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EMERGING POWERS

THE IBSA STATES AS PARTNERS AND LEADERS IN A FUTURE GLOBAL CLIMATE CHANGE REGIME¹

Romy Chevallier

The global challenge of climate change is well beyond the capacity of any one country or region to tackle alone. Given the magnitude and scale of what is required in response to its impacts, collective action from the developed and developing world is the only way forward. India, Brazil and South Africa, the so-called IBSA states, are becoming increasingly significant global actors and strategic partners in global environmental governance. As a result of important changes in the global geo-political landscape and their growing political and economic importance, there is a need to recognize the important contribution of these countries towards a more equitable global climate change regime. As these countries have tremendous domestic challenges to deal with, it is interesting to explore new areas of engagement between traditional actors and new partners on issues of international concern.

IBSA member states share similar challenges of dealing simultaneously with energy security, climate change and socio-economic development. These common policy issues have become key pillars around which these governments seek potential allies and appropriate forums of dialogue with key Southern partners. IBSA's cooperation on the mitigation agenda is particularly timely and significant

1 | A version of this paper was originally prepared for "New directions in the 'South'? Assessing the Importance and Consequences of the India-Brazil-South Africa Dialogue Forum (IBSA) to International Relations", IUPERJ, June 23-24, 2008, Rio de Janeiro, Brazil. Within this chapter, the author has also referred to work she has completed within a SAIIA publication called *Climate Change and Trade* (in the process of being published).

given that the second phase of the Kyoto Protocol is currently being negotiated, with the next round of talks on the Bali Roadmap to take place in Durban in December 2011. The next phase will entail penalties for the non-compliance of mitigation actions by big emitters. In this regard, large developing economies are faced with significant mitigation and development challenges.

It is thus important and particularly timely to strengthen and extend the dialogue and partnership among fossil-fuel producing and consuming countries.

Beyond the climate mitigation agenda, it is important to consider the role of IBSA in influencing the adaptation agenda. It is essential that they engage proactively in this debate.

Beyond the climate mitigation agenda, it is important to consider the role of IBSA in influencing the adaptation agenda. Given that developing countries will be the most vulnerable to the negative impacts of climate change and its variability², it is essential that they engage proactively in this debate, seeking methods of increased resilience and financing for their own societies but also of their respective regions. This vulnerability is a function of the interaction between socio-economic challenges that face all developing countries: endemic poverty; the reliance of sectors that are susceptible to climate fluctuations, the limited access to capital and global markets; poor governance; ecosystem degradation; complex disaster and conflicts; and rapid urbanisation and over-population – all of which will undermine a communities' ability to adapt to climate change, and increase the risk of impoverishment.³ These shared economic, developmental and security implications have therefore generated a perceptible shift in the way that decision-makers in the South are talking about climate change, as well as in the way they are beginning to cooperate at a myriad of levels.

2 | 2007 Fourth Assessment Report (AR4), the UN's Intergovernmental Panel on Climate Change (IPCC) and UNDP, *Fighting Climate Change: Human Solidarity in a Divided World*, Human Development Report, 2007/08 (New York: Palgrave Macmillan, 2007) 18–19.

3 | Boko, Niang, Nyong, Vogel, Githeko et al., *Climate Change 2007: Impacts, Adaptation and Vulnerability*, Contribution of Working Group II to the Fourth Assessment Report of the IPCC. Cambridge University Press, Cambridge.

IBSA AND THE REDUCTION OF GREENHOUSE GASES: FORGING A COMMON SOUTHERN POSITION

The mitigation of greenhouse gases (GHG) presents a common challenge to all emerging Southern economies whose energy profiles are predominantly made up of cheap coal-based energy. Developing countries “have a substantial role to play in GHG emission reductions, as future emissions are likely to be dominated by the growth in developing countries”.⁴ In the current round of climate change negotiations there is increasing pressure on non-Annex I⁵ polluters to initiate their own mitigation strategies and to participate actively and responsibly in the post 2012 climate change regime. However, considering the immediate development challenges that all developing countries face, constrained economic growth (by reducing their dependence on cheap coal) will present an additional burden to these countries.

It is also important that developing countries forge a common position on climate change to ensure that the UN Framework Convention on Climate Change (UNFCCC) negotiations in December seek some form of resolve – a new multilateral agreement that is equitable and represents the development concerns of the developing world. Emphasis should therefore be placed on the following key issues: deeper cuts in GHG emissions in the North; international support of development through additional finance; the adequate transfer of technology and capacity building; deforestation and incentive mechanisms for best practice; and the paying for those having to adapt to the adverse impacts of climate change. A common Southern position on these issues would give the developing world more leverage in the negotiations to encourage ‘common but differentiated responsibilities’ from that of the historical emitters in the North. Coordinated positions in the form of an alliance (IBSA, BASIC or other) and further unilateral

4 | Professor Winkler from South Africa’s Energy Research Centre, quoted after Tyrer, “Rough Road: South Africa’s path on the steep and rocky road to Copenhagen”, *Engineering News*, February 2009, 20-26.

