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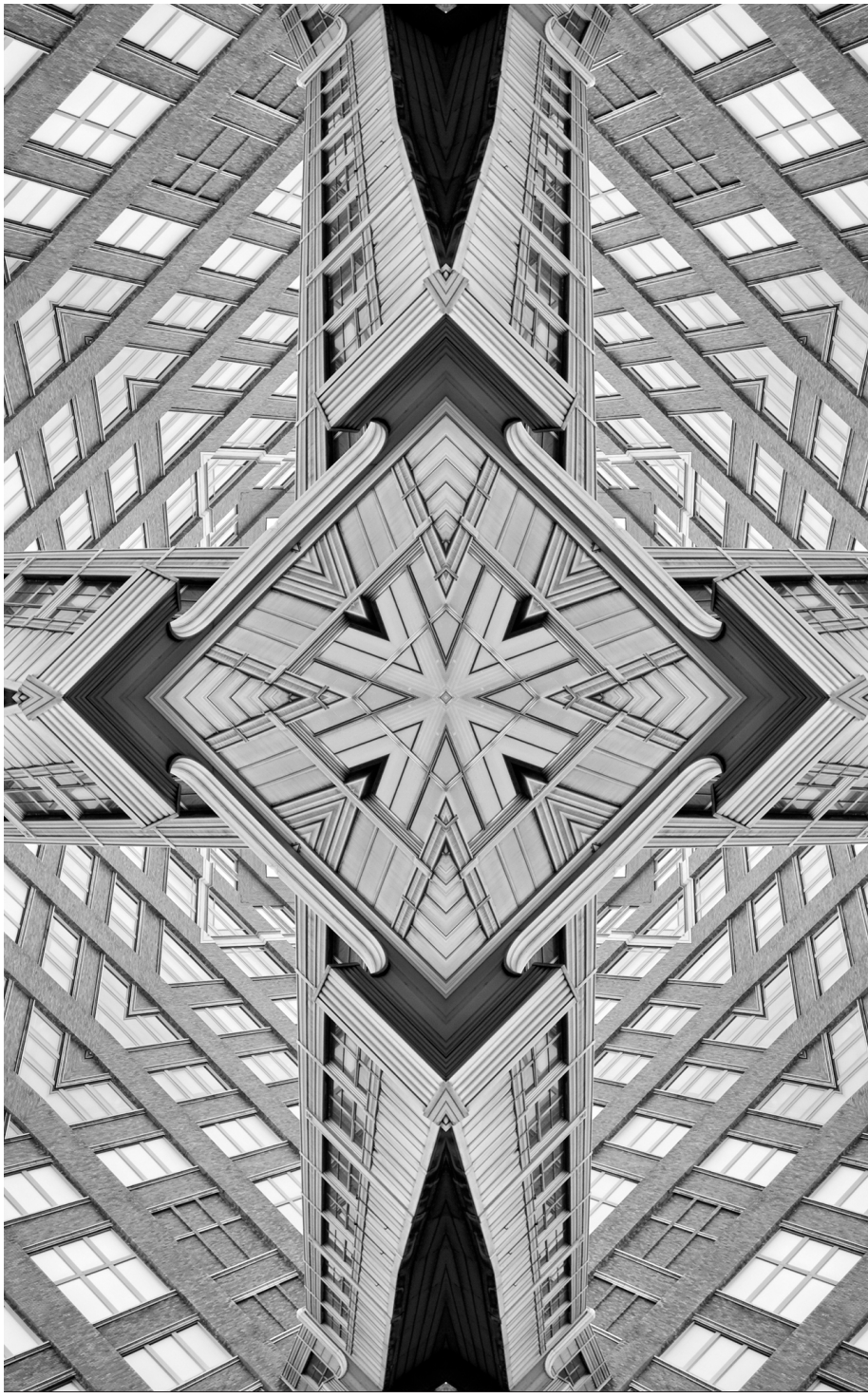

The Future of Climate Action: In Search of a United Global South

Rodrigo Fracalossi de Moraes

Abstract

Economic growth has historically been dependent on fossil fuels. Climate change mitigation, therefore, is often an obstacle for developing countries. Although efficiency in the use of energy sources has increased dramatically over the last decades, GHG emissions remain at steep levels. This brief argues that developed countries should increase pressures on the Global North for more robust emission cuts and greater provision of aid related to climate change mitigation and adaptation. They should also seek to turn the principle of 'common but differentiated responsibilities' into a largely accepted social norm.

