facilitate the participation of service providers in global value chains;

- Establish a platform on e-commerce cooperation, and promote e-commerce development. This will allow BRICS countries' governments and businesses to conduct dialogues, study the evolving role of e-commerce in international trade and related policy matters conducted by the WTO together with other relevant international organisations. It would also help them conduct research and discuss trade related rules, standards and patterns. By enhancing conversations, BRICS countries are expected to deepen collaboration on policy coherence;
- Promote trade in green goods, encourage bilateral trade in sustainable environmental goods and clean energy technologies to implement the Paris Agreement on Climate change and achieve human, sustainable and green development objectives.

3.2 Intra-BRICS and beyond-BRICS investment

According to statistics, mutual investment among BRICS countries remains relatively small. However, foreign direct investment (FDI) associated with the BRICS countries is expected to grow by more than 10 times in the 21st century (UNCTAD, 2014). In the post-2015 era, BRICS countries should stimulate intra-BRICS investment, and launch pragmatic cooperation to promote mutual investment among BRICS countries. The investment facilitation actions should be as follows:

- Establish investment information disclosure system, and promote accessibility and transparency of investment policies, regulations and procedures relevant to investors in BRICS countries. Each BRICS country should designate a lead investment ombudsperson or facilitator with a mandate to manage investment policy related issues;
- Improve the efficiency and effectiveness of investment administrative procedures, including procedure simplification, time bound approval processes, establishing an online "one-stop" approval authority, and investment procedure review system;
- Improve the investment environment to enhance predictability and consistency of investment policies, including common application of investment regulations, equal treatment in the operation of investment law and regulations, and clear criteria and transparent procedures on investment

project screening, appraisal and approval mechanisms;

- Establish effective bilateral or multilateral investment dispute settlement mechanisms, including mediation and arbitration, to facilitate investment dispute prevention and resolution and support investment retention;
- Establish regional investment compacts, e.g., for cross-border infrastructure development, initiate industrial collaboration or building of regional value chains; Investigate the merits of signing an investment protection agreement to promote mutual investment among BRICS countries;
- The share of BRICS countries in global direct investment inflow and outflow was 21 percent and 6 percent respectively, in 2013. The BRICS countries attracted much more FDI than their Outward Direct Investment (ODI). Non-BRICS countries are the main FDI sources of BRICS countries. Action should be taken to foster greater non-BRICS investment.
- Strengthen investment facilitation efforts in non-BRICS countries, provide support and technical assistance, bolster efforts towards transparent, effective and efficient administrative processes for business and investors, and facilitate feasibility studies for potential non-BRICS investment projects; Welcome BRICS countries' participation in the Belt and Road Initiative.
- Channel the inward FDI from non-BRICS countries, especially from developed countries, into transforming and restructuring industries, to get financial support, technical assistance and development experience; and facilitate responsible business conduct by investors of non-BRICS countries;
- Establish regular consultations or a formal collaboration mechanism between relevant authorities of BRICS countries and non-BRICS countries. Organise investment promotion forums, business fairs and business-government networking events to boost inward FDI and ODI of BRICS countries;
- Encourage localisation of the ODI of BRICS countries, in order to create local economic linkages and maximise the positive impact of the investment in non-BRICS countries;
- Organise regular workshops to exchange best practices in a community friendly, and environment friendly manner in FDI and ODI projects/programmes in/from BRICS countries.

3.3 Share best practices in Free Trade Zone policies and governance

Free Trade Zones (FTZs) are the pilot programmes for trade and investment liberalisation in BRICS countries. There are already a number of FTZs set up in BRICS. BRICS countries are going through a learning process with these pilot programmes. It is thus crucial for them to exchange experiences and share best practices and thereby minimise the cost of learning. The process can be made more fruitful in the following ways:

- Organise regular seminars of government officials to share best practices and exchange experiences and lessons relating to FTZ policies and governance.
- Organise workshops to train people in FTZ governance to improve their efficiency and strengthen their capacity for policy formulation and implementation.
- Launch public and private dialogues to evaluate and optimize FTZ governance and management.
- Encourage scholars and researchers to (a) explore new approaches to facilitate trade and investment in FTZ and (b) find out how FTZ policies and practice could spill over into larger scale of trade and investment liberalisation.

3.4 Domestic structural reform

The BRICS countries are at the low end of the global value chain which weakens their traditional competitive advantage. Further, they face more challenges in the post-crisis era: the re-industrialisation of the West, on account of the third industrial revolution will exert great export pressure on them, while the reset global climate change rules might influence and even change their path of industrialisation. BRICS countries need to conduct structural reform and improve their sustainable economic development. They should:

- Accelerate structural readjustment in agriculture and the rural economy, improve productivity and meet the increasing global demand for food and agricultural products;
- Readjust consumption structure, make efforts to boost domestic demand and strive to achieve economic growth driven by coordination of consumption, investment and export;

- Promote independent innovation committed to comprehensive industrial restructuring, adjustment and upgrading, accelerate technological innovation-driven economic growth, and vigorously develop the emerging strategic industry as a new economic growth engine while strengthening each country's traditional competitive advantages.
- Launch a high level governmental forum and ensure pragmatic cooperation on economic restructuring and innovation, coordinate the reform actions of the BRICS countries and guide the direction of economic restructuring;
- Upgrade the service industry with sophisticated and high-technology activities, and promote the share of services in GDP;
- Based on each country's specific situation and voluntary principles, phase out backward and environment unfriendly production capacities, and improve advanced production capacities in accordance with environmental standards.

3.5 Upgrade global value chain and global production network

The rise in importance of Global Value Chains (GVCs) is one of the most notable outcomes of globalisation. Currently, 80 percent of global trade is carried out through GVCs, with much of this driven by the production networks of multinational enterprises. However, BRICS countries are still faced with challenges which constrain their ability to participate in and/or move up in the ladder of GVCs. To overcome these constraints and get an equitable share of the benefits of globalisation, the BRICS countries should attach greater importance to facilitating their participation in GVCs, get more integrated into GVCs and move up the ladder of the value chain. The following actions should be taken:

- Launch a BRICS GVC Development initiative to promote inclusive, open and coordinated development of a BRICS GVC through capacity building, trade promotion and assistance and information technology sharing, to help the small and medium sized enterprises (SMEs) in BRICS countries integrate better into global trade;
- Create a GVC evaluation centre and support research aimed at understanding the impact on growth, productivity and job creation of integrating into GVCs;

- Establish a comprehensive information system within BRICS countries through increased use of information technologies, support GVC-related data collection and analysis, and provide further information on tools and processes that help BRICS countries enter GVCs and move up the value-chain;
- Launch a high-quality capacity building and development programme to facilitate innovation capacity cultivation of BRICS countries, and assist them in their inclusive participation in GVCs, including infrastructure, technology, supply chain connectivity, agriculture, innovation and e-commerce, skills training and responsible business conduct. Increase their ability to establish, adopt and comply with relevant national, regional and international standards, technical regulations and conformity assessment procedures;
- Launch special initiatives to encourage leading companies of BRICS countries to take the lead in global value chains, while assisting their SMEs to share the benefits from the evolution of global value chains. Upgrade their industries and local economies and create more jobs and opportunities, so as to build a favourable policy environment for expanding the global value chains;
- Foster cooperation with developed countries in GVC-related areas which could facilitate BRICS participation in GVCs through workshops, concrete business conduct, as well as taking into account the important role of foreign direct investment, and provide more opportunities for the BRICS countries to realise both upstream and downstream extensions in the value chain.

3.6 FTA strategy

Economic integration is one of the results of globalisation. As key regional and world actors, the BRICS countries have made and will continuously make significant progress in regional and inter-regional trade and economic cooperation, and build an “open, inclusive, non-discriminatory, transparent and rule-based multilateral trading system.”

3.6.1 Intra-BRICS cooperation mechanism

- Strengthen the existing FTAs between BRICS countries and promote strategic cooperation in a variety of fields including public policy, defence, science

and technology, water conservation, quality inspection, sports, education, agriculture, energy, telecommunications, aviation, etc;

- Raise the level of trade facilitation under the existing FTAs, including enhancing export promotion via exhibitions, seminars and symposiums, organising investment and trade promotion missions, building chambers of commerce, and divulging specific real-time information;
- Promote the negotiation and signing of new FTAs between BRICS countries based on an agreed timetable and taking into account the interests of economic development in participating countries ;
- Create duty-free, quota-free market access initiatives of BRICS countries to enhance economic cooperation and consolidate support at multilateral trade talks; Study the influence and new challenges brought by TTP, TTIP and other mega agreements in multilateral trading;
- Establish a trade information sharing platform among BRICS countries and share market information and establish broader trade and economic ties;
- Establish closer ties between trade facilitation agencies of BRICS countries, and provide policy support to Customs authorities to work with one another, and facilitate mutual trade by SMEs;
- Build up bilateral or multilateral trade dispute mediation and arbitration agencies to resolve disputes and conflicts in trade activities between BRICS countries.

3.6.2 Cooperation with non-BRICS Countries

- Establish a South-South cooperation mechanism led by BRICS countries. BRICS countries should commit themselves to encouraging South-South trade cooperation under the framework of the WTO, the Eurasian Economic Community, ASEAN, etc., and assist developing countries to better integrate into global production chains, and upgrade their industries. Communications and coordination agencies should be set up under the South-South cooperation mechanism to resolve potential problems;
- Encourage information and technology trade and cooperation between BRICS countries and developed countries, strengthen the former's capacity for technology absorption, improvement and innovation;

- Facilitate South-North cooperation which could introduce inward foreign direct investment with technology, human resources, and other useful production factors, and support developing countries to move up the global production chain and global value chain;
- Create new trade partners outside BRICS to boost external demand by taking advantage of the excess production/manufacturing capacities of some BRICS countries.

3.7 Finance

Changing global financial conditions have highlighted the increasing sensitivity of BRICS countries to these changes. It is incumbent upon BRICS countries to assume a leadership role in global political and economic governance and seek greater equity for the developing world. BRICS countries should collectively remain ready to contribute to the improvement and reinforcement of the global financial architecture, and minimise systemic risk by exploring arrangements that target the underlying systemic issues in the global financial system. Steps that need to be taken:

- Enhance financial governance cooperation in supervising international finance, optimise the bilateral supervision mechanism by instituting a coordinating mechanism among financial regulators to improve their regulatory measures, improve market transparency and decrease the asymmetry of information;
- Promote coordination among monetary authorities of BRICS countries in managing cross-border capital flows, work together to build a supervision mechanism for the macro-economy and financial markets and build a regional international financial security net to step up their monitoring of global capital flows and avoid the cross-border transmission of financial risks;
- Construct jointly a platform for dialogue on monetary and fiscal policies and expand the spaces for monetary policies of the BRICS countries. The BRICS countries should participate more vigorously and comprehensively in the formulation of international financial standards and rules, make the best use of achievements in international financial reform, and implement international standards to achieve internal reforms;
- Establish an independent BRICS rating agency to prevent unforeseen asset bubbles, and be better prepared to respond to externalities in the global

financial architecture. The objective should be to prevent a build-up of unsustainable corporate debt levels, maintain a check on banking assets, mitigate the negative effects of the largely unregulated shadow banking sector and maintain a watch on the performance of the global economy;

- Establish a financial market development and stability fund to develop a BRICS bond market;
- Explore the prospect of trade settlement in domestic currencies, which could help mitigate the negative impact of currency volatility on trade and help promote the international use of the BRICS countries' currencies;
- Further BRICS cross-region monetary cooperation and enhance the effectiveness of the Contingent Reserve Arrangement (CRA)⁵, supplementing the global financial safety net, neutralising the inherent systemic risk that emanates from adverse spill-overs from Unconventional Monetary Policies (UMPs) and an over-reliance on the US dollar, and enhancing the collective capacity of coping with external shocks of the BRICS countries.

3.8 Agriculture

The agricultural sector plays a central role in BRICS countries' economic development. The BRICS countries should strengthen their comparative advantages in agriculture and increase their supply of agricultural commodities to the world market, and complement each other's advantages and achieve inclusive, green and sustainable development. To achieve this, they should:

- Expand cooperation in agriculture between BRICS countries. They should join forces in fields such as the production, storage and trade of agricultural products, logistics and technology from a resource complementarity and industry cooperation perspective;
- Set up an agricultural technologies innovation and transfer platform, which would enable them to enhance cooperation in the fields of advanced agricultural technologies, equipment and technical personnel. As the most advanced of the BRICS countries in agricultural science and technologies,

⁵ A framework for the provision of support through liquidity and precautionary instruments in response to actual or potential short-term balance of payments pressures

Brazil could lead and coordinate the platform;

- Launch information-sharing and communication activities centring on common issues in agricultural development, and set up an agricultural information platform and exchange agricultural information regularly;
- Guarantee food security and food safety, and maintain sustainable development of the agricultural sector. BRICS countries should improve their agricultural productivity and efficiency, pay attention to the negative effects of climate change on agricultural productivity, especially the destructive effects of extreme weather, and the protection of arable land and ecological safety;
- Develop financial products that can target specific segments of the population, such as derivative products for farmers to provide agricultural insurance and innovative mutual funds for small-scale investment to develop SMEs;
- Organise seminars to explore measures and approaches to facilitate trade and investment in agricultural sectors among BRICS countries to increase productivity and quality, and eventually enable a competitive BRICS agricultural sector.

3.9 Infrastructure

Infrastructure construction, including the construction of roads, bridges, tunnels, water supply networks, sewers, electrical grids, telecommunications, and so forth, is the main task facing BRICS countries. Technologies, investment and planning are the key factors determining the construction of infrastructure. Some measures they could take to build infrastructure are:

- Launch programmes, taking full advantage of the resources of the newly founded Asian Infrastructure Investment Bank (AIIB) and conventional international financial institutions such as the World Bank, to develop infrastructure and other productive sectors of BRICS countries, including energy and power, transportation and communications, rural infrastructure and agriculture development, water supply and sanitation, urban development and logistics, and so forth;
- Conduct joint research on target financing to address infrastructural needs of BRICS and the respective regions of member states, in order to help the New Development Bank determine financing schedules;

- Innovate in financing tools to achieve diversified financial channels, and offer financial support to basic infrastructure construction. Private capital is a priority for all BRICS countries to enrich the financing channels of infrastructural construction. BRICS countries should evaluate the forms of Public-Private Partnership (PPP) and learn from experiences of developed countries;
- Enhance infrastructural construction planning, and guarantee sufficient and equal access to basic infrastructure and services in urban and rural areas in BRICS countries;
- Develop mechanisms for peer-to-peer partnerships in infrastructure construction, which facilitate the cooperation of BRICS countries in infrastructural technologies communication, experience sharing, and concrete problems solving.
- Setting up dialogue between New Development Bank and Asian Infrastructure Investment Bank to exchange best practise in inclusive development financing.

3.10 Energy

Energy plays a key role in BRICS countries' development. The BRICS countries are heavily reliant on fossil fuels. Over 50 percent of the total fuel sources in BRICS are based on fossil fuel energy (World Bank, 2015). The main tasks of BRICS countries in the energy sector are to realise energy-economy transformation and ensure sufficient energy supply (energy security). To this end, they should:

- Establish an energy policy institute to coordinate the energy policies of BRICS countries in traditional and renewable energy sources;
- Establish bilateral or multilateral energy complementary partnerships between BRICS countries, encourage each country to use its unique advantages in the energy sector to compensate others' disadvantages, and achieve a win-win situation;
- Build an energy reserve bank to leverage intra-BRICS energy trade and cope with emergent energy shortages of BRICS countries;
- Launch a clean energy and renewable energy research centre, ramp up joint research in the development and use of new and clean fuels, strengthen

investment in the infrastructure of new energy, and increase the proportion of renewable sources in energy consumption, encourage the BRICS countries to adopt cleaner energy sources and transit to a low-carbon and less energy-intensive economy;

- Hold regular energy cooperation forums of the BRICS countries, enhance their concrete cooperation in the energy field, share their technologies and experiences in energy exploration and use, enhance safety in the energy sector, and improve energy efficiency;
- Facilitate trade and investment in clean and renewable energies among BRICS countries.

3.11 Small and medium-sized enterprises

SMEs are important actors in the economies of BRICS countries. To address the challenges SMEs face, BRICS countries should continue to support SMEs, facilitate their cooperation and encourage their participation in BRICS cooperation. This could include the following actions:

- Build an information sharing database among BRICS countries via increased utilisation of information technologies to facilitate SMEs access to information on trade and investment opportunities, trade and economic policies in each BRICS country, and increase SMEs' ability to adopt and comply with relevant national, regional and international standards and technical regulations;
- Hold annual BRICS SME pragmatic cooperation forum, to create concrete cooperation opportunities, share best practices through peer learning, transfer technology and innovation resources, training and exchange of staff, set new goals and project future development programmes;
- Advance major intra-BRICS SME cooperation demonstrations by establishing major new joint pilot programmes with feasibility studies and other collaborative endeavours of the BRICS countries to intensively explore a better cooperative model of SMEs, and demonstrate cooperation on the ground;
- Sign a BRICS SMEs Cooperation Agreement, based on the existing BRICS Exchange Alliance, which could provide a legal foundation for intra-BRICS SMEs cooperation.

CHAPTER 2

POLITICAL AND ECONOMIC GOVERNANCE

PILLAR

BRICS member states should share experiences and improve existing initiatives on good governance and transparency both within the ambit of global multilateral cooperation and domestically in member countries.

INTRODUCTION

BRICS, as a grouping of emerging economies with individual as well as collective political heft, has flourished despite recent attempts to write it off. However, what has indeed been missing from the discourse around BRICS among believers and agnostics alike is a discussion of the nature of the grouping. Is it merely a grouping of like-minded economies that emerged on the world-stage around the same time? Or is it – as some trenchant critics of the grouping have dubbed it – an *arriviste* anti-Western political bloc?

It has been recently argued that BRICS is neither, and that the right framework to view BRICS through is that of regimes and regime complexes from a liberal-institutionalist perspective. The explication of this point of view on BRICS is not merely academic – viewing BRICS as a collection of loosely-coupled regimes can help elucidate the central global governance challenges of the 21st century, that of reconciling multilateralism with multipolarity.

Regimes are a collection of norms. Regime complexes are a set of interacting and yet loosely-coupled norms. BRICS, as a multiplicity of regimes, does the following: (1) it promotes context-specific developmental goals, (2) it seeks to redress the unfairness of global political and economic architectures, and (3) it acts as a self-help group in an anarchic and uncertain international system.² The central challenge of political and economic governance from the perspective of

1 Abhijnan Rej and Samir Saran, *Thinking BRICS: A Conceptual Inquiry Into Emerging Powers Plurilateralism* (New Delhi: Observer Research Foundation, forthcoming).