5 | ‘Non-Annex countries’ is a classification by the UNFCCC that refers to countries in the developing world that due to immediate development and socio-economic constraints do not have legal obligations to reduce GHG emissions in this Kyoto period (2008-2012).

and voluntary commitments by large developing economies would encourage a more ambitious global agreement⁶ and put further pressure on the United States, Canada, Japan, and Australia, and hold other big GHG emitters to account.

Developing countries collaboration on climate change can also exist at numerous levels beyond a commitment at the multilateral level. Large developing economies should show leadership nationally and in their regions, and continue unabated with innovative approaches to protect themselves and the global environment. It is essential, for example, that IBSA countries improve the accuracy and availability of their scientific projections and relevant data. It is essential that they understand their vulnerabilities and prepare for the impacts of climate change. These countries should also collaborate on ways and means to reduce overall carbon emissions by highlighting the potential economic benefits of a green economy.

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COOPERATION TO FURTHER IMPROVE CLIMATE PROJECTIONS AND PREDICTIONS

Developing countries have been ill-prepared and slow at developing effective 'early warning' systems and response measures to the impacts of climate change. Cooperation in the development of more substantial climate data and analysis capabilities is essential to project climate variability and to analyse its potential impact on vulnerable sectors. Data collection and analysis can be done at a national level with the assistance of international partners – for example in the construction of meteorological stations and in the training of human resources in this capacity, or at an international level through the cooperation on the provision of scientific data and climate information.

According to the CSIR's Project on Natural Resources and the Environment (South Africa), Australia is the only country in the southern hemisphere to have developed a coupled global climate model, that is, a model that can be

6 | "G8 Climate Scorecards 2009," Commissioned by Allianz and WWF, July 2009, authors included: Hohne, Eisbrenner, Hagemann and Moltmann.

used to predict global climate change. Australia is therefore also the only country to have contributed such predictions to the Assessment Report 4 (AR4) of the UN's Intergovernmental Panel on Climate Change (IPCC), and been part of the broader debate on climate variability in the southern hemisphere. All other countries in the geographical South depend on the North to provide them with global climate change predictions. More active involvement by southern hemisphere oceanographers, climatologists, terrestrial ecologists and modellers in coupled model development is critically needed, in order to improve the simulations of southern hemisphere circulation dynamics.

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There is an urgent need for developing countries to collectively establish centres of expertise and best practice in this regard.

Brazil and South Africa have recently made progress in developing coupled climate models capable of making projections of global change. This raw data and sufficient knowledge gathering and generation would substantially add to the process of understanding the science of climate change, making climate predictions more accurate and relevant to their respective regions.

COOPERATION ON A CLIMATE MITIGATION AGENDA

The biggest emitters of carbon dioxide in absolute terms are located not only in the rich world but also in rapidly emerging economies. According to the 2008 International Energy Outlook, emerging countries are now producing more than 50 per cent of global carbon dioxide emissions (2007 figure).⁷ Rapid economic growth, a large manufacturing sector and a rapidly expanding population have resulted in China overtaking the USA as the biggest polluter.⁸ Brazil and India have also leapt up the emission

7 | In 2030 carbon dioxide emissions from China and India combined are projected to account for 34 per cent of total world emissions, with China alone responsible for 28 per cent of the world total. Energy Information Administration of the U.S. Department of Energy, *International Energy Outlook 2008*, Washington, D.C., June 2008, [http://eia.doe.gov/oiaf/ieo/pdf/0484\(2008\).pdf](http://eia.doe.gov/oiaf/ieo/pdf/0484(2008).pdf) (accessed March 8, 2011).

8 | Euromonitor: Energy Information Administration of the U.S. Department of Energy, December 2010, http://euromonitor.com/Mapping_global_pollution_The_worlds_biggest_polluters (accessed March 8, 2011).

ranks as their economies have continued to grow. These statistics prove that large polluting developing economies have a global responsibility to reduce their emissions and find ethical, sustainable and equitable solutions.

However, it must be noted that these figures do not accurately reflect the inverse relationship between the responsibility for climate change and the vulnerability to its effects. They do not take account, for example, of the historical contribution of GHG emissions by developed countries, nor do they take into account the current level of development, economic growth, population or industrialisation by developing countries⁹. It is understandable therefore that the IBSA member states and China have insisted on climate equity in the UNFCCC negotiations. India and China support an “equal per-capita basis with accounting for historical responsibility” in the international negotiations. South Africa, with one of the highest emissions per capita ratios in the developing countries, insists more on National Appropriate Mitigation Actions (NAMAs) – taking developing countries economic and development levels into account.

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Stringent mitigation commitments are often seen in tension with development priorities, as the majority of emissions from the developing world are derived from the energy and transport sectors, both of which are essential to sustain national economic development. Electricity produced from fossil fuels (such as coal, which is found in relative abundance in many African and Asian countries) produces high GHG emissions, but provides power at a comparatively low cost.¹⁰ South Africa’s most profitable sectors are, for example, highly carbon-intensive, and 90 per cent of its electricity production is from coal. Changing South

9 | The now developed countries emitted three times as much fossil-fuel CO₂ between 1850 and 2002 as did the now developing countries (Baumert, Herzog et al., 2005). Developed countries have reached their targets of development and industrialisation without carbon constraints. Developing countries need the space to develop to meet the basic needs of their populations.

