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TABLE OF

Contents

TABLE OF

Contents

From its very inception, the BRICS Think Tank Council (BTTC) has encouraged and supported many academic publications on topics of critical importance to the BRICS. Since the BRICS chair alternates every year, the BTTC member of the host country takes on the responsibility of initiating new publications in collaboration with the other members. In the past years, we have seen some valuable academic research work being done by the members on behalf of the BTTC.

In 2021, with India as the BRICS chair, the Observer Research Foundation (ORF), the Indian BTTC member, is honoured to bring out this compendium of essays titled 'The Future of BRICS'. We wholeheartedly thank the other BTTC partners for their support and cooperation in realising this objective. We are also grateful to the 20 scholars for their valuable time and effort in producing the essays.

The BRICS agenda covers both intra-BRICS cooperation on a variety of common problems as well as global governance issues. Of these, the following four areas of great contemporary relevance to BRICS were selected for in-depth analysis:

- Multilateralism with the focus on reformed multilateralism. The theme includes reforms of multilateral institutions, questions of global governance and ways of making it more efficient and representative.
- International Security exploring both traditional and non-traditional threats to peace and security. Naturally, terrorism forms a major part of the debate. There are other related issues like the illegal flow of capital, money laundering and violent extremism.
- Digitalisation focusing on a global framework for digital public goods, digital governance and digitalisation for sustainable development. The other aspect is the way to use digitalisation to encourage inclusivity in the growth and development process.
- Climate Change and SDGs to address how the problem of climate change is impacting the realisation of the 2030 Agenda for Sustainable Development. The specific issues discussed include the need for greater climate financing, capacity building and favorable ecosystems for innovation.

One scholar from each of the five BRICS countries has contributed an essay on each of these themes. The different perspectives and nuances that the scholars bring to bear make this compendium a valuable academic work and also acts as an input for policymakers in the five countries in identifying new strategies.
We hope that this compendium will be a valuable addition to the growing body of research and knowledge on BRICS and will encourage further debates and discussions on these themes.

Curator's Note

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Multilateralism

THE BRICS WAY TO Multilateralism AMID CRISIS

SACHIN CHATURVEDI
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The crisis in global multilateral processes (based on the principles and structures of the twentieth century) has been increasingly evident over the last two decades. The crisis has been attributed to several factors, including the increasing complexity of global challenges and the cross-influences across domains that are clearly beyond the scope of the multilateral mechanisms. Another key challenge was the relative successful catch-up by emerging countries, especially in Asia and Latin America. The rise of the BRICS countries triggered an important shift towards multipolarity, putting significant pressure on the existing hegemony in multilateral institutions. Such hegemonic control resulted in ill-designed multilateral institutions that could not fulfil their mandates and did not address the critical flaw of the unequal representation of developing countries. Consequently, fissures and stress were visible in trade, technology, climate change, finance, development, and public health, and some institutions now stand on the verge of a 'collapse'. Despite several efforts over the last two decades to reform multilateral institutions, not much has been achieved towards serving the needs of developing countries and mitigating impending global challenges.[1]

The financial crisis of the 2000s, Brexit, the retreat to protectionism and rise of inward orientation, bilateral trade wars, sanctions, unilateral actions hampering multilateral processes have led to a weakening of public perceptions on multilateralism, a trend that seems irreversible. While global inequalities in access to finance, technology, resource mobilisation and trading capacities are multiplying, climate change and security challenges have also intensified. The unimaginative and conservative approaches to global governance and norm-setting across trade, finance and technology are grossly inadequate to resolve or address the emerging challenges that have recurring frequency with diverse origins. There has to be greater recognition that some of the changes are in fact irreversible and persistent, like the climate change and technological disruptions, with huge ramifications for the present and future generations. An objective assessment of legacy principles (such as common but differentiated responsibility and special and differential treatment provisions) is necessary for these to be relevant in strengthening multilateralism.

The COVID-19 pandemic has given rise to many uncertainties. While multilateral institutions were created to generate consensus to collectively respond to such crisis, the magnitude of the pandemic has overwhelmed these organisations, with delays and indecisions inflicting huge material and human costs. The revival plans being discussed will fail in the absence of goodwill and generosity, and will leave countries and humanity unprepared in terms of recovery crises, both present and future.

The ongoing stalemate at the World Trade Organization (WTO) also highlights a very uncertain global economic outlook. The failure of the rules-based trading order is symbolic of the larger malaise affecting global institutions as trade stands at the intersection of people, prosperity, and planet. Existing global inequalities and the loss of democratic representation and voices will severely affect the perceptions and faith in multilateralism. The carefully crafted architecture of the WTO, however iniquitous in design and genesis, was accepted as a global best practice in collective efforts to enable developing countries to 'catch-up' and generate additional resources for development through trade. While access to finance and technology remained weakly addressed, comparative advantages led to rapid gains in several developing countries. Evidence suggests that such dynamism even went beyond larger and stronger trading powers emerging from the South.[2]

However, over the years, unabated distortionary subsidies by larger trading powers and rich countries, non-tariff barriers, plurilateral preferences beyond most-favoured-nation treatment, the lack of transparency, dumping, freezing of dispute settlement architecture, and the steady erosion of special and differential treatment have meant that 'gains' from trade have been highly skewed in favour of the traditional trading powers. The complexities created by imperfect markets have multiplied with servicification of merchandise and digital trade and blistering technological disruptions. Further, the proliferation of regional trade agreements and free trade agreements has reduced the role and stature of the WTO, which is credited for bringing scattered gains for some countries. However, several new initiatives by developing countries to enhance regional trade, such as the African Continental Free Trade Area, may provide greater support to their voices at multilateral fora, if leveraged for creating capacities.

The role and activities of the World Health Organization (WHO), which has historically played an important role in securing public health, came under intense scrutiny amid the pandemic. The continued challenges faced by poor and developing countries in access to medicines, treatments and vaccine are stark reminders of the existent inequalities. The processes and frameworks in declaring epidemics must be reconsidered to improve the efficiency in early response strategies. The crisis has also put the focus back on the WHO's funding mechanisms to allow greater flexibilities in times of need. Amid renewed calls for WHO reform, any discussion on budget and financing and implementation must include all member countries. India has recommended several measures related to governance and organisational structure to reform the WHO.[3] These include: strengthening the Public Health Emergency of International Concern declaration process; ensuring transparency in funding mechanism and accountability framework; enhancing the response capacities of the WHO and its member states; improving the WHO's governance structure; improving the implementation of international health regulations; providing access to therapeutics, vaccines, and diagnostics; creating a global framework for management of infectious diseases and pandemics; and enhancing the role of 'hosted partnerships' in pandemic management.

A CHANGING WORLD ORDER

Given the sub-optimum cumulative voting share of the BRICS at the IMF (in comparison to the collective economic strength of the five member countries), the grouping's role in re-shaping global economic affairs has been curtailed.[4] Traditional power centres like the G7 have consistently ignored the BRICS due to weak institution- and coalition-building efforts across the two groups. Mere hobnobbing at summits is not enough to bridge the perception gaps that exist and to build the partnerships that are needed in the changing world order. The status-quoist approach of the G20 must be done away with by strengthening BRICS collaboration. There is ample scope to review and renew partnerships across development concerns and sustainability where the BRICS has important lessons to offer. At the intra-BRICS level, creating new and successful institutions/mechanisms, such as the New Development Bank (NDB) and the Contingent Reserve Arrangement, are distinct achievements. The unfinished agenda of creating a BRICS Credit Rating Agency to facilitate greater and just financial flows also suggests a stronger commitment towards 'solution' centred approaches to global governance.

Divergences in the issues being pursued at the G7, G20, and BRICS will surely weaken the prospects of faster delivery of the global public goods that are urgently needed to recover from the present crisis and prepare for the next. As India progresses in its BRICS presidency, there must be greater recognition that the systemic stability of the global governance architecture is under question due to the marginalisation of developing countries. Given the impacts of the pandemic in the developing world, there is an urgent need to restore the modalities of multilateral cooperation to hasten post-pandemic recovery in these countries. This also calls for facilitating economic growth by creating capacities, promoting trade, and delivering innovative policy interventions to cushion the effects of the pandemic on the most vulnerable sections of the population (such as the informal workforce). As the world grapples with the challenges of technological disruptions and resultant effects on jobs and skills, livelihood protection must be prioritised in the short- and medium-term to emerge from the present crisis.

The role and relevance of BRICS goes far beyond the economic transformations of the member countries. The larger regional roles and supporting development journeys of partner countries have enormously bolstered the credibility and solidarity that these countries share with fellow developing nations.[5] Several Global South countries have turned to their

"As the BRICS countries begin to play a proactive role in global governance, their contributions can be amplified through parallel efforts to support the development needs of the Global South."

BRICS peers to navigate the global institutional architecture that has served them inadequately and has traditionally imposed complex conditionalities that disrupt their natural progression through learning and capacity building. The approaches pursued by some BRICS members to promote horizontal partnerships and mutual benefit and uphold sovereignty have bridged the long-standing capacity gaps to enable these countries to participate in global governance processes with hope and conviction. As the BRICS countries begin to play a proactive role in global governance, their contributions can be amplified through parallel efforts at supporting the development needs of the Global South. The tendency towards non-participatory decision-making and reform processes at global institutions can only be challenged and reversed through deeper partnerships and outreach in the South.[6]

TRANSACTIONAL TO RULES-BASED ORDER

While global poverty is set to rise due to the pandemic, unemployment, aggravated informality, and social insecurity will also worsen in the immediate aftermath of the pandemic. Efforts to coordinate actions are being made at many multilateral fora, ranging from debt sustainability to the supply of vaccines. However, such efforts are outnumbered by the volume of requirements, putting sustainable recovery and protection of public health under doubt. Despite the crisis that plagues multilateralism, the world has turned to multilateral processes to determine potential solutions. No single institution, group or process can effectively deal with the crisis, as global consensus-building is a time consuming, multi-layered and complex endeavour.

The pandemic has also widened the pre-existing inequalities in access and resources, and further deepened capacity gaps. The WHO's ACT-Accelerator partnership—launched in 2020 to fight the pandemic by deploying tests, treatments and vaccines globally—needs greater resource commitments. COVAX, the ACT's vaccine pillar, has had some success but has largely seen a grossly iniquitous distribution of vaccines. Although many BRICS countries have bene severely affected by the pandemic, they have led in technology- and innovation-driven solutions, most prominently in vaccine production and delivery, therapeutics and digital platforms. BRICS efforts to share resources, products and technologies with other developing countries have had huge impacts, showing that the grouping can set the agenda on the global response to the pandemic and the post-pandemic world order.

Most countries have attempted fiscal stimulus and monetary policy responses to mitigate the economic effects of the pandemic. The divergent fiscal responses by rich and poor nations will only widen the divide and perhaps deflect resources away from multilateral efforts; developed countries have seen a disproportionately large response in terms of public health, research and distribution of vaccines, income support and credit flows to the economy. In the absence of any global coordination, the remedy may well prove worse than the disease. The BRICS should respond to such policy paralysis at the global level where poorer countries are too weak to respond.

Multilateralism should deliver on the additional resource needs of a large section of developing countries to boost their health infrastructure, ensure the availability of vaccines and therapeutics, provide social security, bridge digital divides, provide working capital to micro, small and medium enterprises, and disaster mitigation.

However, the calls for enhanced resource flows predate the pandemic. There is a greater need to formalise BRICS cooperation on financial sector reforms and be assertive in norm-setting that leads to financial flows under separate categories, such as climate change mitigation, resilient and sustainable infrastructure, and green technologies. The new norms for green finance (particularly environmental, social and governance standards) need careful articulation to preserve the development space in countries. This is also intricately linked with the cost of compliance with respect to higher capital and liquidity standards of Basel-III regulations. While there has been emphasis on green recovery in advanced countries, the resource-poor countries are still awaiting resource flows to address the immediate fall-out of the pandemic.

THE BRICS'S ROLE

The BRICS countries have been successful in mounting a considerable response to pandemic-induced losses despite economic contraction. The outlook for economic recovery in BRICS is reassuring but the challenges in the social sector must be addressed carefully and through continued resource mobilisation. Policy must focus on handling exclusion and poverty while sustaining economic growth through entrepreneurship and infrastructure development. The larger questions of quality of economic growth, decent jobs and sustainable recovery need as much attention in global delivery mechanisms as in domestic policymaking. There has to be an unwavering commitment to citizen-centric multilateralism, reigning in conspicuous consumption (leading to wastage and environmental damage), and greater emphasis on commitments of official development assistance and development cooperation, knowledge sharing and technical cooperation.

The BRICS will have to push for a drastically different approach to development and international cooperation. The G7 model was heavily tilted in favour of 'giving', which runs aground in crises. The new model may have to be based on 'recipient capacity building' and 'sharing'. This must be a development model from below. The institutional architecture of existing multilateral institutions leaves much to be desired. The BRICS must try to sequence issues and institutions of priority and work out the details on which consensus can be achieved with relative ease. This will generate confidence to collaborate on difficult areas as well. The BRICS must support post-pandemic growth and development in emerging countries and push for much enhanced multilateral efforts by furthering its deep connect with the Global South.

The COVID-19 pandemic has also highlighted the differing capacities across countries to mitigate large-scale shocks. While all the ills of multilateralism cannot be solved by calling upon the benevolence of older power groups, a lot can be achieved through the demonstration of conviction and cooperation among developing countries like the BRICS. The distinctive feature of the BRICS in this regard is its self-discovery beyond individual country experiences, which are rich in terms of civilisational wisdom and mastery over modernity. Solutions emerging from the BRICS in areas of development and sustainability have the potential to guide multilateral efforts towards solution centred approaches to regain lost credibility.

The BRICS has already made significant efforts to create and promote global public goods, including in development finance; taxation; trade facilitation; health; agriculture; science, technology and innovation; environment; and energy. While a few cooperation efforts like the NDB have already seen success, the progress made in several others must be consolidated. Such efforts suggest that the BRICS will have enduring relevance and will survive the intra-BRICS differences and realpolitik. The world requires greater ethics-driven approaches to tackle the unfolding technological disruptions and threats to peace and security. The BRICS can become a harbinger of a new development compact to avoid abandoning the 'development tracks' of existing multilateral frameworks and inspire new efforts in future.

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Rescuing Multilateralism

THE ROLE OF THE BRICS IN FOSTERING INCLUSIVE AND EFFICIENT GLOBAL GOVERNANCE INSTITUTIONS

ANDRÉ DE MELLO E SOUZA

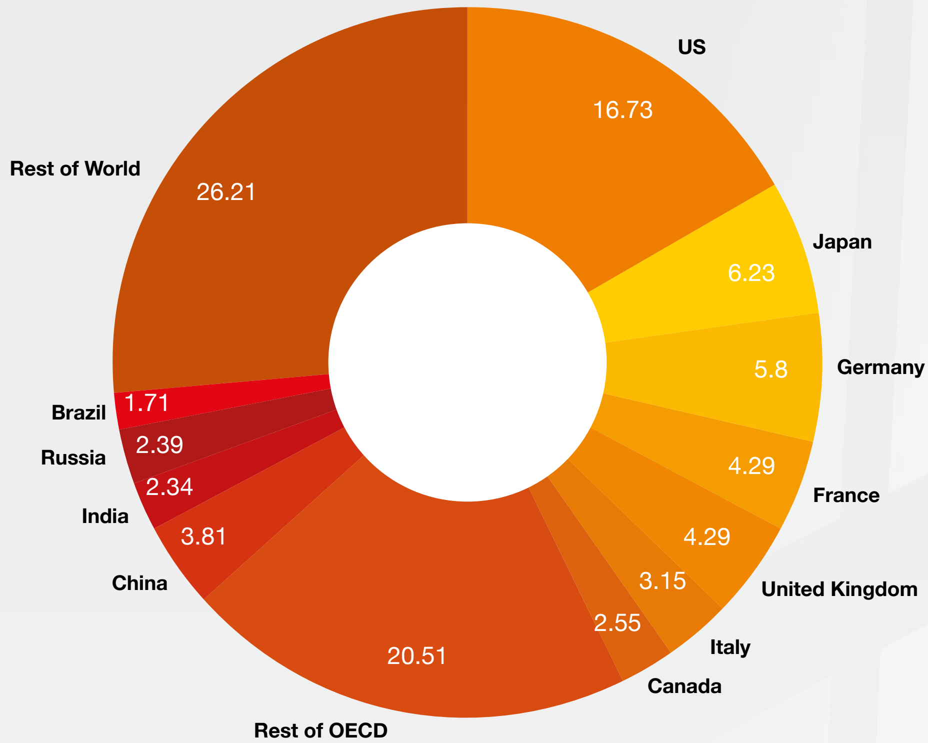
FROM INSTITUTION REFORMISTS TO INSTITUTION CREATORS

The origins of the BRICS are intimately associated with multilateralism. Indeed, the most important unifying objective of the BRICS as a political grouping has been reforming post-war Bretton Woods financial multilateral institutions, namely, the International Monetary Fund (IMF) and the World Bank.[1] The main motivation for these reformist initiatives has been the recognition that, in recent decades, global governance in finance and other issue-areas has become marked by a considerable mismatch between the economic power of the BRICS and their capacity to influence institutional outcomes.[2] The 2008 financial crisis—which was weathered relatively well by the BRICS as they became the main drivers of global economic growth—served to delegitimise the Bretton Woods financial governance structure.[3] Yet, both IMF and World Bank reforms have been considered slow-paced and insufficient in granting the BRICS greater influence in decision-making processes. IMF quota reforms agreed to in 2010 were only implemented in 2016, largely because of foot-dragging by the US and other OECD countries. These reforms grant China the third-largest quota and voting share after the US and Japan; and India, Brazil and Russia also rose to the top 10 members of the IMF. However, the increase in the BRICS quota shares came at the detriment of the rest of the world (excluding the OECD) (see Figures 1 and 2). More importantly, the US maintained its quota share above 15 percent and the unilateral veto powers that it affords. Finally, the IMF presidency is still nominated by the European Union (EU).[4]

Similarly, World Bank reforms have redistributed voting power to the advantage of China and India, and to the disadvantage of the UK, Germany, and France. Nevertheless, they still leave the US with 15.85 percent of voting power and the ability to unilaterally veto all decisions. The appointment of the World Bank president also remains unchanged, being made by the

Figure 1

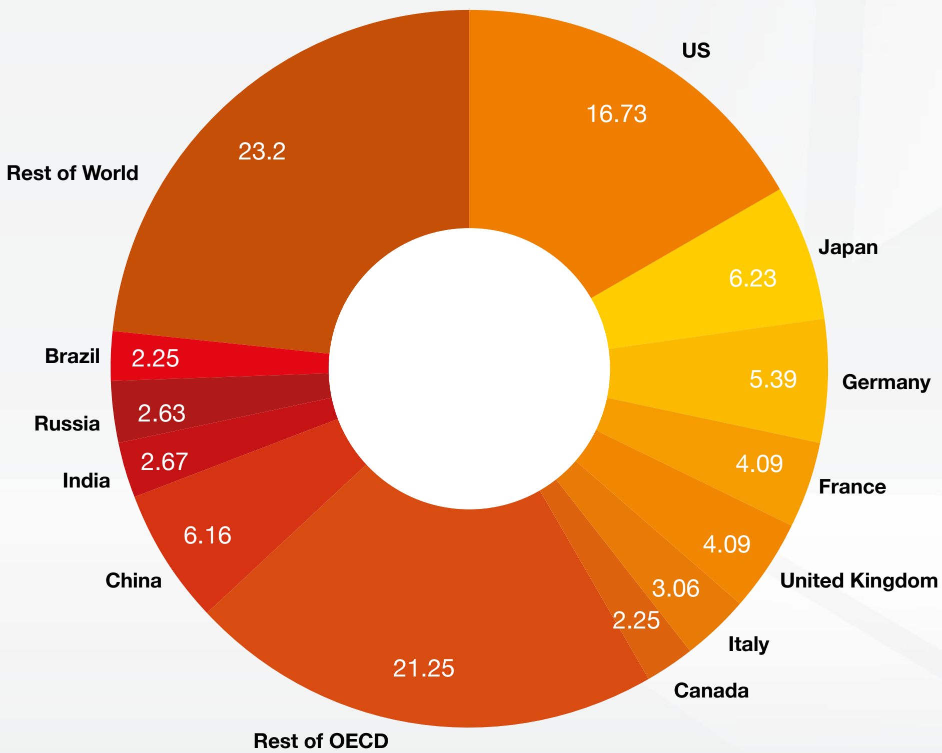
IMF Voting Shares Prior to 2016 Reform (in %)



Source: International Monetary Fund[7]

Figure 2

Current IMF Voting Shares (in %)



Source: International Monetary Fund[8]

US.[5] Finally, and more importantly, while emerging and developing economies badly need infrastructural investments, lending for such investments has not been the focus of the World Bank.[6]
Having failed to reform existing multilateral financial institutions, the BRICS have created new institutions of its own: the New Development Bank (NDB) and the Contingent Reserve Arrangement (CRA), both highly significant because they represent the grouping's first initiative at institutionalisation.

Moreover, the NDB is arguably the first institution of its kind that focuses primarily on the development needs and challenges of the Global South. Commonly seen as designed to fulfill the role expected of the World Bank, the NDB is mandated to finance infrastructure projects in the Global South. Moreover, in contrast to both the World Bank and the IMF, the NDB affords each of its five founding members equal voting and shareholding rights—despite the potentially disproportionate influence that may be exerted by China—and it does not impose conditionalities for lending.[9]

Yet, while widely seen as a positive outcome, the creation of the NDB and the CRA are also symptomatic of the current crisis of multilateralism. Indeed, they not only reveal the failure of existing Bretton Woods institutions members to reform and adapt to changing power configurations and development needs and challenges, but also contribute to the growing trend of institutional proliferation and global governance fragmentation.

In the next section I take a step back to discuss the role of the BRICS in such a global context of institutional crisis.

CRISIS OF MULTILATERALISM

There is abundant evidence of a crisis of multilateralism,[10] even before the outbreak of the COVID-19 pandemic. By 2015, there was a discernible shift from the 'thick' form of multilateralism to 'thin multilateralism'. As I use these terms, thick multilateralism is understood as a general adoption of and compliance with international law, often binding and supported by enforcement or dispute settlement mechanisms. Thin multilateralism, in contrast, is defined by loosely shared principles or norms, voluntarily embraced in the absence of sanctions for their violations.

Examples of this transformation in multilateralism are seen in several issue-areas. In environmental governance, it is exemplified by the abandonment of the Kyoto Protocol (1992), which established sanctions against violators of predicted carbon emission targets, in favour of the Paris Agreement (2015), based on nationally determined contributions (non-binding national plans voluntarily presented against climate change).[11] The post-2015 global development agenda also marks a shift from the Millennium Development Goals, most of which could be objectively measured and assessed, to the Sustainable Development Goals, most of which lack operational indicators and targets.[12]

Perhaps the issue-area that best illustrates the weakening of multilateralism is the one in which it has been strongest historically: trade. On the one hand, global trade governance has been increasingly marked by "an institutionally fragmented governance architecture that combines a uniform base of multilateral rules [based on the World Trade Organization (WTO)] with a web of bilateral and regional superstructures [based on preferential trade agreements]."[13] On the other hand, the enforceability of WTO rules has been challenged by the US and other governments that have objected to some of the rulings and behaviour of the Appellate Body. The Trump administration in particular used these objections as justification for blocking appointments to the Appellate Body, which ceased to operate for several months.[14]

The fragmentation and weakening of the institutional structure of global governance is part of a broader process of globalisation reversal, or deglobalisation. I argue that it has two main causes, one related to national leadership and the other essentially structural in nature.