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Introduction

Average global temperatures have increased by 1.07° C (0.8–1.3; likely range) relative to the 1850-1900 average—[1] a growing trend that is likely to persist over the next few decades. Preventing further social and economic damage because of climate change requires costly mitigation and adaptation policies and technologies. Developing countries often argue that the wealthier countries should incur these costs proportionally given how, historically, their drive for industrialisation and economic growth was the main source of CO_2 that accumulated in the atmosphere. Such a position draws on the principles of equity and fairness, and more specifically, the "polluter pays" notion; the international community agreed on these principles at the 1992 United Nations Conference on Environment and Development or Rio Summit and formalised the notion of *common but differentiated responsibilities*.

At the same time, there is increasing pressure on developing countries to cut their own greenhouse gas (GHG) emissions and collaborate more decisively in tackling climate change. There are at least two reasons for this: the massive economic growth of a few large developing countries over the last three decades (especially China and India); and the domestic opposition in rich countries against GHG emission cuts being prescribed only for the developed world. Therefore, requiring only the wealthy countries to cut their GHG emissions is politically non-feasible and also yields fewer effective results in mitigating climate change.

To be sure, the pressure to cut GHG emissions is stronger on China compared to its compatriots at BRICS, or the grouping of Brazil, Russia, India, China, and South Africa. However, all five countries have strong shared interests on this issue. No large country has achieved high levels of development without burning substantial amounts of fossil fuel. Therefore, promoting growth while working to mitigate (and adapt to) climate change is a relatively new agenda. Developing countries must find a way to leapfrog fossil fuel energy as a development instrument and jump straight into renewable energy sources while expanding energy infrastructure. But how can development *and* cutting GHG emissions be achieved simultaneously? How should emission rights be distributed? And to what extent should developed countries compensate the rest of the world for past emissions?

Introduction

At one end of the spectrum of possibilities is the "grandfathering emission" proposal: "prior emissions increase entitlements to future emissions." From this standpoint, countries will have the right to emit the same percentages of their previous emissions.[2] However, these schemes will end up rewarding rich countries for past emissions and penalising developing ones by entitling them to a relatively small percentage of emissions. This proposal also fails to consider that in welfare terms, the marginal benefit of a raise in income (which are likely to require extra emissions) is larger for the poor. Although "grandfathering" proposals are unfair and politically unfeasible, they are an important reference point of what developing countries should avoid.

At the other end is the proposal to cut GHG emissions based only on per-capita terms—i.e., individuals will be entitled to a certain volume of emissions. While this proposal is fair for giving equivalent rights to people regardless of nationality and their ancestors' behaviour, it is politically unfeasible since it will mean massive GHG cuts (and costs) in rich countries.[3] Moreover, neither proposal tackles the problem of what to do with past emissions; rich countries' emissions are the main cause of current levels of CO_2 in the atmosphere, but they have not paid for the negative externalities they produce.

While developing countries should seek to become carbon-neutral by the years 2050-60, doing so at the same speed as the wealthy countries will likely not be achievable. Developing countries must pressure rich countries to adopt more robust emission cuts and provide compensations for past emissions, which should be allocated for climate change mitigation and adaptation in developing countries. They should also seek to turn the principle of *common but differentiated responsibilities* into a universally accepted norm.

> "No large country has achieved high levels of development without burning substantial amounts of fossil fuel. Promoting growth while mitigating climate change is a relatively new agenda."

Economic Development and Fossil Fuels

The high levels of development achieved by rich countries was largely based on fossil fuel consumption.[4] As this produced severe negative externalities, these countries should compensate others for their past emissions. This could be done by supporting the development goals of poorer countries, or by transferring resources aimed at mitigating and adapting to climate change. Developed countries should also incur the costs of capturing the GHG in the atmosphere that came from their emissions.

Although the GHG emissions of the BRICS countries, especially China, grew substantially over the last three decades, they remain far lower than those of developed countries (in annual and cumulative terms). The G7 countries combined are responsible for 45 percent of CO_2 accumulated emissions, while the BRICS are responsible for 25 percent (notably, the US alone is responsible for 25 percent of CO_2 accumulated emissions). The differences are especially huge in per-capita terms since the G7 is home to as small as 10 percent of the world population, while the BRICS, a much higher 42 percent.