2 Ibid.

BRICS is to see how – as a regime-complex – it interacts with other regimes (political and economic) in a way that multilateralism is strengthened under the precondition of multipolarity.

The goal of this chapter is to take a regime view of BRICS and outline the key developments in the global political and economic space over the past year, as well as the challenges going forward. This chapter also seeks to make policy recommendations from this point of view.

ECONOMIC GOVERNANCE

BRICS and mega-FTAs

In the Asia-Pacific alone, the number of free-trade agreements (FTAs) has grown from three in 2000 to 40 in 2014 (or 71, if one counts the unreported ones). BRICS has to now engage seriously with the problems emerging from spill-overs from this spaghetti bowl.

Two regional mega-FTAs (RTAs) that have been actively discussed over the past year stand out for special scrutiny: the Trans-Pacific Partnership (TPP) and the Trans-Atlantic Trade and Investment Partnership (TTIP). Both are extremely ambitious, covering merchandise goods, as well as services, and have large behind-the-border regulatory contents spanning intellectual property rights (IPRs), labour, and environmental standards. TTIP and TPP both aim at zero general- and customs-tariffs for trade. Both are also highly politico-strategic in nature: TPP seeks to place the US as a hegemonic Asian power while TTIP seeks to convince its Atlantic allies that their ‘special relationship’ is very much alive. In many ways, both TPP and TTIP are examples of what could be called a piecemeal approach by the Americans to guarantee open trade regimes in Asia and across the Atlantic, with terms dictated by the hegemonic power, in accordance with hegemonic stability theory.

None of the BRICS states are members of either agreement. A goal for BRICS countries should be to see if membership or otherwise, leveraging these RTAs, works to their individual benefit. After all, a study has compared RTAs to street-gangs: “You may not like them, but if they are in your neighbourhood, it is safer to be in one.”³ “The new regionalism,” the same paper added, “lays down

3 Jo-Ann Crawford and Sam Laird, Regional Trade Agreements and the WTO, CREDIT Research Paper 00/3 (University of Nottingham, 2000), .

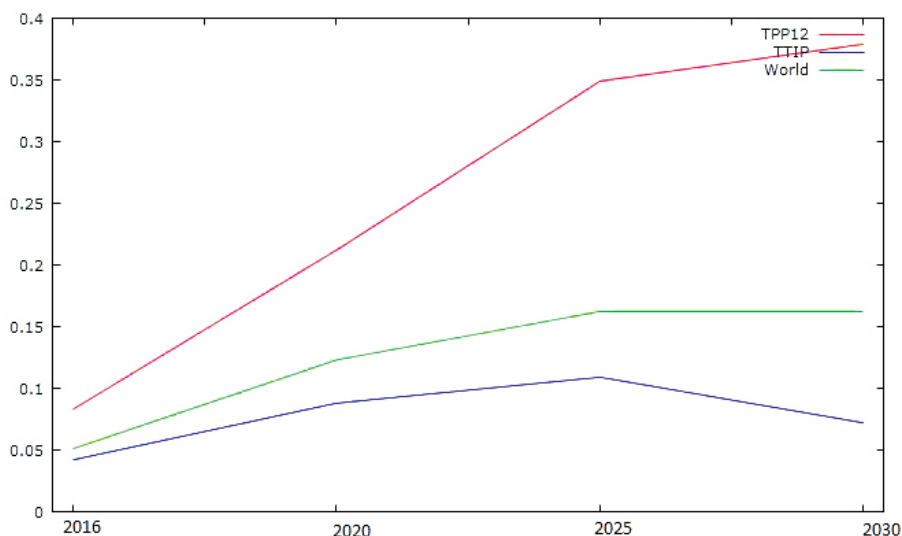
a challenge to be bettered at the multilateral level.”⁴ Indeed this propositional challenge is what BRICS – as a regime-complex – should engage with going forward. This would require strengthening both the World Trade Organisation (WTO) as well as its linkages with Bretton-Woods institutions.

Based on specific assumptions fed into general equilibrium macroeconomic models (specifically, the General Trade Analysis Project (GTAP)), the estimated GDP change over baseline (in percentage) for founding TPP and TTIP members, and the world as a whole, is given below as a time series from 2016 to 2030.

Tables 1 and 2 summarise the effects of TPP and TTIP on BRICS states’ macroeconomic variables, where the simulation hypotheses are 100 percent tariff liberalisation for TPP partners, and the same between the US and the EU (for TTIP) – and that the BRICS states stay out of the RTAs in question.

FIGURE 1

GDP change over baseline (in %) – 2016-2030⁵



4 Crawford and Laird, *Regional Trade Agreements and the WTO*, 17.

5 Data for graph from: Dan Ciuriak and Jingliang Xiao, “Quantifying Mega-regional Spillovers into Excluded Countries: Impacts on East Africa,” in *TPP and India: Implications of Mega-regionals for Developing Economies*, ed. Harsha Vardhana Singh (New Delhi: Wisdom Tree, 2016), 182.

TABLE 1
Impact of TTIP on BRICS⁶

Macroeconomic Variables	Brazil	Russia	India	China	South Africa
Nominal GDP	-0.12%	-0.08%	-0.13%	-0.16%	-0.11%
Real GDP	0.00%	0.00%	-0.01%	-0.02%	0.00%
Variation in Trade Balance	-0.20%	0.00%	-0.20%	-0.10%	0.10%
Variation in Exports %	-0.17%	-0.08%	-0.14%	-0.14%	-0.13%
Variation in Imports %	-0.16%	-0.11%	-0.14%	-0.12%	-0.13%
Terms of trade	-0.07%	0.01%	-0.05%	-0.05%	-0.03%
Real Wage	-0.01%	0.00%	-0.01%	-0.01%	-0.01%
Capital Gains	-0.01%	0.00%	-0.01%	0.01%	-0.02%
Land Gains	-0.37%	-0.01%	-0.12%	-0.30%	-0.24%
Real Exchange Rates	-0.12%	-0.09%	-0.135%	-0.15%	-0.12%

TABLE 2
Impact of TPP on BRICS⁷

Macroeconomic Variables	Brazil	Russia	India	China	South Africa
Nominal GDP	-0.26%	-0.01%	-0.21%	-0.38%	-0.20%
Real GDP	-0.01%	0.01%	-0.01%	-0.07%	-0.01%
Variation in Trade Balance	-0.40%	-0.20%	0.40%	-1.10%	-1.40%
Variation in Exports %	-0.37%	0.01%	-0.26%	-0.60%	-0.26%
Variation in Imports %	-0.35%	-0.02%	-0.16%	-0.40%	-0.24%
Terms of Trade	-0.17%	0.11%	-0.15%	-0.28%	-0.11%
Real Wage	0.04%	0.00%	-0.04%	-0.05%	-0.06%
Capital Gains	-0.03%	0.01%	-0.04%	0.03%	-0.04%
Land Gains	-0.25%	0.04%	-0.29%	-1.41%	-0.15%
Real Exchange Rates	-0.26%	-0.02%	-0.22%	-0.34%	-0.21%

6 Vera Thorstensen and Lucas Ferraz, "The Impact of the Mega-Agreements on the BRICS: In Search for a New Global Governance for Trade at the WTO," working paper, [http://bibliotecadigital.fgv.br/dspace/bitstream/handle/10438/16358/BRICS-TERN-Impacts%20of%20TTIP-TPP%20on%20the%20BRICS%20Economies%20\(1\).pdf?sequence=1](http://bibliotecadigital.fgv.br/dspace/bitstream/handle/10438/16358/BRICS-TERN-Impacts%20of%20TTIP-TPP%20on%20the%20BRICS%20Economies%20(1).pdf?sequence=1).

7 Thorstensen and Ferraz, "The Impact of the Mega-Agreements on the BRICS."

Experts on BRICS states have proposed various strategies to deal with the emergence of RTAs. A section of their views – which by no means should be seen as the prevailing consensus – is presented below.

Brazil

Using GTAP simulations, analysts conclude that while Brazil will not suffer significant losses in its balance of trade by staying out of the TTIP, it will most certainly suffer from second-order effects as the competitiveness of its trading partners in the TTIP increase. This will cause trade imbalance. On the other hand, Brazil in TTIP will see significant gains from its agricultural exports. The flipside to this is an over-valued currency which will make industrial imports more expensive. As for TPP, Brazil's biggest concern is whether and when China accedes to the TPP. China is Brazil's largest trading partner – agricultural commodities purchase from Brazil drives the bilateral trade relationship. If China accedes to the TPP, Brazil's agricultural exports will suffer. On balance, analysts conclude that Brazil should aim to join the TTIP.⁸

Russia

Political problems currently make Russia's membership of the TTIP and possible accession to the TPP next to impossible. Analysts estimate that Russia stands to lose \$1 billion annually by 2025 by not being in the TPP. Russia sees its Eurasian Economic Union (EEU) as an answer to the US-led RTAs, but the EEU currently lacks sufficient muscle. Russia's best bet at the moment is to push for a Free Trade Area of the Asia-Pacific (FTA-AP) through which it stands to gain \$152.3 billion. As two Russian analysts described it, "The best option for Russia to avoid economic losses and isolation is to promote the idea of the FTA-AP instead of complaining that it is not at the negotiating table."⁹

India

The main issue for India with regard to membership in the TPP are intrusive "transactional" micro-issues – often behind-the-border regulations – and the contentious issue of IPR and India's pharmaceutical industry. India also sees the

8 Vera Thornstensen and Lucas Ferraz, The Impacts of TTIP and TPP on Brazil, FGV-CCGI AND EESP Paper, January 2014, <http://www.eubrasil.eu/http://www.eubrasil.eu/wp-content/uploads/2014/05/Publications-TTIP-e-TPP-ENG-16-0114.pdf>.

9 an Teresinski and Christopher Hartwell, "The Impact of TPP on Russia," *Russia Direct*, October 8, 2015, <http://www.russia-direct.org/opinion/impact-trans-pacific-partnership-russia>.

macro-issues around tariffs as a *fait accompli* in the TPP.¹⁰ When it comes to the TPP's IPR regulations, which go beyond the WTO's Trade Related Aspects of Intellectual Property Rights (TRIPS), incorporating the more stringent patent restrictions grouped under TRIPS+ (TRIPS plus), Indian analysts complain that (1) they clash with the Indian Patents Act, (2) they reduce the scope of the Doha Declaration on TRIPS and public health which commits to 'medicine for all' (and thereby compromises the position of India's generic medicine industry), and (3) that TRIPS+ provisions suggest longer patent lives, and more stringent penalties for IPR violations.¹¹ However, many Indian analysts also acutely sense the incongruity of a leading Asian power like India – and a close strategic partner of the US – not being in the TPP. Many leading Indian analysts have suggested that India prepare to accede to the TPP in the future.

China

China's issues with the TPP are similar to India's. There is an additional sense that China considers its developmental trajectory unique, and that the TPP has the potential to destabilise regional trade and economic order. China prefers the Regional Comprehensive Economic Partnership (RCEP) – an alternative to the TPP covering almost all of the same countries. Given TPP's uncertain prospect, RCEP is now attracting more and more attention and to some extent has the potential to offset the negative effects of TPP on China's economic and trade development. From the economic point of view, observers also see the TPP and the RCEP in competition with the consequence that "if the TPP succeeds, the RCEP, with relatively low openness, would be unattractive."¹² At the same time, China believes that free trade is beneficial to the economic development of a country and follows the trend of the times. With this view, China is giving more and more support to the construction of FTAs at the multilateral level. Xi Jinping, China's President, clearly conveyed such a message at the 2016 Asia Pacific Economic Cooperation (APEC) meeting, saying that "We need to stay committed to increasing openness in the Asia-Pacific economy, support the multilateral trading regime, and realise the Free Trade Area of the Asia-Pacific (FTAAP) at an early date".¹³

10 Jayanta Roy and Pritam Banerjee, "Twenty-First Century Trade Challenges and Reforms: The Indian Response," in *TPP and India*, 61.

11 Roy and Banerjee, "Twenty-First Century Trade Challenges and Reforms," 63.

12 Ronglin Li and Yang Hu, "RCEP, TPP, and China's Free Trade Agreements," in *TPP and India*, 216.

13 http://www.fmprc.gov.cn/mfa_eng/zxxx_662805/t1417829.shtml

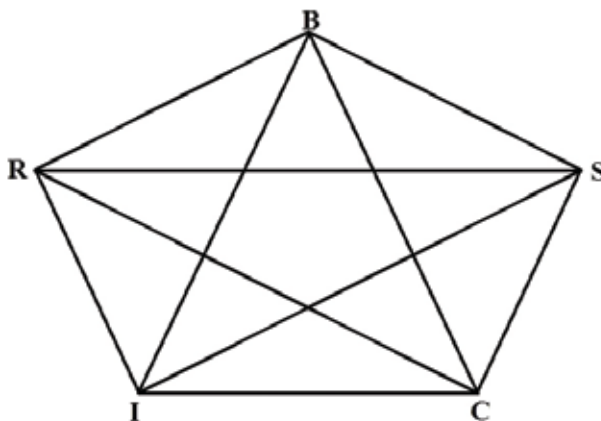
South Africa

South African analysts feel that their country's trade strategy has to balance (1) the existing project to integrate with the rest of the African continent through the tripartite FTA involving the Common Market for Eastern and Southern Africa (COMESA), the South African Development Community (SADC) and the East African Community (EAC), (2) manage its historic trade relationships with the global South, and (3) manage the trade relationships with the West through the European Union's (EU) Economic Partnership Agreements (EPAs), and the US African Growth Opportunity Act. One South African analyst writes: "It is imperative that South Africa recalibrate its trade strategy by taking advantage of the TTIP as leverage with the EU in managing the contradictions posed by the EPAs. Its focus should be on both developing its trade relations with the US and safeguarding the African integration agenda in Eastern and Southern Africa."¹⁴

The path forward for BRICS in dealing with the emergence of RTAs – as an intra-BRICS issue – should be to formalise bilateral FTAs between all BRICS states (see figure below). These FTAs should be coherent (i.e. consistent with one another) and should adopt the best features of ambitious FTAs such as the TPP, keeping the local developmental context in mind.

FIGURE 2

BRICS bilateral FTAs network



14 Francis A. Kornegay, Jr., *BRICS, Mega-Regional FTAs and South Africa's Trade Strategy*, Economic Diplomacy Programme Occasional Paper No. 191 (Johannesburg: South African Institute of International Affairs, 2014), 9.

Linkages with the WTO

The causal links between the weakening of the WTO and the rise of RTAs are still not clear – did RTAs arise because the GATT/WTO system was insufficiently speedy in keeping up with the pace of liberalisation some economies advocated? Or was – and is – it being weakened because of the rise of RTAs and other FTAs and preferential trade agreements which have given economies a set of different venues to establish norms of trade? Whatever be the case, strengthening the WTO system, especially its linkages with the Bretton-Woods institutions, should be high on BRICS's priority.

Brazil and India have played a significant role in shaping the WTO through “green room” and corridor diplomacy.¹⁵ This has been out of self-interest: Brazil, as a major agricultural exporter, was a leader of the Cairns Group (formed to lobby for agricultural trade liberalisation), while India's IT- and business-services-driven economy meant that it had a strong interest in the ‘Mode 4’ discussions, which relate to temporary migration of workers, in the General Agreement on Trade in Services (GATS).¹⁶ China has played by WTO rules scrupulously despite its ‘non-market economy’ status and “onerous conditions, which in the view of some analysts ‘violate fundamental WTO principles’.”¹⁷ These mean that the BRICS states are well-placed to strengthen the WTO in constructive ways, by power of their example and persuasion. But at the same time, BRICS states should insist on more representation at the WTO Secretariat, and push for a refashioning of that institution as an avenue for dispute settlement for members of the proposed RTAs.

More fundamentally, as noted earlier, BRICS should push for greater linkages between the WTO and the Bretton-Woods institutions. The open-economy ‘trilemma’ arising out of the Mundell-Flemming model – which shows the impact of global interest rates and exchange rates on domestic economies – has implications for trade policy as well.¹⁸ A mandate for greater coordination between the WTO, the International Monetary Fund (IMF), and the World Bank

15 Brendan Vickers, “The Role of the BRICS in WTO: System-Supporters or Change Agents in Multilateral Trade,” in *The Oxford Handbook on the World Trade Organization*, ed. Amrita Narlikars, Martin Daunton, and Robert M. Stern (Oxford: Oxford University Press, 2012), 260.

16 Vickers, “The Role of the BRICS in WTO,” 257.

17 Vickers, “The Role of the BRICS in WTO,” 259.

18 Steven Bernstein and Erin Hannah, “The WTO and Institutional (In)Coherence in Global Economic Governance,” in *The Oxford Handbook on the World Trade Organization*, 779.

– called the Coherence Mandate – was finally signed in 1996.¹⁹

It is clear that despite these official declarations, trade policy and global monetary policy are quite out of sync. Witness the decision by the US Federal Reserve to raise its interest rate in December 2015, which made the dollar stronger relative to other currencies – in the absence of monetary policy coordination with other sovereigns. This, in turn, had the usual implications for importers who were now faced with paying *more* for their imports. Already BRICS states' imports were falling due to a fall in export of commodities up and until December 2015²⁰, and the rising dollar added to the pressure.

The rules of the monetary game

The end of fixed-exchange rates in the 1970s did not end dollar dominance. If anything the continued hegemony of the US economy – roughly twice the size of its peer competitor, China – has meant that US monetary policy has significant transmission and spill-over effects. The US decision to follow a path of unconventional monetary policy (UMP) – quantitative easing (QE), in particular – as well as its experiments with policy rates have had significant consequences for emerging economies. While none of the spill-overs from US policy has triggered a serious balance-of-payment (BoP) crisis so far, they do have the potential to do so. Suppose, for instance, there is a dramatic increase in US interest rates. This would make the dollar much more expensive, raising the import bills of other economies. If exports remain constant – assuming that other countries do not depreciate their currencies in retaliation (a “currency-war”-type of situation) – a *drastic increase in US interest rates can in fact trigger a BoP crisis*.

The BRICS Contingent Reserve Arrangement (CRA) acts a safety net to manage BoP crises through spill-overs. However, as last year's chapter of this report notes, “safety nets fail to completely insure the inherent systemic risk that emanates from adverse spill-overs [...] and an over-reliance on the US dollar.”²¹ What is required is fixing the rules of the global monetary game that assesses and rates the monetary policies of the hegemonic power based on their spill-over

19 Bernstein and Hannah, “The WTO and Institutional (In)Coherence in Global Economic Governance,” 781.

20 Brad Setser, “Hard to Pay for Imports Without Exports (BRICS Trade Contraction),” *Follow the Money*, Council on Foreign Relations, June 21, 2016, <http://blogs.cfr.org/setser/2016/06/21/hard-to-pay-for-imports-without-exports-brics-trade-contraction/>.