First, the crisis of multilateralism is closely related to the rise of the populist right in the hegemon and other important countries. In 2016, the electoral victory of Donald Trump in US presidential elections followed the choice made by a narrow majority of British voters to leave the EU. Other countries followed the same pattern, including Hungary, Poland, Turkey and the Philippines. Within the BRICS, Jair Bolsonaro, President of Brazil, is the main exponent of this kind of leadership. What all have in common is a hostility towards "globalism", explicitly manifested in attacks against multilateralism,[15] and perhaps nowhere better captured than in Trump's "America First" foreign policy.[16] Support for this political position comes from popular discontent with the perceived increase in instability, insecurity and inequality brought about by globalisation.

Several examples show how the rise of the populist right undermined multilateralism, in addition to the aforementioned effort to obstruct the WTO Appellate Body. In 2020, Trump also withdrew from the World Health Organization (WHO) during the COVID-19 pandemic, seen as politicised and dominated by China.[17] This followed the US's withdrawal from the Paris Agreement in 2019.[18] As the hegemon, the actions of the US are consequential. For instance, it is the main single contributor to the WHO.[19]

The fragmentation and weakening of the institutional structure of global governance is part of a broader process of globalisation reversal, or deglobalisation.

Second, the crisis of multilateralism is a result of structural changes in the global distribution of power, brought about by the rise of the BRICS and especially China. As the Theory of Hegemonic Stability[20] would predict, periods of power transition—characterised by a declining hegemon (the US) and an emerging hegemon (China)—are marked by a weakening of international regimes. The US, at least during the Trump administration, is no longer willing and able to pay the costs of maintaining these regimes, and China is not yet willing and able to replace the US in this role. Clearly, according to this explanation, the current period can be seen as analogous to that of the inter-war period of the 1930s, when Britain was the declining hegemon, and the US was the rising one.[21]

Problems raised by inappropriate national leadership are easier to solve than those derived from structural factors. Indeed, Trump has already been replaced and several right-wing populists around the world may soon face a similar fate. Yet, unfortunately, multilateralism is failing precisely when it is most necessary. Indeed, the current globalised world requires the provision of more public goods—as evidenced both the COVID-19 pandemic and global warming—and therefore greater cooperation. More sophisticated forms of cooperation (and indeed collaboration) can only be effectively achieved by some kind of institutionalisation that brings together all major countries, including the BRICS, and that is widely seen as legitimate. This leads to the issue of why the BRICS should attempt to reform multilateralism.

RENEWING MULTILATERALISM

The BRICS countries are arguably the most prominent stakeholders that are marginalised or excluded from global governance institutions. Much of the rule-making that takes place in these institutions, formal or informal, primarily and intentionally targets these countries. Two noteworthy instances of this refer to the WTO agreements on intellectual property rights and investments. Yet, the BRICS countries are rarely among those who sought the global rules in the first place and are often excluded from rule-making processes. Hence, they are not merely accidental stakeholders but are key players that cannot be disregarded in ensuring the stability and effectiveness of multilateralism.

The exclusion or marginalisation of the BRICS in multilateralism is problematic for several reasons. First, it may call into question the systemic stability of global governance. The lack of legitimacy raises normative challenges and may undermine voluntary compliance with global norms.[22] In addition, power diffusion or shifts in power distribution without corresponding changes in institutional inclusiveness leads to the proliferation of multiple alternative, competing institutions. The financial institutions created by the BRICS—the NDB and the CRA—are notable examples of this institutional proliferation, fragmentation and overlapping.

Legitimacy challenges call for institutional reforms, which should not be limited to the finance sector. They refer to two main kinds of legitimacy, output and input legitimacy. Multilateralism is often attacked for failing to effectively provide global public goods or address other problems of global relevance in an equitable manner. The key issue is whether multilateral rules and specific decisions meet the needs or serve, at a minimum, the interests of those on whose behalf they claim authority without unnecessary harm to other stakeholders, and, more broadly, the interests of all those over whom they exercise authority.[23] Hence, output legitimacy refers to outcomes.

Conversely, input legitimacy refers to processes. Decision-making in multilateral venues must use minimally transparent and inclusionary procedures, must avoid becoming dominated by elites and technocrats, affording channels of access and influence to transnational civil society, and enabling the participation of least developed country (LDC) members. In addition, multilateralism must establish wider and more democratic accountability mechanisms.[24]

Accordingly, the BRICS should attempt to safeguard the voice of non-state actors and LDCs in global governance and ensure that they not only have a seat at the table but also some degree of decisional prerogatives. For such a purpose, international cooperation by BRICS countries is needed to help these usually marginalised stakeholders, and the BRICS countries themselves, narrow the gap in technical knowledge and expertise that is ever more important in international negotiations. Indeed, the BRICS and other stakeholders require technical expertise and investments in research to actually exert influence—and not just be formally represented—in the growing number of multilateral institutions that set up norms and standards in many issue-areas.

Yet, the inclusiveness and democratic procedures for decision-making and accountability of multilateral institutions often present trade-offs with their efficiency.[25] This is part of the reason why United Nations forums are often seen as inefficient talk shops that can rarely be used for concrete decision-making and action for promoting change. This is also the main reason why the BRICS, as an informal and loose institution, should resist the temptation to extend the grouping by admitting other countries.[26] While there is no way to sidestep altogether the trade-off between inclusiveness and efficiency, the BRICS should attempt to construct legitimate forms of multilateral representation that also allow for effective global policies. For instance, they can act as representatives of regional claims in multilateral forums, and to some extent already have done so.

Finally, given the growing privatisation of global governance, the purposes of legitimacy and efficiency require some regulation of private stakeholders, which may be a powerful tool in promoting global development but may also override decision-making and agenda setting to the detriment of the interests of the BRICS and LDCs. A case in point is the Gates Foundation, which exerts more influence, including in agenda setting, in institutions of global health governance such as the WHO, the GAVI and the Global Fund than many countries, including some of the BRICS members.[27]

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BRICS AS THE PLATFORM FOR "Reformed MULTILATERALISM"

YAROSLAV LISSOVOLIK

To have a significant impact on the evolving global governance construct of the world economy, the BRICS needs to form an effective platform to extend its economic cooperation to the Global South. Such a platform can be based on the BRICS-plus initiative, with the aggregation of regional integration blocs from the developing world serving as the core of such a platform.

BRICS: STEPPING-STONE FOR NEW GLOBAL GOVERNANCE

The BRICS could help render more balance in the world economy by filling the voids and gaps in the current global governance system. These include imbalances within multilateral global institutions (between the weight of developed and developing economies), the lack of coordination between regional institutions such as trading blocs, development banks and regional financing arrangements (currently, there is no such mechanism in the global system), the acute need for an expansion in the array of reserve currencies available in the global economy, as well as the absence of an ex-ante, pre-determined anti-crisis mechanism that may involve coordinated fiscal and/or monetary stimuli across the globe during periods of severe downturn.

The BRICS countries are uniquely positioned to lead the global community in bridging these gaps and inefficiencies. Apart from the grouping's increasing weight in the world economy, the BRICS exercises a 'comparative advantage' due to its presence across all the main regions of the developing world. The aggregation of regional integration blocs where the BRICS countries are members may form the basis of the BRICS-plus initiative. Through greater openness and inclusivity, it will be in a much stronger position to address the existing gaps in global governance.

The BRICS, through the BRICS-plus framework, can provide a gateway to alternative liberalisation and economic integration impulses vis-a-vis the developed world. This would allow a critical level of optionality towards the development of the global economy, whether in terms of national economic models, or in terms of currencies or payment systems employed to service cross-border transactions. This will also allow the world economy to make full use of one of the most promising reserves to boost global economic growth, namely South-South economic integration.

To raise the appeal of partnering with BRICS countries and become a critical element in the new international economic architecture, the bloc needs to make advances in critical areas like raising environmental standards. Greater emphasis on environmental protection needs to become a systemic element of the BRICS strategy and beyond.

There may also be a case for jointly developing strategies to raise corporate governance standards and reduce economic imbalances and inequalities across regions. On the latter point, a promising avenue of cooperation may be the fostering of economic linkages and the broader development of hinterlands in the member countries that face infrastructural bottlenecks and high transportation costs.

The path to playing a major role in shaping the new global governance will also involve working with global institutions such as World Trade Organization (WTO) to address issues like procedures on dispute settlement, cooperation with regional institutions, and devising norms to curb technological, financial and investment protectionism in the global economy. While working with advanced economies on these issues plaguing the global governance system, the wider BRICS-plus circle can reinforce the multilateral framework of international institutions. Importantly, rather than seeking to sideline existing arrangements and institutions, the BRICS has openly advocated the need to reinforce multilateralism and strengthen global institutions as protectionist pressures mount. Instead of substituting existing global institutions, the BRICS is creating new arrangements that complement and reinforce the existing institutional framework of the global economy by addressing the weaker links and gaps in global governance. Rather than being the disruptor of the current governance framework, the BRICS bloc may play the role of a stabiliser as well as an incubator of innovative approaches to raise the global system's effectiveness and inclusivity.

The previous decades provided a unique opportunity for the advanced economies to build an open, sustainable and inclusive global economic architecture that promotes development. However, today's world economy is characterised by protectionism, sanctions and weakening multilateralism, highlighting the need for reform.

The BRICS could become a key pillar of the new emerging economic architecture. The key focus should be on building a framework of BRICS partnerships across the globe, through which the bloc may turn out to be "the stone the builders rejected [and that] has become the cornerstone".

ANTI-CRISIS PLATFORM

The COVID-19 pandemic has highlighted many deficiencies in the governance framework across global institutions and regional integration blocs. The lack of response to the crisis from regional institutions was exacerbated by the lack of contingency measures by regional partners to strengthen the impact of anti-crisis stimuli.

The current crisis has amply demonstrated the importance of regional factors in the spreading and the containment of the pandemic. Therefore new formats of economic cooperation that accord substantial weight to regional and cross-regional cooperation—such as the BRICS-plus initiative—might become prominent in the future.

The usefulness of the BRICS-plus as an anti-crisis framework for developing countries was singled out in a recent report by Argentinian think tank Observatorio de Coyuntura Internacional y Política Exterior. The report calls for Argentina to consider entering the BRICS-plus circle given the potential benefits of the country's participation in New Development Bank (NDB) projects and access to the resources of the BRICS Contingent Reserve Arrangement (CRA).[1] The resources of NDB and the BRICS CRA are viewed as alternative instruments to the standard tools of World Bank and IMF loans in countering a severe economic downturn.

Apart from greater optionality in finding additional sources of anti-crisis financing, there is also another important role to be performed by the BRICS-plus initiative—coordinating the Global South's anti-crisis efforts. The pandemic has revealed the vulnerabilities of developing countries. The BRICS-plus framework can handle such crises better with greater engagement with regional partners. Regional connectivity, regional early warning systems and anti-crisis measures will be able to deliver a strong effect. Also, the NDB could expand its membership to regional partners of the BRICS countries and design their economic sustainability measures.

"A BRICS-plus initiative can be useful in coordinating anti-crisis efforts across the Global South."

There is a need for a comprehensive analysis of the economic and systemic vulnerabilities, including potential regional spillover effects, across the BRICS-plus platform with the potential to extend stabilisation loan packages to regional partners of the BRICS countries.

Another important element within the BRICS-plus anti-crisis framework needs to be the promotion of national currencies to reduce currency mismatch. The NDB and the BRICS CRA, and a potential BRICS Pay mechanism, could play a crucial role in this respect.

Another area of cooperation in regional integration arrangements such as MERCOSUR, Eurasian Economic Union or the Association of Southeast Asian Nations is the promotion of regional and transregional value-added chains that can be supported during crisis periods through coordinated policy measures to prevent their fragmentation. The NDB and the BRICS CRA must serve as platforms to aid cooperation between respective regional development institutions. For the NDB, this would mean regional development banks and for the BRICS CRA, it relates to cooperation among the regional financing arrangements in the Global South.

MULTILATERALISM ACROSS REGIONAL BLOCS: ROLE OF BRICS-PLUS

One of the most disconcerting conundrums in international economic relations and the current system of global governance is the absence of a platform that brings together regional integration blocs and their development institutions. The lack of horizontal coordination and communication lines across regional integration arrangements contrasts with coordination at other levels of global governance. Bridging the 'regional gap' in global governance can potentially expand the 'possibility set' for new alliances and transparency in the world economy.

Why has multilateralism between regional economic blocs not progressed thus far? Firstly, regionalism (as an intermediate governance layer between global institutions and country-level governance) may be perceived as a risk to national sovereignty and a threat to the integrity of multilateral global institutions. Some recent examples are Brexit, and the challenges posed by the expansion of the regional trading blocs to global organisations such as the WTO. The latter concerns appear to be moot now due to the positive contribution of regional integration in opening markets and promoting trade liberalisation. In recent years, most liberalisation impulses across the global economy have originated in regional integration.

Another reason for the lack of connectivity across regional integration blocs may be the high degree of divergence in the maturity level across such groupings, with the European Union (EU) as a major outlier. This has been particularly pronounced across the North-South axis; the developed world exhibits more structured and deeper levels of integration compared to developing economies. Recently however this factor has also transformed, as developing countries have started to catch up to advanced economies in the scale of regional integration.

In the last few decades, the level of regionalisation of the world economy, and the depth and the scale of regional integration has grown tremendously. At this juncture, nearly all continents are covered by a pan-continental regional integration arrangement or a network of regional alliances.

There is now a firmer foundation to build a global network of regional alliances. How will the 'integration of integrations' evolve in the coming years if it is to become one of the key pathways to advancing economic liberalisation?

One possible scenario is the formation of a global network of regional integration blocs through coordination between WTO, G20 and others. At the T20 summit in 2019, the Valdai Club proposed the creation of a platform that brings regional integration blocs together, where G20 countries can play a leading role.[2] Areas of cooperation at such a platform (denoted as R20) could include a code of conduct for regional integration arrangements (along the lines of the 'Santiago Principles' for sovereign wealth funds), including provisions on avoiding politicisation and promoting 'open regionalism', modalities of cooperation with WTO, or procedures for multilateralising trade/investment preferences.

Although there could be some fragmentation of regional economic alliances, which will make it impossible to form a unified platform or network for regional arrangements, it is more likely that the Global South will catch up on its intent to build platforms of regional economic integration.

With time, it may become significant enough to raise incentives for advanced economies to explore the possibility of forming a joint global network for regional alliances. This scenario could materialise if developing countries form an extensive platform that encompasses all the main regions of the Global South. Such a platform may potentially take the form of a BRICS-plus arrangement, as outlined in the statements of Russia and China.[3]

This raises the question on the evolution of the 'integration of integrations'. Which platform and regional arrangement is likely to lead the formation of a global coordination platform for regional integration arrangements? The BRICS-plus is one possibility if it evolves into an inclusive system that is open to regional blocs from the developing world and advanced economies, to form a BRICS-plus-plus.

Another possibility is that the most advanced regional bloc in terms of the depth of economic integration, namely the EU, spearheads the formation of a global platform with the support of G20 and WTO. In such a scenario, the EU's role may become indispensable, due to its membership in the WTO, G20 and other international organisations and global networks. In effect, the EU could use its special status as a regional integration bloc at international organisations to promote greater connectivity between regional arrangements globally.

Other potential scenarios may involve the US becoming active again in forming platforms for regional and transregional integration. If the US joins the Trans-Pacific Partnership and works to connect this mega-bloc with Transatlantic Trade and Investment Partnership, the resultant platform could potentially become the world's largest mega-regional bloc.

Another possibility is a 'connectivity platform' that brings together development institutions across continents to finance infrastructure projects. If China's Belt and Road Initiative extends its reach beyond Eurasia, it could become the nucleus for a global network of alliances (a global silk road network) between development institutions.
For material changes in global governance to take place, it all boils down to leadership. Which country and regional arrangement will be ready to play a leading role in promoting the 'integration of integrations'? Which country and regional arrangement will advance coordination among regional arrangements?

At this juncture, the EU may take on this role, given its achievements in building alliances and agreements with other regional blocs. At the same time, the experience of the past several years suggests that the BRICS, together with the Global South, may exhibit the energy and the commitment towards regional integration. Irrespective of whether the formation of such a global platform originates in the East or in the West, the emergence of a regional layer in global governance is likely to be the defining feature of a revamped international economic architecture in the coming decade.

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A CONTINUED Commitment TO MULTILATERALISM

SHEN YI

The current international system is constructed upon multilateralism, a decentralised and complex form of cooperation and an alternative to conformity. Multilateralism has continuously evolved over the years. Based on the UN Charter, multilateralism embodies human society's history, from war to peace, from privilege to equality, and from monopoly to consultation. After the end of the Cold War, multipolarisation, economic globalisation, societal informatisation and cultural diversification underwent profound development. International mechanisms have been established and improved, and multilateralism has become the core element of policy globally.[1] The world is so closely intertwined that multilateralism is no longer an intangible concept concerning war and peace. It has already become the core element of successful governance, improving welfare and sustainable development. Multilateralism is the bedrock of the contemporary international system. But it is now battered by unilateral and hegemonic actions, including building small circles in the name of multilateralism, with the interests of individual countries taking precedence.

The world needs solid and unalloyed multilateralism to ensure that its ideas are persevered, principles are maintained, and its sustainable effectiveness is manifested. The BRICS represents emerging markets and developing countries. The five member countries have worked to enhance the voice of developing countries and enlarge the institutional space for realising national interests. The BRICS should also be considered as a model for true multilateralism that promotes the transformation of the international environment in a way that is conducive to all.

The BRICS cooperation mechanism is a form of complementary multilateralism. It cannot replace the original system established by developed countries, nor does it exclude the existing international mechanisms. The BRICS cooperation mechanism aims to be compatible with the extant system while promoting reform to meet the needs of developing countries and improve the efficiency of global governance. The BRICS multilateral cooperation platform can also curtail the opportunistic behaviour of developed countries, preventing them from exploiting the formal procedures of international organisations to their own interests.

In 2009, the first BRICS leaders joint statement declared, "We express our strong commitment to multilateral diplomacy with the United Nations playing the central role in dealing with global challenges and threats. We underline our support for a more democratic and just multi-polar world order based on the rule of international law, equality, mutual respect, cooperation, coordinated action and collective decision-making of all states."[2]

BRICS leaders have since repeatedly stated their commitment to promote an international system that is better attuned to contemporary realities, and to work towards strengthening and reforming global governance to make it more inclusive, representative and democratic with the meaningful participation of developing countries in decision-making.

At the June 2021 BRICS foreign ministers' meet, the leaders reaffirmed their solid commitment to multilateralism amid the ongoing COVID-19 pandemic.[3] They emphasised on the fundamental status of the UN Charter in international Law; the core position of the UN; and the significance of the BRICS cooperation mechanism to build a fair, just, inclusive, equitable and representative multipolar international system. The 'BRICS Joint Statement on Strengthening and Reforming the Multilateral System' (issued at the conclusion of the meet) commits to close cooperation and coordination within multilateral forums and international organisations, including the UN and G20, to strengthen and reform the multilateral system.[4]

CHALLENGE TO EXISTING MULTILATERAL SYSTEM

COVID-19 has had a great impact on the global economy and governance structure. The international landscape is undergoing change, with the prevalence of unilateralism and hegemony, which challenges multilateralism-based international collaboration. The BRICS countries and other emerging economies cannot stay detached. The current challenges facing the global system have demonstrated the importance of the multilateral mechanisms represented by the BRICS.

Multilateralism is perhaps the sole solution for the synchronised development of a pandemic-battered economy, both global and domestic. The BRICS must actively advocate the concepts of extensive consultation, joint contribution and shared benefits, and promote the improvement of the global governance system. The BRICS must resolutely oppose protectionism, uphold the multilateral trading system, and enhance the voice and influence of emerging markets and developing countries in international affairs.

Recent 'anti-globalisation' sentiments have impaired multilateralism globally. Meanwhile, the US has positioned China as its strategic competitor, adopting various means to implement containment and isolation. As a result, the strategic environment for BRICS cooperation has experienced serious deterioration.[5] In February 2020, the US unilaterally terminated the most-favoured nation status of 25 countries, including China, India and Brazil.[6] The US has been imposing massive financial sanctions on many countries through its monetary hegemony and the control of SWIFT system. For instance, it expelled Iran from the SWIFT system,[7] and threatened to exert sanctions on the Nord Stream 2 Pipeline and the TurkStream.[8]

At the same time, the existing multilateral system has many deficiencies, including insufficient efficiency and the low empowerment of emerging economies.[9] Formulated by Western countries, the extant mechanisms are often manipulated by developed countries to serve their own interests. There is little to no global coordination, management and penalties, thus vitiating the effectiveness to tackle challenges and leading to serious deficit problems. Emerging and developing countries cannot exert their full potential in multilateral organisations as they are not empowered enough. This is bound to dampen their enthusiasm to participate in global governance.

DIVERGENCE AND COMPETITION IN MULTILATERALISM

Whether multilateralism is an instrument or an aim is a widely discussed topic, reflected in the current crisis. The debate persists over whether multilateralism is a "belief in value" or merely a "self-constraint of the hegemonic powers".[10] From the perspective of institutional ambitions, geopolitical competition between major powers is gradually embedding itself into the construction of multilateral economy, the pattern of governance is demonstrating a trend of reconstructing international rules, reformulating standards, and reasserting leadership among the great powers. As an international cooperation mechanism, the BRICS can substitute or supplement its counterparts.[11]

Meanwhile, competitive multilateralism, namely 'one issue, multiple mechanisms,' is also emerging. Groups dissatisfied with the existing international institutions can pursue

"BRICS must actively advocate for extensive consultation, joint contribution and shared benefits, and promote the improvement of the global governance system."

their own agenda and ambition by withdrawing from these mechanisms and establishing substitutes. Consequently, competition between international mechanisms is inevitable.

The reform of governance agencies is yet to advance.[12] The BRICS countries have long agreed to promote democracy and improve the global governance system, collective action on the reform of specific governance agencies is still insufficient. For instance, the reform of the World Trade Organization (WTO) is an imminent issue for the grouping, even though BRICS leaders have repeatedly expressed a common support for multilateral institutions like the WTO. In practice, certain countries may prioritise their needs over the implementation of reforms, which will delay the pace of collective action among BRICS countries. Multilateral cooperation is often contingent on 'the dilemma of collective action', with its efficiency depends on the leadership of responsible countries.

Improving Efficiency of Multilateralism

There are several ways to improve the efficiency of multilateralism:

- **Enhance the efficiency of BRICS institutions via contested multilateralism[14]**

The inclusiveness of BRICS countries determines that it is bound to be an open system. The continuous acceptance of new member states is conducive to a more reasonable and well-established international financial system. The New Development Bank (NDB) functions as the pioneer of the emerging economy, and the rise of similar mechanisms will further elevate the standing of developing countries on the international stage. Such burgeoning multilateral financial mechanisms, together with the World Bank and the International Monetary Fund (IMF), which is expected to be reformed, will compete and cooperate in innovation. Thus, developing countries will enjoy an inclusive and mature financial service.

The extinguished economic achievements of the BRICS countries have made this mechanism indispensable to global economic governance. It can set the scene for equal communication between the BRICS and developed countries to become an objective reality. To make the global economy more inclusive, the BRICS countries must encourage economic transformation and innovation, and further rationalise the order of the international market.

Despite their similar ambitions, there are significant discrepancies in the business procedures and institutional tools of the World Bank and the NDB. This gives the NDB an impetus to push for reform in the current multilateral financial development banking system and global economic governance system, especially on power distribution, governance structure, social and environmental framework and lending policies.

- **Overcome diversities and seek common interest**

It is tough to find a common denominator that makes the BRICS a solid international organisation. However, in an economic sense, this diversity makes the BRICS economies complementary. There is great potential to increase cooperation that can benefit the five member countries and lead the BRICS to develop into a trading block.