Comparing CO_2 emissions (accumulated and annual) from the G7 and BRICS countries also reveals substantial differences *within* each grouping (see Table 1). For instance, the UK's annual per capita emissions are about half of the US's; Brazil's annual per capita emissions are 40 percent of China's. Also, Russia's annual per capita emissions are higher than those of all countries listed, except for the US and Canada.

> "GHG emissions of BRICS countries, especially China, grew substantially over the last three decades."

Table 1:
CO_2 Accumulated Emissions and Consumption-based Recent Annual Emissions for G7 and BRICS countries

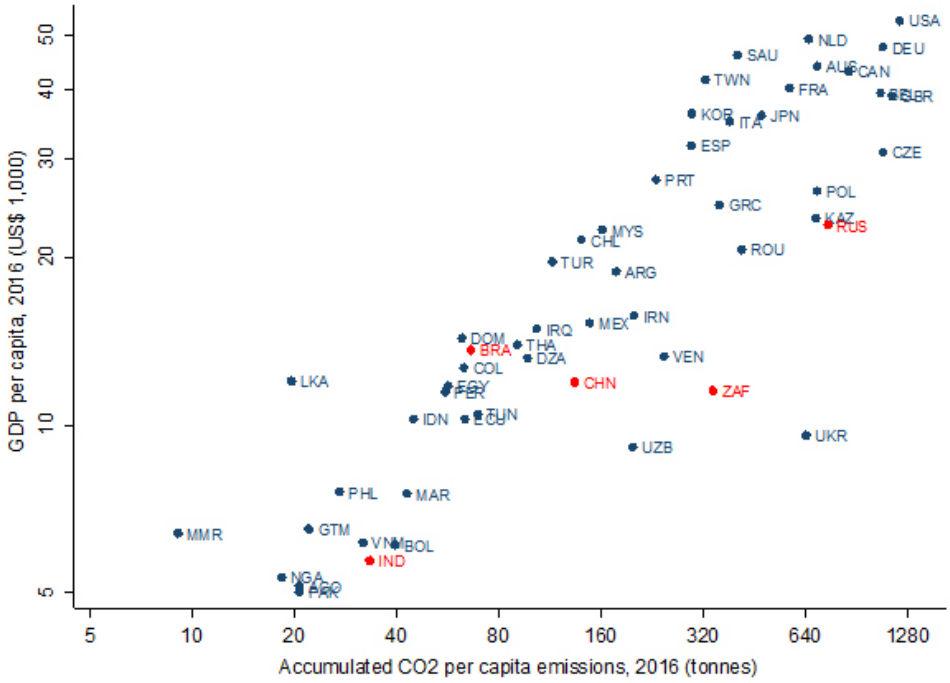
G7				BRICS			
Country	Accumulated (share) *	Annual (share) **	Annual per capita (tonnes of CO_2) ***	Country	Accumulated (share) *	Annual (share) **	Annual per capita (tonnes of CO_2) ***
US	25.1%	16.1%	17.7	China	13.0%	24.3%	6.1
Germany	5.6%	2.5%	10.6	Russia ****	6.9%	4.6%	11.3
UK	4.8%	1.6%	8.4	India	3.1%	6.1%	1.6
Japan	3.9%	3.9%	10.7	S. Africa	1.3%	0.9%	5.9
France	2.3%	1.2%	6.8	Brazil	0.9%	1.5%	2.5
Canada	2.0%	1.6%	16.0	Total ****	25.1%	37.4%	-
Italy	1.5%	1.3%	7.6				
Total	45.2%	28.1%	-				

Source: Our World in Data.

*Note: * until 2018; ** consumption-based, 2014-2018; *** consumption-based, average 2014-2018; **** production-based data for Russia.*

There is a significant relationship between current levels of development (measured by GDP per capita) and accumulated CO_2 emissions (see Figure 1). Data suggests that no large country achieved high levels of development without 'burning' huge amounts of fossil fuel. The data consists of only countries with a population exceeding 10 million and with a GDP per capita above US$5,000.

Figure 1: Cumulative CO_2 Emissions and GDP Per Capita



Source: Our World in Data.

Notes:

- Data is for 2016, as this was the last year with reliable data for both indicators of all these countries.

- BRICS countries marked in red.