21 Ibid.

effects. This is what BRICS should take up as a key policy push over the next year.

The idea of rating and assessing spill-over effects of UMPs and interest rates of hegemonic and other advanced economies was advocated last year by the then Reserve Bank of India Governor Raghuram Rajan, in a paper he wrote along with a colleague, Prachi Mishra. They gave the following list of policies that could be rated, based on their spill-over potential: (1) direct exchange-rate manipulation, (2) “discreet” beggar-thy-neighbour policies such as UMPs, and (3) policies influencing capital flows, credit growth, and asset-price bubbles, such as interest rate regimes.²² A concrete example of (2) is that of the US’s QE which lowers the yields of US Treasury bonds by 25 bps causing the dollar to depreciate by one percent.²³ They suggested rating these policies in a graded/colour-coded manner which would signal to advanced economies the effects of their policies on smaller economies. They also proposed that the task of rating monetary policies be entrusted to a group of eminent international private experts. It is proposed here that the research institute the BRICS Bank (or New Development Bank) is setting up, the New Development Bank Institute (NDBI) should implement the Mishra-Rajan proposal in tandem with its research on CRA.

Indeed BRICS – as a normative regime-complex -- should go further, and push for the incorporation of new rules of the monetary game – which are sensitive to negative spill-overs for emerging markets (EMs) and least developed countries (LDCs) – at the IMF itself. The IMF Article of Agreement IV calls for member states to “avoid manipulating exchange rates,” though the meaning of “manipulation” is left unclear in that document.²⁴ It has been suggested that “indirect policies such as monetary, fiscal and trade policies” that affect exchange-rate movement in a way that benefits a single country be also brought under the ambit of ‘manipulation’ under IMF rules.²⁵ As BRICS pushes its agenda for IMF reforms, this should be a priority area.

22 Prachi Mishra and Raghuram Rajan, *Rules of the Monetary Game*, RBI Working Paper Series (DEPR) 04/2016 (New Delhi: Reserve Bank of India, 2016), 8-9.

23 Mishra and Rajan, *Rules of the Monetary Game*, 15.

24 Mishra and Rajan, *Rules of the Monetary Game*, 19.

25 Ibid.

POLITICAL GOVERNANCE

The view of BRICS as a regime-complex, or a multiplicity of loose interacting norms, has consequences for political governance as well. They extend from United Nations (UN) reforms to management of new global commons, and a new non-hegemonic conception of responsibility-to-protect (R2P) which would entail a greater BRICS role in UN peacekeeping operations. Thus BRICS – as a set of implicit norms – is also consequential for the future stability of the Middle East.

UN reforms

Consider the issue of reforms of the UN Security Council (UNSC). This plurilateral institution's reform is an area on which all five states' expectations converge, as evident from the statements of the foreign ministers of all five at the UN General Assembly last year.²⁶ This is not an issue of empty solidarity. BRICS states have been extremely uneasy with the manner in which dominant powers like the US, the UK and France, have tried to use the UNSC to push for de-facto unilateral use of force in Syria and Libya, in the guise of R2P.²⁷

If the UNSC is to maintain its position as an avenue for the sanction of legitimate use of force, it has to be representative – this is the BRICS's position as a regime complex where the two norms, reform of multilateral institutions and the undesirability of unilateral use of force, interact.

New frontiers

The Paris summit last year was one avenue pertaining to the global commons where BRICS states coordinated their expectations. This was also an example of how two regime complexes – BRICS and climate change²⁸ – interacted. BRICS should also work on coordinating expectations through new norms around the 'emerging frontiers' – cyberspace and outer space.

26 IANS, "BRICS Foreign Ministers Endorse UN Security Council, IMF Reforms," *New Indian Express*, September 30, 2015, <http://www.newindianexpress.com/world/BRICS-Foreign-Ministers-Endorse-UN-Security-Council-IMF-Reforms/2015/09/30/article3055361.ece>.

27 Michael J. Boyle, "The Coming Illiberal Order," *Survival*, 58:2 (2016), 35-66.

28 Robert O. Keohane and David G. Victor, *The Regime Complex for Climate Change*, The Harvard Project on International Climate Agreements Discussion Paper 10-33 (2010).

On cyberspace, the overwhelming majority of new users of the Internet now reside in Africa and Asia and, consequently, institutions such as BRICS – an admixture of Southern and Eastern countries – should shape the norms in such a way as to inspire other Asian and African countries “to maintain the openness, resilience, security, and stability of the digital realm.”²⁹ This would involve diplomatic pushes to identify convergences against the backdrop of global standards being promoted through the TPP’s (and, *inter alia*, the US’s) ‘Digital Two Dozen’ (D2D) standards of practices. (The D2D is a set of 24 aims and rules the US would like incorporated in all trade agreements involving the digital economy.) But BRICS should also aim for lower – and easily-achievable – goals such as creation of an “ecosystem of regulations and norms that can be used across BRICS economies.” This, in turn, would facilitate the creation of a BRICS-wide e-tailing network (discussed in a later section of this chapter).

Outer space is a venue of rapid militarisation with few restraining norms, most of them residues of the Cold War.³⁰ Further, civilian use of outer space would require a new set of norms which should be shaped by the BRICS regime, seeking space for context-specific developmental goals – such as new regimes for laws on liability from damages from man-made objects and instruments in space for civilian use (even when there is no negligence involved).³¹ Because of the nascent stage of the global space regime, this is a significant opportunity for BRICS to step in, and shape it equitably.

R2P and peace-keeping

As noted earlier, BRICS has strongly opposed quasi-unilateral military action in the past in the guise of R2P. Yet, BRICS’s stance on the use of force in civilian protection should be propositional and not oppositional. One area in which BRICS states could contribute significantly is in UN Peace-Keeping (UNPK) operations.

29 Sunjoy Joshi, “India Can Help Nurture a New BRICS-Driven Digital Order for the World,” *Wire*, April 30, 2016, <http://thewire.in/32699/indian-presidency-can-help-nurture-a-new-digital-brics-order/>.

30 “Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies,” United Nations Office for Outer Space Affairs, <http://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/introouterspacetreaty.html>.

31 For a discussion of laws of outerspace, see Robert P. Merges and Glenn H. Reynolds, “Rules of the Road for Space?: Satellite Collisions and the Inadequacy of Current Space Law,” *Environmental Law Reporter* 40:1 (2010), 10010-10011, <https://www.law.berkeley.edu/files/article-2011-10-40.10009-1.pdf>.

BRICS states have significant presence in UN peacekeeping operations. There is a convergence of expectations between the BRICS actors here as well. One BRICS report puts it in the following way: “The interest in maintaining peace and security in their own regions is directly related to their status as leaders and their vision that regional stability will probably result in development, cooperation and mutual trust.”³² But ‘out-of-area’ peacekeeping – and ‘full-multilateralisation’ of UNPK operations is also something that BRICS states would have to invest in looking forward. India’s recent commitment to train African troops in peacekeeping (with the US) is a welcome step in this direction.³³

The future of the Middle East

No other region of the world poses as much threat to peaceful existence and development in the extant world order as much as the Middle East, with the rise of transnational terrorist groups such as the Islamic State (ISIS). At the same time, the BRICS position has been that humanitarian intervention in that area – or even for the purposes of self-defence – cannot be a purely-unilateral decision, especially given the potential negative spill-overs from the same. The Middle East cannot also be allowed to become a theatre for great-powers play. It is in this context that BRICS has to constructively develop solutions to (1) reverse the advances made by ISIS in that area, and (2) resolve the existing political differences there. This can only happen under a multi-stakeholder normative framework.

Geopolitical analysts from the Middle East have already called for bringing the BRICS countries to the table in resolving the situation there. Syrian Foreign Minister Walid Al Moualem visited China and India in January 2016 in a bid to unite the Russian position on Syria with that of these two countries. One analyst noted: “The Indian Ministry of External Affairs (MEA) website states that during the current unrest, “Syria has deeply appreciated the support...from India and other members of BRICS at the UNSC.”³⁴ The BRICS position on the Middle

32 Mônica Herz and Antonio Ruy de Almeida Silva, *BRICS and Peacekeeping Operations*, Policy Brief (Rio de Janeiro: BRICS Policy Center, 2010), 9, <http://bricspolicycenter.org/homolog/uploads/trabalhos/2732/doc/980910839.pdf>.

33 Dinakar Peri, “India, U.S. to train African troops for U.N. peacekeeping,” *The Hindu*, July 24, 2016, <http://www.thehindu.com/news/national/india-us-to-train-african-troops-for-un-peacekeeping/article8891542.ece>.

34 **Kadira Pethiyagoda**, “India on Syria: The rising power’s position on a global conflict,” Brookings Institution, January 13, 2016, <http://www.brookings.edu/research/opinions/2016/01/13-india-on-syria-pethiyagoda>.

East should be that the status-quo, however unpalatable, may be preferable to upending the regional order completely – as seen from the disasters arising from western interventions in the Middle East, in Iraq and Libya, in particular.

ADDITIONAL RECOMMENDATIONS

The following – in addition to the policy recommendations made in the body of this chapter – should be key action items in the political-economic governance agenda for BRICS in general, and its bank's research arm, the NDBI, in particular. The notion of the NDBI was proposed by Indian Prime Minister Narendra Modi last year who called for it to “function as a bank of ideas, a storehouse of experience and a knowledge powerhouse.”³⁵ It has been argued in the past that the effectiveness of regimes is often contingent on “providing high-quality information to policymakers.”³⁶ The NDBI will, thus, consolidate the BRICS regime-complex.

Supporting the Contingency Reserve Arrangement

For the full functioning of the CRA, an early-warning system must be developed which keeps an eye on currency markets. This early-warning system should also develop advanced research capabilities in exchange rate hedging. The NDBI could develop and sustain a strong research base in this direction. In effect, it could act as an observatory of global financial markets, an expert base for foreign exchange issues, and a hub for BRICS macro-prudential measures.

Development of Capital Markets

Currently, most of corporate capital expenditure on new projects in BRICS countries such as China and India is through bank loans, underscoring the imperative of strengthening of local currency bond markets (LCBMs) and enhancing financial inclusion, so that retail investors bring requisite depth to the capital markets within BRICS. At the same time, the NDBI can look at policies to facilitate trade of local bonds in other BRICS countries.

35 “Main statement by the PM in the BRICS leaders’ meeting,” November 15, 2015, www.narendramodi.in/main-statement-by-pm-in-the-brics-leaders-meeting-375932.

36 Robert O. Keohane, “The Demand for International Regimes,” *International Organization* 36:2 (1982), 354.

The NDBI should facilitate knowledge creation around LCBMs. Currently such cooperation around Asian LCBMs is through European institutions. The NDBI should also leverage such institutions for further cooperation. This is in line with the BRICS ‘Master Agreement in Extending Credit Facility in Local Currencies’.

Innovation, Entrepreneurship and a BRICS-wide Digital Economy

Disruptive innovations drive economic growth and productivity gains. Given the dwindling costs of applied research, BRICS economies are well placed to leverage technology to drive sustained economic competitiveness. At the same time, the uneven growth of local innovation in the BRICS region remains a matter of concern. It is also recognised that for innovative activity to be sustainable – in the sense of self-generation – the private sector must play a much larger role than it currently does. One mechanism through which this can happen is by the creation of a BRICS venture capital fund for spurring innovation in high-technology sectors. The NDBI should provide the knowledge base around global best practices in venture capital ecosystems. This is in conformity with the long-term BRICS agenda to promote entrepreneurship and small businesses.

A five-country e-tailing network should be set up, supported by BRICS-wide payment and clearing mechanisms. This network should sit atop the network of bilateral FTAs as depicted in Figure 2. The payment architecture can be based on the alternative to the SWIFT payment structure already mooted by BRICS, and through new non-intrusive financial technologies such as block-chain (popularised by ‘bitcoins’). This network’s principal challenge would be to develop “market architecture by which, say, an Indian can source Brazilian pineapples, with payment routed through a BRICS payment network and cleared in Indian rupees.”³⁶

Meeting Sustainable Development Goals

The success of the Sustainable Development Goals (SDG) will – in large part – be determined through the achievement of domestic targets in BRICS countries. There is therefore a natural synergy within the BRICS countries in terms of ensuing SDG implementation. A case-in-point is SDG 2, pertaining to agriculture and

37 Samir Saran and Abhijnan Rej, “BRICS to Build the House,” in *Primer 2016*, ed. Ritika Passi (New Delhi: Observer Research Foundation, 2016), 25.

nutrition. The additional targets in SDG 2 – 2(a), 2(b), and 2(c) – call for greater integration of agricultural markets, improvement of trade and re-examination of subsidies and other tariff barriers, and finally, an examination of the role of derivatives agricultural commodities markets. BRICS countries are now among the drivers of the WTO agenda towards food security and integration of global agricultural markets. The NDBI could therefore prioritise research in the global agricultural commodities markets which take national interests into account.

Enhancing South-South cooperation

One of the critical shortcomings of the ‘South-South Cooperation’ framework instituted by emerging and developing countries is the lack of cutting edge research on the subject. South-South Cooperation spans diverse areas including trade, investment and technical cooperation. Since these overlap with areas that concern economic integration and development cooperation of BRICS countries – and indeed many of the official outputs of the BRICS process such as the BRICS statistical handbook provide ready reference material for the study of South-South Cooperation – it is only fitting that the NDBI delves into how to leverage closer South-South Cooperation.

CHAPTER 3

SOCIAL JUSTICE, SUSTAINABLE DEVELOPMENT AND QUALITY OF LIFE

PILLAR

The efforts by BRICS countries to work together should firstly be understood as more than just a “growth alliance”, but rather as a social and political imperative that influences the broader societies in the five countries comprising the BRICS and in the global South. Secondly, as envisaged in the 2015 Ufa declaration, cooperation between the five countries is mutual and premised on a shared and common vision of an alternative world economic and development system that is sensitive to the interests of the South.

Therefore, it becomes important that the BRICS nations develop a methodology to uniformly measure their progress over time, a set of development indicators through which progress can be assessed. Aligned to these development indicators should be a set of well-defined targets that are both unambiguous and measureable towards the attainment of, among others, the 2030 Long Term Strategic ideals. Each BRICS nation should be in a position to annually report its progress against the set indicators and set targets.

1 CURRENT CONTEXT

This section summarises the current position of the BRICS nations relative to the important indicators that promote social justice, sustainable development and quality of life. It notes that the rationale for the emergence of BRICS was predicated upon a common understanding and concern for sustainable and inclusive economic development, global peace and security. The BRICS long-term vision and strategy endorsed in 2014 by the Heads of State/Government Summit in Fortaleza, Brazil, underscored a commitment to address poverty, inequality and unemployment, which negatively impact the lives of disadvantaged, vulnerable and marginalised communities. To this end, BRICS nations have made a commitment to continuously address the following social justice restoration issues:

- Education;
- Social Development;
- Health; and
- Cultural development.

1.1. Education

Education has become a right and forms an integral part of social justice that equalises opportunities for all children towards better and improved adult lives. There is a realisation that educational deprivation is a hindrance to the quality of life. According to UNESCO (2004:2):

Wide and often widening social inequalities in BRICS are reflected in inequalities at all levels of education. Poor families are struggling to feed their children, resulting in chronic malnourishment during children's earliest years causing lifelong harm to their learning capacities. All BRICS (countries) recognise that they need to improve the quality of education significantly if learners are to succeed in life and work, and contribute positively to the economy.

The commitment to education displayed by BRICS nations is promising, although there is need to accentuate the quality of educational inputs and outcomes. Research undertaken by Bawa (2012) suggests that BRICS nations already play an important role in both labour supply and scientific output. However, the contribution is mostly numerical. Its relevance is not clear in terms of quality (Nascimento, 2013).

Tagma, Listens and Makowiecki (2013) have noted that early childhood education has become a priority in many countries around the world. Similarly, there is need for a curriculum practice in which cognitive and social development are viewed as complementary to achieving high quality Early Childhood Development (ECD). Literacy, numeracy and information and communications technology (ICT) are among the most crucial learning areas for ECD. The Millennium Development Goals (MDGs) underscore universal primary education stressing the need to attain universal completion of primary schooling by 2015. Three indicators are important here: the net enrolment ratio in primary education, the proportion of pupils starting Grade 1 who reach the last grade of primary school, and the literacy rate of 15 to 24-year-old women and men.

Against this backdrop, BRICS nations continue to face varying challenges at all levels of education provision. A decade ago, Brazil committed to achieving its Education for All goals by 2015, but has not been able to realise them yet. The goals are:

Goal 1 – Expand early childhood care and education;

Goal 2 – Provide free and compulsory primary education for all;

Goal 3 – Promote learning, life skills for young people and adults;

Goal 4 – Increase adult literacy by 50 percent;

Goal 5 – Achieve gender parity by 2005, gender equality by 2015; and

Goal 6 – Improve quality education.

Despite its attempts to increase participation in ECD over the past decade, Brazil has been ranked by UNESCO among 53 countries which have not achieved and are not about to achieve these goals (Caldwell & Spinks 2013: 74). Brazil experiences poor access to schooling, a problem compounded by poor performance of the country's public schools. Many of these challenges in education are due to structural inequalities in the economy, which has reinforced gaps in the quality of education offered by public and private schools (Mami, 2013).

The Russian Federation adopted education reforms, which over the last decade focused on promoting multifunctional preschool networks (Taratukhina, Polyakova, Berezina, Notkina, Sheraizina and Borovkov, 2006). Although Russia's attempts to promote a multi-functional network of preschools must be praised, there are several factors in that country which could affect pre-schooling negatively: the child's place of residence, stark household inequality, as well as inequality in access to child healthcare facilities. Children from rural areas experience problems relating to education access, compounded by poor parental participation in children's education (Taratukhina, et al., 2006).

There is much hope in the potential of early childhood care and education in India. This particular approach, which boasts the largest Integrated Child Development Service in the world focusing mainly on health, nutrition and education, is believed to be effective in promoting intellectual and social development of children. Be that as it may, indications are that India still has a long way to go in successfully implementing ECD Education Services as reflected in Ganesh (2013):

Children from poor families are the unfortunate inheritors of poverty. In India, every eighth urban child in the age group 0-6 stays in slums, as per report published by the Indian government in 2011. Early Childhood Care and Education (ECCE) is critical to help these children begin their climb out of poverty and yet it receives scant attention in national policies such as the Right to Education Act.