10 | The current level of proven coal reserves worldwide stands at roughly 850 billion tonnes, about 50 billion of which occur in Africa. Coal is much more widely distributed geographically than any other fossil fuel.

Africa's development path to one that is more carbon-efficient would be extremely costly, and present numerous challenges in the security of short-term electricity supply.

This apparent conflict between the needs of addressing climate change and fostering development objectives therefore presents a dilemma for democratic governance throughout the developing world, as the body politic in each country will have to agree to pay hefty initial costs for mitigation and adaptation programmes, with a view to reaping long-term gains. This will require leaders to

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look beyond electoral cycles and educate their communities – particularly those most vulnerable. It is thus imperative that efforts to mitigate and adapt to climate variability should be presented as complementary to the broader economic agendas of developing countries, and that they should not be seen as impeding wider development objectives. As the Institute of Development Studies reasons, "if climate change policies are to have any chance of achieving the political support from leaders necessary for implementation, climate policies will have to be 'development-led'".¹¹

For these reasons and others it is important for developing countries to look for areas of cooperation on climate change that promotes economic development. They therefore need to take advantage of the economic opportunities apparent in a path towards a low carbon trajectory. This would mean collectively investing in the research and development of clean energy projects through the transfer of renewable sources of energy and clean technologies.

DEVELOPING COUNTRIES COLLABORATION ON AN ADAPTATION AGENDA

Irrelevant of the negotiated outcomes that succeed the Kyoto Protocol, all countries will need to adapt to the changes that a global warming climate will force on them. Mitigation efforts cannot exist alone and must be complemented by adaptation measures. Adaptation refers to the various means used to address the vulnerability of

11 | Institute for Development Studies, "Climate change adaptation", *IDS In-Focus*, 2, November 2007.

developing countries to climatic changes and its associated effects, both in the present and the future.¹² As noted earlier, particularly within the LDC context, a country's vulnerability depends not only on climate variability itself, but also on its government's ability to increase efficiency in the usage of natural resources and energy supplies. Financial, technical and institutional support and capacity-building are often needed to assist poor nations to switch to more sustainable development pathways. While cost estimates are rudimentary and subject to uncertainty in the cases of individual countries, even the most conservative figures estimate a loss of 0-3 per cent of global gross domestic product (GDP) annually by the time the temperature has risen 2-3 degrees Celsius.¹³ According to the *Stern Review*, inaction – that is, not taking any steps towards adaptation – could cost up to five trillion U.S. Dollar globally. Stern further predicts that the losses incurred if high-emission countries continue with a 'business as usual' approach could reach 5-20 per cent of world GDP annually.¹⁴

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Developing countries (particularly the Small Island and Least Developed Countries) are the most vulnerable to these impacts, and most of them are already facing climate-related stresses, such as an increase in water scarcity and vector-borne diseases, an increase in the frequency and intensity of extreme weather conditions, unpredictability in rainfall and a decrease in crop yields. As a result, all developing countries will need to build the capacity of their national and regional governments to address these climate risks, by inter alia, ensuring better water management, promoting agricultural development and developing more effective disaster management and early warning systems. Sharing knowledge on best practice adaptation strategies can be crucial for urban planning and the construction of climate-resilient infrastructure.

12 | Romy Chevallier, "Integrating adaptation into development strategies: The Southern African perspective in Climate and Development," *Earthscan*, Vol. 2, Issue 2, 2010, 191-193.

13 | John Llewellyn, *The Business of Climate Change: Challenges and Opportunities*, Lehman Brothers, February 2007, http://lehman.com/press/pdf_2007/TheBusinessOfClimateChange.pdf (accessed March 8, 2011).

14 | Nicholas Stern, *Stern Review on the Economics of Climate Change* (London, Cambridge, 2006).

Effective adaptation of the kind required is costly and involves not only significant investment in research, awareness-raising and capacity-building, but practical measures such as the 'climate-proofing' of infrastructure projects. Adaptation therefore requires substantial and predictable financial support from partners to help meet the additional costs. According to a 'guesstimate' by the UN Development Programme's (UNDP) Human Development Report, poor countries may need as much as 86 billion U.S. Dollar a year in additional financing by 2015 to help them adapt to the consequences of climate change.¹⁵ The report also states that in the same period "at least 44 billion U.S. Dollar will be required annually for the climate-proofing of development investments".¹⁶ This

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adds to the financial and human burden on the already strained resources of developing economies. The international response to climate change adaptation has thus far fallen short on all fronts. Several dedicated multi-lateral financing mechanisms have been created but only limited amounts have been paid out by these mechanisms.

To date, IBSA has been vocal on the urgency of this matter and the inadequate response thus far from the North. It is important that they remain engaged in this regard and that they collectively call for improved commitments by developed nations to move the debate beyond rhetoric, and instead set out specific obligations on the donor community and stringent time frames for implementation in recipient countries. IBSA could lead the discussion on adaptation financing by voluntarily making a financial contribution to the Adaptation Fund (which essentially contributes to the development in their respective regions). IBSA could also potentially use its existing Development Fund to highlight areas of co-benefit – while pursuing development-related projects. It will deal with issues related to climate adaptation.

15 | UNDP, n. 2, 194.