Another thing that connects all the BRICS members is that they have bypassed the Western path to modernisation, choosing their own individual ways to achieve a modern society.[15]

- **Promote reform of current international mechanisms**

Given that the UN's capacity and efficiency are yet to improve, the BRICS countries must strive to raise their own solutions and promote the development of a global agenda within the UN framework.[16] The BRICS countries are also trying to employ the BRICS-plus dialogue mechanism to constructively be involved in regional affairs and security problems, actively handle disputes and conflicts with peaceful settlements, and collaboratively tackle unconventional problems.

- **Establish all-round, wide-ranged and multi-level communication mechanisms**

The BRICS' focus has expanded from economic development to include issues and cooperation. It has formed a comprehensive communication mechanism through the leaders' summit, and meetings of high-level delegates, foreign ministers, financial ministers, and Central Bank Governors. This has not only broadened the scope of issues to collaborate on (including finance, education, culture, science, and poverty elimination), but has also reinforced the effective implementation of policies.

The BRICS countries have always committed to promote and participate in the reform and coordination of global governance, and intend to contribute to the reform of the IMF and World Bank. BRICS has become the driving force in leading and upholding reforms across issues like financial stability, climate change, cyber security and governance, cultural communication, anti-terrorism, and multilateralism. The BRICS also appeals to the UN, G20, WTO and other institutions to give more voice and power to developing countries. It is also committed to present ideas and express opinions that drive the international order to be more equitable and just.

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MULTILATERALISM IN A Multipolar World: MORE SPACE FOR DEVELOPING COUNTRIES

PHILANI MTHEMBU

At the end of the Cold War in the early 1990s, the US emerged as the sole superpower in global politics. Since then, much has occurred to dispel the notion that unipolarity is the dominant configuration of global power.[1] The rise of Southern powers and the establishment of groups such as the BRICS (Brazil, Russia, India, China, South Africa) is gradually ushering in a multipolar world order that requires new thinking, global governance reforms, and new institutions to solve the most pressing global problems.[2] This will not be easy given the extent of reforms needed and the likely reaction from the Global North, which has become accustomed to leading multilateral structures with minimal contest.

Given the lack of international cooperation through multilateral institutions during the COVID-19 pandemic, a growing number of scholars are questioning the state of such cooperation and warning of the negative effects of a "crisis of multilateralism".[3] The conversation has also focused on the potential demise of the Western-dominated order, with politicians in the West growing increasingly anxious about the future and potential role of the BRICS countries in shaping the future of multilateralism. Instead of preventing the rise of Southern powers, it is arguably more important to build bridges that can create greater mutual understanding of the reformist agenda of the BRICS countries.

BUILDING THE FUTURE MULTILATERAL ARCHITECTURE: ROLE OF STATE AND NON-STATE ACTORS

Instead of lamenting the receding West-led global order, it is time to channel more time, energy and actions towards building the future multilateral architecture—an order that is more inclusive in geographical representation and development experiences. To get an idea of the kind of alternative orders and modes of multilateral cooperation, state and non-state actors must have a better grasp of the critique of multilateral institutions that has traditionally come from members of the Global South. This criticism will be important to build a resilient multilateral order, one that is more inclusive at the state and non-state level. This will be immensely important to the ongoing efforts to build greater resilience and legitimacy in existing institutions of global and regional governance. While advocating for greater reforms, BRICS will also be drawing lessons from its own cooperation efforts, which now extends well beyond the realm of state-to-state relations.

Global governance is increasingly having to include non-traditional actors in problem solving.[4] Efforts to create spaces for think tanks and the research they produce have certainly become more pronounced in recent years, while the business community and civil society stakeholders have also increasingly carved out a space to engage with policymakers on the sidelines of major international summits. This has been evident at the BRICS Summits, which have created multiple diplomatic tracks to deepen relations. This is also becoming evident at the G20 Summits, where BRICS countries continue to meet on the sidelines to exchange views and coordinate efforts within the larger grouping.

The research community, and non-profit and civil society organisations have been actively advocating reforms in line with the changing geopolitical landscape. It has served the BRICS countries well to organise and support engagement within the different diplomatic tracks, ensuring cooperation continues irrespective of domestic political changes.[5] Indeed, some of the most encouraging areas of cooperation are led by non-state actors like think tanks, academic institutions, labour, private sector, and civil society. These experiences within the BRICS can serve as a good guideline for strengthening the current multilateral architecture. To reform the multilateral order for a more complex multipolar world, the BRICS countries will have to ensure a structured form of engagement with non-state actors within the existing institutions. This will be important in ensuring greater inclusivity and legitimacy within the institutions that have not always enjoyed legitimacy in certain parts of the world.

GREATER FRAGMENTATION OR A RESILIENT MULTILATERAL ORDER?

While many agree that the multilateral order is under great strain, it is unclear whether the world is moving towards a more fragmented order or whether the BRICS countries, working with counterparts in the Global South and North, can help build greater resilience within multilateral institutions.

In building resilience within these structures, it will also be necessary to proactively bring new ideas on reform to ensure that these institutions remain central areas of engagement in the world. This is even more important given the existing US and European hostilities towards China and Russia.[6] An inclusive reform-oriented process involving all the relevant stakeholders will be important to ensure that the multilateral order does not disintegrate and usher in a more fragmented global order.

The BRICS countries' reform agendas have largely focused on the United Nations Security Council (UNSC), World Trade Organization (WTO), International Monetary Fund (IMF), and World Bank, structures formed in the aftermath of the Allied victory in the Second World War. While China and Russia, both BRICS members, have permanent seats at the UNSC, Brazil, India and South Africa have argued for an expanded body that is reflective of the contemporary global, political and economic landscape. While there is no agreement on who should occupy an expanded UNSC, there was greater cohesion on the reform of the IMF and World Bank, which have both seen adjustments to the voting quotas after years of pressure from the BRICS countries. Despite the eventual quota adjustments, the process took a long time, with developed countries delaying the process. This slow progress in comprehensively reforming the Bretton Woods institutions has made the BRICS countries more committed to establishing their own institutions, such as the New Development Bank (NDB).[7] The BRICS countries will also have to ensure that their efforts at the UN are not solely focused on the UNSC, but also on strengthening the role of the various agencies and regional structures of the UN system.

Russia only joined the WTO in 2012[8] but India, Brazil, China, and South Africa exhibited greater bargaining power throughout the negotiations under the Doha Development Agenda.[9] This increased bargaining power within the WTO partly led to developed countries seeking to circumvent the organisation and its processes by negotiating their own exclusive mega-regional trade and investment agreements outside its parameters. This will have to be addressed by the BRICS to ensure that the WTO remains a central actor in the multilateral system. It will also have to call for a return to the WTO and to uphold the principles of the Doha round, which emphasised on the developmental aspects of trade instead of the mantra of free trade above all considerations.

A world order in which the BRICS and its ideas play a larger role will perhaps recognise the importance of the multilateral trading order enshrined in the WTO. But it will likely not privilege free trade above all principles as these countries understand the downsides of opening up their markets without the necessary policies in place. It is also likely to be more accommodating of countries seeking to emphasise the importance of industrial policy to grow their manufacturing sectors, something that was shunned by Western powers despite using it successfully in the past. This will possibly give developing countries the type of policy space they have been calling for in recent years.

> "An inclusive reform-oriented process involving all stakeholders is important to ensure that the multilateral order does not disintegrate and usher in a more fragmented global order."

NEW INSTITUTIONAL ARRANGEMENTS FOR REFORM EFFORTS

The BRICS countries have been using their growing economic clout individually and as a collective to advocate for gradual reforms of the existing global governance institutions and create new structures like the NDB, which exerts pressure on the various reform efforts by demonstrating its utility and effectiveness in a changing development finance landscape.[10]

The BRICS countries are sending a clear signal to the development finance world on new forms of finance, seen through the various green infrastructure projects being financed prior to COVID-19 and the rapid emergency funding disbursed to the member states during the pandemic.

The way the NDB operates and is governed also challenges the existing monopoly of ideas within the Bretton Woods institutions, leading to a diffusion of power, ideas, and practices towards a multipolar world order. It incorporates ideas from the Global South into traditional institutions of global governance, especially in the realm of international development.

The NDB could also become a knowledge bank that can share and implement new ideas on development.[11] This is especially important as the BRICS countries seek to play a more proactive role in the implementation of the 2030 Agenda for Sustainable Development. Since existing development finance institutions are unable to meet the demand for sustainable financing, the BRICS countries will be called on to close the funding gaps in the developing world. It is evident that the emerging lending landscape is diverse, giving countries more options in accessing concessional finance while maintaining their policy space.

CONCLUSION

As the multilateral order continues to be under severe strain, the BRICS continues to pursue reform efforts while establishing new cooperation mechanisms. These are important to build a more resilient multilateral system that is not fragmented by existing geopolitical tensions between the US and China on the one hand, and the US and Russia on the other.

While the US and its European allies have largely dominated multilateral institutions thus far, they will have to become more accommodating in accepting the views and practices of non-Western countries such as the BRICS states. Multilateral institutions will have to accommodate and coexist with several schools of thought instead of a consensus enforced via the economic and military power of a hegemony. Rather than a one size fits all model, multilateralism in a multipolar world will see some countries enjoying greater policy space in their own regions, while maintaining mutual relations with the rest of the world.

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End notes

International Security

REPRIORITISING Counterterrorism IN BRICS AGENDA

TANVI KULKARNI

Despite a raging global pandemic, conflicts have persisted globally, proving that it is an unremitting feature of international politics. Strengthening global peace and security requires multilateral, continuous and concerted efforts. The BRICS partners have routinely reminded and appealed to the international community that global decision-making should reflect the realities of the contemporary world.[1] And with this as the raison d'etre, the BRICS has endured as a coalition of emerging powers for 15 years.

At the 12th annual summit,[2] hosted by Russia and held virtually in November 2020, the BRICS leaders welcomed the UN Secretary General's call made earlier in the year[3] for a global ceasefire on armed conflicts so that the international community could come together to fight the COVID-19 pandemic. However, armed conflicts persisted in many places and violent hostilities renewed in others,[4] even as the pandemic raged on.

Some of these conflicts, if not all, are expected to make it to the agenda for discussions at the 13th BRICS' leaders' summit. This paper will explore how the BRICS can strengthen its cooperation in peace and security, specifically in the areas of counterterrorism and violent extremism.

TERRORISM: EXPANDING DIMENSIONS

The BRICS security agenda has progressively expanded since the group's inception to cover a wide range of thematic and geographical issues, and linked with its governance and development agenda. The summits have taken note of conflicts and hostilities across the world, as well as threats like terrorism, extremism, piracy and cybercrime. Of these, terrorism ranks as the longest discoursed item on the BRICS agenda, discussed since the first Yekaterinburg Declaration in 2009.[5]

Despite the divergent foreign and security policy priorities of the BRICS states, the group has found a convergence of interest on counterterrorism, and unanimously acknowledges terrorism as a serious threat to their national, regional and international security. BRICS summit declarations indicate that their assessment of terrorism go beyond the traditional and non-traditional security divide, and acknowledge the military and non-military dimensions of terrorism.

With this cross-dimensional view, the group advocated for a comprehensive approach to terrorism in all forms, including violent extremism, radicalisation, terror financing and recruitment, illicit drug trafficking and financial flows. The BRICS has expressed support to fight terrorism and extremism in conflict zones like Afghanistan and Syria, and has called out terror outfits like Taliban, Islamic State, Al-Qaida, the Haqqani network, Lashkar-e-Taiba, Jaish-e-Mohammad, Tehrik-i-Taliban Pakistan and Hizb ut-Tahrir.[6]

Over the past 15 years, the BRICS has systematically developed ideas for institutional and legal frameworks to combat and counter terrorism. In addition to supporting the Financial Action Task Force (FATF) and similar regional bodies, it has also negotiated for the Comprehensive Convention on International Terrorism (CCIT) at the United Nations (UN).

The BRICS has also instituted mechanisms for counterterrorism cooperation among its member states. In 2015, it established a BRICS Council on Anti-Money Laundering and Countering the Financing of Terrorism within the FATF. In November 2020, it formally adopted its Counter-Terrorism Strategy, which aims to improve and deepen practical cooperation between the BRICS states and within the group.[7]

India has made a noteworthy contribution in expanding the discursive framework of terrorism and institutionalising it within the BRICS dialogue. For India, combatting terrorism has always been a foreign policy priority. Under India's leadership in 2016, the BRICS widened its discussions on terrorism to include "violent extremism, radicalisation, terrorism recruitment, movement of terrorists including Foreign Terrorist Fighters, terror financing; and associated organised crimes like money-laundering, drug trafficking, misuse of information and communication technologies (ICTs)".[8]

As the scope widened, the group adopted a comprehensive approach to counterterrorism following the Goa Declaration in 2016.[9] The same year, the BRICS forged deeper institutional ties within their security agenda by setting up a working group on counterterrorism. It also undertook a dialogue at the National Security Advisors (NSA) level for the exchange of expertise, intelligence and best practices, and coordination of counterterrorism plans.[10]

The Goa Declaration identified the need for multilateral negotiations to fight the "WMD-Terrorism nexus," specifically acts of chemical and biological terrorism.[11] BRICS has been an important platform for India to solicit support for the CCIT, which was first proposed by it at the UN General Assembly in 1996. At the 2020 summit, Indian Prime Minister Narendra Modi reiterated that the international community needs to "deal with the problem of terrorism in an organised manner and ensure that countries which support and assist terrorists are held accountable."[12]

As India presides over the BRICS summit in 2021, counterterrorism will be on top of the agenda for deliberations and deliverables this year.[13] At the meeting of BRICS Ministers of Foreign Affairs/ International Relations, Indian External Affairs Minister S. Jaishankar identified four key deliverables for the BRICS group—the reform of the multilateral system; counterterrorism cooperation; the use of digital and technological solutions to achieve the Sustainable Development Goals; and enhancing people-to-people cooperation.[14] India is expected to further "pursue the task"[15] set out in the BRICS counterterrorism strategy, adopted in November 2020.

COUNTERTERRORISM MECHANISMS

The BRICS has created a broad space on terrorism within its security cooperation vertical. The BRICS' approach also established that combatting terrorism and reforming institutions of global governance are not normatively disconnected. Therefore, democratising decision-making and representation at global political and financial institutions are important steps. Since the first summit in 2009, the BRICS declarations emphasised the central role of the UN and the UN Charter in coordinating multilateral efforts to combat terrorism. They expressed steadfast support to the UN and its agencies. Support was given in various forms—monetary, material and troop contributions, and humanitarian assistance to UN peacekeeping missions[16] in conflict zones. All BRICS declarations have appealed for a multilateral approach towards combating international terrorism and strengthening national and international laws.

International consensus is yet be built on the definition of terrorism, which has been the sticking point for the passage of the CCIT. Meanwhile, the BRICS has somewhat harmonised views and the understanding of terrorism and extremism through dialogue (such as at the leaders' summit level, the foreign ministers and NSA levels, and at the domain experts' level) guided by a comprehensive view that terrorism should be condemned in all forms and manifestations, and that it should not be associated with any religion, nationality, civilisation or ethnic group.[17]

In 2016, BRICS instituted its first cooperation mechanism with the Counter-Terrorism Working Group (CTWG) to identify global

"The BRICS states have a common interest in counterterrorism, and unanimously acknowledge terrorism as a serious threat to national, regional and international security."

and regional issues and consolidate a BRICS counterterrorism coordination strategy. Following deliberations over three plenary meetings, the CTWG was divided into five sub-working groups on terrorist financing, the use of internet for terrorist purposes, countering radicalisation, the issue of foreign terrorist fighters, and capacity building.[18] Among these, the BRICS nations emphasised on establishing measures to end the financing of terror-related activities, resources and services. In 2015, the group launched the BRICS Council on Anti-Money Laundering and Countering the Financing of Terrorism (AML/CFT). This council works to meet the recommendations made by the FATF in 2012 about improving international standards of the AML/CFT. It also coordinates the strategies of national Financial Intelligence Units.

The BRICS Counter-Terrorism Strategy document was adopted at the 12th Summit in November 2020.[19] The strategy aims to strengthen international and intra-BRICS coordination in the areas of information and intelligence sharing, security and law enforcement, AML/CFT, border and customs controls, legal assistance and extradition, countering extremist narratives, deradicalisation, use of ICTs, capacity building, research and development.[20]

Building on the progress made so far, the BRICS dialogue on terrorism and extremism should focus on four aspects:

- finalising a result-oriented action plan for implementing the BRICS Counter-Terrorism Strategy
- discussing the legal framework for practical cooperation to combat terrorism and extremism, and secure national borders
- building consensus on terrorism-relevant cybercrimes and best practices to counter these
- building a global and regional terrorism activity tracker and information resource pool

The CTWG is responsible for the implementation of the BRICS Counter-Terrorism Strategy.[21] It should emphasise on developing national, bilateral and multilateral protocols that allow security and law enforcement agencies to verify and share intelligence within short time frames. Timely and credible intelligence is the cornerstone of any counterterrorism strategy. BRICS discussions on protocols should ideally cover the security agencies' first responses, recovery of weapons and explosives, forensic investigation and extradition. Another vital area is coordination on national border security

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strategies to prevent and intercept the movement of foreign terrorists or local terrorism recruits, and trans-border organised crimes including money laundering, trafficking and proliferation of arms and ammunition.

The CTWG should also identify cross-border terrorism corridors that threaten their regional and global security. In the age of hyper-connectivity and social media, the BRICS dialogue should prioritise cooperation on mitigating cyber terrorism. The states can exchange notes on formulating and strengthening their national cyber security strategy and policies. They can also discuss practical steps toward strengthening domestic cyber laws and bolster cyber governance. The BRICS must also consider building a data or resource pool on regional and global terrorism to collate information on groups, individuals, organisations and networks identified as 'terrorist actors' by the five member-states. The list should complement the UN's comprehensive list of terrorists operating across the globe.

The BRICS Council can also maintain a terrorism activity and incident tracker. It can serve as a vital database for coordinating multilateral efforts with regards to key conflict zones identified at the leaders' summits. As BRICS deepens its intra-group cooperation, each member must also reach out to allies, strategic partners and friendly states to work towards strengthening existing legal measures and introducing new ones to combat global terrorism.

THE WAY AHEAD

The BRICS nations continue to be at the forefront of global institutional and systemic reforms. However, the COVID-19 pandemic has severely curtailed the political and financial capabilities of many governments, including the BRICS members, to contribute and respond to efforts to fight global threats. The reality of overstretched economies and reduced capacities is expected to put limitations on the BRICS states.

At the multilateral level, building new institutional capacities and making breakthroughs might be difficult. The countries must take this time to invest in national capacity building in line with the goals set by the group, even as they remain committed to the long-term objective of building collective capabilities.

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REPRIORITISING NATIONAL SECURITY AND DEFENCE IN BRAZIL: EXPLORING SCOPE FOR BRICS Cooperation

LUÍS FELIPE GIESTEIRA

Brazil is Latin America's largest country in size and economy. It shares borders with 10 of the 12 South American states in a total of 16,145 kms and holds a continuous coastal line of over 7,000 kms. Brazil's population, of which a great part lives in its Centre-South region, is around 212 million.[1]

Economically, Brazil is second only to the US in the Western Hemisphere and eighth globally.[2] Within South America, Brazil accounts for 50 percent of the continent's GDP[3], 48 percent of its population[4], and 47 percent of the land area[5]. Those figures have sound foundations in stock indicators as well. According to the World Bank, Brazil has the seventh largest capital and the second largest natural capital stock globally—60 percent of South America's equivalent figures.[6]

The Brazilian armed forces represent a third of the region's military personnel and 45 percent of the correspondent total expenditure, while the Brazilian defence industrial base, tiny when compared to advanced countries with similar GDPs, is more than twice the combined size of its neighbours.[7]

On the other hand, public security indicators suggest a worrying landscape. Corruption indices have not improved despite an expensive justice apparatus. There are strong and growing criminal organisations operating in the country, which have managed to expand abroad. They also have thick ties with illicit drugs trafficking. There are indicators of growing cybersecurity crimes that threaten the financial system. In all, Brazil is a very violent country, often with worse indicators than those of its neighbours, particularly when it comes to homicide.

Brazil also actively participates in multilateral forums, although it lacks a national development strategy and a high-level debate on that and international security.

Soft power orientation, pro-multilateralism, and negotiated solutions of conflict are long standing features of its approach to international security affairs, which fit the country's peculiar position in the present geopolitical landscape.

VERY BRIEF HISTORY OF BRAZILIAN NATIONAL SECURITY

Brazilian national security has historically been marked by the country's geographic evolution. In a way reproducing the Portuguese situation in the Iberian Peninsula, Brazil was much smaller and much weaker than the rest of the subcontinent, dominated by the Spanish empire.

The expansion that followed until the mid-twentieth century brought about a radical change in the country's importance and perspective on international security. As it consolidated into a regional power, on the one hand, the interest of political leaders in international security was reduced to almost nothing or to specific themes, generally seen in a reactive way. On the other hand, the dominant approach in international security matters became essentially multilateralist, promoting negotiated solutions. More specifically,

Figure 1

French Map of South America (Early Seventeenth Century)

Source: A Cartografia Histórica: do Século XVI ao XVIII in addition to multilateralism, other relevant aspects are the advocacy of a partial reform of the UN Security Council, the autonomy of countries, the emphasis on soft power and a passive military strategy focused on deterrence.

It is questionable whether these choices have had relevant outcomes for Brazil, but it is likely that given their limited economic dynamism in recent decades and fragile position in critical technologies, other alternatives would be unrealistic. At the same time, the high level of political-administrative fragmentation contributes to the limited effectiveness of the adopted strategy.

NATIONAL SECURITY AND DEFENCE STRUCTURES

There are several agencies in charge of national security in Brazil (see Table 1). The country has about 510,000 law enforcement officers and

Table 1

Agencies in Charge of National Security Related Policies

SECURITY AGENCY	MAIN MISSION
• Ministry of Defence	Defence
• Army	Defence
• Navy	Defence
• Air Force	Defence
• Ministry of Justice and Public Safety	Law enforcement
• Military Police	Law enforcement
• Civilian Police	Criminal Justice
• National Public Safety Force	Law enforcement
• Institutional Security Cabinet	Intelligence
• Brazilian Intelligence Agency	Intelligence
• Federal Police	Law enforcement
• Brazilian Institute of the Environmental and Renewable Natural Resources	Law enforcement
• Ministry of Foreign Affairs/ Department of Security and Justice	International Representation
• Ministry of Foreign Affairs/ Department of Defence	International Representation

24,000 federal justice personnel. These officers face severe professional training gaps, but there are several centres of excellence, especially at the federal level. However, Brazilian justice is full of peculiar instances. Solving conflict is both slow and expensive, which damages the confidence in the system.

The Brazilian Ministry of Foreign Affairs has a respectful history of dealing with a plethora of issues, from intellectual property to the promotion of national handicraft. Issues related to international security are the mandate of the Secretariat for National Sovereignty and Citizenship Affairs. Within this, two departments are more directly associated with the so-called national sovereignty. The Department of Security and Justice (DSJ) in particular[8] works reactively and faces internal agencies like the Federal Police. It also directly interacts with the judiciary branch. The DSJ also interacts with the Financial Action Task Force, an intergovernmental organisation that focuses on intelligence and information exchange on illicit capital flows worldwide.

Among international agencies, the Organization of American States, of which Brazil is a member, is focused on international cooperation on security matters. Another international platform is the US-Brazil Permanent Security Forum, which deals with drug trafficking, firearms smuggling, cybercrimes, money laundering and financial crimes.