The challenges of ECD in rural and remote areas of China have yet to be resolved. ECD service provision continues to be marred by gaps between rural and urban areas with enrolment in urban areas as high as 99 percent while in rural areas, it is 10 percent. Asymmetric investment in ECD services remains the main culprit, with rural areas receiving the lowest investment. This problem has arisen from poor salaries for rural teachers, inadequate facilities and a low teacher-child ratio (Zhu, 2009).

The challenges confronting South Africa's basic schooling system are rooted in serious structural inequalities which have robbed the poor of the right to quality education, and in turn reinforce the vicious cycle of poverty and social exclusion. ECD is a great concern. White Paper 5 (2001) defines ECD as a comprehensive approach (policies and programmes) for the care of children from birth to nine years, with active participation of their parents and caregivers. Its purpose is to protect children's rights to develop their "full cognitive, emotional, social and physical potential". The post-schooling system, which comprises Technical Vocational Education and Training (TVET) and public universities, perpetuates the structural inequalities of the basic schooling system and has historical roots.

1.2. Social development

How best to measure social development and what indicators to use? Proponents of the Global Multidimensional Poverty Index (MPI) suggest that development is best measured by looking at three dimensions of poverty: *health* with indicators like nutrition and child mortality, *education* through years of schooling and school attendance and *living standards* through electricity, water, sanitation and assets, among others.

1.2.1. Poverty and inequality

Inequality exists in all the BRICS countries, but the gap is widest in Brazil and South Africa. The Fortaleza Declaration (2014) adopted by the BRICS heads of states/governments is a comprehensive social development plan premised on the promotion of social justice, sustainable development and improved quality of life for the citizens of member states.

TABLE 1: BRICS LEVELS OF INEQUALITY BY GINI COEFFICIENT

Countries	Percentage Gini Coefficient			
	2000	2005	2010	2014
Brazil (a)	0.60(*)	0.57	0.54(e)	0.52
China (b)	0.42 (**)	0.42	0.42.06 (e)	0.42
India (c)	...	0.33	0.330	0.33
Russia (b)	0.39 (*)	0.37	0.40 (e)	0.41
South Africa (b)	0.57 (***)	0.67 (d)	0.63 (e)	0.63

Source: World Bank, World Development Indicators (accessed on May 2013). (a) income (b) consumption (c) consumption, average of urban and rural. (*) 2001; (**) 2002; (***) 2003 (d) 2006; (e) 2009

Income, along with employment, is another important indicator of the quality of life. In this regard, Brazil has seen impressive per capita growth of two percentage points higher than its GDP growth rate with a significant decrease in income inequality, mainly due to the expansion of social protection and social services. India's 2011 growth rate was over 5 percent, but this failed to translate either into job creation or poverty reduction, or to reduce the income inequality gap. Similarly, despite China's outstanding GDP growth performance in its latest five-year plan, 600 million Chinese people remain in absolute poverty. Of the BRICS nations, South Africa registered the highest unemployment rate and Gini coefficient in the world.

TABLE 2: UNEMPLOYMENT RATE AS A PROPORTION OF LABOUR FORCE ACCORDING TO GENDER (2000-2014)

	Rate of Unemployment %			
	2000		2014	
	Males	Females	Males	Females
Brazil	7.7	12	5.4	8.7
China	5.1	3.8	5.4	3.9
India	4.3	4.2	3.5	4
Russian	10.8	10.4	5.4	4.8
South Africa	24.8	29	23	27.6
Average	10.5	11.8	8.5	9.8

Source: International Labour Organisation (2014); World Bank (2014)

In general, the unemployment rate is higher for females in BRICS countries compared to that of males. Although the female unemployment rate has dropped between 2000 and 2014, it is still a matter of concern.

1.2.2. Social protection and social assistance

Social protection can take two forms: social assistance and social security. The former denotes all-encompassing mitigating income transfers from both the private sector as well as the state sector in the form of social grants. The latter refers to income transfers from the state sector in the form of grants like old age pension and disability grant, among others.

Of the BRICS nations China, has shown the highest commitment to creating a modern welfare state that focuses on social assistance. OECD estimates that China spent 9 percent of its GDP on social assistance in 2013, up from 6 percent in 2007. South Africa follows at 3.5 percent, according to the World Bank's 2013 estimates. In South Africa, social assistance interventions, which have culminated in a battery of social grant offerings, have made a significant impact, reducing both the poverty headcount (40 percent) and the poverty gap (66.8 percent). Russia spends 3.3 percent of its GDP towards social assistance and Brazil is estimated at 2.4 percent.

In Brazil and South Africa, social protection takes the form of Conditional Cash Transfers (CCT). Brazil's *Bolsa Familia* CCT system introduced in the early 1990s in response to structural adjustment policies, and extended to the 2000s, was aimed at addressing social problems of hunger, poverty and inequality (Curry, Cadiogan and Giugliano, 2013). The programme focused on conditional support for children of the very poor to break the intergenerational cycle of poverty in the short term. The CCT consists of direct cash grants to individuals and families on condition that the beneficiaries ensure that their children attend school for at least 85 percent of the school year. Secondly, recipient families must submit to obligatory health checks every six months, and pregnant women among them, every month. Thirdly, families are called once a year to verify their participation and update information about their living conditions. This process provides a key database for the functioning of the *Bolsa Familia* CCT system. Persistent non-compliance with the conditions can result in the family or individual being excluded from the programme (Curry et al, 2013).

South Africa's CCT system has been reviewed in several studies and reports in the post-apartheid era (Lund, 2008; Taylor, 2014). One of the most significant

developments in the South African system was the introduction of the Child Support Grant (CSG) that was recommended by the Lund Committee Report (Lund, 2008), which currently has over 11 million beneficiaries. In aggregate percentage terms, individuals receiving grants increased between 2002 and 2012 from 12.7 percent to 29.6 percent of the population, and households receiving at least one grant grew from 29.9 percent to 43.6 percent (Taylor 2014). However, the social protection system excludes almost 70 percent of unemployed African youth and 11 million mainly African households in the 35 to 59 age group with little or no income (Taylor, 2014).

1.2.3. Access to basic services and assets

The question of social good and the basket of services is an important question to address for the BRICS nations. The framework of the Charter of the United Nations (UN) social justice derives from the principles of *equality of rights* for all and its pursuit creates the possibility of all humans benefiting from economic and social progress. Reports of the ILO, World Bank, UN Habitat, FAO, UNICEF and WHO show that 38 percent of the global population has no access to proper sanitation, and 884 million people have poor access to drinking water. Chronic hunger affects about 925 million, and preventable diseases kill nearly 9 million children annually. In the case of the BRICS nations, data suggests improvement in access to important basic services like water and electricity.

The latest figures for most BRICS countries generally indicate a decline in the number of people without access to proper housing. Brazil has been at the forefront of progressive policies in housing. After the country's transition

TABLE 3: ACCESS TO WATER AND ELECTRICITY

	Improved access to water (% total population)		Access to electricity (% of population)	
	1990	2015	1990	2015
Brazil	89	98	93	99.5
China	67	98	94.2	100
India	71	94	50.9	78.7
Russia	93	97	100	100
South Africa	83	93	65	84.4

Source: World Bank, 2016

to democracy, a Constitutional amendment was made in 2000 which ensured the social right to housing. Non-access to housing has declined between 2007 and 2011 to 1.3 percent. For Russia, between 2001 and 2011, a decline from 5.4 million to 2.8 million (11-5 percent) was registered of households living in inadequate spaces. In India, the figure has dropped from 23.1 million to 19 million households between 2001 and 2012. In most cases, these changes are largely due to state interventions and policy amendments. The Indian housing backlog has been addressed in five-year cycles since 1951. In South Africa, informal dwellings have declined substantially as a percentage of total housing between 2001 (16 percent) and 2011 (13.6 percent).¹

In the future, rates of urban growth in BRICS countries will continue to decline, with the probable exception of India, which still has to catch-up. By 2050, it is anticipated that there will be over 1.8 billion people in BRICS cities, accounting for slightly more than 28.4 percent of the world's urban population. Of these, 394 million will come from India, 270 million from China, 35.7 million from Brazil and 14.4 million from South Africa, which will add up to 707 million additional people. In contrast, Russia's urban population is anticipated to decline by 7 million² by then.

1.3. Health

Sustaining a healthy nation and the provision of basic health services is a prerequisite for the development of the BRICS nations, individually and collectively. Therefore, increase in government expenditure on health is important for the delivery of better and improved health services.

1 African News Agency, "Housing backlog at 2.1m, says Minister Sisulu", *Engineering News*, April 22, 2016, Accessed September 20, 2016, http://www.engineeringnews.co.za/article/housing-backlog-at-21m-says-minister-sisulu-2016-04-22/rep_id:4136.

2 United Nations Population Division (UNPD). *World Urbanization Prospects*. New York: United Nations Department of Economic and Social Affairs, 2014.

TABLE 4: TOTAL HEALTH EXPENDITURE PER CAPITA IN \$ (% OF GDP)

	2008	2009	2010	2011	2012	2013	2014
Brazil	8.3	8.8	9.0	8.9	9.5	9.7	8.3
China	4.6	5.1	5.0	5.1	5.4	5.6	5.5
India	3.9	3.9	3.7	3.9	3.8	4	4.7
Russia	5.1	6.2	6.5	6.2	6.5	6.5	7.1
South Africa	8.0	8.7	8.7	8.5	8.9	8.9	8.8

Source: WHO National Health Accounts Database

Disaggregated data on healthcare outcomes shows that increase in healthcare expenditure, both as a proportion of GDP and as a proportion of total government expenditure, has yielded desirable results. The analysis shows improvement in important parameters like private expenditure, which complements the shortfall where there is low government expenditure. Between 2011 and 2013 the highest private expenditure among the BRICS member states was seen in India where government expenditure on health only increased by 1.2 percent.

TABLE 5: GOVERNMENT - HEALTH AND OUT OF POCKET EXPENDITURE (2011 -2013)
(%)

	Government health expenditure as % of total health expenditure			Out of pocket expenditure as a % of total health expenditure		
	2011	2012	2013	2011	2012	2013
Brazil	45.7	47.5	48.2	30.4	30.3	29.9
China	55.9	56	55.8	34.8	34.3	33.9
India	31.0	30.5	32.2	60.1	60.6	58.2
Russia	59.7	51.1	48.1	42.6	44.9	48
South Africa	47.7	48.4	48.4	13.8	13.8	13.8

Sources: World Development Indicators, World Bank 2013

1.3.1. Quality of health

The increase in healthcare expenditure has resulted in considerable reduction of infant mortality rates since 1990 across BRICS nations. On average, infant mortality rates among BRICS nations fell by 15 percent between 2000 and 2010.

Child mortality rates in Brazil dropped by 14 percent between 1990 and 2010, and in the Russian Federation by 10 percent for the same period. India showed the greatest improvement in this regard, reducing infant mortality per 1,000 live births between 1990 and 2010 from 81 to 47, a 41.9 percent change. For China, the reduction in child mortality rate during the same period was 13 percent overall, while South Africa brought it down by 35 percent.

TABLE 6: INFANT MORTALITY RATES AND MATERNAL MORTALITY RATIOS IN: BRICS COUNTRIES

Country	Infant Mortality Rates per 1,000 live births				Maternal mortality ratio per 100,000 live births			
	2000	2010	2015	% Change 2000-2015	2000	2010	2015	% Change 2000-2015
Brazil	31	14	15	48	81	56	44	54
China	29	13	9	31	61	37	27	44
India	64	47	38	59	390	200	174	45
Russia	18	10	8	44	57	34	25	43
South Africa	52	35	34	65	330	300	138	42

Source: World Health Organisation (2013), World Health Statistics, 2013

Maternal mortality ratio (MMR) per 100,000 live births reduced across all BRICS nations between 1990 and 2015. . Both Brazil's and China's MMRs stood at 120 in 1990 but were very different by 2015, with reductions of 37 percent and 34 percent respectively. India's MMR reduced from 390 in 2000 to 174 in 2015, a drop of 45 percent, while the Russian Federation's went down by 43 percent during the same period. South Africa is the only country that recorded an increase in MMR per 100 000 births, which went up from 250 in 1990 to 300 in 2010; however, an improvement of 46 percent was realised between 2010 and 2015.

1.3.2. Food Security

Food security is one of the most important indicators of development, which impacts all other areas of development – economic, political and social. BRICS member states are making good progress in this area. According to the Food and Agriculture Organisation of the United Nations (FAO, 2015), among the

BRICS countries, Brazil, Russia and South Africa have less than 5 percent of their population which is food insecure; India has between 15 percent to 24.9 percent and China between 5 percent and 14.9 percent.

Brazil improved its Gini-coefficient from 60 to 54 percent between 2000 and 2014. This drastic improvement has implications on food security and may have been due to changes in land ownership and food production patterns. Food prices in South Africa however, have increased constantly as domestic production dwindled. The price of cabbage, for example, went up from R10 (\$0.80) to R17 (\$1.31) per kg over less than 12 months in 2015. A thorough comparative analysis of food security in the BRICS countries is needed to share learnings and identify areas where improvements are possible.

1.4 Cultural development

Historically, successful imperial powers managed to combine dominance in the production, circulation and exchange of goods together with their countries being accepted as the epicentre of value education and culture. Cultural development and exchanges are important contributing factors to understanding the diversity of nations, and can stimulate innovation and development. A country's cultural development is a continuum of its way of life, which embodies value systems and practices, among other things. Each country is endowed with unique cultural resources through which lessons about each society's ways of life can be learnt, while debunking myths, misconceptions and misperceptions about one another as different societies. It is from these learning exercises that cultural exchanges about ways in which to tackle problems can be shared, while enabling BRICS nations to appreciate one another's unique historical circumstances and intersections.

Beyond the cultural networks that accompany BRICS as a partnership, each member state is strategically and geopolitically positioned to represent the particular region and/or continent in which it is located. For instance, Brazil's heritage is a history poignantly tarnished by colonial conquest that lasted three centuries. This resulted in the virtual extinction of its indigenous societies. Although it was colonised by the Portuguese, unlike most parts of Latin America which were colonised mainly by Spain, Brazil is reflective of the region's lost sense of identity, as European and Western forms of life continue to dominate its post-colonial heritage.

India's cultural heritage is one of the oldest, dating back several millennia. It remains one of the most populated countries in the world, governed largely by the Hindu philosophy which dictates almost every aspect of Indian life and cultural heritage, expressed predominantly in music, art, drama, dance and theatre. These cultural commons serve as tools and celebratory forms of expression of the country's illustrious history. India's cultural heritage has influenced many countries in Southeast Asia, such as Thailand, Malaysia, Burma, and Cambodia, providing a snippet of the cultural make up of these surrounding societies.

China's Confucianism also tells the story of a country with an illustrious history that spans millennia, while too provides a glimpse into traditions and cultures of the region – the East Asian cultural spheres that include Hong Kong, Taiwan, Korea, Macau, Japan and Vietnam.

South Africa's indigenous cultures, like Brazil's, have long been suppressed. However, because of the colonial policy of indirect rule, most cultures and traditions have been preserved in the rural areas, where traditional authorities have oversight on cultural and traditional practices. The position of South Africa in the region and in BRICS opens up the rich heritage, cultures and practices of the African continent to the BRICS member nations.

3. POLICY RECOMMENDATIONS

Noting that BRICS nations will increasingly be seen as exemplars of human uplift by other developing nations, and noting that the essence of humanistic development is at the heart of the BRICS agenda - a set of clear policies and targets that consolidate this agenda ought to be in place. We propose that the BRICS nations embody the following three important principles as pillars that drive its development agenda:

- a human centred approach to development;
- a universalism of access to the requisites for human development like education, health and basic services; and
- a state-led development, or directed development, whose ideal is spreading the benefits of growth and development to the majority citizenry

3.1 General Recommendations

A recent study by the Germany-based Bertelsmann Foundation (Reisen, 2015) assessed the BRICS nations' performance at governance of social affairs using a Sustainable Governance Indicator (SGI). It ranked Brazil the best performer. China was ranked second, followed by Russia, while South Africa and India scored the lowest. The study highlighted inadequate pension cover as a problem common to all BRICS nations. In addition, it focused on access to healthcare and unequal access to quality education that have negative consequences for employment and competitiveness. Against this backdrop, the following general recommendations are made:

Development indicators: To ensure that interventions are successful and effective, BRICS nations should develop indicators to measure empowerment and development initiatives. There must be consistent indicators across BRICS nations to enable drawing comparable and measurable outcomes in regard to all agreed development indicators.

Eradicating inequality: Because BRICS is more than just an economic growth alliance, but an effort towards a fairer and more equitable future, BRICS nations should set targets for the eradication of inequality which can be tracked. The BRICS nations should establish standard definitions of these concepts:

Gender parity targets: BRICS nations' developmental agenda should hinge on gender parity. Targets relating to a variety of development indicators like access to land and employment should address gender parity, as the empowerment of women is central to development.

Databases/datasets: As part of measurement tools, there needs to be an index of research on what has already been published, an audit of current information available, after which gaps in the research can be identified. (A tendency of think tanks is to think that everything is being done for the first time, which should be avoided.)

Same measurements/same principles: The BRICS nations should consider using commonly agreed upon terminologies and measurements. This will enable BRICS nations to measure the same things and to be contextual in their understanding of specific definitions and terminologies.

3.2. Education

Poverty effect on education: Leroy and Symes (2001) see poverty as the major risk factor in education. Some of the factors that compound poverty and lead to slow progress of children in schools are: (a) very young, single or low educational level parents; (b) unemployed parents; (c) abuse and neglect of children; (d) substance abuse by children; (e) children living in dangerous neighbourhoods; (f) homelessness among children; (g) mobility of the family; and (h) exposure of children to inadequate or inappropriate educational experiences. BRICS nations should ensure that they jointly address these problems to enable effective educational outcomes.

Home-based educational support: The majority of children face problems both at school and from their families. Many parents fail to support school work for an array of reasons, which negatively affect educational outcomes. The development of curriculum strategies to improve parental participation in school work should be a priority of the BRICS nations.

Commitment to free education provision: BRICS nations should commit to the provision of universal access to free basic education. Education is the bedrock of development and unlocks every other important development potential.

Girl-child schooling: There are serious gender disparities in access, literacy and graduation rates, among others, with the girl-child lagging behind. BRICS nations should priorities the education of the girl-child by presenting specific targets to be monitored continuously.