16 | Ibid., "Summary", 25; these are 2005 figures.

Table 1

Voluntary pledges to the Copenhagen Accord by countries

India	20-25 per cent reduction in carbon intensity (carbon dioxide emissions per unit of GDP) by 2020 in comparison to 2005 levels
South Africa	Reduce emissions by 34 per cent and 42 per cent below B.A.U for 2020 and 2025 respectively (conditional of funding)
Brazil	Reduce emissions by 39 per cent by 2020 compared with B.A.U

Source: UNFCCC website. Nationally appropriate mitigation actions of developing country Parties. 2010. <http://unfccc.int/home/items/5265.php> (accessed March 8, 2011)

KEY DEVELOPING COUNTRIES AND THEIR FUTURE ROLE A GLOBAL CLIMATE CHANGE REGIME

Despite the common challenge of climate change, countries act and react to the negotiations primarily from a national standpoint. It would be naïve to expect countries to be driven by anything less than domestic stakeholders, national interests and local realities. Therefore in order to make progress in coalitions of climate change and to advance the global agenda in this regard, it is perhaps practical to focus on the less contentious issues and to make progress first on “low-hanging fruit” areas. Common positions can be forged at a myriad of levels, on a number of issues, to show tangible and concrete effort towards achieving a common goal, while gathering momentum. Many countries in Africa, for example, are still dependent on fossil fuels for their primary source of their electricity supply. These countries can gain tremendous experience from participating in cooperative alliances with industrialised countries, especially when attempting to reform their energy policies through renewable energy and carbon efficient technologies. Large developing countries have also shown initiative and demonstrated progress towards a low-carbon future, fast becoming important

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manufacturers of renewable energy technologies. Developing countries have also inscribed voluntary emission reduction commitments (Table 1) and are in the process of developing national plans to implement mitigation actions, including further renewable energy targets (Table 2).

Table 2

**Renewable energy targets implemented
in selected developing countries**

Country	Renewable Target	Progress
India	10 per cent of power generation by 2012	On track to meet or exceed RE target, having already achieved 8 per cent in 2009
Brazil	Maintain 46 per cent by 2020	Maintain this share
China	10 per cent by 2010 and 15 per cent by 2020	By 2006 having achieved 8 per cent of its primary energy production from RE. Now scaling up wind and solar to meet these goals

Source: Renewables 2007: Global Status Report and REN21: RE Policy Network for 21st Century (2007)

India

With 17 per cent of the world's population, India contributes only 4.6 per cent of the world's GHG emissions and its per capita emissions of 1.5 tonnes carbon dioxide equivalent are far below the world average. However, in absolute terms India is the fourth largest emitter and emissions are quickly increasing to rapid economic growth, population expansion and urbanisation.¹⁷ Coal is the mainstay of India's energy economy, and coal-based power plants account for two-thirds of the total electric generation installed capacity of 135,000 MW. In 2003-2004 coal accounted for 62 per cent of India's share of energy production, while oil accounted for only 36 per cent.¹⁸

17 | WWF Report 2010, *Emerging Economies: How the developing world is starting a new era of climate change leadership*, November 2010, http://assets.panda.org/downloads/emerging_economies_report_nov_2010.pdf (accessed March 25, 2011).

18 | Climate Brief 2, *India's Climate Change Policy and Trade Concerns: Issues, Barriers and Solutions*, Centre for Trade and Development.

India has made progress towards climate-friendly measures, particularly in the area of renewable energy and clean coal technology. Today, India has the fourth largest installed wind capacity in the world, currently producing 7,000 MW of wind energy.¹⁹ In 2009, renewable energy power accounted for more than 8 per cent of the total power generation capacity in India.²⁰ The Indian government has also been seen to be proactive in terms of using market mechanisms and incentive schemes to encourage independent power producers to feed on to the national grid. The necessary regulatory policies have been put in place to facilitate this movement and encourage the reduction of India's energy intensity by 20 per cent per unit of GDP between 2007-2008 and 2016-2017 as stated in the 11th Five Year Plan (2006-2012). In mid 2008 India also adopted an ambitious National Action Plan on Climate Change (NAPCC) on mitigation, adaptation and strategic knowledge integration.²¹

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However, like South Africa, India's government is determined that its national climate and energy-related policies are to have no adverse impact on its GDP growth. India still experiences severe developmental challenges with approximately 55 per cent of India's population still without access to commercial energy (600 million people) and 70 per cent of the Indian population still cook with traditional biomass.²² It is expected that economic growth will bring a transition to these sources of household energy and that as a result India's emissions from power generation are expected to increase six-fold by 2030²³ as India's service sector expands substantially.

19 | "India: Addressing Energy Security and Climate Change," Ministry of Environment and Forests and Ministry of Power Bureau of Energy Efficiency, Government of India, 10/2007.

20 | WWF Report 2010, n. 16.

21 | Prasad and Kochhner, "Climate change and India – Some major issues and policy implications," Department of Economic Affairs and Ministry of Finance, Government of India, Working Paper No. 2/2009-DEA, March 2009.

22 | E. Somanathan, "What do we expect from an international climate agreement? A perspective from a low-income country," December 2008, Discussion Paper 08-27, 11, The Harvard Project on International Climate Agreements, Harvard Kennedy School, Indian Statistical Institute.