The Ministry of Foreign Affairs´ Department of Defence works in cooperation with the Brazilian defence ministry on matters like controlling illegal substances, trade policy and cyber security. They also work together in dialogues on international security with countries such as Chile, Sweden, France and the United States. A significant part of international security issues are of interest to the Brazilian armed forces and are directly managed by them.

The Brazilian defence ministry inherited several responsibilities that were part of the erstwhile all-encompassing national security policy, including building highways and small airports, fixing bridges, providing basic education, medicine distribution, ammunition production, and maintaining internal security. Nevertheless, the ministry has made substantial progress on long-term security planning, specifically on the so-called strategic projects, which reflect a joint comprehension of the main threats to the country and a more ambitious technological autonomy. Examples of these projects are a medium size military transport aircraft, a new armoured personnel carrier vehicle, a nuclear submarine, a fourth-generation jet fighter, a 3D radar system on aerial targets and a medium-range subsonic missile.

Intelligence agencies are also a key part of Brazil's security apparatus, coming together through SISBIN, a government system. Efforts are ongoing to streamline the functioning of the various agencies that fall under SISBIN's purview, but have faced many political roadblocks.

GDP) yearly, against the 2014 estimates of 2 percent to 3 percent of GDP at the global level.[10] However, many experts consider that the last legal reform on the matter (in 2012) created such a broad definition of the crime that it generated high uncertainty and has been unfriendly to business.[11] Notwithstanding, the commission installed at the Chamber of Deputies to reform it was extinguished in May 2021 after six months of work.

CHALLENGES TO BRAZILIAN SECURITY

The perception of national security in Brazil is not rigid and is arguably imprecise. A reasonable way to balance these perceptions is to view national security through three approaches—public security, national defence, and international security—as determined by multilateral organisations.

- **Illicit financial flows**

Brazil is especially concerned with illicit financial flows and money laundering. However, known data does not suggest that it is a major problem for the country. In 2016, the Central Bank of Brazil pegged its black money at US$2.5 billion[9] (0.12 percent of

- **Drug Trafficking**

Brazil shares a substantial land border with three of the largest cocaine producing countries in the world—Colombia, Peru and Bolivia, which together produce about 70 percent of all pure cocaine, representing over a fifth of their combined GDPs.

Brazil is an important, but secondary consumer of drugs worldwide (see Table 2). Data on drugs production suggests it is not a large issue for Brazil, but the country's very peculiar

Table 2

Use of Most-Common Illicit Drugs as a percentage of the population aged 15-64 in BRICS Countries and Worldwide

	COCAINE	CANNABIS	ECSTASY	OPIOIDS
Brazil	0.85	2.55	0.2	n.a.
Russia	0.23	3.49	0.68	1.66
India	n.a.	2.83	n.a.	2.06
China	n.a.	n.a.	n.a.	n.a.
South Africa	0.9	3;96	0.36	0.5
World Average	0.67	4.43	0.51	0.95

Source: UN World Drug Report 2021[13]

geographic conditions make it an important hub in the international drug trade. There are over 30 organisations involved in the drugs trade within the country, at least three of which are becoming transnational, expanding to South America and Africa.[12]

The drug industry is also known to have connections with other criminal organisations as well as political outfits in the region, further complicating the situation in Brazil. The increasing digitalisation of the banking system is also adding to the complexities of the problem.

- **Cybersecurity**

Information and communication technologies (ICT) can jeopardise national security, and so cybersecurity is a key component of defence strategies. These technologies are also important for development. For instance, artificial intelligence (AI), 5G and 6G related technologies will be among the main drivers of productivity growth in the coming years, but they also include risks.

The BRICS countries, aiming for more significant roles on the global stage, are seeking to boost their ICT industries, and have made some progress on this front. According to the United Nations Conference on Trade and Development's 2021 Readiness for Frontier Technology Index, China (rank 25) and Russia (rank 27) are the only two non-developed countries among the top 30, with Brazil (rank 41) and India (rank 43) also rank very well (0.65 and 0.62).[14]

The National Cyber Security Index,[15] which measures the ability of countries to prevent cyber threats and manage cyber incidents, suggests that BRICS, although still lagging behind rich countries, are doing well. Russia exhibits a national cybersecurity level of 64.9, followed by India at 59.6, Brazil at 46.7, China at 35.1 and South Africa at 27.3. India and Russia are the only BRICS countries whose cybersecurity overcomes its general development indicator; all other BRICS countries show cybersecurity deficits, particularly South Africa at -20.16.

Brazil performed well in several indicators in the OECD's Measuring the Digital Transformation report, ahead of the BRICS and Global South countries (except Chile), particularly in the usage of digital technologies by companies and households; digital-intensive services value added embodied in manufacturing exports; and the number of data centres.[16]

Brazil also performs well on the Global Unicorn List 2020, ranking seventh (after China at second and India fourth place) with eight companies, three of which are fintechs. The Brazilian banking system has been a greenhouse for software developers since the 1980s, and is a leader in the adoption and development of digital technologies. Brazil has the eighth-fastest banking system worldwide, with more than 50 percent of bank transactions in the country made via the internet.[17]

Globally, Brazil is the second leading source of cyber-attacks and third most-affected target.[18] Correspondingly, many firms, especially banks, rank cybersecurity as their main security risk. Brazil's public and private sector have made significant efforts to bolster cybersecurity—a law on the protection of personal data was passed in August 2018; a digital transformation strategy was launched in March 2018; and the AI and digital government strategies were established in April 2021.

However, ensuring cybersecurity is a difficult policy area. Regulating cybernetic space is troublesome, and can also be connected to terrorism and terrorist activities. Nevertheless, Brazil has been active in dealing with the issue at international platforms. It led the fourth and sixth meetings of the UN's 25-member Group of Governmental Experts on Advancing Responsible State Behaviour in Cyberspace, which also includes the other BRICS countries. Brazil is also in process of acceding to the Convention on Cybercrime (also known as the Budapest Convention).

- **Environment regulation and the Amazon**

Since the 1992 Earth Summit in Rio de Janeiro, Brazil has been a prominent participant in the global sustainable development agenda. The country has a clean electric power production system, mainly based on hydropower and biomass. While the expansion of crops and cattle rearing was based on continuous productivity gains, this is now supported by a well-developed sectoral system of innovation in the related industries.

At the same time, Brazil's Amazon region faces risks from climate change, its population is extremely poor, and the costs of surveillance are high. Maintaining the Amazonas state, which holds the world's largest natural reserves, costs the federal government billions of reals annually. International transfers to Brazil related to forest preservation are a small fraction of these costs and their use is restricted to research on the ecosystem or humanitarian help.

CONCLUSION

Brazil's approach to international security issues is rather passive and reactive. Prioritising a soft-power approach, the country has made strong moves on multilateralism, international cooperation and the search for negotiated solutions. By refraining from becoming a nuclear power and by clinging to a firm engagement with post-Cold War multilateralism, Brazil's grand strategy was to gain a permanent seat at the UN Security Council and enjoy its soft power potential. But there are many questions on how successful this has been.

One aspect of the Brazilian approach on international security that resonates with that of the other BRICS and large Global South countries is its firm defence of national sovereignty. But cybersecurity, illicit financial flows, enforcement of environment regulations, and global food security are emerging as major concerns. Active cooperation with the BRICS countries in these areas will encourage the definition of common positions in broader forums, particularly in the UN system. More concrete institution building initiatives, such as the New Development Bank, are not in the immediate sight but should work as an important signal for close future developments.

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BRICS: A Role Model IN A CRUMBLING WORLD

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BRICS
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The world continues to witness a growing number of challenges, while the persistent need for an all-out joint effort to counter global problems continues to meet a constantly decreasing willingness to offer solidarity. The BRICS, though far from being ideal, does hold the potential to serve as a role model in a crumbling world.

International peace, stability and security have not typically been the primary focus of BRICS interactions, and there is no uniform view on several issues of common concern. Nevertheless, as the group evolves into a comprehensive entity, those issues will continue to gain attention, with new intra-group platforms and solutions.

COMMON GROUND FOR PEACE

The adherence to the UN Charter and international law, the centrality of the UN, and the unquestionable support for diplomatic solutions over the use of force are fundamental to the BRICS, directing internal deliberations and giving the grouping added heft and a common view at other fora.

The BRICS countries have committed to work together in the spirit of responsibility and solidarity to combat the COVID-19 pandemic, underlining the importance of avoiding discrimination, stigma and overreaction while responding to the outbreak.[1] The BRICS also supported a UN General Assembly resolution on coordinating responses to the pandemic. Meanwhile, the BRICS countries abstained from supporting a UN Security Council (UNSC) draft resolution on Syria and human rights violations.[2] Moreover, Russia, China and South Africa voted against a draft UNSC resolution that would also have imposed an arms embargo on Zimbabwe and sanctions against its president.[3] These joint positions are a sign of reconciliation and coordination among the BRICS countries, given that some of the standpoints do not necessarily reflect their own interests.

Earlier this year, two BRICS members were mired in bilateral security issues, and two were invited to participate in discussions at the G7 Summit in June. Despite some alarmist claims, these developments did not result in the splintering of the group.

The Doklam standoff in 2017 and the clash between Indian and Chinese troops along the Line of Actual Control in eastern Ladakh in 2020 were resolved before the BRICS summits. This was despite predictions from the West of the near "end of BRICS".[4] While the BRICS is not the mechanism to resolve bilateral conflicts among members, it provides an extra platform for the two countries to stay engaged multilaterally and work with other members on shared concerns. Currently, only India and China are disengaged at various friction points. To avoid a full-scale military conflict, it is necessary to strengthen peace, stabilise relations, and develop "rules of behaviour" in the military sphere among the BRICS countries.

Another attempt to write off the BRICS was made during the G7 Summit in June, claimed by some as the "first summit of the coalition against China".[5] The UK's invitation to India and South Africa to participate as guest countries at the G7 was interpreted as a "weakness of cooperation within BRICS".[6] The G7's agenda now clearly appears to be countering China's influence in international organisations and the Asia-Pacific region. Nevertheless, India and South Africa's multi-vector policies show support for at least two underlying BRICS principles—constructing a plurilateral world order aimed at sustaining fundamental UN principles, and advancing global development. Given the BRICS's growing role in global economic and political governance, the grouping could act as a stabilising force in the international arena to preserve peace and stability and limit West-led interventionism.[7]

The Western community is at odds on many issues pertaining to the global economy and international security, giving the BRICS an opportunity to develop a common position on these issues that goes beyond that of other groups.

The recent NATO Summit in Brussels clearly demonstrated that the alliance cannot exist without a "big enemy from the East," and the perceived 'Russian threat' is now complemented with a Chinese one. China was mentioned ten times in the final communiqué document (even though the country is outside the NATO's "area of responsibility"), while Russia was mentioned 60 times.[8] While the Biden administration in the US has attempted to resume closer contacts between its transatlantic allies, the NATO summit reaffirmed the approach of building practical cooperation with its foe-friends.

Experts have raised concerns on the ever-increasing danger of hostilities between nuclear powers. So far, the US has refused to develop a new understanding of strategic stability consistent with new geopolitical and technological realities. Despite the Biden administration's decision to extend the New Strategic Arms Reduction Treaty, the US continues to emphasise the preemptive use of force and demonstrates a destructive position concerning issues of strategic stability.

In this regard, the BRICS has a positive stabilising effect on international relations in reducing the risks of global block polarisation. But it should not turn into an anti-US and anti-Western club. The group should remain above confrontation and exert a unifying—but not polarising—influence on international relations.

INSTITUTIONAL COOPERATION

The BRICS has an extensive framework on security, encompassing areas like combating terrorism, extremism, transnational organised crime, money laundering, piracy and illicit drug trafficking. Crucially, not all security issues are of equal importance to each member country. International terrorism is a major security threat to Russia and India; political and religious extremism for Russia, India and China; drug trafficking for Russia and Brazil; and organised crime for all BRICS countries (especially Brazil, South Africa and Russia).

Figure 1

Institutional Structure of the BRICS Security Cooperation

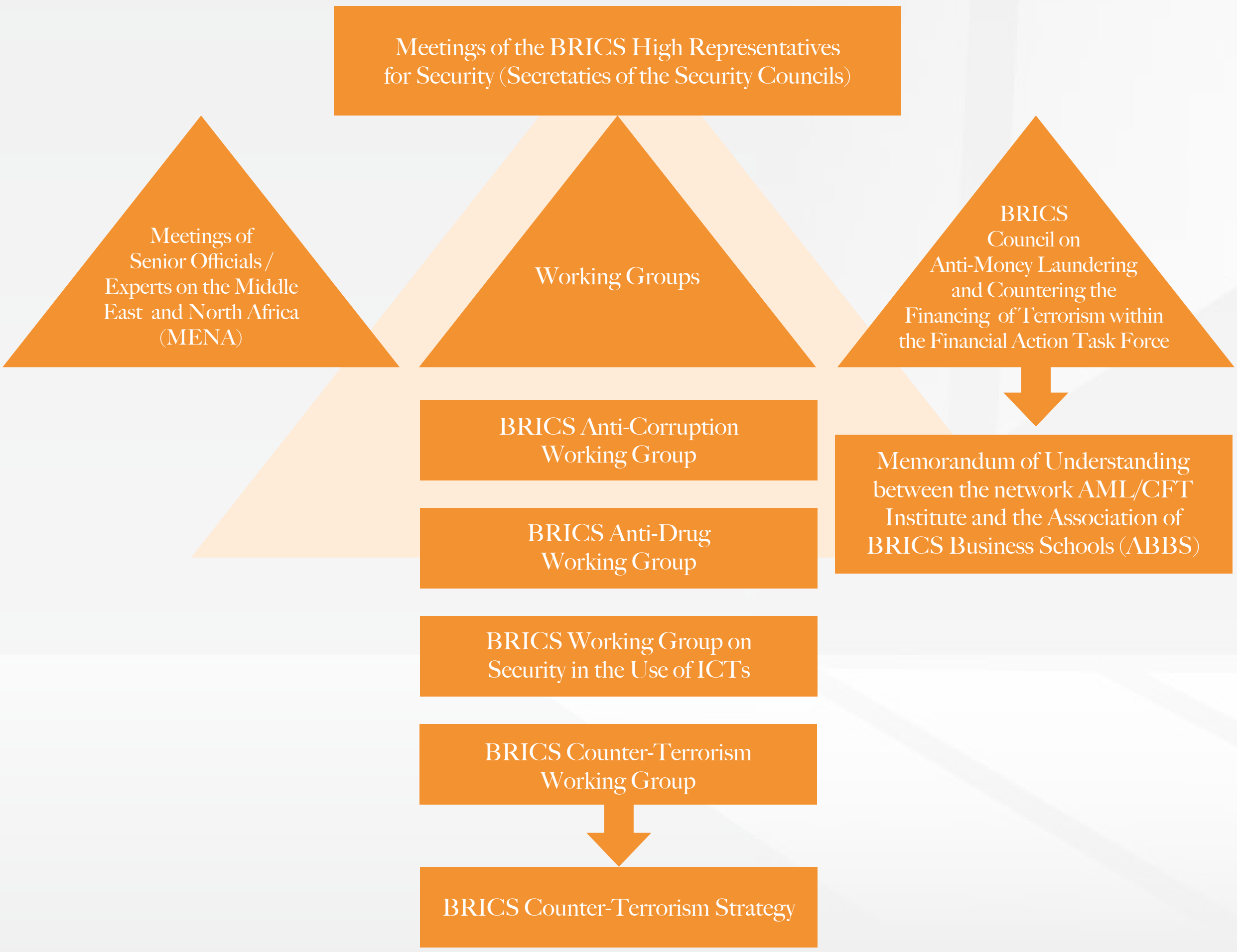

Table 1

Progress in BRICS Security Cooperation, 2015-2020

Country	Year	Items
RUSSIA	2015	• Meeting of Senior Officials/Experts on the Middle East and North Africa (MENA) • BRICS Anti-Corruption Working Group • BRICS Anti-Drug Working Group • BRICS Ministerial Meeting on Combating the Drug Threat • BRICS Working Group on Security in the Use of ICTs • BRICS Council on Anti-Money Laundering and Countering the Financing of Terrorism within the Financial Action Task Force (FATF) (BRICS Council on AML/CFT) • Memorandum of Understanding between the network AML/CFT Institute and the Association of BRICS Business Schools (ABBS)
INDIA	2016	• BRICS Counter-Terrorism Working Group • Proposal on the Agreement on Cooperation on BRICS Remote Sensing Satellite Constellation (Russia)
CHINA	2017	• Proposal on the establishment of a BRICS Intelligence Forum (Brazil) • Proposal on a BRICS intergovernmental agreement on cooperation on ensuring security in the use of ICTs (Russia)
SOUTH AFRICA	2018	• Proposal on the establishment of a BRICS Working Group on Transnational Organized Crime (South Africa)
BRAZIL	2019	• Initiative towards bilateral agreements among BRICS countries on ensuring security in the use of ICTs (Brazil)
RUSSIA	2020	• BRICS Counter-Terrorism Strategy • Proposal on the establishment of a BRICS Integrated Early Warning System for preventing mass infectious diseases risks (Russia)

At the early stages of the BRICS, security clearly occupied a secondary place on the agenda to economic issues. But permanent consultations provided the five countries with a platform for dialogue on global, regional and national security, including strategic stability, biological security and healthcare, and security in the use of ICTs. Since 2015, security issues have been addressed through practical joint initiatives via regular meetings of specialised working groups. This demonstrates the strengthening of mutual trust among the BRICS countries and the ability to promote advanced forms of cooperation despite some bilateral security issues.

Over the past two years, the BRICS agenda has increasingly focused on counterterrorism. In 2019, the development of the BRICS Counter-Terrorism Strategy was announced,[9] which was adopted a year later during Russia's presidency.[10] This is of particular importance given the US's transition to a long-term policy of deterrence and confrontation with China and Russia, since it significantly reduces the effectiveness of the global fight against international terrorism and reinforces the importance of other multilateral formats of cooperation in this area.

On a few security issues, cooperation among the BRICS countries goes much further than the development of common positions and intergovernmental coordination. It is institutionalised and carried out on an ongoing basis at the working level. However, the lack of practical cooperation within the BRICS weakens its potential to resolve international security issues.

Additionally, several measures can be taken to strengthen the institutional framework, including:

- Promoting the Anti-Terrorism Convention within the UN framework, setting common approaches and "rules of behaviour", suppressing the financing and dissemination of extremist ideology using social networks

- Enhancing further cooperation through the BRICS Intelligence Services in the exchange of information related to prevention and suppression of terrorist and extremist activities

- Promoting joint exercises of anti-terrorist special forces and exchanging best practices in the fight against terrorism

- Creating a BRICS Anti-Terrorism Committee that is similar to that of the Shanghai Cooperation Organisation Regional Anti-Terrorism Structure

- Conducting joint exercises and operations on the suppression of illicit drug trafficking, coordinating work within the Interpol framework

- Deepening cooperation, including in the BRICS-Plus and "outreach" formats, to share information and create a single human trafficking database

- Offering and supporting multilateral mechanisms to resolve international conflicts globally

NON-TRADITIONAL SECURITY THREATS

BRICS cooperation on security issues is necessary due to the increasing threat from non-traditional sources, particularly in information and communication technologies (ICT), space and healthcare.

The BRICS has made modest progress in tackling ICT threats since recently cooperating on this front. Annual ministerial meetings to identify common priorities have been held since 2015, with several key working tools set up in the following years, such as the BRICS Partnership on the New Industrial Revolution, Digital BRICS Task Force, and the BRICS Institute of Future Networks. Parallelly, to develop contacts between BRICS information technology (IT) and IT enabled services industries, several events were held, including the annual BRICS IT Forum.

BRICS digital cooperation covers a relatively small number of areas compared to other topics. Initially, issues of digital development were indirectly addressed within the BRICS agenda of scientific and technological cooperation, then as an integral part of the ICT agenda. In 2015-2020, the main progress was made in the field of ICT cooperation towards the creation of mechanisms for interaction on the technological and digital agenda.[11]

Further financial support from the NDB and national development banks for ICT projects, especially those developed by more than two BRICS countries, can accelerate cooperation in this area.

BRICS leaders commenced discussions on ICTs and norms of behaviour in 2013,[12] and the BRICS Working Group on Security in the Use of ICTs was set up in 2015. While Russia proposed a group-wide inter-governmental agreement on cooperation to ensure security in the use of ICTs in 2017,[13] Brazil suggested bilateral agreements for the same.

The closest bilateral cooperation in this area is between Russia and China, which share common approaches, and jointly propose rules for responsible behaviour at the UN and other multilateral institutions. At the International Telecommunication Union (ITU) and the G20—where information security is permanently on the agenda—the BRICS countries do not express a common position nor do they take a confrontational approach, prioritising national interests above all else. For now, the UN Group of Governmental Experts on information security can be seen as an effective channel to determine rules, norms and principles for responsible behaviour in this sector. But by focusing on better coordination among the five member-countries and developing universal norms for responsible ICT behaviour, the BRICS can aim to strengthen its role as an important global governance institution.

Another issue of importance is the safety and security of space activities and preventing an outer space arms race. Russia and China have long opposed the militarisation of outer space, particularly the placement of weapons of mass destruction in the Earth's orbit. The so-called 'Moon Treaty' no longer caters to modern space activities, technology and weapons development. But moves to promote the non-weaponisation of the space agreement at the UN are routinely blocked.

Given the high risks of having weapons in outer space, the BRICS must address the issue, which will increase the grouping's global authority and influence and help implement one of its objectives—promoting global stability. Since 2016, the grouping has also been working on Russia's proposal on cooperating on remote sensing satellites, which will be a tangible contribution to the sustainable and peaceful use of outer space for the benefit of all countries.

The COVID-19 pandemic had a huge impact on all spheres of human interaction, including economy and global governance. By exacerbating the accumulated contradictions and accelerating major international political processes, it marks a milestone in the development of peace and stability. In the short term, multilateral institutions and global governance will weaken in favour of national egoism, competition between the US and China will heighten, and economic crises will deepen. In the long term, there may be a structural transformation of the world economy, a qualitative transformation of globalisation, and greater cooperation in healthcare, sustainable environment and climate change. The pandemic could also spur a global debate on redefining the idea of development and the perception of security threats. Human security could prevail over national security, which will lead to a reassessment of the threat hierarchy.

These trends reinforce the importance of strengthening cooperation within the BRICS and developing joint efforts to combat crises. In 2020, Russia proposed a BRICS Integrated Early Warning System to prevent mass infectious diseases and outbreaks and minimise the risks of such outbreaks turning into pandemics. The BRICS must accelerate the launch of the Vaccine Research and Development Centre (first mooted in 2018) to be prepared for any future health crises.

The BRICS can consider several measures to boost cooperation in tackling non-traditional security threats, including:

- Promoting the UN International Code of Conduct for Information Security
- Developing standards and rules for responsible behaviour in the military aspects of ICT
- Elaborating code of conduct to promote non-weaponisation of space within the UN framework
- Establishing a research network on COVID-19 and other emerging viruses; complementing the efforts undertaken within the BRICS science, technology and innovation framework and grant systems
- Exploring possibility of New Development Bank backing health projects such as production of medicines and vaccines
- Tapping the potential of new and emerging digital technologies in the health sector, including artificial intelligence, telehealth and digital health diagnostic, to achieve universal health coverage and reduce the burden on medical institutions during health emergencies.

BRICS-PLUS SYNERGY

Cooperation for an effective response to new challenges and threats should be paramount at the regional (blocs and regional alliances), trans-regional and global levels. New forms of trans-regionalisation, such as the BRICS-Plus and "outreach" formats and the idea of "integration of integrations" within the developing world, are especially promising.[14]

Russia held the presidency of BRICS and Shanghai Cooperation Organisation (SCO) back-to-back, which enabled additional platforms for members of both groupings to cooperate on the major issues of common concern. While the BRICS and SCO share similar principles, both mechanisms have different policy instruments, agendas and purposes, and this will enable the achievement of a synergetic effect and produce a positive impact on the international security, global governance and national interests of the member-states. Despite a partially converging membership (the BRICS and SCO include Russia, China and India), there is no duplication of structures.