3.3 Health

There has been measurable success in the past decade among BRICS nations across several healthcare indicators. But there remains large scope for improvement in areas like:

Universal health insurance: the implementation of universal health insurance is inconsistent across BRICS nations. Nations have not provided specific commitments and targets achievable within a particular given period.

Food security: There is a need to simplify the process that enables rural subsistence farmers to obtain land rights:

- Explore the possibility of offering unused government land on long lease to wisely chosen young local entrepreneurs (using well defined criteria), linked to comprehensive support and markets;
- Make concerted efforts to break the patriarchal land access system which is very often a barrier to women accessing land use rights;
- Empower men to support rural women who are overburdened in their household duties; and
- Involve trans-disciplinary research teams, traditional local authorities and civil society in rural agricultural empowerment programmes for improved livelihood.

3.4. Social Development

Social protection: The BRICS nations should develop a medium- to long-term strategy to eradicate poverty, inequality and unemployment, aligned to the general recommendations above. This is imperative if BRICS is to meet its obligations towards the SDG targets;

Harnessing opportunities of urbanisation: Continued urbanisation and urban growth is a clear reality despite declining rates of growth in most BRICS nations. The one exception is the Russian Federation which faces de-urbanisation or a static urban population. In all other BRICS nations, proper planning and management of rapid urbanisation is a big challenge due to unplanned housing patterns. Where urban decline is considerable, it is important to provide infrastructure, or decommission unutilised infrastructure or connecting infrastructure between cities, as well as infrastructure internal to cities, such as mobility networks. Informality in urban housing remains a big challenge for Brazil, India and South Africa and to be tackled, requires a consensual BRICS plan.

3.5. Cultural development

Culture promotion: Culture and cultural exchanges leverage development and empower local communities, thereby contributing to the restoration of social justice in a sustainable way. Cultural developments and the diversity of nations need to be encouraged, nourished and shared. The interaction between indigenous

culture, creative commons and other domains of society, economy and nature, enables people to come to a profound understanding of organising fields and enlarges the domain of entrepreneurial thinking and acting. BRICS nations should find mechanisms to awards grants and funds that allow and promote interactions within and between indigenous culture and creative commons.

REFERENCES

- Amoateng, A.Y., Richter, L.M., Makiwane, M., and Rama, S., 2004, *Child Youth & Family Development*, Pretoria: Human Sciences Research Council (HSRC), 2004. Accessed September, 02, 2016. file:///C:/Users/elias/Downloads/2883_Amoateng_Describingthestructure%20(1).pdf
- Bawa, Ahmed C. "South African higher education: at the center of a cauldron of national imaginations". *Social Research* 79 (2012): 669–694.
- BRICS Heads of State Summit, Fortaleza Declaration, July 2014, Fortaleza, Brazil.
- Caldwell, B.J., and Spinks, J.M. *The self-transforming school*. Abingdon: Routledge, 2013.
- Curry, M.S., Cadiogan, A.T., and Giugliano, R.G. "Brazil's Bolsa Familia and the Philippines' "4Ps" CCT Programs: Considering South–South Cooperation for Social Protection", *Asia-Pacific Social Science Review* 13 (2013), pp. 1-15.
- Devereux, S., Roelen, K., and Ulrichs, M. *Where next for social protection?*, Sussex: Institute of Development Studies (IDS), 2015, Accessed August 21, 2016. http://opendocs.ids.ac.uk/opendocs/bitstream/123456789/5945/1/ER124_WhereNextforSocialProtection.pdf
- Evoh, C.J., and Mafu, N. "How 'Basic' is Basic Education?, Restructuring Basic Education in Post-apartheid South Africa within the Context of EFA". *International Perspectives on Education and Society*, 8 (2007), pp. 427-451.
- Food and Agricultural Organisation of the United Nations (FAO). *The state of food insecurity in the world*. Rome: FAO, 2015. Accessed August 03, 2016. <http://www.fao.org/3/a-i4646e.pdf>
- Holden, C., Review of the *Global social policy in the making: The foundations of the social protection floor*, by Bob Deacon. *Policy Press*, July 03, 2013
- International Labour Office (ILO). *Social protection floor for a fair and inclusive globalization*. Geneva: ILO, 2011. Accessed November 17, 2016. <http://www.ilo.org>

org/wcmssp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_165750.pdf

Leroy, C. & Symes, B. 2001. "Teachers' perspectives on the family backgrounds of children at risk". McGill Journal of Education, 36 (2001), pp. 45-60

Luffman, L. "The importance of early childhood development", 2013. Accessed July 02, 2016. <http://goodbye.soschildrensvillages.org.uk/news/archive/2013/08/the-importance-of-early-childhood-development>.

Lund, F. *Changing social policy: the child support grant in South Africa*, Pretoria: HSRC Press, 2008.

Mami, Y.A. "Early Childhood Education in Brazil. ECEC around the world". 2013. Accessed August 03, 2016. www.childrensearch.net/projects/ecec/2013_.

Nascimento, P.A. "Some trends in higher education and research in BRICS countries", 2013. Accessed September 22, 2016. www.dhet.gov.za/brics/content/Papersforpublication/Brazil/paperpauloMeiYerNascimento2013VBricsAcademicForum.pdf.

OECD "OECD Economic Survey: South Africa 2013", 2013. Accessed June 12, 2016. http://www.dx.doi.org/10.1787/eco_surveys.zaf-2013-en

Reisen, Helmut. "Economic Policy & Social Affairs in BRICS: Sustainable Governance Indicator (SGI)", Gutersloh: Bertelsmann Stiftung Foundation, Accessed June 15, 2016. http://www.sgi-network.org/brics/pdf/BRICS_Economy_and_Social_Affairs.pdf.

Republic of South Africa. *Education White Paper 5 on Early Childhood Education: Meeting the Challenge of Early Childhood Development in South Africa*. Pretoria: Government Printers, 2001.

Taguma, M., Litjens, I. and Makowiecki, K. *Quality Matters in early Childhood Education and Care*. Helsinki: OECD, 2013. Accessed June 23, 2016. <https://www.oecd.org/education/school/49985030.pdf>.

Taratukhina, M.S., Polyakova, M.N., Berezina, T.A., Notkina, N.A., Sheraizina, R.M., and Borovkov, M.I. *Early Childhood care and education in the Russian Federation*, Paris: UNESCO, 2006. Accessed September 02, 2016. <http://unesdoc.unesco.org/images/0014/001491/149142e.pdf>

Taylor, N. *What's wrong with South African Schools? Presentation to the Conference – What's Working in School Development*. Johannesburg: JET Education Services, 2008. Accessed November 01, 2016. <http://www.jet.org.za/siteworkspace/old-content/events/conferences/What%20works%20in%20school%20development/Papers/>

Taylor%20Whats%20wrong%20with%20SA%20schools%20JET%20Schools%20Conf%20final.pdf.

Taylor, N., Fleisch, B., and Shindler, J. (2007). *Education Scenarios for 2019*. Paper prepared for the Key Driving Forces Scenarios 2019. Johannesburg, The Office of the Presidency, June 11-12.

Taylor, V. "The Institutional & Developmental Impact of Cash Grants: Is South Africa Transforming Social Policy", Paper prepared for the Financial & Fiscal Commission (FFC), University of Cape Town, August 2014

UNESCO. *BRICS Building Education for the future*. Paris: UNESCO, 2004. Accessed July 02, 2016. <http://unesdoc.unesco.org/images/0022/002296/229692e.pdf>.

Vandemoortele, M., Bird, K., Du Toit, A., Liu, M., Sen, K., and Soares F. V. *Building blocks for equitable growth: lessons from the BRICS*, Working Paper 365, Overseas Development Institute (ODI) 2013 ODI 203 Blackfriars Road, London SE1 8NJ www.odi.org.uk

World Bank. *World Bank Indicators*, 2013. Accessed June 16, 2016. <http://data.worldbank.org/indicator>

Zhou, X. "Early Childhood Education Policy Development in China". *International Journal of Child Care and Education Policy*, 5 (2011), pp. 29-39.

Zhu, J. "Early Childhood Education and Relative Policies in China". *International Journal of Child care and Education Policy*, 3 (2009), pp. 51-60.

BRICS CURRENT AND FUTURE ROLE IN MAINTAINING INTERNATIONAL PEACE AND SECURITY

PILLAR

BRICS member states are committed to a democratic and just polycentric world order founded on the rule of law, equality, mutual respect, cooperation, coordinated action and collective decision-making. This vision could be achieved by supporting political and diplomatic efforts to peacefully resolve global disputes.

Current Situation and BRICS Shared Principles

Each of the five BRICS civilisations has its own unique place on the globe, its own cultural matrix, its views on development and security, but all five cooperate across the old dividing lines: East-West or North-South. The five are more a sample of the “concert of civilisations” than the “clash of civilisations”.

In a new global situation characterised by increased geopolitical rivalry between established and emerging centres of power, the agenda of *global political crisis management and security issues* should perhaps play a large role in BRICS activities as a collective actor in establishing fair rules of the global order.

What is the potential for joint action and what can be done to increase BRICS’s global role in the next 10 years?

BRICS should strive for a new order based not on the notion of exclusivity, but on principles of inclusivity, indivisibility of security for all, cooperative and sustainable security behaviour, and sovereign equality of all states. The connection between peace, security and development should be recognised.

BRICS should cooperate to ensure that the international system is based on supremacy of international law and norms rather than use of force. The BRICS platform could become a hub in international law, while the idea of multi-hub system with issue-specific leadership of each of BRICS states should be developed further.

1 <http://nkibrics.ru/pages/cce-documents>

BRICS members should stress the need to preserve the central role of the United Nations in world affairs, while recognising also the need for a comprehensive reform of the UN, including its Security Council.

BRICS acknowledges that the modern world does not provide equal opportunities and equal rights to an independent opinion. BRICS countries, in the spirit of inclusivity, should promote and support multiple narratives and ideas from across the spectrum of the global community and oppose dominance of any single vision or approach.

The multilateral trade and economic architecture that exists across the world today was largely underwritten by one superpower – with significant consequences, both benevolent and malign. In other words, it was a unipolar moment in world history that, paradoxically, created multilateralism. The challenge now lies in sustaining multilateralism in a multi-polar world. This is *à priori* not a given fact. BRICS, as a plurilateral grouping, may be an interim step towards full multilateralisation in the current geopolitical climate. BRICS should elaborate and promote this new philosophy of international relations where all members of the global community, irrespective of their economic status, are able to find their proper place and enjoy favourable conditions for economic, social and political development. It should have a consensus on diversity of political and economic systems, and finally, should be a grouping with shades of both the global North and the South. BRICS stands out because of its collective weight, as well as due to the heterogeneity of the political and economic systems of its members.

Next Decade Goals: General approach

What we cannot expect from BRICS

1. There will not be complete unity of views on all issues of world politics. There will be no dominance and imposition of views within BRICS.
2. BRICS will not institutionalise to the level of the European Union or any other such heavy-handed bureaucratic structure.
3. BRICS will not be an anti-Western club.
4. BRICS will not be a military bloc like NATO.
5. BRICS will always have critics and sceptics. The creation of BRICS has

already provoked adverse reactions in both Western countries and among the supporters of Westernisation in the BRICS countries.

6. BRICS's adversaries will not stop their attempts to pull the five BRICS members apart. There will be active efforts to use the existing contradictions between China and India, to bring about clashes in the strategic interests of the member countries, to isolate Russia and fuel political unrest, which must be resisted.
7. BRICS will not achieve adequate representation in the International Monetary Fund and the World Bank in the foreseeable future.

What we can expect from BRICS

1. BRICS countries will increase their role as sovereign centres of power, preserving their autonomy and independence in developing and implementing their domestic and foreign policies.
2. BRICS countries – despite all the ups and downs they may face – will play an increasing role in the world order of the 21st century.
3. BRICS economies will continue to grow faster than the economies of the G7. The main drivers will be China and India, which will reclaim the position they held in the global economy in past centuries.
4. BRICS strategic interests will include: working to reform the foundations of the world political and economic order, ensuring independence in policy and upholding the primacy of international law, maintaining the UN's role as guarantor of international security, pressing for UN Security Council reform, cooperating with one another on strengthening their economies, and working to modernise society within BRICS and the Global South.
5. BRICS will be most effective when acting in a unified manner within the framework of the Group of Twenty (G20) and other international institutions. BRICS should work towards greater cooperation in the UN, based on consensus.
6. BRICS will be the catalyst for a new international architecture, representing as it does a development model which differs from the “Washington consensus”.

BRICS should not limit itself to just improving intra-BRICS cooperation in economic matters and other areas, or even be content with coordinating efforts to reform segments of global governance, such as financial architecture. It should play a global role in addressing universal issues of global security as well as (to a lesser degree, without supplanting the UN and other established global mechanisms, but working together through them) relevant conflicts. So far the different BRICS countries have been moving towards these goals at different speeds. Their national goals and positions on many issues differ.

National strategies and plans of all the BRICS countries rely on the decisions taken at summits of the BRICS Forum and so far have coincided in their main features. However, each country sees crucial security cooperation issues differently, although their positions keep evolving.

Brazil, due to the international political crisis and external political challenges, is decreasing its external political activities and is cautious about antagonising the US, but it still supports the BRICS principles mentioned earlier.

Russia is confronting the West on issues of sovereignty and independent policy, but its proactive and confrontational position may frighten away other countries from supporting it. However, Russia does not want to put the burden of its conflicts with the West on its partners, and is striving for a consensual and cooperative position within BRICS. Also, there are signs in the current political architecture that the relationship between Russia and the West could become more cooperative.

India is trying a multi-directional policy, setting its national interest as a priority, which has a dampening effect on many of the possibilities of collective actions within BRICS. It sees BRICS as a “geo-economic alliance”, not as a political cooperation mechanism.

China is becoming more and more assertive in protecting its rights, and has also grown interested in managing international crises on a multilateral basis. However, on sovereignty issues – which are its biggest concern – it prefers bilateral solutions.

South Africa is still not powerful enough to play a global role in conflict resolution, although it is successfully trying to promote its regional role in Africa. It also needs to tackle its growing economic problems to remain the development driver of the continent.

Moreover, China and Russia are permanent UNSC members, and have considerable experience in settling international security problems, while the other members – who also aspire to the UNSC – still have to gain the necessary clout. BRICS could be a good “training” ground for them in this respect.

Optimistic scenarios see BRICS as a solid political and economic grouping with a coordination mechanism, exerting considerable influence on the international peace and security system, as well as meeting global challenges from a common, coordinated point of view.

Pessimistic scenarios paint BRICS as just a photo-op for its countries’ leaders or a forum for sectoral meetings, which may even disintegrate in the future.

A *realistic scenario* should be somewhere in between, laying greater emphasis on economic and social issues as the least contentious ones for a joint BRICS position. This realistic scenario could move closer to the optimistic one if consensus is reached within BRICS on creating clear-cut institutions which would deal with peace and security – similar to the New Development Bank (NDB) and the Contingency Reserve Arrangement (CRA) mechanisms which BRICS has already set up for technological, economic and financial cooperation.

Based on this understanding, some specific areas of activity which can push BRICS along the road to increased cooperation in addressing global challenges and security issues are outlined below, and several targets suggested.

Target 1: To become a decisive force in the UN and international organisations

All BRICS states regard the UN as the central feature of the international system, and the Security Council as the organ bearing the principal responsibility for maintaining international peace and security. In a political scenario where a number of countries seek to belittle the central role of the UN and its Security Council in the international system, and to substitute them with “coalitions of the willing” which bypass them, the BRICS countries face the strategic task of strengthening the UN and its Security Council.

At the UN, BRICS countries act in tandem with like-minded countries, mostly from the developing world. However, a number of countries regard BRICS as their principal competitor and act accordingly, trying to disrupt the unity of the group.

Consolidated actions by BRICS partners are required to lead the reform process. BRICS countries are underrepresented in the top echelons of the UN management, in which mainly Western countries occupy key positions. However, there are also trends and factors which play into the hands of the BRICS partners. The majority of developing countries regard the UN as an important asset for promoting their status and interests in the world and, like BRICS, oppose its devaluation. BRICS' voice should be made louder, and the approach to the UN and its problems should be systemic rather than ad hoc.

There are, however, certain differences in the approaches of India, Brazil and South Africa – all three of which aspire to become permanent members of the Security Council. Russia and China do attach importance to the status and role of Brazil, India and South Africa in international affairs, and support their aspiration to play a greater role in the UN. However, the positions BRICS countries will take in the UN are difficult to predict, as they heavily depend on the general political situation in the world and also on the economic development of BRICS nations, the unity of BRICS nations and the degree of support they get from developing countries.

For a start, BRICS could undertake the following measures:

- Promote a process of consultation with the Permanent Representatives of BRICS nations at the UN in New York on key issues on the agenda of the UNSC and UN General Assembly (UNGA). The goal should be to have joint draft resolutions of the UNGA, emphasising the common approaches of the UNSC and permanent and non-permanent BRICS members. BRICS nations should promote their initiatives and support one another's initiatives.
- Strengthen the role of the UNSC, and lobby for its reform on the basis of widest possible support from member countries..
- Promote the creation of a coalition of countries supporting the socio-economic agenda of BRICS within the UN's Economic and Social Council (ECOSOC). The core of the coalition could be the group of like-minded countries comprising the G20.
- Promote cooperation between BRICS and the UN system more actively in the format of outreach. Its level should be raised, its scope extended and it should be made regular.

To achieve these ends BRICS could undertake the following:

- Consider the possibility of extending an invitation to the UN Secretary General to attend BRICS summits. It could also invite other UN representatives to area-specific meetings and perhaps grant some UN bodies, like UNESCO and UNIDO, the status of permanent observers;
- Extend the practice of participation of heads of UN specialised agencies in BRICS ministerial meetings, encourage contacts at the level of experts;
- Start the practice of sending personal messages from the current Chair of BRICS to the Chair of the UNGA and the UNSC, briefing the Chair on the outcome of the summits and the BRICS view on topical issues in the UN agenda.
- Increase BRICS participation in UNESCO – keeping in mind the growing importance of the cultural dimension of international relations.
- Propose holding a UN conference on ways to strengthen international law and bring about peaceful settlement of conflicts.
- Consider publishing a joint BRIC textbook of international public law as an input into BRICS efforts to strengthen the role of law in world politics.

Target 2: To increase BRICS joint and coordinated role in maintaining order and security across the world's oceans

Current situation

Despite the BRICS countries' location on different parts of the planet, they are all closely interconnected through ocean sea-lanes and routes. About 80 percent of the world's trade traffic is carried by sea. This means that all countries, including BRICS members as coastal states, are highly interested in getting the benefits of the oceans. The development of closer cooperation between BRICS members would lead to the emergence of new forms of connection between all oceans, because each BRICS member has its own gateway to the oceans.