23 | "Melting Asia-China, India and climate change," *The Economist* (U.S.), June 5, 2008.

Brazil

Brazil's energy sector contributes little to the country's GHG emissions, with low emissions intensity for electricity generation due to the extensive use of hydropower. Three-quarters of its emissions result from deforestation and unsustainable land use – as agricultural frontiers expand mainly in the Amazon region. Land use in this regard is mainly for large soybean plantations and cattle rearing. Brazil's emissions from raising cattle are also substantial. As a result, energy emissions per person are relatively low (1.8 per cent in 2004).²⁴

Brazil argues that a country's responsibility for climate change is closely related to the historical contributions to the global temperature increase.

Brazil maintains that annual emissions should not be seen as a proxy for a country's responsibility for climate change. This responsibility, it argues, is more closely related to the historical contributions of economies to the global temperature increase – since CO₂ remains in the atmosphere for more than one century on average. As a result, in international negotiations, Brazil has refused to accept emission targets before the middle of the century.

Nevertheless, Brazil has developed a National Plan for Climate Change (PNMC) in December 2008 as well as an impressive track record in the renewable energies sector. According to Brazil's Ministry of Mines and Energy, 46 per cent of Brazil's primary energy is generated from renewable sources. In 2002, the Brazilian Congress approved a law aiming to establish a compulsory market for renewable energy. The programme called PROINFA helps independent power producers feed power from renewables into the national electricity grid (including electricity-generating capacity based on biomass, small hydro power plants and wind power). This coupled with President Lula's incentives to increase the attractiveness of private investment in hydropower-generation, has resulted in 85 per cent of Brazil's electricity generation from hydropower.²⁵ Brazil's

24 | However, Brazil's industrial emissions are relatively carbon intensive – as iron and steel, cement, aluminum, chemical, petrochemical, pulp and paper, transportation are its main contributing sectors and they are heavily reliant on fossil fuels.

25 | International Energy Outlook 2010, U.S. Energy Information Administration, <http://eia.doe.gov/oiaf/ieo/electricity.html> (accessed March 25, 2011).

National Ethanol Programme has also become the largest commercial application of biomass for producing and using energy in the world. This Programme demonstrates the feasibility of large-scale ethanol production from sugarcane in producing automotive fuels.²⁶

Brazil, home to one of the greatest ecosystems and forests (carbon sink) of the planet, has established a multi-agency program to combat the deforestation of the Amazon using a satellite monitoring system. From 2005-2007 this resulted in a 52 per cent reduction of the rate of deforestation.²⁷ Brazil has also adopted a National Plan for the Prevention and Combat of Deforestation which aims to reduce deforestation in the Amazon region by 70 per cent by 2017.²⁸

South Africa

South Africa is the 13th largest carbon dioxide emitter globally (from energy related CO₂) with emissions per capita ratio only slightly below industrialised countries, and well above the developing country average. Emissions from energy supply and use constitute by far the largest part of South Africa's total emissions (91 per cent) – 40 per cent of these emissions accounted for by electricity generation from Eskom's coal-fired stations.²⁹ Coal is the backbone of the economy of South African, the fourth largest coal producer in the world.

Emissions from energy supply and use constitute by far the largest part of South Africa's total emissions. Coal is the backbone of the country's economy.

26 | La Rovere and Pereira, "Brazil and Climate Change: a country profile," *Policy Briefs*, Science and Development Network, February 14, 2007, <http://www.scidev.net/en/policy-briefs/brazil-climate-change-a-country-profile.html> (accessed March 18, 2011).

27 | This forms part of a speech "Climate Change as a Global Challenge" delivered by the Director-General of the Department of the Environment and Special Themes of the Ministry of External Relation, Minister Machado, Embassy of Brazil in London. 'Climate Change Policy', August 2007.

28 | It must be noted that the deforestation is not a priority for other IBSA countries. While forests make up 57.2 per cent of Brazil's total land, they only make up 21.2 per cent of China's total land, 22.8 per cent of India's, 33.7 per cent of Mexico's and 7.6 per cent of South Africa's (FOA, 2006, Global Forest Resources Assessment 2005, Rome).

29 | Eskom, Annual Report 2008, http://financialresults.co.za/eskom_ar2008/ar_2008/downloads/eskom_ar2008.pdf (accessed March 25, 2011).

South Africa has produced a Long-Term Mitigation Scenario's response (LTMS), initiated in 2006, aimed to formulate a long-term climate policy for South Africa and an appropriate framework for climate action, based on the most effective mitigation options available. This study resulted in various scenarios and strategic options for South Africa, and also considered mitigation potentials and cost-effectiveness of different interventions. In July 2008, South Africa's cabinet considered the outputs of the LTMS work and adopted a National Climate Framework laying out the government's vision, strategic direction and framework for long-term climate policy. The framework commits the government to a "peak, plateau and decline" trajectory for the country's future GHG emissions: an emissions peaking between 2020/25, then stabilising for a decade, before declining in absolute terms towards mid-century (peak, plateau and decline).³⁰ This would include, for example, a change in South Africa's fuel mix as three quarters of South African fuel is dependent on coal.³¹ Its energy mix is currently being debated within its Integrated Resource Plan (IRP II).