The SCO agenda is regionally oriented, focusing on security, economic and humanitarian issues of "Greater Eurasia" and strategically contributing to partnership, absence of zero-sum game and mitigation of differences through cooperation among the three major Eurasian powers—Russia, India and China. On some issues, such as information security, the SCO acts as a pioneer for the BRICS and other global structures, an example of best practice and advanced cooperation.

Meanwhile, the SCO could support and benefit from the fair rules of economic relations that the BRICS promotes (including opposition to unilateral sanctions and other restrictive measures and increasing trade in national currencies) and from the development of BRICS institutions, such as the New Development Bank (NDB). The NDB could provide support to economic and infrastructure development projects in Central Asia, supervised and supported by the SCO.

SHARED RESPONSIBILITY FOR COMMON FUTURE

None of the current security threats will decline in the foreseeable future. Regional instability, drug trafficking, religious extremism and terrorism will persist or worsen. Other transnational threats like climate change, environmental degradation and pandemics will also impact stability, global governance and sustainable development. By weakening the power and authority of official governments, worsening the standard of living, these threats will create an enabling environment for radicalism, terrorism and organised crime.

The BRICS can be used as a mechanism in countering transnational security threats caused by globalisation and leading power rivalries, and one can offer several reasons to support this evidence:

- The grouping aims to promote a fair, polycentric world order without hegemony, where rules and decisions are determined collectively rather than imposed from above. Several BRICS countries are geopolitical adversaries, yet cooperate on common issues through the platform.

- Amid increased tensions between the US, China and Russia, the BRICS provides a useful template for global cooperation. The BRICS can partially fill the vacuum of cooperation on common challenges, and increase its authority among developing countries.

- The BRICS includes new centres of economic growth and political influence. It cooperates on terrorism, climate change, combating organised crime, and minimising the effect of sanctions and trade wars. It is important to involve third countries through the BRICS-Plus and "outreach" formats to promote the grouping's principles for a fairer and more inclusive world.

- Although not a military alliance, the BRICS is more suited to deal with non-traditional security threats than NATO-style international institutions, which typically lean towards using force instead of diplomatic means.

The world is living through turbulent times—from COVID-19 to the US-China trade war and climate change. National egoisms, protectionist tendencies, and rising geopolitical tensions are also critical issues. The BRICS must continue to focus on alleviating and resolving these issues through joint efforts and must persist in developing a new model of interstate cooperation based on mutual respect, win-win approaches, and the wellbeing of all.

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DEVELOPING BRICS Frameworks TO ADDRESS NON-TRADITIONAL SECURITY THREATS

ZHU TIANXIANG

The BRICS has been focused on international peace and security since establishment. Its comprehensive framework has three pillars based on political and security dialogue, economic and financial cooperation, and people-to-people exchange. From the perspective of BRICS leaders, non-traditional security threats are as important as traditional ones. So, the BRICS has been committed to making joint efforts to address common traditional and non-traditional security challenges.[1]

Non-traditional security issues have broad contours but this paper focuses on three—illicit financial flows, money laundering and violent extremism. How can the BRICS countries cooperate to address these issues?

NON-TRADITIONAL SECURITY THREATS TO BRICS

A unique characteristic of non-traditional security threats is its transnational nature, which needs to be managed by large-scale international cooperation. This is also true for the BRICS countries. Over the 2003-12 period, US$6.6 trillion flowed out of developing world through illegal means into bank accounts in developed countries or tax havens.[2] In 2012, the scale of capital outflow from developing countries reached a record of US$910 billion, which was 1.3 times the actual use of foreign capital in these countries in the same year. Notably, nearly half of these funds were from the BRICS countries.[3]

Another study found that Brazil, China, Colombia, Costa Rica, India, Russia, and South Africa lost four percent of corporate tax revenues (amounting to US$25 billion) due to profit shifting in 2015.[4]

None of the five BRICS countries belong to the 'high-risk jurisdictions subject to a call for action' or the 'jurisdictions under increased monitoring' classifications under the Financial Action Task Force (FATF). Yet, money laundering is a potential threat to the BRICS. According to FATF, Russia is exposed to a wide range of money laundering risks, and a large proportion of criminal proceeds generated in the country is laundered abroad.[5]

In 2019, the China Anti-Money Laundering Monitoring and Analysis Center received 867 million large transaction reports submitted by 4182 reporting agencies, of which 1.63 million reports are suspicious, a 2.22-percent increase year-on-year.[6] In addition, a 2020 US Bureau of International Narcotics and Law Enforcement Affairs report identifying 80 countries and regions that are major money laundering jurisdictions included all BRICS countries expect South Africa.[7]

Violent extremism, especially terrorism, is a common enemy to humanity. Between 2001 and 2018, Russia saw 1,752 terrorist attacks, which resulted in 3,316 deaths and 5,764 injuries.[8] Over the same period, India suffered 9,631 terrorist attacks. About 170 terror organisations are thought to be active in India, with nearly one-third of its territory said to be affected by terrorism.[9]

In China, incomplete statistics tell us that from 1990 to the end of 2016, separatist, terrorist and extremist forces launched thousands of attacks in Xinjiang, causing large-scale damage to life and property.[10] Evidence is insufficient to demonstrate how serious the problem is in Brazil and South Africa, but other countries' experiences in the same continent should serve as a warning on the threats violent extremism poses to these two BRICS countries.

BRICS AND MULTILATERAL DECLARATIONS

Issues such as illicit financial flows, money laundering and violent extremism were not on the agenda of the BRICS summits in the early years. However, since 2016, BRICS leaders have focused some attention on illicit financial flows due to the weak recovery of the global economy. They argued that BRICS stressed the importance of fostering an innovative, invigorated, interconnected and inclusive world economy, but illicit financial flows here and in other international hotspots had added to the global economic uncertainty. Therefore, BRICS needed to enhance international cooperation to address illicit cross-border financial flows.[11] To achieve this goal, BRICS supported international cooperation within FATF and World Customs Organization. The BRICS underscored the importance of increasing mutual exchanges and data sharing.[12] Furthermore, it also reaffirmed the grouping's commitment to combating illicit financial flows within the FATF-style regional bodies, as well as in other multilateral, regional and bilateral fora.[13]

From the perspective of BRICS leaders, illicit money and financial flows were closely related to corruption, a global challenge to economic growth and sustainable development. For this reason, the BRICS countries would strive to coordinate their approaches and encourage a stronger global commitment to prevent and combat corruption based on the United Nations

Convention against Corruption and other relevant international legal instruments.[14]

Meanwhile, the BRICS also sought to improve compliance with internationally agreed standards on tax transparency and exchange of information, and make progress in information sharing to improve their tax authorities' abilities and technical capacities to deter, detect and disrupt illicit financial flows.[15]

BRICS leaders showed deeper concerns on the growing links between money laundering and terrorism than for illicit financial flows.[16] In this respect, the BRICS agreed to participate in efforts to implement and improve the International Standards on Combating Money Laundering and the Financing of Terrorism and Proliferation in the FATF, including through cooperation among BRICS heads of delegation on Anti-Money Laundering/Countering the Financing of Terrorism (AML/CFT); in the context of the BRICS Counter Terrorism Working Group; and using other platforms to safeguard the integrity of national financial systems.[17]

Dialogue was encouraged among the BRICS countries on key issues of the AML/CFT agenda in view of the proposed institutionalisation of the AML/CFT BRICS Council. The grouping also underscored the importance of national financial intelligence units.[18] As part of Ufa Action Plan, BRICS held three meetings of heads of BRICS delegations to FATF in Paris (February 2015), Moscow (April 2015), and Brisbane (June 2015). During its chairship, Russia also promoted the establishment of the BRICS Council on AML/CFT within the FATF.[19] Additionally, the sixth and seventh informal meetings of the BRICS Finance Officials on the margins of FATF were held in Paris (February 2016) and Busan, South Korea (June 2016), ahead of the 2016 BRICS summit.[20]

"BRICS countries must establish bilateral and multilateral cooperation within the group to strengthen efforts to tackle non-traditional security threats."

Counterterrorism, on the other hand, has regularly appeared on the BRICS summit agenda since the beginning. In 2009, all five BRICS leaders strongly condemned terrorism in all its forms and manifestations,[21] a consistent grouping-wide position since then.

The BRICS sees the UN as playing a central role in coordinating international action against terrorism within the framework of the UN Charter and in accordance with the principles and norms of international law. In this context, BRICS urged an early conclusion of negotiations in the UN General Assembly on the Comprehensive Convention on International Terrorism and called for it to be adopted by all UN member states.[22] At the same time, BRICS also recognised the role of states and local competent authorities in preventing and countering terrorism and urged all countries to prevent the financing of terrorist networks and actions.[23]

The BRICS has argued that the prevention of terrorist acts is as important as the repression of terrorism and terror financing.[24] It asked all entities to refrain from financing, encouraging, training or providing other support to terrorist activities, and called upon all nations to adopt a comprehensive approach in combating terrorism, including countering violent extremism and radicalisation, restricting the movement of terrorists (including foreign terrorist fighters), blocking sources of terror financing terrorism (such as through money laundering and drug trafficking), and countering the misuse of the internet.[25]

BRICS has affirmed its commitment to preventing and countering the spread of terrorist narratives. In the recent years, the group has emphasised the need to launch multilateral negotiations on a global convention for the suppression of acts of chemical and biological terrorism at the Conference on Disarmament.[26]

Crucially, the BRICS views the issues of illicit financial flows, money laundering and violent extremism as interconnected. Anti-money laundering is often regarded as an important measure to counter terrorism. In this sense, BRICS has reaffirmed its commitment to the FATF International Standards on Combating Money Laundering and the Financing of Terrorism and Proliferation. It has also called for the swift, effective and universal implementation of the FATF Consolidated Strategy on Combating Terrorist Financing, including the effective implementation of its operational plan.[27] This is conducive to coordinate and collaborate with different international regimes and organisations. Overall, the BRICS countries agree on the need to address illicit financial flows, money laundering and violent extremism.

CROSS-BORDER FRAMEWORKS IN PRACTICE

The BRICS places great emphasis on the key role of the UN and other multilateral institutions in addressing various global threats. In June 2021, the grouping released a joint statement on strengthening and reforming the multilateral system, which stated that an important task is to strengthen the capacities of individual states and international organisations to better respond to new and emerging traditional and non-traditional challenges, including those emanating from terrorism, money laundering, infodemics and fake news.[28]

Non-traditional security threats are a global problem, and do not affect BRICS countries alone. As a result, the BRICS places high importance on global frameworks like FATF and UN conventions to tackle terrorism and related issues. However, achieving consensus among hundreds of nations is not easy. For instance, the UN Comprehensive Convention on International Terrorism has not yet taken effect despite nearly all countries agreeing to

Table 1

BRICS Main Frameworks on Illicit Financial Flows, Money Laundering and Violent Extremism

ILLICIT FINANCIAL FLOWS	MONEY LAUNDERING	VIOLENT EXTREMISM
• Meeting of Heads of BRICS Supreme Audit Institutions • Annual Meeting of BRICS Interbank Cooperation Mechanism and Financial Forum	• Meeting of BRICS Heads of Delegation on AML	• Meeting of the BRICS High Representatives for Security Issues • BRICS Counter Terrorism Working Group Meeting • Meeting of BRICS Working Group on ICT Cooperation
• · Meeting of BRICS Finance Ministers and Central Bank Governors • · Meeting of BRICS Customs Agencies • · Meeting of BRICS Anti-Corruption Working Group • · BRICS Heads of Prosecution Services Meeting • · BRICS Heads of Tax Authorities Meeting		

need to fight terrorism. It is therefore necessary for the BRICS to develop sub-level frameworks (see Table 1 for existing frameworks). For instance, during the 2016 Goa summit, it established an Anti-terrorism Working Group, and in 2020, a sub-working group for de-radicalisation was also created.

In addition to the existing frameworks (see Table 1), the BRICS countries must also focus on bilateral and multilateral cooperation within the grouping with stronger institutionalisation to strengthen group-wide efforts. For instance, following a meeting in December 2020 between their heads of state, China and Russia emphasised the deepening of bilateral financial cooperation to combat money laundering and terrorist financing, and strengthening of communication and cooperation within the framework of the FATF and the Eurasian group on combating money laundering and financing of terrorism.[29] Similarly, Russia, India and China announced that they would not support terrorist groups and use them for political and geopolitical gains.[30]

CONCLUSION

In a keynote address to the 12th BRICS Summit in 2020, Chinese President Xi Jinping noted that human society was going through a critical period due to the COVID-19 pandemic, which posed a grave threat to life and wellbeing and had severely impacted the economy and trade. Such factors of uncertainty and instability have risen in recent years. The global economy is seeing its worst recession since the Great

Depression of the 1930s. Unilateralism, protectionism and acts of bullying are becoming rampant, and the deficit in governance, trust, development and peace is widening.[31] In this new context, non-traditional security threats, including illicit financial flows, money laundering and violent extremism, are becoming far more active.

As outstanding emerging economies and excellent representatives of all developing countries, the five BRICS countries are key stakeholders in international security and global sustainable development. The BRICS should consider establishing a new comprehensive framework for non-traditional security issues or set up a sub-working group under the framework of the BRICS High Representatives for Security.

The BRICS must consider how it can collaborate to leverage the existing frameworks (see Table 1), which deal with diverse issues at different levels. The grouping must be cautious to avoid a 'Spaghetti bowl' effect[32] through coordination and a reasonable division of labour. In doing so, BRICS could play a much more influential role in the transnational governance of non-traditional security issues. Any framework should be committed to result-oriented actions instead of just rhetoric. The BRICS Counter Terrorism Strategy is a step in the right direction, but this is only a starting point. BRICS really needs to take care of the following actions.

Finally, non-governmental frameworks could also play a role, and BRICS think tanks should make constructive contributions to these. For instance, the annual BRICS Academic Forum could include special sessions on non-traditional security issues; experts from various disciplines and specialisations could be brought together to share their insights on the issue; and a special report can be presented to the BRICS leaders on potential joint action to safeguard and guarantee international security.

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TOWARDS A RESPONSIVE BRICS CROSS-BORDER Framework ON INTERNATIONAL SECURITY

NIRMALA GOPAL

In its official discourse on global governance, the BRICS coalition has questioned certain established norms and institutions as it pushes for the transformation of the international system.[1] BRICS is interested in a more multilateral configured system that will better reflect the current distribution of power where their voices make a difference. This contestatory reformist stance has sometimes provoked discomfort among other actors within the international community. However, the BRICS' contestation generated new expectations on the part of the international community regarding the ability of rising powers to bring innovative approaches in dealing with international security challenges.[2] Thus, the BRICS countries can be lauded not just for their affinity and cooperation in the economic and development spheres but, more importantly, for their attempts to reach some common ground on international security.

Russia and China are the only two BRICS countries that are permanent members of the United Nations Security Council (UNSC), but the other three countries also share a desire to play a more significant role in international security.[3]

Although the BRICS countries are eager to find some common ground in their defence of the principle of national sovereignty and in their disfavour of concepts like "contingent sovereignty," which challenges the norm of non-intervention, their commitment to sovereignty remains.[4]

Similarly, in terms of its engagement with the neorealist, globalist, and regionalist perspectives, the BRICS is aware of including these crucial elements when understanding the post-Cold War global security order (or any security order) in its own international security efforts. Underlying these three perspectives is a central question about levels of analysis—are the threats that get securitised located primarily at the domestic, regional, or system level? In consideration of the preceding notions,[5] BRICS countries experience threats nationally, regionally and internationally. Internationally, security threats such as violent extremism, money laundering and the illegal flow of capital are increasingly destabilising the BRICS economies. A responsive BRICS-wide cross-border framework to consolidate future efforts in responding to such international security threats is needed.

It has been well documented that the UNSC has been inundated with pressures from rising violent extremism, military tensions, money laundering that finance conflict, and illegal flow of capital on the African continent.[6] Yet, existing UNSC instruments are somewhat ineffective while responding to these growing challenges.[7]

The BRICS has expressed concern about the scourge of violent terrorism and other forms of extremism engulfing the Middle East and North Africa, including the existence of groups like the Islamic State, a reminder that no one is immune to the threat of terrorism and extremism. The international community must work together to contain and defeat such threats.[8]

South Africa, for instance, is concerned with the dire humanitarian situation affecting innocent Syrians. While reaffirming its position that support must be provided in finding a political solution to the Syrian crisis, South Africa urged all external forces to refrain from interfering and exacerbating the situation.[9] This firm stance was also directed to BRICS countries that directly or indirectly negatively influenced the crisis in Syria.

AN EXPANDED SCOPE

The goal of the BRICS was clear from the onset—to "advance the reform of international financial institutions...to reflect changes in the global economy."[10] More recently, awareness of the BRICS' relevance to the recovery, development and cooperation of the world economy was underlined by the member states in the 2017 Xiamen Summit.[11]

The BRICS must ensure the sustainability of its goals by addressing security threats that seek to undermine them. Like Western powers that impose international security norms based on their needs, the BRICS, as a coherent group, must lead discussions on international security threats that affect them.

Since the first summit, which focused on the economic dimension, the BRICS has broadened its scope to include international security threats like the illegal flow of money, money laundering and violent extremism.[12] Notably, the BRICS' inclusion of security issues resonates with the evolution of the meaning of the international security concept in the decade preceding the Cold

War—international security expanded beyond a narrow definition relating to the threat or use of force by states to cover new referent objects and threats.[13] Essentially, a contested concept in the twenty-first century, international security evolved from its narrow political focus to include notions of organised crime, money laundering, illegal flow of capital and violent extremism as existential threats to the stability of nation-states. These concepts have now proliferated the BRICS agenda based on an exponential increase of such activities against and within the member countries.

A hallmark of globalisation is the existence of transnational entities, such as corporations, non-governmental social and political organisations, and inter-governmental organisations.[14] Such institutions have redefined the understanding of territorial sovereignty as the ordering principle of human activity through networks of interaction that involve actors of different kinds at different levels. These networks feed off the enormous technological and social improvements in the capacity for transportation and communication of nearly all types of goods, information, and ideas,[15] factors that provide fertile grounds for corrupt activities at the expense of citizen welfare.

Globalisation increases the incentives for states to pursue more cooperative security policies, especially at the regional level.[16,17] Such thinking was deeply reinforced by responses to the September 2001 terror attack in the US. "What matters most is whether and how either globalisation in general or specific aspects of it (e.g., financial flows, terrorism, migration, and trade liberalisation) becomes securitised by the international system's actors."[18] If globalisation is seen and acted on as a threat by states and other actors in the system, it plays alongside and competes with more traditional securitisations of neighbours, great powers, and internal rivals. The global level is then immediately present in a constellation of securitisation.[19]

"Security threats such as violent extremism, money laundering and the illegal flow of capital are increasingly destabilising the BRICS economies."

Based on these developments, and for the purpose of this paper, international security can be understood to mean the condition of being or feeling insecure. Notably, illegal flows of capital, money laundering and violent terrorism have reappeared in forms that threaten the fundamental security of the BRICS nation-states. Thus, these threats will undergird the proposed framework.

Today, international security does not function adequately because the leading institutions responsible for maintaining peace and stability do not correspond to the realities of the modern world. Many countries cannot or do not want to change this order, perhaps due to a lack of global influence. At the same time, some states with the ability to improve their security systems do not want to do so because the existing situation provides dividends, benefits and opportunities to impose their own 'rules of the game'.

The BRICS' efforts to institutionalise as a flexible yet coherent entity and an influential collective actor in international affairs necessitates a co-ordinated security response in the form of a joint framework.[20] The importance of security issues can be gleaned from its inclusion in communiques; for instance, the words 'security' (32) and 'terrorism/terrorist' (36) appeared nearly as many times as the word 'economic' (36) in the declaration issued at the end of the 2016 Goa summit. In addition, national security advisors from the five countries have routinely held security meetings. Yet, there has been no landmark achievement in the coalition's institutionalisation of international security.[21]

ESTABLISHING A FRAMEWORK

The existing international security mechanism takes its root in the West. Western countries set the tone for building international instruments and significant practices. Security cooperation within the BRICS is based on a shared approach towards multilateralism and support of the rules-based international order to reform existing institutions to give developing nations a more significant say.[24]

Areas of collaboration are less clear-cut on security than economic affairs. Still, BRICS nations are working together to address the security threats. All five countries participate in UN peacekeeping operations, and so co-ordinating a framework on international security via the grouping should become a priority.

The illegal flow of capital (or illicit financial flows) pose significant challenges to developing countries by depriving governments of urgently needed resources for private and public investment, infrastructure building and economic growth. It also further favours political changes that complement the weakening of state institutions and growing corruption. While there are no quantitative empirical findings on the exact functioning and significance of these effects, what is clear is that BRICS countries suffer from illegal capital flows of nearly US$1 trillion annually.[22] Money is referred to as illegal capital when exports and imports are booked at two different values to avoid taxes and hide large money transfers. Over the past decade, about US$6.6 trillion has moved from the emerging or developing economies to tax havens or the developed world,[23] a figure that rises every year.

approaches to problem-solving must come not only from the countries where illicit financial flows originate but also from the recipient countries.

The UNSC provides sufficient authority to protect nations against security threats through:

- United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances 1988 (Vienna Convention), which includes provisions on money laundering and international cooperation.

- United Nations Convention against Transnational Organized Crime 2000 (Palermo Convention), which requires countries to criminalise money laundering and includes frameworks for extradition, mutual legal assistance and law enforcement cooperation.

- International Convention for the Suppression of the Financing of Terrorism 1999, which requires states to criminalise the financing of terrorism and adopt powers to freeze and seize funds intended to be used for terrorist activities.
- United Nations Convention against Corruption 2003 (Merida Convention), which requires measures to prevent and criminalise corruption, provide international cooperation and asset recovery on corruption cases.[25]

However, these interventions have not been entirely effective in reducing the occurrence of non-traditional security acts.

Several UNSC resolutions have introduced measures to counter illicit financial flows, particularly by establishing targeted economic

Table 1

BRICS Countries Score in Money Laundering and Terror Financing Risks Index

COUNTRY	GLOBAL RANKING	RISK SCORE
China	18	6.76
Russia	52	5.51
India	70	5.15
Brazil	78	5.02
South Africa	87	4.83

Source: Basel AML Index[29]

sanctions against terrorist groups. Additionally, the Financial Action Task Force was created as an intergovernmental body to develop and promote national and international policies to combat money laundering and terrorist financing (crimes that make up illicit financial flows).[26]
Money laundering (the concealment of the origins of illegally-obtained money through foreign banks or legitimate businesses) is a matter of concern for the BRICS. According to India's late External Affairs Minister Sushma Swaraj, multilateralism, international trade and the rules-based world order are facing "strong headwinds" and the BRICS countries must take joint action against money laundering, terror financing and de-radicalisation.[27] Money laundering and terror financing risks remain high across the world (see Table 1 for risk scores in BRICS countries).[28]

"BRICS must establish a framework for greater collaboration between its members and non-state actors, and to support global efforts to enhance cross-border security."

Given that the BRICS countries face a heightened risk from money laundering, terror financing and the illegal flow of capital, a framework to enhance group-wide efforts to combat these security threats is timely and essential. The proposed framework will encourage a shared vision and greater collaboration between the BRICS states and non-state actors through its design. It can also be the basis through which the BRICS can work effectively to support international efforts to enhance cross-border security.