Apart from being coastal states, all BRICS member are signatories to the 1982 United Nations Law of the Sea Convention and all additional agreements thereafter. They are maritime countries with their own merchant and fishing fleets, Navies, port infrastructure, shipbuilding and shipyard facilities, etc. Considering

some of the BRICS states are permanent members of the UNSC, they need to be more proactive in ensuring maintenance of order and security throughout the world's oceans.

The main problem is that more than 40 states among the 168 which have signed and ratified the Convention, themselves violate its norms and provisions, permitting themselves a broader interpretation of its basic articles than warranted, and have national legislation which is in conflict with the Convention. The situation is aggravated by the fact that there are also many states which prefer not to be bound by international obligations and not to participate in the 1982 Convention regime. They include not only Central and Latin American countries and African states and the former Soviet Union republics, but also the main maritime and naval power – the US, which has not yet ratified it, and whose non-participation erodes and discredits the regime.

Despite not ratifying the regime, the US has declared that it is committed to its norms and provisions. Yet Washington continues to make excessive maritime claims, especially through its “Freedom of Navigation” (FON) programme begun in 1979, under its Ministry of Defense and State Department supervision. The FON programme is promoted through naval operations and the projection of US power, rather than diplomatic lobbying. Such coercive diplomacy hardly strengthens the 1982 Convention's regime. The US's double standards in this respect raises suspicions.

Scenarios of BRICS's role

1. **Opposing the new threats:** BRICS cooperation is very important in the face of new threats, which are becoming more widespread. Among them:
 - piracy or armed robbery of ships, which undermines the safety of navigation and commerce, endangers the lives of seafarers, especially those taken hostage, raises financial costs for ship owners in the form of increased insurance premiums and security costs;
 - maritime terrorism, affecting both shipping and offshore installations (drilling platforms), which can have serious consequences, including causing damage to the marine environment and its biodiversity;
 - illegal trade or transportation of bacteriological, chemical and nuclear

weapons, posing a direct threat to peace, security, stability and sustainable development of all states;

- illegal transportation of narcotic drugs and psychotropic substances by sea, through the use of fishing boats or container ships, posing a threat to states' social security and leading to an increase in crime and demographic risk;
- illegal movement of people by sea, including illegal migration, leading to strengthening of transnational organised crime.

2. Engaging in economic cooperation and new projects: Their common interest in building their national economies and in social development should stimulate the BRICS countries to initiate different projects in the maritime sector. It could be collaboration in shipbuilding, where the role of China is significant; in finding new transportation routes and innovative civil sea connections; in sea commercial fishing, where the exchange of quotas on catch and bilateral agreements could lead to mutual benefits; in port infrastructure development; in elaboration of new standards in the field of navigation; in mutual non-living resource – especially oil and gas – extraction; and even in common measures to protect the marine environment and its biodiversity. Taking a leading role in any of these spheres would strengthen the BRICS countries' role in the international affairs as a whole, and make them key players in ocean development and ocean governance as well.

3. Collaborating on deep-seabed mining: Four of the BRICS countries – the Russian Federation, China, India and Brazil – are engaged in deep seabed resource mining (for such products as polymetallic nodules, polymetallic sulphides, cobalt-rich ferromanganese crust, etc) in different parts of the world oceans, beyond the national jurisdiction zones of coastal states and under the International Seabed Authority's control. The mining areas are as follows:

- in the Atlantic Ocean (polymetallic nodule exploration areas in the Clarion-Clipperton Fracture Zone, polymetallic sulphides exploration areas in the mid-Atlantic Ridge, cobalt-rich ferromanganese crust exploration areas in the South Atlantic seamounts);
- in the Pacific Ocean (polymetallic nodules exploration areas in the Clarion-Clipperton Fracture Zone, cobalt-rich ferromanganese crust exploration areas);

- in the Indian Ocean (polymetallic nodules and polymetallic sulphides exploration areas).

This kind of activity is not only important for the participants, but has significance for the entire international community. It is also evidence of the 1982 Law of the Sea Convention being put into practice. BRICS countries should consider closer coordination in this field to achieve more progress. It will reinforce the international scope of the world's ocean resources and underline that their exploitation leads to common benefits.

4. **Cooperating on polar research:** All BRICS countries have their own research programmes and scientific bases in the Antarctic. They could be more cooperative with one another in these researches. By working together, they would show the world community that scientific research and scientific data are an intergovernmental “heritage”. The Antarctic model is an example of an international governance regime for common, international spaces, which unites different nations. The Antarctic's neutral status should be maintained and the BRICS countries should provide maximum support to the 1959 Antarctic Treaty System, which does not recognise any claims in respect of territories located in the area of the agreement.

Target 3: To promote disarmament and prevent uncontrolled use of new types of weapons, securing non-militarisation of Outer Space

New emerging types of offensive weapons pose dangers to global stability as usually they are not covered by any particular treaty and could also trigger an arms race.

BRICS countries could come up with a draft document on possible measures to tackle this challenge to be actualised within the next 10 years.

Currently only the US is working on a full-scale strategic missile defence system, and this could lead to nuclear disparity. But the concept of strategic stability is quite likely to make other countries as well work on new methods to augment their defence, leading to a possible arms race. BRICS member states could play a significant role in preventing future tensions by proposing relevant initiatives.

BRICS countries invest heavily in space activities; in 2015, BRICS (mainly Russia, China and India) was responsible for 60 percent of the world space launches and a healthy percentage of satellites.

Though the Outer Space Treaty (Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies, reached on 27 January 1967) bars signatories from placing any objects carrying nuclear weapons or any other kind of weapons of mass destruction in the orbit of the Earth, or on the Moon, or on any other celestial body, it does not bar them from deploying any other types of weapons in outer space.

This opens the door for all sorts of weapons appearing in space – laser, kinetic, electro-magnetic, particle-beam, etc. Some countries also possess electronic warfare weapons (such as high power orbital radio frequency transmitters capable of destroying or incapacitating the electronics of space-based combat control and communication systems, as well as disabling satellites of the adversary's missile warning system).

China and Russia in 2008 jointly submitted a draft of the legally binding Treaty on the Prevention of the Placement of Weapons in Outer Space, the Use of or Threat of Use of Force against Outer Space Objects (PPWT) at the Geneva Conference on Disarmament (CD). Following consultations with some other BRICS countries, like Brazil and India, a new draft treaty was placed before the CD in July 2014.

BRICS position has also evolved over time. The group has supported the Russian initiative on 'No First Placement of Arms in Outer Space', presented at the UNGA. All BRICS countries agree that outer space should remain free from all kinds of weapons.

As the CD remains blocked and no substantial work is being carried out, there is a need to continue to push for the development of legally binding instruments to prevent weaponisation of outer space. BRICS countries could start with convening an international conference to discuss the issue with other states which have significant space presence.

BRICS countries should establish a working group on Outer Space with the participation of the respective space agencies of the member states. The group should be asked to come up with a consensus document on peaceful cooperation in Outer Space. The working group should also address the issue of definitions and legal mechanisms in the proposed treaty. Nothing in the document should be interpreted as impeding the development of space technologies for peaceful purposes.

As the majority of countries of the world support the non-military status of Outer Space, BRICS countries could co-sponsor a relevant UNGA resolution.

Member states should take note of other initiatives on the demilitarisation of Outer Space and welcome wide discussion of the topic. They should initiate formal and informal consultations on the issue with the US, the EU and other stakeholders.

Target 4: To become a leader in global internet governance and information security

Today the BRICS states constitute one of the biggest and most rapidly growing segments of the global internet community. In 2016, the total number of internet users in BRICS states exceeded 1.45 billion (42 percent of the world's internet audience). China and India's share of the internet economy in their GDP is higher than the developed markets' average, and both countries are in the world's top five in this respect.

Nevertheless, the BRICS countries have not been able to consolidate and articulate the voice of the non-Western world and developing countries on vital issues related to Information and Communications Technology (ICT) in the international security and global governance field. There is no consistent and concrete BRICS position on these issues. BRICS countries still prefer to act in their individual capacities in this matter.

BRICS should play a major role in reforming internet governance institutions as well. The tech community and the private sector in BRICS countries can help bridge gaps between the official positions of the five countries' governments on all key issues concerning internet governance.

The stages can be as follows:

1. Provide a consensus-based vision of the new global internet governance architecture. BRICS could formulate a global set of Principles of Internet Governance, which could include:
 - Right of access to the internet;
 - Globalisation of internet governance, implying responsible international control over the internet's critical functions.

The draft set of principles could be promoted in the form of a UN convention or an international treaty, taking into account the commitment of BRICS to promote negotiation of a universal binding instrument in combating cyber crimes that would not fix any liabilities on particular parties, but would rather postulate the universal principles of cooperation.

2. Elaborate upon and promote a “confidence matrix” in the use of ICTs. A technical, non political group would have a better chance of coming to an agreement on this matter. In addition to sharing information on major abnormalities of trans-border traffic and cyber security incidents, states could join forces to monitor cyber espionage and e-surveillance campaigns targeted at their territory and infrastructure by third parties. The next step could include enabling greater openness of their own trans-border flow for their partners in the forum, to make it clear that they do not conduct cyber espionage or surveillance activities themselves. Another example of productive technical cooperation that would not be controversial would be leveraging the cooperation of a computer emergency response team (CERTs) or a computer security incident response team (CSIRT) – or creating a BRICS-CERT or BRICS-CSIRT– which would also help to counter trans-border cybercrime and cyber terrorism.
3. Joint IT-infrastructure and internet-sector projects. They also should be global or trans-regional to keep all BRICS states interested and engaged. They could include major software development initiatives that could bring together market demands and certain policy imperatives for the BRICS states.

Target 5: To liquidate or significantly curb international terrorism

In “The Global Terrorism Index 2016” India occupied eighth place in 2015 (289 victims), China, 23rd place (123 victims), and Russia, 30th place (13 victims). In India, the main terrorist threat is from cross-border terrorism, mainly in Kashmir. The major terror problem of China comes from East Turkestan Islamic Movement. In Russia, the main source of terrorism is the North Caucasus with 20 million Muslims living there (80 percent of all acts of terrorism occur in Dagestan and Kabardino-Balkaria). In Brazil and South Africa there is not much terrorist activity. In recent years, it has also become clear that no walls or borders can keep out terrorism. It penetrates borders and spreads to different countries of the

world, including those which are quite far from the “flash points”. Daesh, as a quintessence of terrorist methods, has become a threat to all of humanity.

In some BRICS countries, external forces also influence internal terrorism. Beijing claims that various terrorist groups, trained overseas, arrived in China and set up terrorist cells. In Russia, terrorists receive funding from different countries, including Saudi Arabia and Qatar. Indian authorities are concerned by terrorist attacks of extremist organisations in Pakistan. In addition, for all three countries, the threat of terrorism is increasing, taking into account the US withdrawal from Afghanistan and the possibility of the spread of militants from Afghanistan to neighbouring regions.

The stages of inclusive BRICS cooperation could include:

- Joint counter-terrorism exercises, joint training to prevent, detect and suppress terrorist activities in the BRICS countries;
- Cooperation between law enforcement and national security agencies for exchange of information about persons accused of terrorist activity having escaped, and joint monitoring of persons suspected of terrorist activity;
- Exchange of information on channels of financing of terrorists and terrorist groups;
- Creation of an inter-bank agreement on cooperation in combating the financing of terrorist organisations and suspects;
- Joint system for training and retraining of professionals, representatives of national security agencies and law enforcement agencies engaged in combating terrorism;
- International joint seminars, forums, conferences, round tables, briefings for exchange of information to strengthen the system of information exchange between BRICS countries;
- It may even be possible to sign international treaties between BRICS countries on joint investigations of terrorist attacks committed in the territory of the BRICS countries, as well as on extradition of persons wanted for terrorist attacks;
- Improving the legal mechanisms for combating and preventing various forms of terrorism, further development of a universal legal framework, prohibiting incitement to religious and national hatred, learning from the international

experience of legal regulation in combating terrorism.

BRICS countries can strengthen coordination in the fight against terrorism by improving the credibility of the UN in the following ways:

- Develop a mechanism for coordinating counterterrorism policy of the BRICS countries. BRICS countries support the UN's central role in international cooperation on counterterrorism, including actively participating in the work of the Counter-Terrorism Committee, the Counter-Terrorism Executive Directorate, the Counter-Terrorism Implementation Task Force and other counterterrorism bodies within the framework of the UN. BRICS supports the fifth review of the UN Global Counter-Terrorism Strategy, and is keen to implement the strategy.
- BRICS countries should contribute to a speedy conclusion – within the framework of the UNGA – of the work on the *Draft Comprehensive Convention on International Terrorism* and its adoption by all member states. To promote and give effect to the Convention, it is necessary to come to a common understanding of the terms used, the definition of “international terrorism”, the subjects and objects of terrorist activities. Holding of international counterterrorism summits, where it would be possible to promote the projects of “Concept on combating international terrorism” and “Concept on combating chemical terrorism”, to engage the international community in anti-terror activities would help the process.
- BRICS countries should observe the purposes and principles enshrined in the UN Charter and promote them at other international venues: ASEAN, SCO and others.

Target 6: To achieve coordination in institutional development and strategic planning.

There have to be changes in both the substantive and the institutional character of BRICS for its further development.

The former includes not only broadening the spheres of cooperation, but also deepening them, moving from declarations to real actions.

The latter presupposes the setting up of a coordination mechanism, which could evolve plans on a systematic basis for the implementation of agreements

reached and follow up on their execution. The present mechanisms (summits, inter-ministerial consultations) are unable to fulfil the task on a daily basis. The virtual secretariat which is being created now will fulfil only the functions of an information exchange.

Over bureaucratisation may affect the flexibility and creativity of BRICS. Nevertheless, there is general consensus that intra-BRICS consultative mechanisms should be diversified and developed.

Sustainable outreach links should be established with other countries and regional groupings and even beyond, to propagate BRICS's objectives and ideas.

The BRICS countries can consider the following steps to increase coordination of activities within the existing international security system over the next few years:

- Create a mechanism to collectively elaborate and promote the unified BRICS position within international institutions to achieve meaningful results;
- Establish a permanently functioning supporting mechanisms in areas of mutual interest within the international organisations and institutions as well as at the level of interaction between relevant domestic agencies, offices, enterprises and epistemic community;
- Make joint suggestions to the UN for improving mechanisms of prevention and resolution of conflicts;
- Work out and suggest to relevant international structures joint responses to challenges in the “global commons”;
- Prepare proposals for expanding and institutionalising BRICS outreach activities within the existing international legal system;
- Consider adopting a declaration of principles and then elaborating a new legally binding Non-Aggression and Peaceful Coexistence Treaty open to all states around the globe. In the spirit of comprehensive peace and security, BRICS should also promote confidence building measures;
- Consider the creation of an interregional coordination council of regional security organisations belonging to the BRICS countries. It can become a consultative mechanism for BRICS countries with regard to rising global, regional and local security challenges.

In the area of capacity and institutional building of BRICS, the following steps can be taken over the next five to six years:

- Introduce other nations into the group as permanent observers or partners for dialogue (suggested list of countries would include Indonesia, Mexico, Argentina, Turkey, Iran, Nigeria, Egypt);
- Develop a network of permanent and semi-permanent sectoral consultative bodies (agencies, associations) which could include both BRICS and interested observer/dialogue partner public and state actors;
- Create a Multilateral Intergovernmental Commission on Economic, Scientific and Technical Cooperation headed by deputy prime ministers with corresponding sub-commissions and working groups;
- Create a permanently working BRICS Secretariat;
- Launch a fully-functional research institution for joint analysis of the international economic situation based on BRICS provided statistical data, to work on the correlation between economic and political development, economic and social development, and interstate relations to reach a “BRICS consensus” on the issue.

Ten years into the founding of the grouping, the time seems right to further elaborate a theory of international organisation having BRICS’s unique approaches/context in mind. It is high time to find new guidance reflecting the realities of the modern world order. The system formed after the World War II, the security architecture built, was essentially the result of cooperation as well as competition between the two superpowers – the US and the USSR. A new multi-stakeholder approach should be formalised. Such a theory should be centred on new paradigms of global security maintenance and political governance reflecting the common principles and interests not only of BRICS member countries, but also of a broad variety of stakeholders. This is a major task for the expert community.

PROGRESS THROUGH SHARING KNOWLEDGE AND INNOVATION: POLICY RECOMMENDATIONS¹

PILLAR

To enhance cooperation between and among member states and to capitalise on comparative advantages, BRICS should commit to investing greater effort and resources to increase joint research among member states. It is, therefore, important to support intra-BRICS knowledge production and dissemination and to facilitate researcher and student exchange. BRICS should aspire to nurture world-class research institutions and education facilities that can make a significant contribution to global education and knowledge systems.

1 CURRENT SITUATION

In the past two decades, China and India have experienced rapid economic growth, based among other factors on high levels of capital accumulation. During the early 2000s, Brazil, Russia and South Africa benefitted from increased demand for commodities, and also experienced significant growth. The emergence of these BRICS countries drew international attention to several aspects of their social, political and economic environments. There has also been interest in their technological development.

BRICS's recent scientific and technological developments have both positive and negative aspects. On the one hand, BRICS countries have seen significant progress in their science, technology and innovation (STI) input and output indicators, as can be observed in Table 1. Brazil and India, for instance, almost doubled their scientific and technical publications from 2000 to 2009. China quadrupled its publications in the same period. This increasing number of publications has resulted in significant participation of BRICS countries in scientific production in areas like material sciences, chemistry and physics, as Graph 1 shows.

1 "Sections I and VIII rely heavily on Chapter 5 of the document "Towards a long-term strategy for BRICS: a proposal by the BRICS Think Tanks Council", prepared under the pro tempore presidency of Brazil in 2014. This chapter was authored by Luis Kubota, Marina Larionova, Vivan Sharan and Glenda Kruss, and focuses on the contribution of technological catch-up and qualified manpower to increase productivity and competitiveness among the BRICS nations."