- DZA (Algeria); AGO (Angola); ARG (Argentina); AUS (Australia); BEL (Belgium); BOL (Bolivia); BRA (Brazil); CAN (Canada); CHL (Chile); CHN (China); COL (Colombia); CUB (Cuba); CZE (Czechia); DOM (Dominican Republic); ECU (Ecuador); EGY (Egypt); FRA (France); DEU (Germany); GRC (Greece); GTM (Guatemala); IND (India); IDN (Indonesia); IRN (Iran); IRQ (Iraq); ITA (Italy); JPN (Japan); KAZ (Kazakhstan); MYS (Malaysia); MEX (Mexico); MAR (Morocco); MMR (Myanmar); NLD (Netherlands); NGA (Nigeria); PRK (North Korea); PAK (Pakistan); PER (Peru); PHL (Philippines); POL (Poland); PRT (Portugal); ROU (Romania); RUS (Russia); SAU (Saudi Arabia); SOM (Somalia); ZAF (South Africa); KOR (South Korea); SSD (South Sudan); ESP (Spain); LKA (Sri Lanka); TWN (Taiwan); THA (Thailand); TUN (Tunisia); TUR (Turkey); UKR (Ukraine); GBR (United Kingdom); USA (United States); UZB (Uzbekistan); VEN (Venezuela); VNM (Vietnam); ZAF (South Africa).

Economic Development and Fossil Fuels

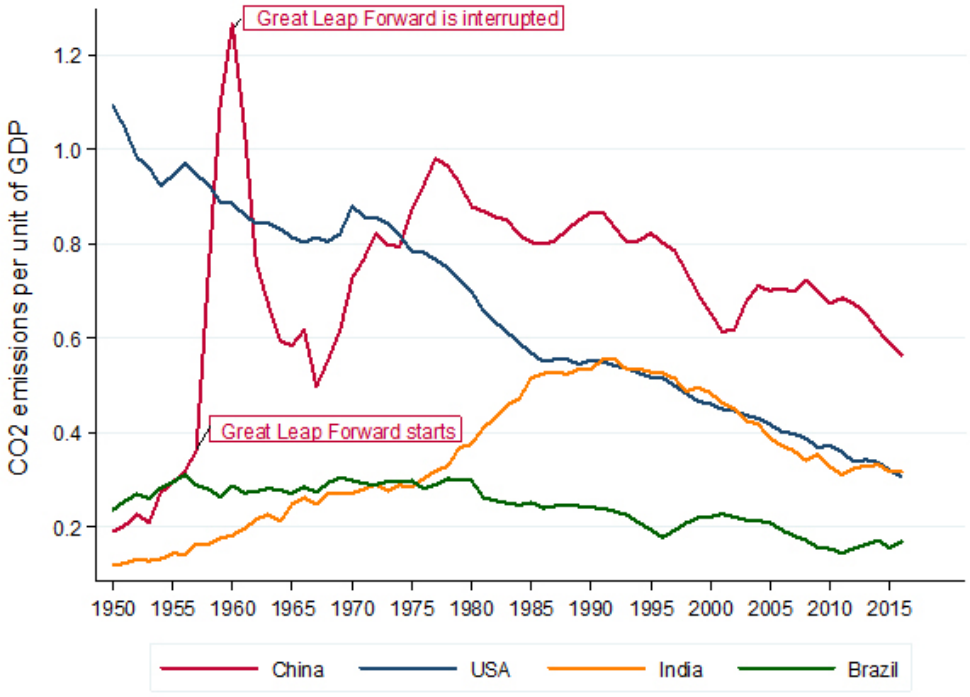
Despite the historical need to use fossil fuels for pursuing development, data shows that some countries achieved levels of development similar to others while burning less fossil fuel (see Figure 1). Certain countries were, therefore, more environmentally efficient in using energy sources than others. For example, Brazil achieved a higher level of development than South Africa while emitting less than one-fifth of its CO_2 in per-capita terms. Figure 1 also shows that a few countries did not 'use' CO_2 emissions as part of a development strategy or were highly inefficient in doing so. Ukraine, for example, emitted as much CO_2 as, if not more than—France and Australia but remains a relatively poor country. South Africa emitted more CO_2 than South Korea and Taiwan but is less developed. Therefore, burning fossil fuel seems *necessary* for development (in historical terms), but is not a *sufficient* factor. Data shows significant differences concerning the use of energy sources to produce long-term wealth. In other words, a country can explore fossil fuels 'purposelessly'—i.e., not using them to promote long-term development.