The development of the framework should be guided and informed through the BRICS Declarations (2012-2018), as well as literature (including news and analyses) on the illegal flow of capital, money laundering, and violent extremism. The framework should outline how the BRICS will support a sustainable international security sector and strengthen strategic partnerships with stakeholders, and work to ensure a quality group-wide security environment.
Based on a shared approach towards multilateralism and support of the rules-based international order, security cooperation within BRICS aims to influence existing institutions to give developing nations a more significant say.

The proposed framework must draw from existing UN instruments. The framework will identify and define political, social and economic elements in most significant security risks at its core. The countries will then identify common and nuanced threats. By interrogating existing instruments, BRICS will identify their caveats. This identification will be juxtaposed with existing threats and the group will note the level of success.

Noting that the proposed framework intends to fill a vacuum presented by existing UNSC instruments, the BRICS will categorise non-negotiable state and non-state actors to enhance its implementation. The roles for each category will be teased, and complex and straightforward security matters delineated. Similar interest groups should be clustered to avoid duplication of effort. For example, where money laundering and illegal flow of capital show a link to financing terrorism, an intra country constituted cluster should suffice.

Based on a shared approach towards multilateralism and support of the rules-based international order, the BRICS aims to influence existing institutions to give developing nations a more significant say in security cooperation. To achieve this, the BRICS countries must share resources for the effective implementation of the strategy. Better-resourced countries with more capable intelligence units should share expertise with poorer-resourced countries.

Finally, the framework should adopt anti-extremist, anti-money laundering, and anti-illegal capital flow policies, develop relevant concepts and strategies, evaluate current activities, review measures undertaken and legislate adopted, and compare annual reports.

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Digitalisation

OVERCOMING BARRIERS TO HEALTH Data Sharing AMONG BRICS COUNTRIES

MOHIT CHAWDHRY

The global nature of the COVID-19 pandemic has reminded us of the phrase "diseases know no borders". It has brought to the fore the need for global collaboration and partnerships to tackle existing and emerging healthcare challenges. The pandemic has also highlighted the role of digital health interventions, such as telemedicine and contact tracing, in improving health outcomes.[1]

Last year, specific attention was paid to the benefits of wide, open, and secure health data sharing.[2] The rapid development of SARS-Cov-2 vaccines is an example of the benefits of sharing health data. The unprecedented rate at which the vaccines were developed owes much to the wide and open sharing of the virus's genomic structure between scientists and researchers through information exchange portals such as the European COVID-19 data platform.[3]

The benefits of health data sharing were recognised even before the pandemic. These include the reusability of existing data, reduction of redundancies, improved research and innovation outcomes, and a better understanding of diseases. The pooling of datasets increases the population sample size and thereby its predictive value. It makes it richer and more diverse, allowing for an exploration of variations with different groups and sub-groups of the sample.[4]

For instance, publishing the full human genomic sequence, which was a direct result of a collaborative and multinational effort known as the Human Genome Project, provided new insights into human beings' genetic development and functioning.[5] Similarly, a data pooling exercise between five European nations, which resulted in the collection of a large number of samples, helped uncover the varying risks of developing cancer for new insulin users.[6] Larger datasets also allow informed health-related policymaking and governance.[7]

Moving forward, the availability of high-quality data is likely to determine the success of digital health initiatives, such as the predictive and diagnostic use of artificial intelligence.[8] Such digital initiatives improve the quality and standard of healthcare, and have been a key policy objective of the BRICS.

Building on this convergence of interests in digital health, India announced that it would host a BRICS Digital Health Summit in 2019.[9] In addition, digital health is also a key part of the agenda for the 2021 BRICS Summit being hosted by India.[10]

A CASE FOR CROSS-BORDER HEALTH DATA FLOW

The BRICS has established a rich legacy in health cooperation, starting with the third Summit in Sanya, China, where issues related to HIV/AIDS were discussed. Since then, cooperation on health issues was formalised in a meeting between the health ministers of the five member nations, the first of which was held in 2011 in Beijing.[11] At the second meeting in New Delhi in 2013, five technical working groups were created to focus on different thematic areas, including medical technologies and strategic health technologies for communicable diseases.[12]

Since then, summits and ministerial meetings have continued to stress on the importance of health collaboration. Developing a framework that facilitates cross-border health data flows between the BRICS countries will strengthen their collaborative spirit.

The BRICS nations also share relatively similar epidemiological profiles. Due to economic growth in all five nations, the disease burden shifted from infectious diseases to long term non-communicable diseases such as cancer, diabetes, and cardiovascular ailments.[13] Hence, pooling data among the five countries can aid the development of breakthrough treatments for non-communicable diseases; improve disease surveillance; and monitor and allow for more effective and efficient public health programmes. Data sharing also allows countries like India and South Africa to learn from the experiences of China and Russia that are further along in their epidemiological transitions. Moreover, research and analysis of the BRICS's datasets will have considerable global relevance due to genetic diversity, geographic and climatic conditions.

A health data sharing framework will also be in accordance with the stated positions of the BRICS on cross-border data flows. The BRICS chose to stay away from Japan's Data Free Flow with Trust Initiative proposed at the 2019 G20 Summit, stressing that several developing countries are yet to frame their data governance policies. Hence, entering into a global agreement will limit their policy space.[14]

However, they can adopt a bottom-up model of data sharing that is initially limited to critical sectors. It can help create a balance between the economic and social benefits of free data flow and the domestic concerns of member nations. The G7 Roadmap for Cooperation on Data Free Flow with Trust is an example of such a model; it aims to bolster data sharing in priority areas that have the most potential for delivering social benefits.[15] The success of a collaborative data-sharing framework between the BRICS nations could galvanise the currently stalled talks on data free flow. Moreover, it can serve as an example for replication by the African Union and Association of Southeast Asian Nations. However, the establishment of such a framework is beset with numerous challenges.

BARRIERS TO HEALTH DATA FLOWS

Despite recognition that the free flow of data can vastly improve health outcomes, progress towards an overarching framework has been slow. Some jurisdictions, such as the European Union, have made a concerted effort towards increased data sharing and pooling, but with little success.[16] The slow progress can be attributed to technical, legal and ethical challenges in creating a health data-sharing framework. This section examines previous literature to identify the challenges and places them within the BRICS context.

• **Technical barriers:** This relates to the content, nature, quality and integrity of data that is collected at the national level. The BRICS nations are yet to establish a functioning integrated digital health information system. For instance, more than half of South Africa's public health centres still use pen-and-paper filing systems, limiting the ability to share and analyse data.[17] In Russia, a quarter of medical institutions do not have functioning medical information systems.[18]

Even digitally collected data may have issues of veracity and quality. Studies have shown that frontline healthcare workers in India face numerous challenges in data collection activities, like programme designs and inaccurate reporting by respondents. These challenges force frontline workers to resort to guesswork, estimation and in some instances, they completely refrain from data entry.[19]

Further, the availability of quality data is by itself not sufficient for the purpose of cross-border data sharing. The data must be interoperable, comparable, and in line with common standards agreed upon by participating member nations for effective analysis. However, there is a lack of standardisation in terms of methodology, terminology, and indicators used across the BRICS nations. Finally, data is collected in various languages, limiting its use by research and public health institutions in other countries.[20]

> "Developing a framework that facilitates cross-border health data flows between the BRICS countries will strengthen their collaborative spirit."

• **Privacy and data localisation:** The BRICS nations have either established or are in the process of establishing regulations that govern the privacy and security of personal data of their citizens. Heath data is often considered sensitive and subjected to a higher degree of protection than other kinds of personal data. Brazil's General Personal Data Protection Law, modelled after the EU's General Data Protection

Regulation, classifies health data as sensitive personal information. The transfer of such data can only be made to jurisdictions that offer an 'adequate level' of privacy protection and are subject to the explicit consent of the individual to whom the data belongs.[21]

Privacy laws can create several impediments for cross-border health data sharing, including the practical problems in obtaining informed consent of the individual before data sharing, especially for large scale studies. Moreover, the slow process of the grant of adequacy status to other nations limits the pool of research institutions that may be partnered with for collaborative research.[22] Additionally, Russia, India and China require that the sensitive health data of their citizens be stored locally, which increases compliance costs for institutions seeking to build collaborative research and innovation projects.[23]

- **Regulatory barriers:** In addition to legislation on privacy, health data is also subjected to sectoral regulations and guidelines. Entities are often required to obtain several licenses and approvals before collecting and sharing data. For instance, the collection and processing of health data of Chinese citizens is subjected to a complex system of administrative licenses, health permits and cybersecurity clearances which collectively hinder multinational collaboration in data sharing.[24] In India, cross-border transfers of data are subject to approval by the health ministry's steering committee, and must comply with the provisions of the Information Technology Act and guidelines issued by the Indian Council of Medical Research.[25]

- **Ethical barriers:** A lack of trust between data providers and users significantly impacts the willingness to share sensitive health data. The lack of trust can be rooted in previously failed collaborative experiments between nations and can push the data provider to create stringent norms for cross-border data sharing. For instance, the publication of a study by two Harvard epidemiologists based on genetic data collected from 16,000 Chinese citizens without obtaining informed consent prompted China to create a complex regime of licenses and permits for data sharing.[26]

Cross-border sharing of health data is also limited by concerns over the way it will be used and how the benefits arising from shared data will be distributed. For example, in 2006, Indonesia refused to share samples of the H5N1 influenza with the World Health Organization (WHO) after the samples provided by it were used by an Australian company to develop a vaccine without obtaining the necessary consent or putting mechanisms in place that ensure Indonesian citizens could access and afford the vaccine.[27]

THE WAY FORWARD

Overcoming these barriers will require the adoption of a holistic and multi-pronged strategy.

The quality, veracity and integrity of health data is largely determined by the state of national health information systems. The health information systems of the BRICS countries suffer from critical gaps that reduce the utility of the underlying data. Targeted investments can fill these gaps to accelerate the adoption of digital health information systems and provide proper training for frontline workers and data collectors.

To this end, the BRICS must consider the role that the New Development Bank can play in funding. The five countries should also consider how best to harmonise the multiple and differing approaches used by each on the standardisation and interoperability of health data. This can be done by adopting widely accepted global standards, such as SNOMED CT for clinical terms and the WHO's International Classification of Diseases. A technical working group should be set up to consider this issue and determine the path forward. The working group should also consider the adoption of digital technologies, such as the use of natural language processing on unstructured health data, to overcome technical barriers.[28]

The adoption of a privacy-first approach is crucial to the success of a cross-border health data-sharing framework. The BRICS nations should consider approaches that minimise the requirement to transfer underlying data beyond their borders without impacting the insights and analysis that can be derived from it. One such approach is the use of federated learning that allows for the creation of complex computational models without full access to the underlying data. Studies have shown that federated models can provide similar levels of accuracy, precision and generalisability as centralised models while achieving stronger privacy protection.[29]

The BRICS nations can also develop an expedited system for adequacy approvals under their respective privacy laws. The adoption of sector-specific adequacy particular to the health sector is another viable approach that can be considered.[30] Finally, recognised and verified data trustees/stewards or consent managers can be used to ensure that individuals are able to provide full informed consent for use of their data for collaborative research and analysis.

A single-window clearance mechanism can be set up to ease the burden of regulatory compliance in approving health data sharing agreements between institutions from the BRICS nations. The adoption of standardised documentation requirements should also be considered.

A standard transfer agreement will go a long way in fostering collaboration between different research and policy institutions across the five countries. Such agreements can also be tailored to incorporate provisions that address transparency and accountability concerns. Ethical concerns can be addressed using blockchain-based ledgers to log, trace and audit the exchanged data.[31]

These are some of the initiatives that the BRICS nations can adopt to facilitate the cross-border sharing of health data, which will require a concerted effort over the next few years. Such a framework can revolutionise healthcare in the BRICS countries and improve social and economic outcomes for about 40 percent of the world's population. This is an opportunity for the BRICS to crystalise its position as leader in global health collaboration, particularly for the Global South.

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End notes

THE INDUSTRY 4.0 AND DIGITAL ECONOMY Challenges FOR BRICS

UALLACE MOREIRA

Recent debates on the transformation in the industrial structure of the world economy are centred on the so-called Industry 4.0 (of the Fourth Industrial Revolution). Industry 4.0 is a broad process of diversifying technologies applied to manufacturing production that are usually associated with a combination of cyber-physical systems, Big Data analytics, cloud computing, internet of things (IoT) and internet services, 3D printing and other forms of additive manufacturing, artificial intelligence (AI), digitisation, energy harvesting and augmented reality.[1]

The technologies that make up Industry 4.0 create and articulate intelligent factories in a substantially different production and marketing system. This is because manufacturing systems are connected vertically along the supply chain and horizontally with other value networks to manage manufacturing systems in real-time. Furthermore, companies at the technological frontier of Industry 4.0 will be able to create global networks with their equipment, warehouses and production units articulated by cyber-physical systems. These cyber-physical systems are machines, storage systems and intelligent production units that can provide an autonomous exchange of information, triggering mutual actions and controls independent of the production activity.

Industry 4.0 is characterised by the integration and control of production based on sensors and equipment connected to a network. The fusion of the real world with the virtual strengthens its link with the digital economy. This merger creates the so-called cyber-physical systems and leverages the use of AI. Developed countries have directed their industrial policy strategies towards growing Industry 4.0 and the dispersed use of digital technologies.[2]

An increasing number of devices can communicate with each other and collect data from the environment and users, such as smartphones, vehicles, appliances and lighting systems. These are associated with Big Data technologies, cloud computing and new data treatment technologies and will lead to the creation of new business models.

The way companies relate to customers and suppliers will change, and the traditional divisions between industry and services and the boundaries of industrial sectors will also be altered. In this scenario of transformations, the main industrialised nations place the development of Industry 4.0 at the centre of their industrial policy strategies to preserve and/or increase their competitiveness in the international economy.[3]

The integration of these technologies in production and management forms a revolution in productive activity. For instance, the incorporation of advanced robotics, machine-machine connection systems, IoT, sensors, and actuators used in the equipment enables machines to "talk" throughout industrial operations. This incorporation also allows for connection between the different stages of the value chain—from developing new products and projects, to production and after-sales. In addition, devices located in different production units, including those from different companies, can instantly exchange information about purchases and stocks. This provides logistical optimisation through digital integration between suppliers, companies and customers, enabling greater horizontal integration of production[4].

The impacts of this new technological frontier will be fundamental for productivity gains globally, as it will promote the shortening of terms for launching new products in the market, greater flexibility in production lines, and increased efficiency in the use of resources (such as energy). The combination of Big Data with AI provides predictive maintenance of machines and equipment and ensures greater precision in procedures, efficiency in the use of inputs, and higher quality in the services performed. In addition, the use of these technologies can develop autonomous interactive environments (without human intervention).[5]

The different technologies and economic aspects of the digital economy can be divided into three major components:

- Core aspects or foundational aspects of the digital economy: Comprising of fundamental innovations (semiconductors, processors), core technologies (computers, telecommunication devices) and enabling infrastructures (internet and telecoms networks).

- Digital and information technology sectors: Produce key products or services that rely on core digital technologies, including digital platforms, mobile applications and payment services. To a high degree, the digital economy is affected by innovative services in these sectors, which are making a growing contribution to economies and enabling potential spillover effects to other sectors.

- A wider set of digitalising sectors: Includes those where digital products and services are being increasingly used (such as e-commerce). Even if the change is incremental, many economic sectors are being digitalised in this manner. This includes digitally-enabled sectors in which new activities or business models have emerged and are being transformed because of digital technologies (for instance, finance, media, tourism and transportation). Moreover, although not often highlighted, digitally literate or skilled workers, consumers, buyers and users are crucial for the growth of the digitalised economy.[6]

GLOBAL DIGITAL ECONOMY AND THE BRICS

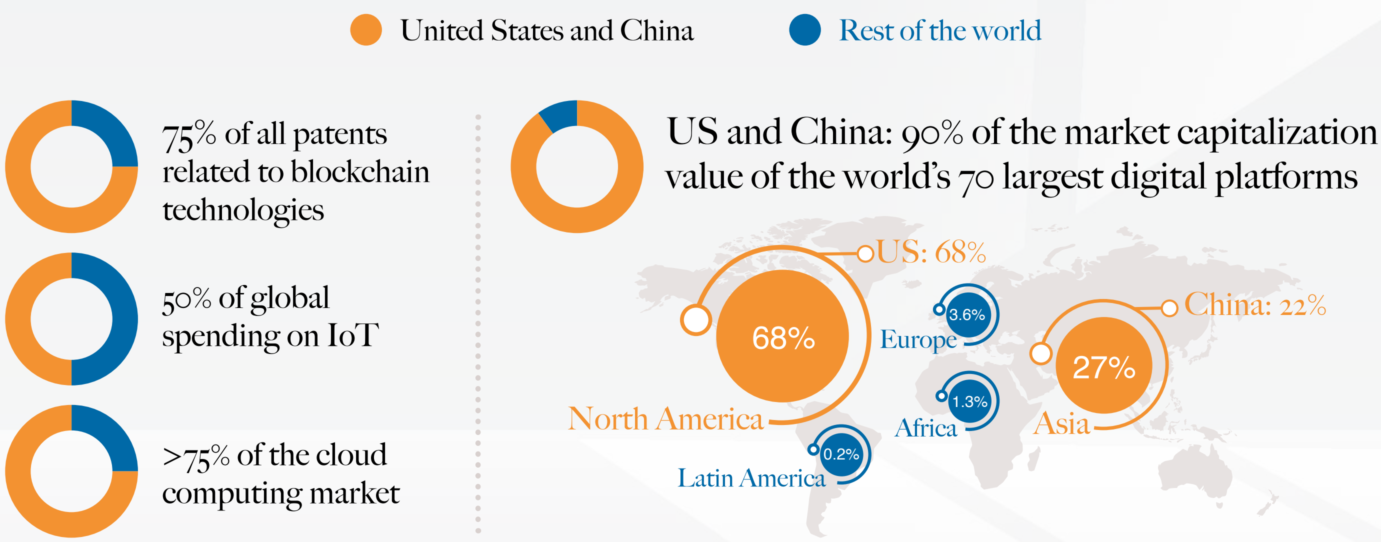
Discussions on new technological changes and the global economic environment must acknowledge that technology is not neutral and is fundamental to the division of labour. The "technology war" between the US and China is an apt example of the strategic importance of technology dominance in a capitalist economy.

The world's top digital companies are geographically concentrated (see Figure 1). Many of the world's top 70 digital platforms are located in the US (such as Amazon and Facebook), followed by Asia, especially China (Alibaba and Tencent). Latin American and African digital platforms have a marginal representation.[7] The digital economy is also representative of the dominance dispute between the US and China (with the two countries making up 90 percent of the market capitalisation of the world's 70 largest digital platforms).

This scenario highlights the reality of the digital economy, which has strong barriers to entry. This is especially true for countries with late industrialisation, which includes most of the BRICS nations. Within the BRICS, China plays a fundamental role in the development of the digital economy to strengthen integration among the other countries.

Figure 1

Geography of the Digital Economy (2019)



Source: Digital Economy Report 2019[8]

The digital economy has different levels of infrastructure:

• Information and communications technology (ICT) networks, which is the central digital infrastructure for connectivity

• data infrastructures, such as data centres, submarine cables and cloud infrastructure digital platforms

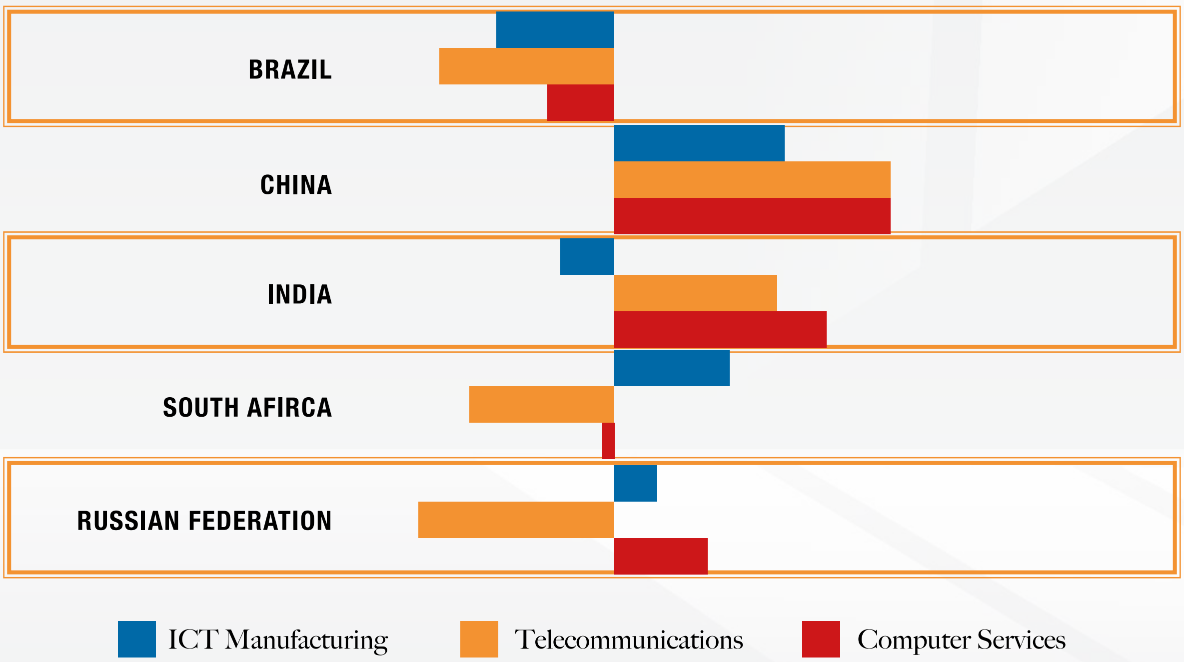
• digital devices and applications

ICT sector infrastructure is particularly essential for the operation of companies in services based on digital platforms. The use of different digital technologies is essential for different economic activities.[9] ICT productive activity is also highly geographically concentrated in the world. According to 2017 indicators, East Asia, led by China, represented 70 percent of the total in the ICT sector, reflecting the region's prominent role in the global electronics industry value chains.[10] The US accounted for nearly a fifth of the total, with most of the value addition coming from research and development and design rather than manufacturing. Mexico is the only developing country outside East Asia included in the top ten, benefitting from its geographic proximity to the US.[11]

The reality of China's predominance in the ICT sector among all BRICS countries becomes clearer when the growth rate of value-added in

Figure 2

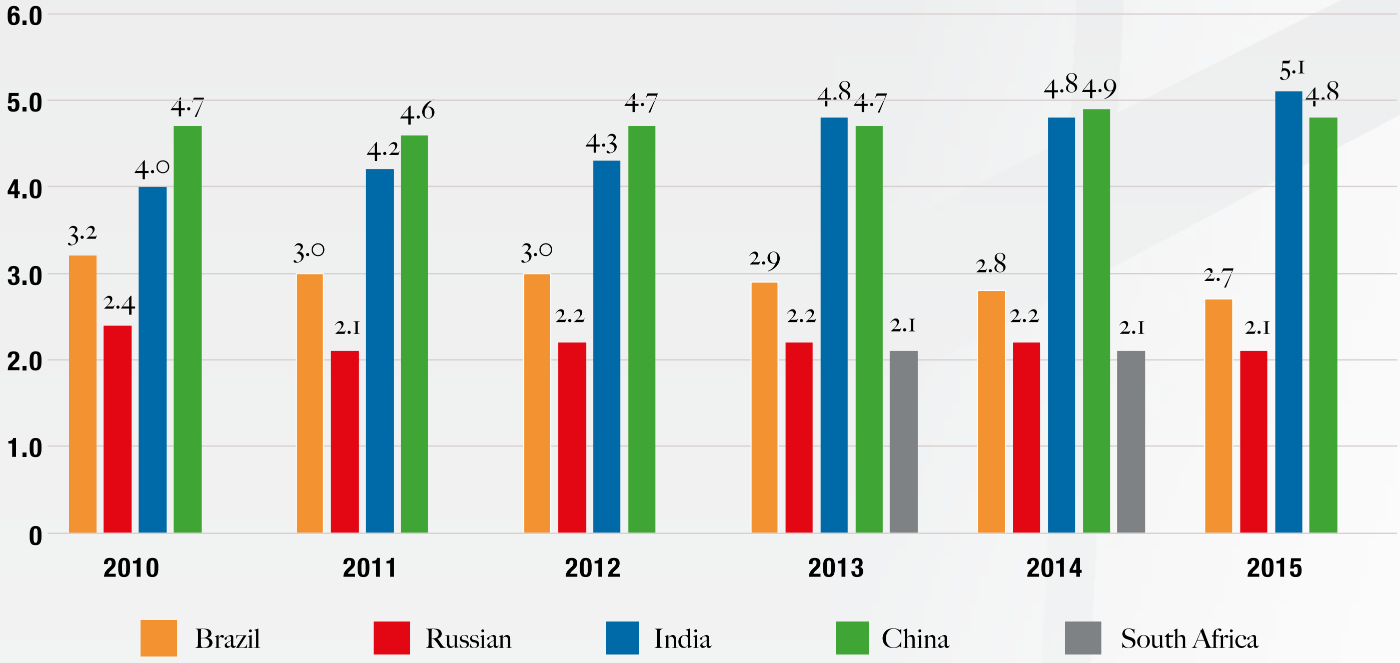
Growth Rate of value-added in ICT by subsector* (average as a percent)



Source: * 2010-2017 or the latest available year
Source: Digital Economy Report 2019 [12]

Figure 3

ICT Sector Value Added as a Share of GDP, 2010-2014 (percent)



Source: Digital Economy Report 2019[13]

ICT by subsector between 2010-2017 is considered (see Figure 2). An analysis of indicators for the BRICS countries shows that China has a growth rate of around 20 percent in the telecommunications and computer services sectors, followed by India with growth rates of over 15 percent. Brazil, Russia and South Africa do not show the same growth dynamism due to their early and accelerated de-industrialisation processes in the 1990s, weakening their productive structures.