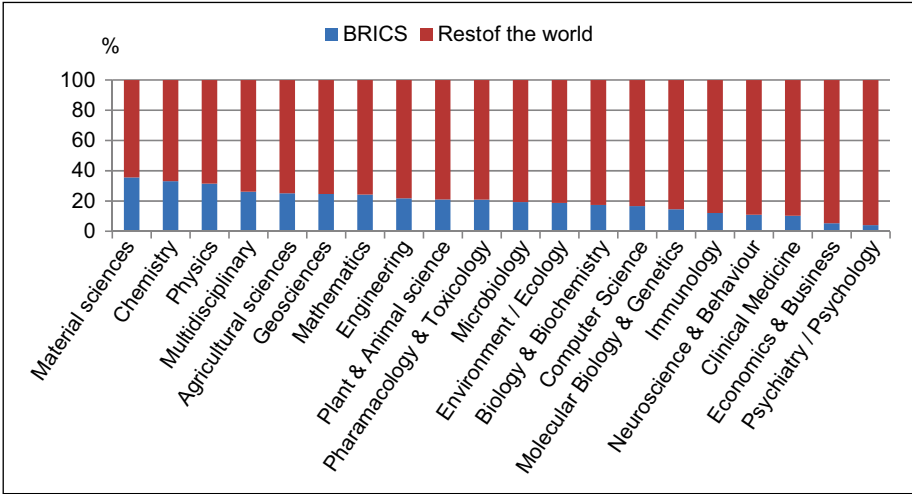
TABLE 1
Selected indicators of tapping global knowledge as well as of domestic generation of knowledge for the BRICS countries

	Brazil	China	India	Russia	South Africa
Payments for the use of intellectual property (\$ million)					
2005	1,405	5,321	961	1,533	1,017
2012	3,666	17,749	2,820	7,629	2,017
Students at tertiary level studying abroad					
2000	17,481	140,642	55,875	28,034	5,391
2005	19,631	402,941	139,566	38,948	5,473
2010	27,926	567,574	202,778	49,769	6,321
R&D personnel					
2000	73,909	691,518	114,656	504,852	14,032*
2005	109,510	1,115,384	153,075	462,338	17,088
2010	129,269	1,149,161	NA	438,695	19,177**
Expenditure on R&D (\$ billion, PPP)					
2000	656.5	1081.9	356.0	272.7	87.0*
2005	856.9	2989.9	650.0	815.9	222.5
2010	2,486.8	10,431.7	938.3***	1,766.8	248.1****
Scientific and technical journal articles					
2000	6,407	18,479	10,276	17,180	2,221
2005	9,897	41,604	14,635	14,425	2,395
2009	12,306	74,019	19,917	14,016	2,864

Note: * Figures from 2001; ** Figure from 2008; ***Figure from 2007; ****Figure from 2000.

Source: OECD, 2014c, p. 79.

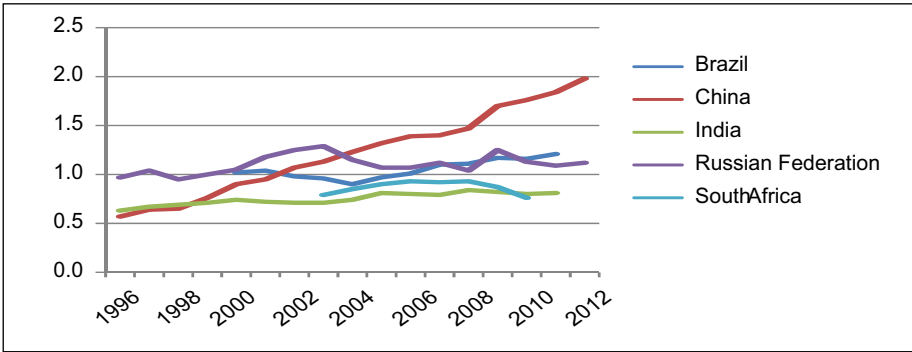
GRAPH 1
Share of total number of articles published in 20 major areas between 2008 and 2011 – BRICS & rest of the world



Source: Nascimento, 2014, based on Thompson Reuters data.

China was able to increase its share of total Triadic patent families from 0.2 percent in 2001 to 2.2 percent in 2011, while the shares for India were 0.2 percent and 0.4 percent, in the same years. China was also able to increase its gross domestic expenditure on R&D (GERD) as a percentage of Gross Domestic Product (GDP) from 0.56 percent in 1996 to almost 2 percent in 2012, as can be observed in Graph 2.

GRAPH 2
Gross Domestic Expenditure on R&D as a percentage of GDP

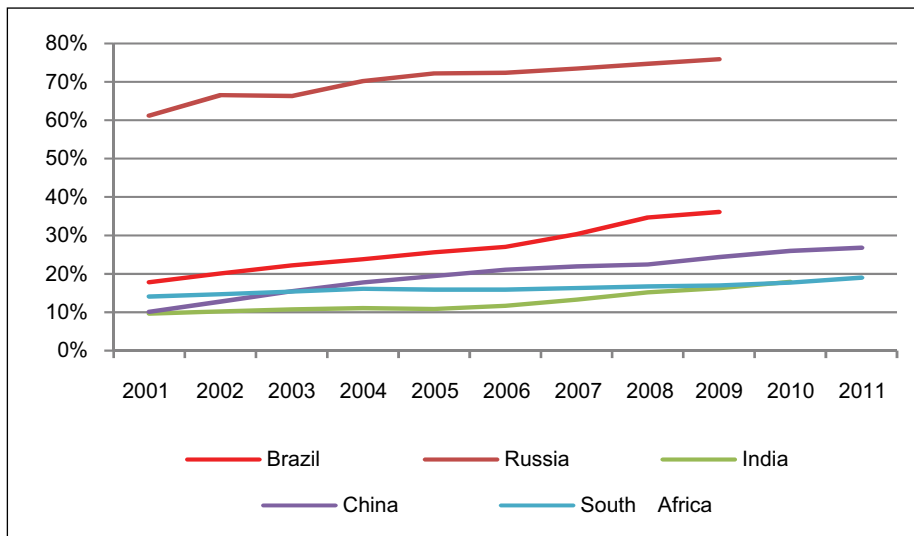


Source: Prepared by authors based on Unesco Institute for Statistics data.

Education also shows some positive indicators. Tertiary education gross enrollment increased in BRICS countries, as can be observed in Graph 3. Russia shows very high percentages, but figures are improving for the other countries as well.

GRAPH 3

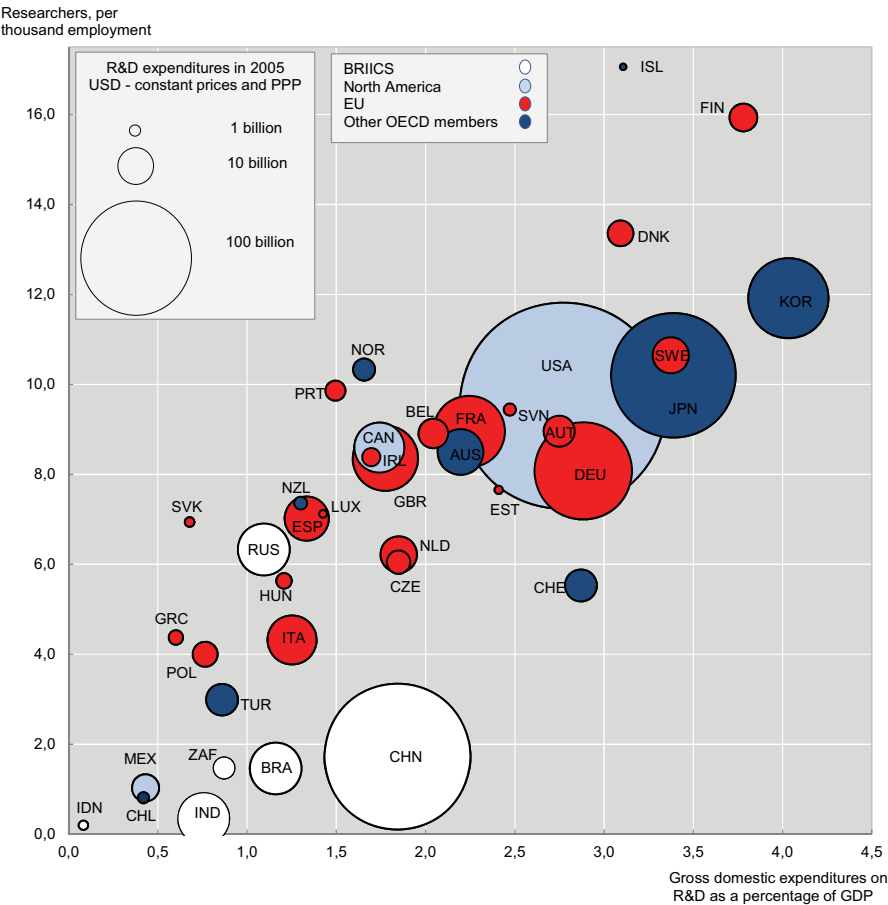
Gross enrolment ratios on tertiary education. Brazil, Russia, India, China and South Africa, 2001-2011



Source: Nascimento, 2014, based on Thompson Reuters data.

Despite all this progress, however, BRICS countries still lag behind the advanced nations on important parameters. As depicted in Graph 4, even China, which has the largest GERD as a percentage of GDP among BRICS countries, is still far behind countries like South Korea, Sweden or Japan. As for the number of researchers per 1,000 workers, only Russia shows a significant level.

GRAPH 4
R&D in OECD and key partner countries, 2011



Source: OECD, 2013, p. 50.

Table 2 highlights that Russia, India and especially China have managed to improve their total factor productivity (TFP). Nevertheless, the levels of TFP in these countries as a percentage of US levels is still very low, showing that they have a long way to go with respect to productivity increase. Similarly, Graph 5 illustrates that, despite China's and India's progress, the global share of Triadic patents by BRICS countries is still very low. China is the only BRICS country that has a high share of its exports originating from high tech products, as can be observed in Table 3.

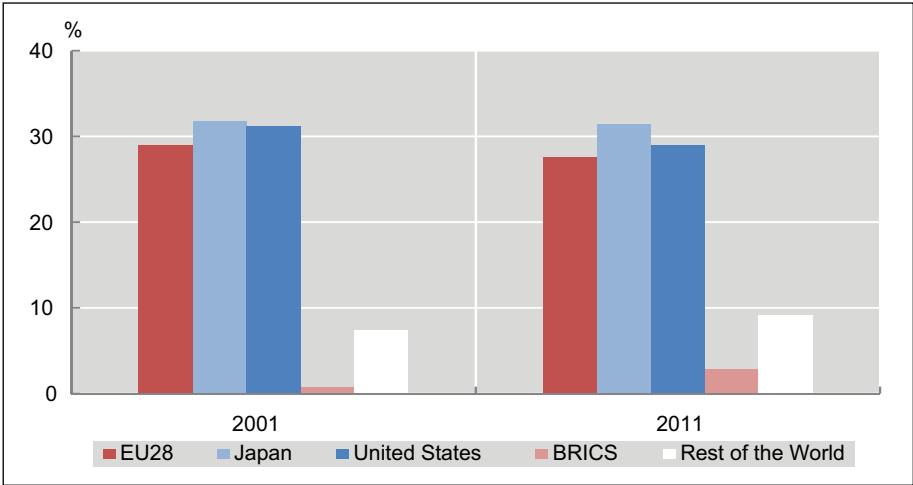
TABLE 2
Key indicators for BRICS

	Brazil	China	India	Russia	South Africa
GDP (current in \$ billion)					
1990	462	357	327	517	112
2012	2,523	8,227	1,859	2,015	384
GDP per capita PPP (constant 2011 international \$)					
1990	9,997	1,490	1,812	19,286	9,902
2012	14,301	10,771	5,050	23,184	11,989
Real GDP growth (% CAGR)					
1990-2000	2.54	10.42	5.58	-3.88	1.82
2000-2012	3.31	10.15	7.21	4.67	3.44
Total factor productivity: total economy (% of US level)					
2000	19.3	10.5	7.4	8.4	NA
2008	16.7	18.6	9.0	11.4	NA
Total factor productivity: manufacturing (% of US level)					
2000	20.1	15.6	6.5	10.7	NA
2008	13.4	21.5	7.8	8.8	NA
Total factor productivity: services (% of US level)					
2000	20.3	10.4	8.9	8.1	NA
2008	18.2	20.1	10.8	11.9	NA

Source: OECD, 2014c, p. 281.

Two clear conclusions emerge from the figures shown above. First, among BRICS nations, China is the leading performer on STI indicators. Overall, its STI and productivity indicators have grown faster than those of other BRICS countries, in line with the growth of its economy. Due to the size of its population and GDP, China may lag behind on some indicators that consider these parameters in their denominators, as shown in Graph 4. Nevertheless, in absolute terms, China is among the world leaders on parameters like people employed in R&D activities, or on R&D expenses. Secondly, despite progress on some indicators, such as the number of scientific publications, there is still much room for improvement when compared to the most advanced technology countries.

GRAPH 5
Triadic patent families by blocs, 2001 and 2011



Source: OECD, 2013, p. 67.

At this point, it is interesting to introduce some conceptual aspects. First of all, there is a consensus that scientific and technological developments are positively associated with growing productivity. How is it possible to improve in this area? Countries that excel in technology have more mature National Innovation Systems (NISs). NIS represents a set of institutions involved in STI creation – notably government, universities and research institutes, and firms – and the knowledge that flows between them. In mature NIS countries, there is a smooth flow of knowledge, with highly innovative firms – competitive in global markets – generating technologies in their own research laboratories or in partnerships with universities and research institutions. Innovations are introduced in the market to solve specific technological or non-technological problems, and especially due to competitive pressures. There is integration and coherence between STI initiatives and other policies – economic, environmental, educational, industrial, and so on.

It is natural that BRICS countries haven't reached this level yet. History has an important role in the development of a country's NIS. Their colonial past has influenced the way Brazil, India and South Africa's NIS developed. Similarly, the experience of planned economies was also important for the development of China's and Russia's NIS. As would be expected, the deep social, economic

TABLE 3

Contributions to exports (in %), by technological intensity of products

		1990	1995	2000	2005
Brazil	High Tech	5.0	4.0	13.0	8.0
	Low Tech	18.0	17.0	14.0	12.0
	Medium Tech	24.0	26.0	24.0	27.0
	Primary products	26.0	23.0	21.0	24.0
	Resource-based	27.0	31.0	28.0	29.0
China	High Tech		14.0	24.0	35.0
	Low Tech		47.0	42.0	32.0
	Medium Tech		18.0	18.0	20.0
	Primary products		10.0	7.0	4.0
	Resource-based		11.0	9.0	8.0
India	High Tech	3.0	3.0	3.0	3.0
	Low Tech	37.0	37.0	40.0	33.0
	Medium Tech	10.0	11.0	10.0	13.0
	Primary products	22.0	21.0	15.0	12.0
	Resource-based	29.0	28.0	31.0	38.0
Russian Federation	High Tech			4.0	2.0
	Low Tech			10.0	7.0
	Medium Tech			13.0	11.0
	Primary products			47.0	52.0
	Resource-based			26.0	29.0
South Africa	High Tech		3.0	5.0	5.0
	Low Tech		16.0	15.0	12.0
	Medium Tech		23.0	28.0	30.0
	Primary products		15.0	14.0	25.0
	Resource-based		43.0	37.0	28.0

Source: OECD, 2014c, p. 284, based on UN Comtrade (2013), United Nations Commodity Trade Statistics Database, <http://comtrade.un.org/db/default.aspx>.

and political changes that Russia and South Africa underwent in the 1990s also affected the way these two countries had their NIS reorganised. Russia, Brazil and South Africa are highly dependent on primary or resource-based products.

These are examples of factors that have inhibited BRICS countries from having mature NISs. Nevertheless, despite all the odds, these countries have shown considerable progress, and even some success stories of domestic firms being able to compete in high tech markets.

Taking all this into account, the next six sections will focus on key policy related issues on which the BRICS countries can concentrate and cooperate to promote knowledge sharing and innovation amongst themselves. Section II will deal with mission-oriented policies, Section III with university-industry links, Section IV with intellectual property, Section V with technology prospecting, Section VI with financing, and Section VII with smart cities. The eighth and final section presents specific policy recommendations drawn from the previous sections.

2 MISSION-ORIENTED POLICIES

Mission-oriented policies are at the core of the current economic policy debate. They can be defined as “systemic public policies that draw on frontier knowledge to attain specific goals or ‘big science deployed to meet big problems’”². Policies of this kind were the main impetus for the growth of the internet, the radio, mobile phones and some vaccines. They have been widely used historically in developed countries and have great potential for developing countries. Societal challenges like water and air pollution, illiteracy, deficiencies of urban transport, tropical diseases and many others can be addressed with mission-oriented policies.

In the bulk of these policies, the use of public procurement is one of the most powerful tools. In every modern state, the government is the main purchaser of the economy and its purchasing power can be used to foster not only socioeconomic development but also technological change. In this regard, China stands out as one of the most dynamic countries. The use of mission-oriented policies in China affects different sectors, but environmentally friendly technology is among the

2 <http://marianamazzucato.com/wp-content/uploads/2016/03/Full-Report-The-Brazilian-Innovation-System-CGEE-Mazzucato-and-Penna.pdf>

most impacted ones. In fact, the green economy is greatly encouraged through public procurement and regulation.

Considering the high impact possibilities of mission-oriented policies, especially for developing countries, there is huge scope for knowledge sharing between BRICS countries.

The main possible research lines are:

1. successful cases of each country;
2. limits and possibilities of public procurement laws;
3. impact evaluation studies of mission-oriented policies;
4. methodological tools exchange, cross-fertilisation and training;
5. regulation and normalisation for innovation; and
6. use of offsets to address societal challenges.

3 UNIVERSITY – INDUSTRY LINKS: PATTERNS OF INTERACTION AND GOVERNANCE IN BRICS

Two assumptions pervade the literature on university, public research organisations (PROs) and industry links (UILs). The first is the acknowledged role of universities, PROs and firms as key institutions of any NIS. The beneficial output of such interactions in terms of science creation and diffusion, as well as technological development and innovation, have been widely reported and acknowledged by scholars and policy makers.

Another common element is the historical nature of the NIS which is reflected in the characteristics of the institutions and the patterns of interaction they develop. This diversity and heterogeneity is true not only of countries but also of productive sectors within the same country.

The institutions of the NISs of BRICS countries were built and consolidated in diverse historical economic and social contexts, and therefore present distinctive characteristics and styles of governance in their interactions. The heterogeneous nature of UILs are a challenge, and at the same time an opportunity, for each country to learn from the others' experiences in promoting fruitful partnerships among public research centres and industry.