Despite these ambitious strategies South Africa places its national poverty reduction strategies as its major concern. For the foreseeable future, at least, South Africa will remain dependant on coal-based electricity. Approximately 27 per cent of its population is still without access to modern energy, and the majority of its emissions are from sectors that are essential to sustain its economic growth and reduce poverty levels. South Africa also supplies electricity to many of its neighbouring countries.

SOUTH-SOUTH COOPERATION IN ADVANCED RESEARCH, SCIENCE AND TECHNOLOGY

At the recent Energy Ministers meeting in May 2009, the Energy Ministers of the G8 and G13 issued a Joint Statement as part of their new International Partnership of

30 | Romy Chevallier, "South Africa's Dilemma: Reconciling Energy-Climate Challenges with Global Climate Responsibilities," chapter 6 in: *Climate Change and Trade: The Challenges for Southern Africa*, SAIIA, 2010.

31 | This culminated in the 2nd National Climate Change Summit of March 2009, with a hope that the LTMS will be translated into a White Paper in November 2009.

Energy Efficiency Cooperation (IPEEC) that calls for “accelerating the demonstration, development and deployment of low-emission energy technologies, including renewable energy sources, smart grid systems and energy storage, refurbishment of power generating facilities and cogeneration, sustainable mobility and low-emission transport vehicles, advancing demonstration of carbon capture and storage (CCS) and nuclear energy”.³² There was a further call for the ‘coordination of efforts in research, development, demonstration and deployment of these low emissions technologies, enabling effective sharing of knowledge on key technologies’, and particularly the promotion of the increased use of renewables. This would include, for example, ‘improving the policy and regulatory framework to boost investment in renewable energies, while promoting their deployment and diffusion throughout all countries’.

Yvo de Boer, former executive secretary of the UNFCCC, says that getting technology transfer policies right must be one of the central planks of a new international climate policy. He mentions CCS in this regard – particularly for countries with a reliance on coal.³³ He also mentions the increased use of renewables but says that we need to design mechanisms that make joint research and development between rich and poor countries possible:

“Both China and India have become major producers of renewable sources of energy, so it’s not a matter of technology being in the North.” (Yvo de Boer)

“Both China and India have become major producers of renewable sources of energy, so it’s not a matter of technology being in the North. It’s more a matter of finding affordable ways for developing countries to get access to that technology.”³⁴

One must be aware, however, that there are substantial economic, social and political hurdles to overcome with the introduction, transfer and dissemination of technology in

32 | Joint Statement by the G8 Energy Ministers, the European Energy Commissioner, the Energy Ministers of Brazil, China, Egypt, India, Korea, Mexico, Saudi Arabia, and South Africa. Session I, Italy, May 2009.

33 | “Carbon Capture and Storage Bulletin: A summary of the High-level conference on fighting climate change with carbon capture and storage,” published by the International Institute for Sustainable Development, Vol. 163, No. 1, June 1, 2009.

34 | Interview of Yvo de Boer conducted by Science and Development Network, December 1, 2008.

the developing world. These include the lack of technical capacity to utilise introduced technologies, lack of appropriate laws and regulations, defective administrative structures, and insufficiently developed market conditions.³⁵ Also, those that own the technology need to be protected by appropriate intellectual property rights. An international arbitration or insurance scheme must be set up in the IBSA countries in order to guarantee technology holders' their rights.

SEIZING OPPORTUNITIES FROM THE GLOBAL TRANSITION TO A LOW CARBON ECONOMY

In order to promote the participation of various stakeholders, particularly in the developing world, it is imperative to emphasise the economic opportunities offered by mitigation and adaptation projects, for example by emphasising the profitability of the environmental goods and services industry (which includes renewable resources and energy-efficient technology), as well as through Clean Development Mechanism projects. Southern leaders and businesspeople are largely unaware that this industry is worth approximately 600 billion U.S. Dollar globally, and is growing at a rapid rate. Also, its strong potential for job creation generally outperforms that of traditional energy and carbon-intensive industries. Clean technology is positioned to become the fifth largest sector in terms of job creation and investment.³⁶ In Germany,

If South Africa reaches 15 per cent generating capacity from renewable energy, it will create 34,000 direct jobs by 2020.

for example, wind farms are estimated to have created 40,000 jobs. It has also been estimated that if South Africa reaches 15 per cent generating capacity from renewable energy, it will create 34,000 direct jobs by 2020. While generating 5,700 MW of solar photovoltaic power would create 680 full-time jobs and 8,800 construction jobs.

The International Energy Agency estimates that about 45 trillion U.S. Dollar will be needed to develop and deploy

35 | "Energy efficiency, technology and climate change: The Japanese experience," chapter 8 in "Climate Change negotiations: Can Asia change the game?," Loh, Stevenson and Tay (eds.), Civic Exchange 2008.

36 | L. Tyrer, "Rough Road: South Africa's path on the steep and rocky road to Copenhagen," *Engineering News*, February 20-26, 2009, 84.

new, clean technologies between now and 2050. Although the number of cleaner and more energy-efficient coal-fired generation plants and the retirement of fuel sources using older technologies has accelerated over the past few years, especially in the developed world, much more needs to be done to promote the rapid diffusion of technology. This would make existing sources of renewable energy economically viable, and a more feasible option for the developing world.