High growth rates in the ICT sectors in China and India have resulted in a greater share in the value addition as a proportion of GDP (close to 5 percent); for Brazil, Russia and South Africa this is close to 2 percent (see Figure 3).

Table 1

Global Innovation index ranking - BRICS

	2011		2020	
COUNTRY	SCORE	RANK	SCORE	RANK
Brazil	37.75	47	31.94	62
Russia	35.85	56	36.63	47
India	34.52	62	35.59	48
China	46.43	29	53.28	14
South Africa	35.22	59	32.67	60

Source: : The Global Innovation Index 2011 and 2020[14]

The bigger role of China and India in the digital economy is also associated with greater dynamism in their capacity for innovation. According to the Global Innovation Index, China, India, and Russia improved their innovation rankings between 2011 and 2020, while Brazil and South Africa regressed (see Table 1). These indicators show that China leads the other BRICS countries in the digital economy, and highlights that:

- There is an asymmetry between the BRICS countries in terms of their capacity for innovation and the international division of technological potential

- China should play a greater role in integrating the BRICS countries to strengthen the capacity for innovation and insertion in the digital economy, the main link in the production chain of the new technological frontier of Industry 4.0.

OPPORTUNITIES AND CHALLENGES

The emerging technological paradigms can serve as a 'window of opportunity' for latecomer countries to adopt new technologies.[15] Window of opportunity refers to the role of new techno-economic paradigms to help countries with delayed industrialisation catch up with others.[16]

The move from analogue to digital technologies in the 1990s (the Third Industrial Revolution) was a window of opportunity for South Korea and Taiwan to catch up and advance their productive structures. Similarly, Industry 4.0 may be a new window of opportunity for late industrialising countries to implement coordinated political strategies to catch up with other countries.[17] All actors in a country's national innovation system—companies, government, universities and public and private research institutes—must work together to maximise the window of opportunity.

For this, some elements are essential, such as constructing the learning process, level of capabilities, organisation and strategies. In addition, the responses of actors in a country's specific sectoral innovation system can play an important role in the technology catch up process.

In the current scenario, three windows of opportunity are available:

- at technological levels
- on the demand side
- in the institutional structure

Another key dimension of the transformation is demand, such as demand from new countries strengthening their domestic markets and demand for new products and services. This includes a new type of demand, a major transformation in local demand or a business cycle. For example, the growing demand from China, India, and Brazil can create the opportunity for new companies from a late country to enter new markets.

From the perspective of institutional structure, public intervention is essential to articulate an integration strategy among the BRICS countries to strengthen their innovation policies. Public policy windows have been highlighted in several countries that had to catch up technologically, building an environment of innovation cooperation between partner countries. The experience of developing high-tech industries in South Korea and Taiwan, especially the telecommunications industry,[18] and the development of the pharmaceutical industry in India are illustrative.[19] In the late 1980s and early 1990s, the governments of South Korea and Taiwan implemented incentive measures, such as credit and tax subsidies, to encourage domestic companies to make greater investment in innovation in the semiconductor sectors, thus taking advantage of the new technological waves with the so-called third industrial revolution that opened windows of opportunity for late industrialising countries. Today, both countries are key players in the semiconductor sector in the global economy. In India, in 1970, the government introduced a chemical-pharmaceutical patent policy through the Indian Patent Act. This policy contributed to the strengthening of national companies in the sector, leading India to a prominent position within the base industries of scientific base, with ample technological and drug production potential.

Additionally, the BRICS countries need to strengthen their innovation agenda through partnerships and joint ventures with state-run firms.

The inclusion of the ICT sector in the agenda for the 2015 BRICS Summit at Ufa[20] highlighted its importance, which needs to be maintained and strengthened. The Ufa Declaration recognises that investment in innovation and the ICT sector is an instrument to bridge the technological gap between developed and developing countries, and foster people's professional and creative talents. Moreover, investment in ICT is an instrument of transition from an information society to a knowledge one.

The proposal to set up a BRICS working group on cooperation in ICTs, with joint projects on research and development, training, development of norms, principles and international standards, was essential because it shows the need for the development of knowledge economies, whose engines are science, technology and innovation, expanding cooperation in research, design, development and manufacturing. The four ideas proposed in the Ufa Declaration should be urgently resumed to deepen the advancement of the digital economy and industry 4.0 in the BRICS countries. These are:

• cooperation within large research infrastructures, including possible mega science projects, to achieve scientific and technological breakthroughs in the key areas of cooperation

• coordination of existing large-scale national programmes in the BRICS countries

• development and implementation of a BRICS Framework Programme to fund multilateral joint research projects for research, technology commercialisation and innovation involving science and technology ministries, development institutes, and national and regional foundations that sponsor research projects

• establishment of a joint research and innovation platform.

A memorandum of understanding on cooperation in science, technology and innovation was signed in Brasilia in March 2015. The BRICS countries agreed to develop a work plan for the 2015-2018 period, comprising the launch of the BRICS Research and Innovation Initiative, which would act on[21]:

• cooperation within the main research infrastructure

• the coordination of existing large-scale national programmes in BRICS countries

• the establishment of a framework for financing multilateral research

• technology commercialisation and innovation projects

• the establishment of a research and innovation platform

In January 2016, the BRICS STI Framework Program and the Implementation Plan were signed.[22] The renewal and continuity of these innovation partnerships are essential for the BRICS countries to strengthen in the digital economy and in the productive structures of Industry 4.0, optimising on the windows of opportunity that arise amid new global techno-economic transformations. Given China's greater financial potential and command in the digital economy, it must take on a more significant leadership role with investments to expand technological partnerships with other BRICS countries.

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DEVELOPING A BRICS-LED DIGITAL Literacy FRAMEWORK

ALEXANDRA MOROZKINA AND EVGENY TONKIKH

Digital literacy has been declared a priority for cooperation in the new 'Strategy for BRICS Economic Partnership 2025'. It states that the grouping will "develop digital literacy programmes for harmonious and inclusive adaptation of the BRICS population,"[1] which is extremely important with the expansion of digital infrastructure and development of opportunities to harness the potential of digital technologies.

Promoting digital literacy is a global sustainable development priority. The percentage of individuals who possess a minimum level of digital literacy is an indicator of Sustainable Development Goal 4.4 (by 2030, substantially increasing the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship). In the context of the Fourth Industrial Revolution and acceleration of digitalisation, digital technologies serve as a premise for participation in the global value chain. A gap in these skills may add to the inequalities between countries and regions within countries. The divide between providers of intellectual capital and physical labour is a case in point.

Digital skills have become particularly significant during the pandemic. Previous efforts to ensure broader access to digital technology allowed many economic agents to adjust faster to the new circumstances.

Monitoring the effect of measures aimed to reduce digital inequalities and impart skills, is an essential part of government policy. BRICS countries often position themselves as an expert centre for emerging economies. They could jointly develop a common digital literacy framework that reflects the needs and policy goals of developing countries.

BRIDGING DIGITAL DIVIDE: THE ROLE OF DIGITAL LITERACY

Since the 2014 summit in Fortaleza, Brazil, digitalisation has been on the BRICS agenda, with that declaration saying that "ICTs [information and communication technologies] should provide instruments to foster sustainable economic progress and social inclusion".[2] The theme has since appeared in every declaration, highlighting the need to harness opportunities for sustainable development brought by ICT and bridge the digital divide.

The digital divide can be defined as "the gap between individuals, households, businesses and geographic areas regarding their opportunities to access information and communication technologies; and their use of the Internet for a wide variety of activities".[3] Improving digital literacy is an important part of policies aimed at closing the digital gap in BRICS countries. With the development of ICT infrastructure, the so-called second-level digital divide comes to the fore with respect to the "capabilities for harnessing digital data and frontier technologies".[4] For instance, the lack of internet/computer knowledge is a key obstacle to internet usage in China,[5] and among the three main barriers to internet usage in South Africa[6] and Brazil.[7] The Russian and Indian governments have recognised the importance of universal digital literacy and made it a part of national ICT strategies.[8]

The concept of digital literacy is widely discussed in academic circles and international organisations. Most researchers try to combine it with the various kinds of literacy needed for info-communication technologies and emphasise those essential in an internet-dominated world.[9] The concept of digital literacy has evolved from 'computer literacy', 'information literacy', 'media literacy' and 'ICT literacy'. Definitions now range from "the ability to access networked computer resources and use them"[10] to "the ability to access, manage, understand, integrate, communicate, evaluate and create information safely and appropriately through digital technologies for employment, decent jobs and entrepreneurship".[11] A clear trend can be seen towards broadening the concept to include areas not directly related to ICT and digital technologies, such as information evaluation and critical reasoning (or information literacy). While these are important skills in the information age, their inclusion into digital literacy is highly controversial.

However, researchers agree that digital literacy can help eliminate inequality and that investment in this field is necessary.[12,13,14,15] After all, "the lack of digital literacy is a major obstacle to connecting the 3.6 billion people still cut off from the digital era".[16] Given the absence of a universally accepted definition and assessment methodology, there is a need to further develop the financial literacy agenda amongst international organisations.[17] An assessment of the current state of digital literacy and identifying key challenges is critical to develop relevant agenda and policy measures. Therefore, a critical task is establishing a universally accepted assessment model for digital literacy that allows for international comparisons.[18]

Table 1

Digital Literacy Levels in BRICS

	BRAZIL	CHINA	INDIA	RUSSIA	SOUTH AFRICA
Digital literacy			20.1%	70%	
Share of people who do not use the internet due to the lack of knowledge (% of non-netizens)	24.3%	51.5%			12.9%

Source: National Statistics Office, India; National Agency for Financial Information, Russia; China Internet Network Information Center; Brazilian Institute of Geography and Statistics; General Household Survey, South Africa[23]

DIGITAL LITERACYIN BRICS

Evidence of digital literacy assessments can be found only in India and Russia (see Table 1). In the other three BRICS countries, authorities conduct sample surveys on ICT issues, including reasons for not using the internet. These surveys throw up some interesting results, including a significant share of people who do not have enough knowledge of respective technologies. This can serve as an indicator of the second-level digital divide. Although by no means comprehensive, these results can give an idea of the importance of digital literacy and help monitor the situation.

In addition to concerns on digital literacy levels in the BRICS, each country has special aspects that must be considered. Brazil, for instance, still has high rates of digital inequality despite considerable improvements in infrastructure and access to technology in the last 15 years,[24] raising the question of a second- and third-level digital divide. According to the 2018 National Survey of Brazilian households (Continuous PNAD TIC 2018), 24.3 percent of those who did not use the internet said the reason was a lack of knowledge. Among students, this share is lower, at 15.9 percent. Importantly, there are striking regional differences in this number. Markers such as age, and disparity between access via cell phones and other devices are also influencing factors.[25] Another Brazilian survey shows that 45 percent of households that do not use the internet stated inability as the reason.[26]

China believes that digital access for all citizens is the key to narrowing the income gap between urban and rural areas. However, the main factor affecting the digital divide is age, as the share of non-netizens aged 60 and above accounted for 46 percent of all non-netizens in China in 2020.[27] As per a sample survey, the main reason for no internet usage is the lack of knowledge (51.5 percent). Nevertheless, digital literacy in China appears substantially high if the level of technology usage is considered. For example, the number of electronic payments is constantly increasing, and in 2018, around 83 percent of all payments were made via mobile.[28] According to the Chinese Academy of Press and Publication, almost 70 percent of Chinese people use digital platforms to read.[29]

In India, the severe digital divide is primarily related to the low levels of overall infrastructure, education, and social and economic factors.[30] The urgent need for digital literacy has been further highlighted during the pandemic. Online learning has proved to be almost unattainable for those unfamiliar with the internet,[31] with a large section of the student population unable to learn online.

The country's digital divide (due to lack of digital literacy) is related to the urban-rural divide and the deepening male-female digital literacy gap. Data from the 75th round of the National Sample Survey (2017-2018) [32] show a significant gap between the male and female population in rural and urban areas regarding operating a computer and using the internet (see Table 2).

Russia presents an entirely different case. The Russian Analytical Centre[34-35] regularly measures

Table 2

Share of Persons Able to Operate a Computer and Use the Internet in India

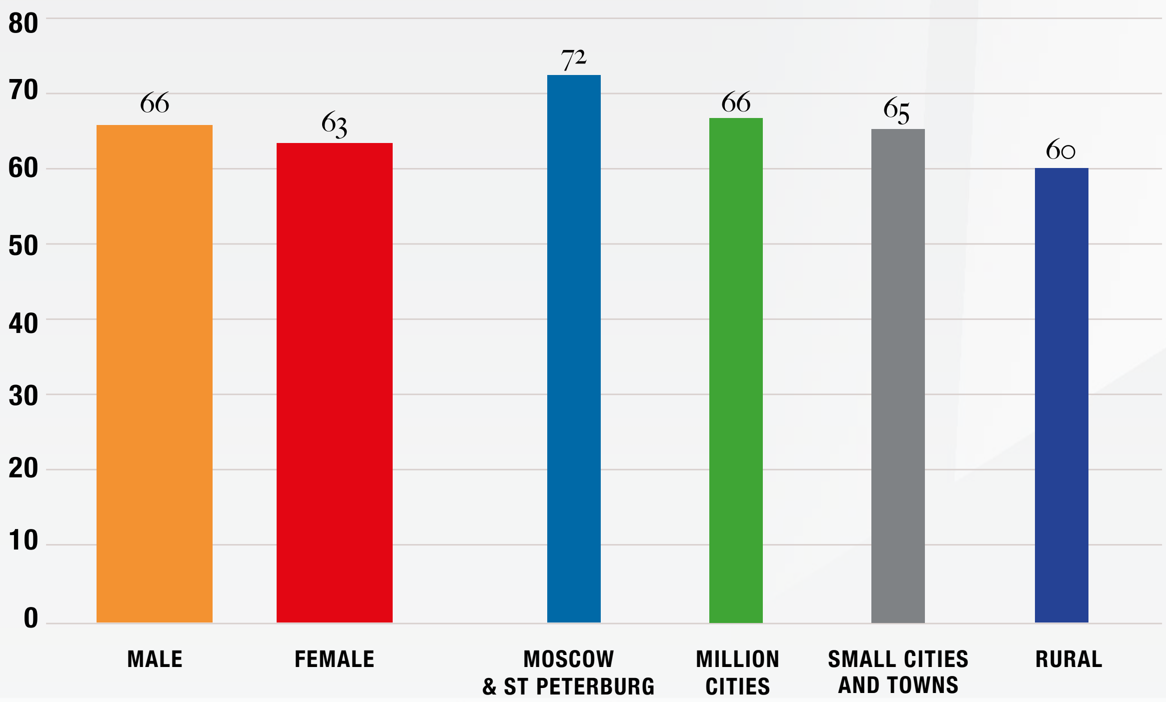
	RURAL		URBAN	
	Male	Female	Male	Female
Able to operate a computer	12.6	7	37.5	26.9
Able to use internet	17.1	8.5	43.5	30.1

Source: Ministry of Statistics and Programme Implementation, 2019[33] the level of digital literacy in the country, embodied in a national digitalisation plan. As of May 2021, only 27 percent of Russians—or one in every four—have a high level of digital literacy.[36] By the end of 2020, the level of basic digital competencies had grown from 66 percent to 70 percent.[37] However, the proportion of those with advanced digital competencies remained unchanged since 2019. Due to insufficient knowledge and skills regarding digital technologies, many people and organisations were not ready to work remotely during the pandemic. At the same time, Russia has a relatively low level of gender and urban/rural gap in digital literacy (see Figure 1).

In South Africa, like in India, digital literacy is mainly dependent on the overall access to infrastructure and education. An additional contributor to limited digital literacy is that online academic content is mainly

Figure 1

Digital Literacy Index in Russia (in Percentage Points By Sex and Settlements)



Source: Authors' own using NAFI data

available in English and to some extent in Afrikaans despite the country having 11 official languages. The pandemic-induced lockdown highlighted another indicator of the low level of digital literacy—about 68.4 percent of students who could move to the e-learning mode reported difficulty adapting to the online environment.[38] This emphasises the general lack of digital literacy among learners and educators. Had these skills been developed before the pandemic, the move would have been far more effortless.

ASSESSING DIGITAL LITERACY

UNESCO identifies 15 different digital literacy frameworks,[39] including the second version of the European Digital Competence Framework for Citizens, or DigComp 2.0, which "presents a comprehensive view on competencies from economically advanced countries". [40] The UNESCO's Digital Literacy Global Framework is based on DigComp 2.0. However, the broadness of the model and a wide range of indicators make it overly complex for application in developing countries. The BRICS countries could step in with an ambitious digital literacy agenda to develop a framework that is more suitable for emerging economies. Russia and India regularly assess the levels of digital literacy. While Russia uses DigComp 2.0, India has developed its own methodology.

The DigComp methodology was developed by the Joint Research Centre of the European Commission as a scientific project based on case studies and expert consultation. It covers 21 components of digital competence within the following five areas:[41]

- Information and data literacy
- Communication and collaboration
- Digital content creation
- Safety
- Problem solving

Most developing countries do not use DigComp, and instead, create more narrow national frameworks or adopt well-targeted enterprise frameworks for labour market purposes.[42] The Indian methodology is more focused on the realisation of national policy goals, such as the ability to deal with the e-government services and other basic activities. The PMGDisha programme assesses only the learning outcomes of its beneficiaries on the following indicators:[43]

• Opening an e-mail account/sending an e-mail
• Opening a digital locker (key e-government service portal in India)
• Registration on scholarship portals such as National Scholarship Portal
• Registration on online learning portals
• Submission of online application for government-to-citizens certificates, such as caste certificate, domicile certificate and income certificate
• Create login credentials for Indian Railways Catering and Tourism Corporation
• Insurance: applying online for various government-run schemes
• Execution of at least five electronic payments transactions using Indian unified payment interface

Most developing countries have more basic applied problems in digital literacy and fewer opportunities to assess a wide range of indicators. A large part of the population in emerging economies live in rural areas, especially in some of the BRICS countries (66 percent in India, 40 percent in China, according to the World Bank database[44]). First, concerns in using digital technologies are focused on receiving government services remotely. This theme is also important in Russia, where digital public services are gaining momentum with 131 million people as registered users on the public services portal, Gosuslugi. As many as 234.6 million services were provided in 2020.

Access to e-governance is well reflected in the Indian assessment tool but has no highlights in the DigComp framework. The "browsing, searching and filtering data, information and digital content" competency is the closest measure in the DigComp framework but it does not reflect the specifics of e-government services and can be attributed to any information search on the internet.

Second, agriculture plays a big role in developing countries and the BRICS countries, but the application of digital technologies in this sector is missing in existing digital literacy measurement models. For instance, in China, the share of internet agricultural products retail sale was 9.8 percent in 2018 and is expected to reach 15 percent by 2025.[45] Brazil actively promotes digital agriculture and corresponding software and services.[46] India has numerous government programmes aimed at digitalising agriculture, such as the national online market (eNAM), Fertiliser Monitoring System, and the Pradhan Mantri Fasal Bima Yojana insurance programme. Russia's agricultural ministry has developed a 'digital agriculture platform' project to introduce digital technologies in agriculture.

Using digital technologies for agriculture-related services can be a part of a broader accent on "use information towards professional goals"[47] regarded by researchers as a highly relevant part of digital literacy but underrepresented in the existing frameworks.

CONCLUSION

Researchers and international organisations are recognising the importance of addressing digital literacy issues. However, a universal concept and assessment method is yet to be developed. The concept proposed by the advanced economies is comprehensive but does not address such critical issues for developing countries, including the BRICS, as the ability to use e-government services and the usage of internet in the agriculture field, which is an important driver of increasing/improving of digital skills for rural population.

Recognising the different goals, challenges and pace of digitalisation in the BRICS countries, and developing appropriate digital literacy indices is essential for articulating and monitoring corresponding policy measures. In relation to the actions taken by the G20 in the field of digital literacy, BRICS countries must come together to develop a more targeted concept of digital literacy that the rest of the world can adopt.

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End notes

DEVELOPING A BRICS DIGITAL Governance FRAMEWORK

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In recent years, modern information technologies—represented by computers, the world wide web, and communication technology—have become an important driving force in the development of the global economy. These technologies have improved economic efficiency and accelerated the transformation of the global economic structure. As a result, major countries around the world introduced related strategies and policies to promote digital technology innovation and gain a competitive edge in the era of digital economy.

Technology companies account for 80 percent of the world's top ten firms by market capitalisation (as of 31 March 2021). This includes Apple, Microsoft, Amazon, Alphabet (Google's parent company), Facebook, Tencent, TESLA and Alibaba.[1] In the digital economy, platform companies have become the most important firms with the highest market value.

The COVID-19 pandemic hastened the growth of the digital economy by significantly promoting new lifestyles and consumption habits. Several advanced digital technologies focused on social applications and national digital governance amid the pandemic. Companies with a high degree of digitalisation are relatively less affected by the pandemic, highlighting the need to address practical digital tools for operations.

The industrial chain has accelerated the "cloud layout"—the entire production management process is shifting online. Remote office and cloud contracts have exploded. The remote management of suppliers and customers is growing. Additionally, data planning, management, decision-making and governance have become important means for governments to analyse, predict, prevent and control epidemics.

ASSESSING GLOBAL DIGITAL TRANSFORMATIONS

Many countries and groupings worldwide are actively exploring aspects of the digital economy to find those most suited to their needs.