Some issues that could trigger debate are:

1. Building bridges: Strategies to create a network among the main public laboratories, research institutions and firms (researchers from universities and firms' R&D employees) of BRICS countries to develop joint projects to tackle common challenges, i.e., health, energy and environment issues, etc;
2. Patterns of governance of university and firms interactions on mission-oriented projects: Successful experiences of partnerships among public laboratories and firms, as well as failures and challenges faced by these institutions;
3. Models and mechanisms for funding joint projects and promoting university and firms' partnerships;
4. The role of the legal framework in building trust among universities and public research organisations and firms;
5. Monitoring and evaluating joint university and industry partnerships in the mission;
6. Researchers, firms' R&D units and students: how universities and firms could motivate and engage undergraduate and graduate students in joint projects of applied research;
7. university and industry links and start-ups: promoting entrepreneurship through partnership.

4 CHALLENGES IN INTELLECTUAL PROPERTY

BRICS countries have achieved – in different degrees – impressive improvements in science and technology. However, when their patent indicators are analysed, it is seen that improvements have not been so great. Despite China's and India's progress, BRICS countries' share of Triadic patents, and the impact of their patents, is still very low (see Graph 5).

Part of this is due to the limited generation of innovations. Thus, the joint promotion of innovation aimed at minimising problems inherent in these countries, together with joint protection strategies of intellectual property, can lead to cooperation between them. (Despite their recent progress, BRICS countries still face the usual issues that affect developing nations.) BRICS should establish joint research, mainly focused on inclusive development, to promote

the development of technologies designed to solve specific common problems (neglected diseases, environmental technologies and utilities are examples).

The selected technologies can be jointly developed and protected, through a cooperation agreement in the form and manner established by the Trilateral Cooperation Secretariat (of China, South Korea and Japan)³. This partnership should include a fund to finance patent applications, promote technology sharing - especially through pooling of patents and cross licensing – and implement measures to accelerate the pace of examination of patent applications.

Besides patents, BRICS countries should harmonise other types of protection, such as utility models and industrial designs, which protect incremental technologies – the main type of innovation achieved by developing countries. As the participation of BRICS countries in world patents is still very low, these countries should also cooperate to design a joint position for their participation in TRIPS-related negotiations.

5 TECHNOLOGY PROSPECTIVE STUDIES

In a world of constant technological changes, foreseeing the next technological movement could give advantage and leverage to any country which does so. China appears to understand this and is using technology prospective studies as an economic policy tool.

The main Chinese movement in this field is called the “Technology Foresight Towards 2020”, elaborated by the Chinese Academy of Sciences. In India too there is some understanding of the relevance of technology foresight. It has the Technology Information, Forecasting and Assessment Counsel, that is constantly elaborating upon new studies on the future of technology like the “Technology Vision 2035”.

Foreseeing the future is a hard task. The methodological challenges are huge and the chances of error enormous. But some techniques and tools for doing so are achieving some degree of success and could be improved upon and spread. Apparently, China is leading this process among the BRICS countries, but there are some initiatives from Brazil and India as well that could help in this task.

3 [1]<http://www.trilateral.net/index.html>

The main areas for cooperation in this matter are:

1. new and innovative foresight methodologies;
2. the real use of foresight as a policy planning tool;
3. the use of big data;
4. computational simulation and complex systems; and
5. Delphi and other group methods.

In fact, scientists and academics alike have increasingly postulated a multiplicity of models as a means of collectively reaching better quality insights into the effects of proposed policies. Hence, a given public policy problem should be investigated using a wider array of possible methodologies, drawing from multiple disciplines.

Specifically, on the topic of computational simulation, IPEA has been developing a comprehensive model – Spatially-bounded Economic Agent-based Lab (SEAL) – that is both intensive in data use and designed to incorporate Brazilian political-administrative spatial dynamics.

The idea behind the model is to enable a ‘rapid prototyping and visualisation tool’ focused on decision-making and policy managers, similar to the ones applied by the American Department of Defense.⁴

The main argument behind the model is that a given policy should always be tested within an ex-ante framework before actual implementation. Although one cannot guarantee perfect forecasts, a number of insights are produced, especially short and midterm ones. Further, indirect effects and impacts on other areas of public policies become obvious and definitely outweigh the simple structure necessary to run such models.

⁴ See the projects of MITRE Corporation.

6 FINANCING: BRICS NEEDS TO REDUCE STI GAP WITH ADVANCED COUNTRIES

In terms of financing, there is still a lot to be done and it is not only a matter of the amount of resources deployed. With the current instruments available, it will not be possible to increase investments in STI in BRICS and get closer to the levels reached by most advanced countries. Public investments in STI need to increase approximately. The system needs to become more diversified, more complex and more agile.

To increase productivity in the BRICS economy, the agenda for the future in STI needs to focus on:

1. New scale to support STI activity, set up new STI logics, structuring knowledge production through demand;
2. A long term initiative, linking basic research to innovation;
3. New legal bases to support entrepreneurship and internalisation of enterprise and universities;
4. New institutional labs to support research in sectoral areas – energy, agriculture, health and defence;
5. More funds for STI;
6. Initiatives to improve venture capital and support technological start-ups; and
7. Initiatives to make possible technological innovation procurement;

In order to achieve this, it is necessary to bring together universities and research institutions with companies – around state-of-the-art STI centres, boosted by the intellectual capital of engineers, physicists, chemists, biologists and hundreds of other researchers – to start new arrangements capable of delivering products and processes with high social impact. Vaccines, drugs, advanced materials, seeds that are resistant to climate changes, and laser systems for agriculture are examples that could save lives and enhance the economy.

Currently the resources available to companies are mostly in the form of subsidised credit. Grants for companies and universities, venture capital and governmental purchases in the sectors of agriculture, health, energy, oil and gas,

aerospace and defence will have to become more relevant as financial incentives.

The BRICS nations can also implement a Platforms Programme of the kind Europe has. Platforms improve efficiency of firms and universities, encouraging them to work together to achieve concrete results to solve a specific technical problem, or to obtain an innovative product or process of high technological risk, with predefined goals and deadlines.

However, the basis of a new initiative on technological orders by BRICS needs a long term perspective, budget predictability, focus on technological, economic and social opportunities, public-private partnerships, (companies, STIs, government, laboratories) aimed at product delivery, process and solution of specific technical problems, public announcements of the selection of proposals with a special procurement regime, and international partnerships for selecting, developing and evaluating results.

BRICS already follows the international trend of increasing expenditure on STI in sectoral ministries. This trend needs to be strengthened. It is also essential to bring the governments of BRICS countries closer to strategic decisions on science and technology. For this to happen, it is necessary to reorganise and guide some institutions, organisations and councils in a way that a fast decision-making structure is created, capable of meeting existing needs with the urgency BRICS requires.

7 SMART CITIES

There is no single definition of smart cities. The concept is general and open but it usually involves making use of available technology and data to increase urban quality of life, mainly through better (or smarter) urban governance.

With growing data availability, cheaper data storage and processing costs, increasing communicability among devices through the internet and GPS, and the accessibility of such devices, citizens, firms and institutions – such as city administrations – should make use of ‘smart’ technology to bring about better management of public spaces.

Smart cities can improve governance in a number of ways. Government transparency should be on the top of the list. That means governmental institutions should make information and data readily available to citizens. This

should include constant updates and providing access in a user friendly way across multiple platforms. It would mean not only access to data, but also to processes, personal details and services requests.

Secondly, smart cities can greatly increase citizens' participation in city management. Such participation could be through giving feedback via questionnaires from the government and informing the administration about citizens' views and opinions, or it could be through voting and debating using technologically mediated platforms.

A third aspect often mentioned in discussions on smart cities is connectivity of infrastructure. This connectivity could relate to the 'smartness' of security systems, access to CCTVs, and integration of surveillance mechanisms into public transport systems.

Finally, smart urban governance is strongly linked to sustainability. That implies environmental sustainability, such as efficient use of water and energy, and also conservation and preservation of natural and cultural heritage.

Given the looseness of the concept, smart cities may even refer simply to smart citizens. In such a view, a smart city should have proper educational facilities, a thriving labour market and a sound economic and pollution-free environment.

8 SPECIFIC POLICY RECOMMENDATIONS

- BRICS countries should facilitate visas for researchers, make special arrangements on visas to facilitate and encourage BRICS researchers' exchanges, including simplifying visa approval procedures and reducing time of approval.
- BRICS should strengthen cooperation under the Patent Cooperation Treaty to facilitate the simultaneous registration of patents in all BRICS countries.
- BRICS should establish a fund to finance patent applications.
- BRICS should support joint projects by researchers and institutions from all BRICS countries. It should create a framework programme similar

to the EU FP7 to finance joint projects with funding allocated from the New Development Bank. Additionally, partnerships should be established between funds supporting research projects in each of the BRICS countries, so as to finance joint projects carried out by researchers and institutions from all BRICS countries.

- BRICS should facilitate technology and knowledge transfer. It should establish a Fund for Technology Transfer which acts as a depository where owners of the rights to technologies will be able to apply for assistance in their commercialisation. Projects may be funded by the Fund or co-financed with private companies and development institutions of BRICS.
- BRICS should establish a BRICS Institute of Innovation and Technology, on the lines successfully developed in the European context.
- BRICS should increase the focus on innovation for inclusive development. Science and technology in BRICS countries should be harnessed for the benefit of the poor and marginalised, and focused not only on technology but also on all the fronts required to catch up with the advanced countries.
- BRICS should develop research on the comparative assessment of financing options. Capital market failures in early stage funding of innovation driven start-ups have been high in BRICS, across several national programmes that have been in operation. Likewise there have been failures in experiments with state supported venture funding for commercialisation and enterprise creation.
- BRICS countries should sponsor comparative initiatives to enhance UILs. Separation of teaching and research in BRICS has adversely affected innovation. BRICS countries can learn from one another to improve UILs. Experiments with various instruments to promote university-industry linkages and public-private partnerships have been developed, such as incubation centres for university spin-offs.
- BRICS countries should consider the possibility of adopting a Bayh Dole Act equivalent in all BRICS nations - ownership of intellectual property rights (IPRs) arising from state funded research.
- BRICS countries should sponsor research focused on PPP funds/efforts to re-invigorate research in universities.

- BRICS countries should stimulate the sharing of experiences of technology licensing offices (TLOs) in universities and R&D institutions, and support comparative research on investments and other policies for higher education to build human resources for innovation.
- Given that the TRIPS agreement has affected all BRICS nations, bringing about IPR law changes in all of them, BRICS countries should stimulate comparative research on the regulatory experimentation in IP laws, on compulsory licensing conditions, on the possibilities of collaboration/learning in identifying TRIPS compatible mechanisms to enhance innovation and on access to new technologies without making significant adverse impact on incentives to invent and innovate.
- BRICS countries should provide incentives to stimulate the participation of their firms in global production in innovation/technology networks.
- BRICS countries should cooperate to achieve common positions in their participation in TRIPS related negotiations.

9 REFERENCES

- Araújo, B. C. (2013). *Políticas de inovação no Brasil e na China no século XXI*. Brasília: Ipea.
- Arroio, A., & Scerri, M. (2014). *The promise of small and medium enterprises*. New Delhi: Routledge.
- Battelle.(2010). *2011 global R&D funding forecast*. United States: Advantage Business Media.
- Cassiolato, J. E., & Lastres, H. M. M. (2009). Science, technology and innovation policies in the BRICS countries: an introduction. In *BRICS and development alternatives: innovation systems and policies*. London and New York: Anthem Press.
- Cassiolato, J. E., & Vitorino, V. (2009). *BRICS and development alternatives: innovation systems and policies*. London and New York: Anthem Press.
- Cassiolato, J. E., Zucoloto, G., Abrol, D., & Xielin, L. (2014a). FDI and national systems of innovation: lessons from the experience of BRICS. In *Transnational corporations and local innovation*. New Delhi: Routledge.
- Cassiolato, J. E., Zucoloto, G., Abrol, D., & Xielin, L. (2014b). *Transnational corporations and local innovation*. New Delhi: Routledge.

De Negri, J. A., & Kubota, L. C. (2008). *Políticas de incentivo à inovação tecnológica no Brasil*. Brasília: Ipea.

Department of Arts, Culture, Science and Technology. (1996). *White paper on science & technology: preparing for the 21st century*. Pretoria: Department of Arts, Culture, Science and Technology.

Department of Science & Technology. (2013). *Research & development statistics at a glance 2011-12*. New Delhi: Department of Science & Technology.

Docquier, F., & Rapoport, H. (2012). Globalization, brain drain, and development. *Journal of Economic Literature*, 50(3), 681–730.

Dube, L., & Ngulube, P. (2013). Pathways for retaining human capital in academic departments of a South African university. *SA Journal of Information Management*, 15(2). doi:10.4102/sajim.v15i2.560

Fan, P. (2014). Innovation in China. *Journal of Economic Surveys*, 28(4), 725–745. doi:10.1111/joes.12083

Gastrow, M., & Kruss, G. (2012). Skills and the formation of global innovation networks: a balancing act. *Innovation and Development*, 2(2), 263–283.

Gokhberg, L., Gorodnikova, N., Kuznetsova, T., Sokolov, A., & Zaichenko, S. (2009). Prospective agenda for science and technology and innovation policies in Russia. In *BRICS and development alternatives: innovation systems and policies*. London and New York: Anthem Press.

Gokhberg L., Kuznetsova T. (2011). S&T and Innovation in Russia: Key Challenges of the Post-Crisis Period. *Journal of East-West Business*, 17(2–3), 73–89.

Guimarães, R. R. de M. (2013). The Future of Higher Education in BRIC Countries: A Demographic Perspective. *Revista Brasileira de Estudos Populacionais*, 30(2), 549–566.

HSRC, & Department of Science and Technology. (2011). *South African innovation survey: main results 2008*. Pretoria: HSRC.

Inter-American Development Bank. (2010). *The age of productivity*. New York: Palgrave Macmillan.

International Monetary Fund. (2013). *South Africa: 2013 article IV consultation* (No. IMF Country Report No. 13/303). Washington D. C.: IMF.

Joseph, K. J., & Abrol, D. (2009). Science, technology and innovation policies in India: achievements and limits. In *BRICS and development alternatives: innovation systems and policies*. London and New York: Anthem Press.

Kahn, M., Melo, L. M. de, & Matos, M. G. P. de. (2014). *Financing innovation*. New Delhi: Routledge.

Klochikhin, E. A. (2014). Russia's innovation policy: stubborn path-dependencies and new approaches. *Research Policy*, 41, 1620–1630.

Koeller, P., & Gordon, J. L. (2013). Brazil. In *The role of the state*. New Delhi: Routledge.

Krishna, V. V. (2013). India. In *The role of the state*. New Delhi: Routledge.

Kruss, G. (2014). *Linking knowledge producers and marginalised communities* (Policy Brief). Pretoria: HSRC. Recuperado de <http://www.hsrc.ac.za/en/research-outputs/view/7014>

Kruss, G., & Lorentzen, J. (2009). The South African innovation policies: potential and constraint. In *BRICS and development alternatives: innovation systems and policies*. London and New York: Anthem Press.

Kruss, G., Visser, M., Aphane, M., & Haupt, G. (2012). *Academic interaction with social partners: investigating the contribution of universities to economic and social development*. Cape Town: HSRC Press.

Kuznetsova, T. (2013). Russia. In *The role of the state*. New Delhi: Routledge.

Leibowitz, B., & Bozalek, V. (2014). Access to higher education in South Africa. *Widening Participation and Lifelong Learning*, 16(1), 91–109.

Linden, G., Kraemer, K. L., & Dedrick, J. (2009). Who captures value in a global innovation network?: the case of Apple's iPod. *Communications of the ACM*, 52(3), 140–144.

Liu, X., & Liu, J. (2009). *Science and technology and innovation policy in China*. London and New York: Anthem Press.

Liu, X., Lv, P., & Gao, W. ([s.d.]). *Synthesis paper on HRD policies and MNC subsidiaries - Foreign Direct Investment in China*. INGINEUS Project: Unpublished report.

Loyalka, P., Carnoy, M., Froumin, I., Dossani, R., & Tilak, J. (2012). *Getting the quality right: engineering education in the BRIC countries*. Stanford: Stanford University.

Maharaj, R., Lastres, H. M. M., & Scerri, M. (2013). *Inequality and Development Challenges*. London: Routledge.

Mani, S. (2014). India. In *Financing innovation*. New Delhi: Routledge.

Muller, L., & Manamela, A. ([s.d.]). *Synthesis paper on HRD policies and MNC subsidiaries*. INGINEUS Project: Unpublished report.

Nascimento, P. S. (2014). Some trends in higher education and research in BRICS countries. In *Papers of the fifth BRICS Academic Forum: partnership for development*,

integration and industrialisation. Pretoria: The Department of International Relations and Cooperation.

National Research University – Higher School of Economics (HSE). 2013a. *Science and Technology Indicators in the Russian Federation: Data Book*. Moscow: National Research University – Higher School of Economics (HSE). Retrieved January 12, 2015, from : <http://www.hse.ru/en/primarydata/edu2013>. Access on January 12, 2015.

National Research University – Higher School of Economics (HSE). 2013b. *Indicators of Education in the Russian Federation: Data Book*. Moscow: National Research University – Higher School of Economics (HSE). Retrieved January 12, 2015 from: <http://www.hse.ru/en/primarydata/st2013>. Access on January 12, 2015.

OECD. (2007). *OECD reviews of innovation policy: South Africa*. Paris: OECD Publishing.

OECD. (2008). *OECD reviews of innovation policy: China 2008*. Paris: OECD Publishing.

OECD. (2011a). *OECD Reviews of Innovation Policy: Russian Federation*. Paris: OECD Publishing.

OECD. (2011b). *OECD reviews of innovation policy: Russian Federation 2011*. Paris: OECD Publishing.

OECD. (2013). *OECD science, technology and industry scoreboard 2013*. Paris: OECD Publishing.

OECD. (2014a). *Innovation for agriculture productivity and sustainability: review of Brazilian policies*. Paris: OECD.

OECD. (2014b). *OECD economic surveys: Russian Federation 2013*. Paris: OECD Publishing.

OECD. (2014c). *Perspectives on global development 2014: boosting productivity to meet the middle-income challenge*. Paris: OCDE Publishing.

Ping, L. (2013). China. In *The role of the state*. New Delhi: Routledge.

Planning Commission. (2013). *Twelfth Five-Year Plan (2012-2017): faster, more inclusive sustainable growth*. New Delhi: Sage Publications India.

Scerri, M., & Lastres, H. M. M. (2013). *The role of the State*. New Delhi: Routledge.

Sheehan, J., & Wyckoff, A. (2003). *Targeting R&D: economic and policy implications of increasing R&D spending* (No. 2003/8). Paris: OECD.

Souza, A. de M. (2012). A legislação da Índia relativa ao uso e à propriedade da biotecnologia. *Boletim de Economia e Política Internacional*, 10, 47–60.