As additional evidence, a comparison of data on CO_2 annual consumption per unit of GDP produced in Brazil, China, India and the US between the years 1950 and 2016 indicates that Brazil was more efficient in using energy sources for producing wealth than the other countries over almost the whole period (see Figure 2). Also, the environmental efficiency of using energy sources increased in the US since the start of the period analysed. In 1951, producing US$1 billion of GDP in the US required a million tonnes of CO_2, while in 2016, 0.3 million tonnes of CO_2 emissions were required. Also, efficiency increased since the late 1970s in Brazil and China, and since the early 1990s in India.

To be sure, the environmental costs of development are not constant across time (see Figure 2). As energy use became more efficient, countries that developed earlier have a higher carbon footprint than those that developed later. Therefore, the development process of the US had a per-capita carbon footprint that Brazil, China and India will not ever have.

A potential counter-argument against this proposition is based on the Environmental Kuznets Curve, according to which countries consume proportionally more fossil fuel (and thus emit more CO_2) during intermediary levels of development. From this standpoint, the relationship between development and CO_2 emissions is non-monotonic and has an inverted U-shape. The Environmental Kuznets Curve is empirically observed in a few cases, such as China and India (see Figure 2).

Figure 2: CO_2 Emissions Per Unit of GDP Produced (1950-2016)



Note: CO_2 emissions measured per unit of gross domestic product. GDP is adjusted for inflation and cross-country price differences (PPP-adjusted).

Source: Our World in Data.

However, there is little evidence that an inverted U-shape relationship between CO_2 and development remains when controlling for other covariates.[5] Moreover, periods of economic recession tend to reduce the efficiency of CO_2 consumption, as observed in China during the 'Great Leap Forward' era, and Russia in the 1990s.

Despite the increasing efficiency in fossil fuel use, CO_2 global emissions remain extremely high in absolute terms, thus requiring urgent measures to reduce them.

The principle of *common but differentiated responsibilities* is at the core of the position being taken by developing countries on climate change. However, it appears to have lost strength as a normative project since the approval of the Kyoto Protocol in 1997. This was due to the rapid economic growth rates in the developing world and the opposition in rich countries against GHG emission cuts only for the developed world. How should developing countries tackle climate change given that they need to promote development and that fossil fuels have been historically a crucial instrument to produce wealth?

In addition to using their resources to address climate change, developing countries should keep pressuring the developed world for greater support. Rather than only 'aid', contributions from rich countries should, to a great extent, compensate for negative externalities from past emissions. Although there is no detailed data on the volume of resources allocated by rich countries to climate action in the developing world, the Organisation for Economic Co-operation and Development monitors the volumes of resources mobilised for this purpose (see Table 2).

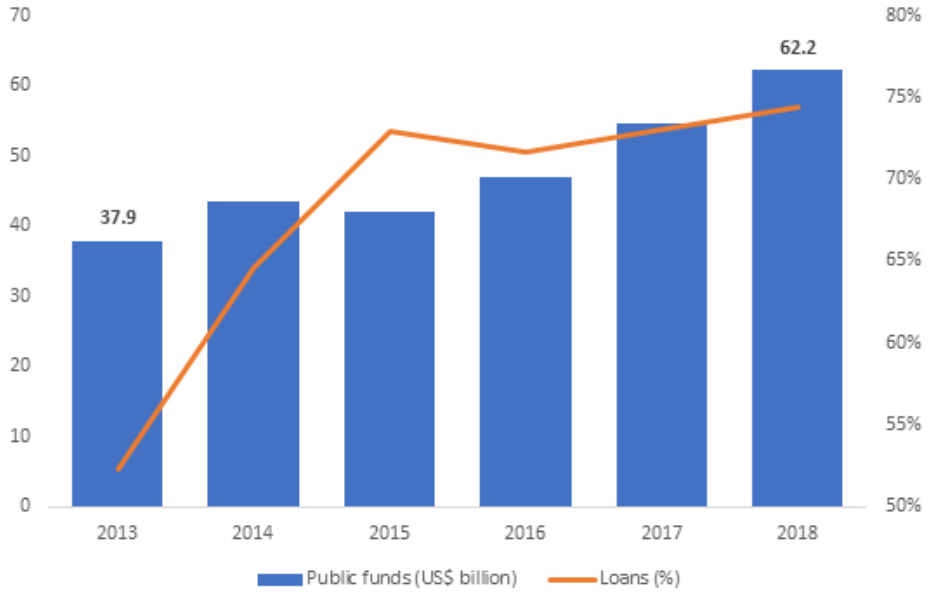
Table 2: Climate Finance Provided and Mobilised by Developed Countries (current US$ billion)

	2013	2014	2015	2016	2017	2018
Public funds	37.9	43.5	42.1	46.9	54.5	62.2
Bilateral	22.5	23.1	25.9	28.0	27.0	32.7
Multilateral	15.5	20.4	16.2	18.9	27.5	29.6
Officially supported export credits	1.6	1.6	2.5	1.5	2.1	2.1
Private funds	12.8	16.7	-	10.1	14.5	14.6
Total	52.2	61.8	-	58.6	71.2	78.9

Source: OECD (2020).