Genuine cooperative technology transfer between developing countries is therefore essential. Investments need to be targeted to areas of under-funded ICT research, in fields such as agricultural production, environmental management and public health. One important goal of strengthening the scientific and technology policy in developing countries is the generation of new goods and services that can improve carbon reduction. Stimulating the low carbon technology industry is one way to achieve commercialization of research and development.³⁷

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In 2006 IBSA countries established a joint IBSA Science and Technology Fund in which each member state allocated one million U.S. Dollar for collaborative activities.³⁸ To date, activities have included a limited number of research fields: medical and pharmaceutical research (especially in HIV, malaria and tuberculosis); nanotechnology, biotechnology and oceanography. Some of these research areas clearly already overlap with climate change priorities and could provide a co-benefit approach to environmental sustainability more broadly. However, funding could specifically be dedicated to research on low-carbon technologies and renewables.

A further example of 'seizing opportunities' is provided by the Clean Development Mechanism (CDM), which was established by the UNFCCC to channel finance to renewable energy initiatives in developing countries. CDM projects are designed to earn carbon credits for investors who reduce

37 | Juma, Gitta, DiSenso and Bruce. "Forging New technology alliances: the role of South South cooperation", 2005, 59.

38 | Cf. The India-Brazil-South Africa Dialogue Forum, IBSA Trilateral Official website, <http://www.ibsa-trilateral.org> (accessed March 25, 2011).

carbon emissions in developing countries. This credit scheme stimulates sustainable development and emission reductions while simultaneously giving industrialised countries some flexibility in how they meet their emission limitation targets (as stipulated in the Kyoto Protocol). It also offers developing countries that host CDMs the opportunity to seek private and public sector investment, build capacity and capability, and gain experience in areas such as the transfer of technology.

The high emission levels in all IBSA member states, and other developing economies, make them attractive candidate countries for CDM projects, which could move the energy sector into lower emissions intensity and encourage technology transfer.³⁹

According to the UNFCCC, in 2010, there were 2,453 registered CDM project activities globally. Of these, China accounts for 41 per cent, India 22 per cent, Brazil seven per cent, and Mexico five per cent.⁴⁰ It can therefore be said that China, India, Brazil and Mexico are the leading host countries for CDM projects with a combined share of 75 per cent of the total project pipeline. If one analyses the list of top 20 developing countries in terms of number of hosting CDM projects, South Africa is the only country from the African continent represented on the list. Africa in its entirety only hosts two per cent of all CDM projects. One of the reasons for this is that CDM project cycles are complex and require extensive knowledge on project design and formulation, validation, registration, project financing, monitoring, verification and certification. Because India and China have made substantial progress in this regard they could assist South Africa and the African continent more broadly, with technical expertise and capacity building experience – to realise similar opportunities from this flexible mechanism.⁴¹

39 | According to the Brazilian Embassy in London, “it was Brazil that took the initiative to introduce the CDM as part of the Kyoto Protocol”.

40 | Clean Development Mechanism, United Nations Framework Convention on Climate Change (UNFCCC)’s Executive Board Annual Report, 2010, “Registered project activities by host party and region”.

41 | European Union Sixth Framework Programme. The Potential of Transferring and Implementing Sustainable Energy Technologies through the Clean Development Mechanism of the Kyoto Protocol: CDM State of Play, November 2008.

Critics of the CDM note that it is not in the interest of the environment to grant CDMs to large developing countries with a particular stage of economic development. For example, cuts in emissions due to current CDM projects contribute, albeit a small amount, to China's energy-saving goals, but does not decrease its coal emissions and reliance. With China and India, which together host 90 per cent of the entire global CDM wind energy project pipeline⁴², improving the geographical distribution is also on the agenda. It has also been shown that in some countries a few technologies are clearly dominant (e.g. hydro, wind power and 'energy efficiency own generation' in China; biomass energy and wind energy in India; landfill gas capture in Brazil), whereas these technologies are lagging behind in other countries. Generally, it is assumed that the distribution of projects among host countries is largely determined by the potential for (large-scale) GHG emission reductions at relatively low costs and by how smoothly a country's CDM institutional procedures function. Clearly countries with smooth DNA procedures and efficient project activities are more attractive to do CDM business with.⁴³

The distribution of projects among host countries is largely determined by the potential for (large-scale) GHG emission reductions at relatively low costs.

WESTERN PARTNERS CANNOT BE EXCLUDED

A successful global climate change regime post-2012 is dependant on the inclusion of all big emitters and all those experiencing climate change impacts. In terms of global mitigation action, political clout and developing country collaboration is necessary to take up more stringent mitigation commitments.

The importance of North-South partnerships cannot be ignored as the developed world's initial experience on promoting energy efficiency can provide valuable background for countries attempting to reform their energy policies.⁴⁴ Many technologies based on resource endowments of developing countries (e.g. biomass) do not yet exist, or are too expensive. Collaborative research and development

42 | European Union's Sixth Framework Programme, "CDM State of Play," ENTTRANS, November 2008.

43 | Ibid.

44 | Juma, Gitta, DiSenso and Bruce, "Forging New technology alliances: the role of South South cooperation," 2005, 59.

(R&D) between developing and developed country R&D institutions is necessary to address this gap.

CONCLUSION

The IBSA member states face similar challenges when it comes to their vulnerability to the impacts of climate change, the challenge of addressing mitigation while ensuring economic development (especially considering the drivers for energy demand are economic growth, population growth and technological changes), as well as re-focusing their industrial policy and investment strategy on low- and zero-carbon sectors of the economy – while at the same time retaining their competitiveness in the global economy. The question then is how IBSA countries

IBSA countries’ “development plans” under a conventional, fossil-fuel energy path must be deviated from a ‘Business as Usual’ approach.

redefine their competitive advantage from attracting energy-intensive sectors on the basis of cheap but dirty electricity, to building a new advantage around climate-friendly technologies and systems. In order for this to be successfully achieved, IBSA countries’ “development plans” under a conventional, fossil-fuel energy path must be deviated from a ‘Business as Usual’ approach. However, this needs to be done without jeopardizing the growth trajectories of countries still dealing with substantial development challenges. A practical example is how member states prevent deforestation in the light of extreme poverty and limited land usage, or how individual countries expand their energy mix to include more energy efficient technologies, in light of an abundance of cheap coal.

The IBSA dialogue pillar on climate change could focus on sectors in which developing countries would see significant benefits from emissions cuts, such as in the energy conservation of building, transport and industry, technical progress in agriculture and reforestation. There should also be more substantial research and development on the potential economic scenarios of transferring from cheaper fossil fuels to low-carbon/carbon-neutral energy sources. Cooperation on practical projects would also be advantageous in order to initiate momentum between IBSA member countries – at all levels – including the buy-in from local communities. This could involve, for example, replacing traditional stoves in African and Asian countries

with low-soot varieties that do not pose health and environmental risks. Studies in India have shown that new stoves cost around 20 U.S. Dollar to make and produce 90 per cent less soot.⁴⁵

IBSA members have all made progress on particular areas of climate change and energy policy and should therefore lead the discussion and technical expertise in this regard. Brazil, for example, has made headway on the promotion of renewable energy sources for fuel mix with ethanol, which has great potential to grow and be transferred to others with a similar emissions profile.⁴⁶ Brazil also has large hydro energy sources which is a model that can be studied by South African and India. It has also made headway in terms of reducing deforestation and preserving its indigenous rainforests. India's disaster relief actions are a model others can follow. India has also made headway in the renewables sector, particularly on wind and solar energy. South Africa on the other hand is vocal on adaptation and has taken the lead in its region in producing economic scenarios for a low-carbon trajectory. It also has been proactive on research and development of CCS technologies, as well as in gathering climate data for the southern hemisphere through the development of a coupled global climate model.

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Other arenas of potential cooperation between developing countries are in building and implementing CDM projects. The key lies in building capacity in host countries to design and implement effective CDM project, and in improving rules and incentives for developed countries to invest in key sectors and regions. China and India have seen exponential growth in CDM projects since 2005, and their experience clearly indicates that capacity building is the

45 | "Climate salvation from low-soot stoves?", *International Herald Tribune*, April 17, 2009.

46 | However, it is important to note that Brazil's bio-fuel industry is not necessary applicable to India or South Africa – Brazil, for example, can support a viable bio-fuel industry without taxpayer subsidies. In contrast, most others countries cannot. According to Runnalls from the International Institute for Sustainable Development 'Bio-fuels are not the answer' (May 2009) bio-fuels require subsidies of between 50-70 cents per litre to replace a litre of fossil fuel, almost as much as the cost of a litre of regular gasoline.

key to jumpstarting CDM projects and that extensive investment is important in realizing CDM benefits. These experiences are key to South Africa (and its broader region), as well as to Brazil.

Despite access to the actual technology, developing countries need to invest in the access to skills, know-how and capital that can help them use, reproduce and adapt to clean technologies. This would mean that dialogue should extend beyond researchers and government officials to include engineers, technical experts, and representatives from commercial firms in the private sector. More collaboration is needed at all levels, and scientists must work more closely with utilities, steelmakers, and others to ensure that design meshes with function.

Another area of potential IBSA cooperation is on the adaptation agenda. IBSA states are still grappling to understand the full impact of climate change on their communities and therefore need to undertake vulnerability assessments at the national and regional level, as well as to promote evidence-based analysis and research. However this could also be done as a collective study, showing the vulnerability of poor nations. There is also a lack of exchange of information on disaster preparedness and extreme events between Southern countries, as well as a lack of exchange of meteorological data and climate information. IBSA countries need to cooperate further on this, by attracting focused financial resources in this regard and in sharing information and data.

The UNFCCC negotiations provide IBSA with a perfect opportunity for mutual consultation in climate change. IBSA (whether alone or through the BASIC alliance) needs to make use of their political weight and collective position to push certain key issues in the negotiations forward (including the two-track approach), for the developing world in general, but most specifically for the LCD's in their respective regions. South Africa's role as the Chair of the Conference of Parties meeting also presents various opportunities for Africa and the developing world at large.