Data shows that public funds through both bilateral and multilateral channels increased consistently over the 2013-2018 period. In 2017-18, funding values were around 43 percent higher than those in 2013-14. However, most of these resources were in loans, whose proportion increased over the period (see Figure 3; absolute values also presented for reference). Although loans are central for climate change mitigation and adaptation, the full compensation for negative externalities should take the form of grants.

Figure 3: Climate Finance Provided and Mobilised by Developed Countries and Percentages of Loans (US$ billion)



Source: OECD (2020).

Therefore, there is a need for greater emphasis on the norm of 'common but differentiated responsibilities' and a more substantive transfer of resources. A potential model is the Amazon Fund (*Fundo Amazônia*) created in 2008 and managed by Brazil's National Development Bank. Through this fund, the governments of Germany and Norway have transferred financial resources to Brazil which were earmarked for projects to conserve the Amazon rainforest. From 2008 to 2018, the Amazon Fund allocated around BRL 1.1 billion (about US$270 million at 2018 values). In 2018, the fund had an additional BRL 1.4 billion (about US$340 million at 2018 values) of projects in the pipeline.[6] A similar framework could be used to fund other types of environmental projects aimed at cutting GHG emissions, which a trustworthy local or regional partner could manage. An oversight mechanism is critical for preventing the misallocation of resources. For instance, it was found that Norwegian aid to prevent deforestation had no effect in reducing degradation and might have even increased it.[7]

Moreover, there have been structural changes in the renewable energy market in recent years that could favour mitigation policies. As more corporations have vested interests in a low-carbon economy, they are more likely to favour policies that promote cuts in GHG emissions. Their behaviour is likely to be reinforced once large carbon-based corporations cease existing or migrate to other activities and sectors.[8] Indeed, companies with 'green capital' have a competitive advantage over others and, consequently, greater incentives to support low-carbon technologies.[9]

Climate mitigation is also a core policy for US President Joe Biden's administration, which is keen to reclaim the country's global leadership role. This will likely mean the US government will allocate substantial resources to expand renewable energy infrastructure.

Conclusion

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If global average temperatures are to be kept below 2°C above pre-industrial levels, CO_2 cumulative emissions should not exceed 3.54 trillion tonnes, more than half of which has already been emitted.[10] However, climate change mitigation and adaptation presents an additional set of problems for developing countries, which must contend with other socio-economic challenges like low productivity, poor infrastructure, lack of affordable housing, and low education levels.

Additional pressures on developing countries (like the BRICS and others) will likely increase over the next few years given their current trajectory—China and India are engines of global economic growth, Russia is seeing a revival as a global power, and concerns over deforestation in Brazil have increased, for example. However, these pressures also imply that developing countries have greater leverage. The BRICS countries and others have become essential participants in global agreements to tackle climate change, giving them a level of power that they lacked at the time of the 1992 Rio Summit.

Developing countries must induce economic growth while promoting sustainable development, and exert pressure on rich countries to take responsibility for their historical emissions, and adopt more targeted commitments on emissions cuts. However, this should certainly not prevent the BRICS countries and other developing economies from adopting measurable, targeted climate change mitigation policies, which are needed because of their growing GHG emissions.

The first movers have an advantage in climate change mitigation; governments and corporations that develop innovative mitigation policies and technologies before others are more likely to benefit from exports and international cooperation. Chinese institutions, for example, are investing heavily in renewable energy research, giving the country an advantage in the international renewable sources market. Similarly, Brazilian institutions dominate technologies related to hydroelectricity and alcohol-based fuels that may be critical for countries that need to leapfrog fossil fuels and promote development through renewable sources.

(This paper is an expanded and updated version of an earlier essay on the subject published in ORF's monograph, 'The Future of BRICS', August 2021.)

Endnotes

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