- **Digital leaders: US, China, EU**

The US, China and the European Union (EU) have huge internal markets, high-level information infrastructure, and developed IT industries. In 2020, the US released its

'Digital Strategy 2020-2024'[2] to improve digital standards, frameworks, systems and other capabilities by strengthening innovation, which it sees as a means to secure its global strategic leadership position. China has proposed strategic measures to accelerate the deployment of new infrastructure and develop new formats and models of the digital economy.[3] Aiming to build a single digital market, the EU initiated the 'Digital Europe' project to strengthen investment in digital infrastructure such as artificial intelligence, network security and digital innovation centres.[4]

- **Digital frontrunners: Japan, South Korea, Israel and Singapore**

Japan, South Korea, Israel and Singapore have information infrastructure and IT foundations but lack large internal markets. They choose to take advantage of their unique capabilities and export technology. For example, Japan proposed the digital transformation goal of building a super-intelligent society (Society 5.0), with 5G communication network construction as the forerunner, and become the key supplier globally.[5]

South Korea's "5G+ strategy" aims to enhance its advantages comprehensively in the field of electronic information.[6] Singapore is taking advantage of its location to hold a key position in open global digital economy.[7] And Israel is leveraging its research and development advantages to incubate innovative companies in advanced technology.[8]

- **Digital potential stocks: India, Brazil, Indonesia, Thailand and Malaysia**

These countries have large populations and are gradually moving towards becoming information societies, but they lack sufficient information infrastructure and industrial foundations. They focus on internet consumption to start their digital economy. For example, in 2019, India had 502.2 million smartphone users. It also has 21 unicorn companies, including Paytm (e-payment firm), Ola Cabs (ride-hailing app) and Byju's (online education company), and is the third-largest 'unicorn' centre globally.[9] Indonesia has the highest social network penetration rate, at 91 percent, of mobile phone users and 150 million internet users. Its internet economy reached US$27 billion in 2018 and is expected to reach US$100 billion in 2025.[10]

- **Digital starters: African countries**

African countries are trying to narrow the digital gap with the developed world and many other Global South countries through the mobile internet. The number of mobile communication users and the amount of capital in the industry are rapidly growing.

DIGITAL GOVERNANCE AND SECURITY

Digital governance and security have become important aspects of global digital transformations.

- **Digital economy for national governance**

Global digital transformation poses challenges to many characteristics of national governance, legal justice and international trade. Theories on government planning, crime prevention, privacy protection, anti-trust, taxation, global cooperation and division of labour need to be updated. As new scenarios emerge, the original governance methods can no longer meet the growing needs of the digital economy.

The development of the digital economy must go beyond the boundaries of time and space and encourage cross-industry and cross-regional economic activities, with a far-ranging impact on external markets.

The original fragmented and localised management system cannot meet the trend of industrial integration. Due to continuous development in the digital space, the number of digital entities that need to be supervised and managed is rapidly increasing. It is necessary to strengthen online management and coordinated supervision, with a reasonable division of online and offline management responsibilities.

As the digital international trade deepens, countries must formulate new policies and regulations based on their own digital economy goals. These supplement and replace traditional systems, strengthen governance of the digital economy, and surmount traditional economic development obstacles. As the digital economy promotes deep global economic cooperation and division of labour, countries must compete with each other.

The paths to digital transformation differ across countries, but the rapid development and large-scale application of digital technologies are inevitable. Cutting-edge technologies are increasingly associated with the modernisation of national governance. As of July 2020, 18 countries and regions adopted digital technology for national governance.[11]

Differences in governance methods, the scope of application pose challenges to the Regulatory Mutual Recognition between countries and intensify disputes over rules caused by different policies. At present, there is a 'digital gap' between developed and developing countries, and the imbalance is becoming increasingly clear. Therefore, governments must conduct in-depth research and formulate appropriate policies to support, guide and promote the rapid development of the digital economy for a competitive advantage.

- **The Chinese example**

The high-quality transformation of the digital industry is pushing China to adopt modern governance methods that are more scientific and efficient.

Digital governance is a concrete manifestation of the "build a digital China and a smart society" aim proposed at the 19th National Congress of the Communist Party. Digital governance solutions aim to solve practical problems, such as network security, cybercrime, privacy protection, and create a good network environment for the development of the digital economy.

In recent years, Chinese leaders have taken decisive action to transform information, communications, and technology into the nation's industrial pillar. China is using a series of emerging technologies, such as 5G and quantum communication, as the foundation for this transformation. Technologies like electronic payment, digital currency and blockchain are used for service upgrades. Laws related to national security, cybersecurity, telecommunications and e-commerce form the regulatory basis for the transformation.

According to China's Government Work Report 2019[12], it is developing industrial internet platforms to transform and upgrade manufacturing. Moreover, with growing e-payment and internet-based e-commerce, traditional sectors have been forced to improve their performance.

The commercialisation of 5G in China has resulted in great achievements. According to Wu Hequan from the Chinese Academy of Engineering, China achieved its goal of building 600,000 5G base stations in the third quarter of 2020, ahead of schedule.[13] Notably, COVID-19 increased the demand for remote medical care, online education platforms and collaborative offices. 5G has shown strong vitality in the application of smart medical care, smart cities and the industrial internet.[14]

Embracing the 5G era requires extensive international cooperation. 5G technology has shifted from the connection of people to the full interconnection of people, machines and things, but faces many challenges such as technological innovation, application exploration and ecological construction. The BRICS countries must jointly promote the application of 5G technology at a larger scale.

TOWARDS A BRICS FRAMEWORK DIGITAL GOVERNANCE FRAMEWORK

- **Accelerate digital transformation of governance**

The BRICS countries must carry out substantial reform to transform from industrial societies to digital ones. Digitisation, networking and intelligent connections between governments and between the government and citizens should be enhanced by building a service-oriented digital governance architecture.

Governments should use websites, mobile applications, service hotlines and convenience terminals to modernise services. By leveraging data, the information system architecture between the government and the public can be revolutionised.

To improve the accuracy and effectiveness of governance, governments should use Big Data to manage and make decisions. Innovation in governance and the application of IT can help diversify industrial management and localisation limitations.

- **Standardised digital governance system**

Efforts to build a digital governance system must focus on network security in data usage and management authority. When focusing on data property rights protection, data sharing and security, governments should simplify service procedures, supplement relevant laws and regulations, improve transparency, and promote local legislation and supporting systems. Personal information should be protected, and personal data should be collected, used and shared formally to promote a governance model based on public participation and social cooperation.
Governments should introduce a digital technology national strategic plan that covers digital governance, cross-border data regulation and international strategies. This can promote the formation of a digital technology policy group with an international view.

- **BRICS digital space strategy**

The BRICS countries must initiate a joint digital space strategy to enhance the role of the grouping as a leading platform for international cooperation.
Based on the existing international cooperation platform, the five countries should jointly negotiate and formulate common digital space technology innovation priorities. Furthermore, they must promote the concept of "new infrastructure" and cooperation via digital infrastructure to fulfil their national interests.

The BRICS countries should establish a digital space technology innovation alliance, promote digital governance innovation cooperation, and strengthen global shared governance. It relies on scientific, technological innovation and collaboration between the five member countries.

- **Strengthen coordination on digital economy policies**

The BRICS countries should jointly implement the 'BRICS Economic Partnership Strategy 2025'.[15] They must strive to improve digital trade liberalisation and promote the accelerated realisation of the Sustainable Development Goals. They must rely on the BRICS Partnership on New Industrial Revolution Innovation Centre in Xiamen City, China, to strengthen cooperation in the green industry, green technology and green financing.

The BRICS countries must actively expand the "BRICS-plus cooperation" model, enhance cooperation on innovation in developing countries, and jointly accelerate the conversion and transformation of the global economy.

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DRIVING Digitalisation AND AI DEVELOPMENT

LOUISE LEENEN

The COVID-19 pandemic has plunged digitalisation into a raging river of rapid advancement and adjustment. Within a short time, a large proportion of the global workforce has started to work remotely. Some public and health services were moved online, and in-person training and education were transformed into online formats. These disruptions required the rapid improvement of existing systems and the installation of infrastructure.

In addition to the many benefits to society in terms of digitalisation, these transitions impact people in a way that is yet to be fully analysed and understood. Artificial intelligence (AI) is a discipline acknowledged to enable digitalisation through the automation of processing and reasoning. However, the adoption of AI also disrupts society through changes in education and training, the labour market, and how we live and interact with each other. Growth in digitalisation requires strategies from governments and organisations for planning and operation. Additionally, it involves fostering a culture of digitalisation. Human beings are at the centre of digitalisation, and people need to understand and be aware of the disruption and its benefits.

IMPACT OF COVID-19 ON DIGITALISATION

COVID-19 has demonstrated how a single event can cause significant changes in the way we live and work. Digitalisation was a critical factor in helping society function and work to fight the pandemic. It will also drive the post-COVID-19 recovery.

This is especially true in the case of Africa. According to Cristina Duarte,[1] special adviser on Africa to the UN Secretary-General, "It is essential for African policymakers to harness innovation and the potential brought by digital technologies" to address challenges posed by the digital divide and in food security, education, health and energy. Care should also be taken to include those that do not have access to electricity and telecommunications. Connectivity is a gateway to versatile working, services and social connectedness.[1] This will be crucial for the continent's recovery from the pandemic.

According to a McKinsey report,[3] the COVID-19 crisis "contains the seeds of a large-scale re-imagination of Africa's economic structure, service delivery systems and social contract.

The crisis is accelerating trends such as digitalisation, market consolidation and regional cooperation. It is creating important new opportunities. For example, the promotion of local industry, formalisation of small businesses, and upgrading urban infrastructure."

In the years before the pandemic, Africa had shown the fastest global growth in broadband connections. The acceleration of Africa's digital transformation is a key opportunity in a post-COVID-19 world.

Dutch central banker Frank Elderson made interesting observations[4] on the pandemic's impact on financial technologies (fintech). Positive effects included rapid changes and adaptive attitudes to fintech; IT systems that used to take long periods to install were implemented speedily and remained stable.

Another positive impact is the customer inclination towards online banking services. However, Elderson does warn that the banks will need to be inventive and flexible in terms of adapting to regulations that were drafted for different times and do not suit the current conditions. His remarks on Dutch fintech's digital jump reflects similar events in other countries and other sectors. Innovation and adaptive attitudes have allowed the financial and many other sectors to function regardless of lockdowns. He notes that the pandemic has taught us that adopting new technologies is non-linear; one event can cause a significant uptake in the adoption of available technologies.

ROLE OF AI IN DIGITALISATION

The rapid growth in digitalisation globally is accompanied by an increase in the adoption of AI technologies, or at least the recognition that AI is a gateway to further digitalisation. The immense projected benefits of AI are comparable to those seen at the advent of the internet.[5]

According to *The Parliament Magazine*,[6] an EU-focused political fortnightly, industry polls revealed that "the digital transformation and AI are top priorities and will play a vital role in companies' future". The publication states that AI can improve the quality of products but a lack of experience is an obstacle due to low access to AI and digitisation. The improvement of infrastructure and skill acquisition are two primary priorities. The publication[7] also suggests that society needs to have a strong influence on the transformation of industry in this regard.

AI has a multitude of applications. One example is the effective use as a supporting HR tool, applied to perform repetitive tasks such as onboarding, talent acquisition, and analysing datasets.[8] According to a Gartner report, by 2022, over 40 percent of all large companies will employ AI-powered HR solutions.[9]

Smart energy management systems collect data from sensors affixed to various assets, which AI systems can track. AI is also useful in decision support systems due to its ability to make predictions based on the analysis of datasets. For countries with ageing populations, the automation provided by AI will increase productivity.[10]

Cybersecurity is another discipline where AI applications have become essential. Vast volumes of cyber information are collected, but extracting relevant data is still a complex process. AI's decision-making and automated reasoning abilities play an important role in building scalable systems.

There is a growing interdependence between the AI and cybersecurity domains, such as through the use of AI techniques in cyber counter-attack systems, cybersecurity for AI systems, and the use of AI in developing and launching cyber-attacks. AI can be used to automate several time-consuming cybersecurity processes, such as network threat detection, email scanning, and malware classification.[11,12] There are also possibilities for enhancing existing security controls such as 'smart' forensics and active or adaptive firewalls.[13]

The downside of digitisation and the adoption of AI technologies is the equivalent growth in cybersecurity threats. The malicious use of AI is also growing; for instance, the use of generative adversarial networks to create deep fakes for advanced scams,[14] AI-controlled botnets to attack online marketplaces,[15] and adaptive cyber-attacks that can learn to avoid detection.[16]

Many systems require data that need to be stored, transported, and processed by AI algorithms. The data must be protected and secured, and most countries legislate this requirement through privacy and data protection. However, AI can be employed to support compliance with privacy and data protection legislation.

Gartner predicts that by 2023, more than 40 percent of privacy compliance technology will rely on AI, compared to only 5 percent in 2020.[17] Organisations are obliged to respond to subject rights requests (SRRs)—the rights individuals have to information on their data—within a specific period. AI-based tools can handle large volumes of SRRs quickly and thus reduce costs and build customer trust.

RECOMMENDATIONS

There are several recommendations concerning the advancement of digitalisation, including in regional partnerships where the BRICS countries are active.

• The primary step in advancing digitalisation is the development of digitalisation strategies at the regional and national levels. Many countries and international bodies developed such strategies, but a few are yet to operationalise them. These strategies should be developed from the top down with knowledge attained from the industry, academia, and society.

Strategies should set targets that can be attained and create a measurable impact. A digitisation strategy has a vision and provides an agenda for development based on an analysis of new technologies, current adoption rates, current skills, and other measurements that will indicate the level of digital maturity in a region. Once a strategy is in place, steps should be taken to operationalise it through, for instance, the innovation of new services.

• One aspect of operationalising digitalisation strategies is the creation of a culture of digitalisation. There should be buy-in and awareness from top-level government departments, private sector, education sector, researchers, and individuals. A culture describes the characteristics, knowledge and behaviour of a group of people or a society. A 'digitalisation culture' can be seen in the same light as cultivating a 'cybersecurity' culture. According to the European Union Agency for Network and Information Security (ENISA), the "concept of Cybersecurity Culture refers to the knowledge, beliefs, perceptions, attitudes, assumptions, norms and values of people regarding cybersecurity and how they manifest themselves in people's behaviour with information technologies". [18]

A lot of attention has been paid to cultivate cybersecurity cultures nationally and within organisations. Guidelines created for this can also be applied to cultivate a digitalisation culture. For instance, ENISA has published a guide to promote the understanding and uptake of cybersecurity culture programmes within organisations.[19]

A digitalisation culture will foster an understanding of the benefits of measures that enhance digitalisation. There is often resistance against societal changes, but awareness and acceptance of the need for a change should counter such resistance. It is also recommended that a government appoint a "champion" to take responsibility for the operationalisation of a digitalisation strategy.

"A digitalisation culture will foster an understanding of the benefits of measures that enhance digitalisation."

- The societal impact of the growth in AI applications has led to the recognition of a need for governance and regulations. Researchers, practitioners, policymakers and civil society must guide the development of these measures, and coordinate interventions to consider all stakeholders. There is recognition that AI applications can negatively affect society and that ethics is an important consideration. A few countries and international bodies have made some progress in drafting commonly agreed-upon AI principles, but many do not have any such regulations in place, yet. For instance, in 2019, the G20 Trade Ministers and Digital Economy Ministers adopted the G20 AI Principles.[20] Commonly accepted standards and interoperability of systems for information and resource sharing are also important aspects of collaboration between countries and regions.

Elderson has highlighted the need for adaptive approaches towards interpreting regulations drafted for a less digitalised world.[21] His recommendation is to apply regulations in a way that fits the new environment and leaves space for innovation. But this can only be done when officials act from a set of core principles while protecting customers and ensuring financial stability. The need for a set of core principles to guide ethical and fair practices is thus applicable in a broader societal sense when a society is on the path to digitalisation maturity.

- Research and implementation focus have been chiefly on machine learning (ML) applications and should be widened to incorporate complementary areas of AI such as model-based and computational approaches, and semantic technologies. Although ML applications are successful, they do not offer explanations for output and struggle with novel scenarios. Explainable AI is becoming essential in the context of the growth in autonomous systems.

AI has already made significant advances in improving digitalisation and cybersecurity in the past two decades, but BRICS member countries can exploit AI to a far greater extent in the following areas:

- **Foundational tertiary teaching:** Most universities do not have sufficient funding or resources to produce enough graduates in AI and cybersecurity. It is often difficult to attract lecturing staff and researchers due to competition with the industry. Course offerings and specialised qualifications need to be expanded. Collaborations that focus on sharing resources and information should be initiated and funded. This can include shared course material or exchange of lecturers (or online teaching).

• **Focussed research centres:** South Africa's Centre for Artificial Research (CAIR) is an apt example of the benefit of creating AI research centres. CAIR currently consists of research groups at six South African Universities and is funded by the Department of Science and innovation. It offers a platform for collaboration in several different sub-disciplines of AI, has innovative international and local partnerships with other researchers and industry, and associated postgraduate students. It allows research groups at universities to focus on specialised sub-domains but benefit from interaction with the centre and international collaboration. CAIR has hosted international and local conferences, produced several doctoral and graduate students, published a large number of academic papers, mentors young AI lecturers, and organises international student and research exchange programmes. In terms of social impact, CAIR offers advisory input to industry and thought leadership in South Africa and the wider region.

• **Infrastructure sharing and exchange:** Infrastructure for the exchange of large volumes of information, such as on cyber threats, will enhance cooperation.

• **Citizen training:** One of the biggest challenges of digitalisation is acquiring the necessary skills to work and function in the new world. Training and education should be sufficiently funded and available at all levels of society. Every citizen needs some basic skills, and the new workforce needs to be trained. Open-source training courses should be made available to all, and schools and tertiary education training institutes should also offer appropriate courses and degrees. Without sufficient funding in and the development of training and education, society will be unprepared to live and work in a digitalised world.

CONCLUSION

The COVID-19 pandemic has driven a rise in the adoption rate of digitalisation. Most countries, especially developing ones, are struggling to address the challenges of advancements in digitalisation. Because of the tremendous potential that AI and cybersecurity offer, it is vital for researchers, practitioners, and policymakers to guide the development and coordinate interventions to benefit, including individuals, industry, academia, and civil society.

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Climate Change and SDGs

ACCELERATING FINANCE, CAPACITY DEVELOPMENT AND INNOVATION IN BRICS FOR A Net-Zero Future

PALLAVI DAS AND
VAIBHAV CHATURVEDI

Climate change, uncertain weather patterns and unprecedented extreme events are now a reality. Between 1999 and 2018, extreme weather events caused 495,000 deaths globally.[1]

More than 75 percent of India's districts are defined as extreme climate event hotspots vulnerable to floods, droughts and cyclones.[2] In China, natural hazards cause losses amounting to US$76 billion annually.[3] Russia, warming 2.5 times faster than the rest of the world, is at the risk of permafrost thawing and has witnessed forest fires recently.[4] In 2015, South Africa's Cape Town faced a severe drought that dried up its drinking water and South Africa is expected to face severe water challenges in the future.[5] Brazil's Amazon, the world's largest tropical rainforest, and its delicate ecosystem is at risk of forest fires.[6] All the BRICS nations are under severe threat of climate change and must rapidly mitigate emissions and adapt to changing trends.

The BRICS leaders endorsed their support for the Paris Climate Agreement in their Goa Declaration in 2016[7] and Xiamen Declaration in 2017.[8] They highlighted that the BRICS nations would work together on green development, a low-carbon economy for poverty alleviation, and sustainable development. They underlined the principles of common but differentiated responsibilities by taking the historical advantages and the national context of each country into account. They emphasised that developed countries must provide financial, technological and capacity-building support to developing countries to enhance their capability in mitigation and adaptation.

To curb climate change, the BRICS countries must race towards net-zero emissions while meeting their developmental challenges. The energy sector, the largest emitter in most BRICS countries, will have to transform to mitigate emissions and achieve carbon neutrality.

RACE TO NET-ZERO

South Africa announced its net-zero target by 2050 and a low emission development strategy. Yet, with 90 percent of its electricity coming from coal, South Africa will have to rapidly transition to renewable energy sources, primarily wind and solar. Employment losses in its mining sector will have to be replaced with clean energy jobs. As countries worldwide move away from coal, coal exporters like South Africa will have to be prepared.[9]

Brazil had previously announced a net-zero target by 2060, but advanced it to 2050. This target will depend on the country's ability to manage and mitigate land use, land-use change and forestry emissions. It requested developed countries to invest US$10 billion to address deforestation and aid the sustainable development of the Amazon region.[10]

China has set its net-zero emissions target for 2060 and an emissions peak before 2030. This is significant as it is one of the largest emitters today and its economy is highly dependent on coal and fossil fuel-powered thermal energy. China will have to invest and deploy renewable energy at scale and move away from fossil fuels in energy and industrial sectors. It is also the largest manufacturer of solar modules and batteries, the costs of which plunged 90 percent and 87 percent, respectively, between 2010 and 2020. China will have to exploit these to integrate renewable energy further and electrify its industrial processes.[11]

While Russia has not announced its net-zero emission target, its Sakhalin Island set a net-zero emissions target of 2025. In addition, Sakhalin proposed to create an emission inventory, promote natural sequestration of carbon, have an emission trading system (ETS), ban petrol and diesel cars by 2035, generate green hydrogen and better manage its forests.[12]

India will be cautious in announcing its net-zero year and peaking year, as it must take national developmental priorities into account. An analysis by the Council on Energy, Environment and Water explored four possible net-zero and peaking year alternatives for India. The key considerations include per capita income, economic growth, a 'reasonable' pace of transition determined by the gap between peaking and net-zero years, the possibility of stranded assets and lock-ins, cumulative emissions and the economic trade-offs. Irrespective of the estimate year, the Indian energy system will have to transform at an unprecedented pace. Further, if carbon capture and storage technology is not commercially available in the future, and India chooses 2050 as its net-zero year, the non-hydro renewable energy share would be at 83 percent and the fossil fuel share in primary energy would have to reduce to 5 percent.[13] India will have to mindfully weigh the environmental, social and economic challenges for its long-term low-carbon and ultimately net-zero development strategy.

Irrespective of the net-zero year announcement made by the BRICS nations, it is in their common interest to cooperate, communicate and collaborate on climate change adaptation and mitigation to avoid catastrophic impacts on their economies, environment and people. To have impactful actions on the ground, the BRICS must focus on pooling finance and investments, building capacity and human resources, using innovation for its net-zero emission pathways, and meeting sustainable development goals.

CATALYSING INVESTMENTS

Climate finance is an enabler for undertaking adaptation and mitigation actions. Under the 1.5°C¬ scenario, it is estimated that between US$1.6 trillion and US$3.8 trillion will be required globally every year between 2016 and 2050 for supply-side energy system investments alone.[14] About US$180 billion will be required annually for adaptation measures between 2020 to 2030. Currently, 93 percent of the US$546 billion in climate finance is allocated for mitigation activities.[15] However, there is an abysmal gap between current climate finance available and the estimated requirements.

The BRICS environment ministers must be proactive in exchanging best practices and green technologies in priority areas like water, air quality and biodiversity. Yet, carbon neutrality cannot be reached through their efforts alone. Net-zero targets will need an economy-wide approach and must include the largest emitters—the energy, industry and transport sectors. Moreover, it needs an integrated decarbonisation approach through demand reduction, resource efficiency and a switch to cleaner fuels.

The BRICS nations must ensure public capital is leveraged for steady inflow of large private capital and investments. Moreover, grants, debt, loan, equity, green bonds, carbon tax and emission trading systems must all be deployed to pool finances across countries.

To meet the rising demands of climate-resilient infrastructure, the BRICS launched the New Development Bank (NDB) in 2016. Since then, the NDB has financed 65 sustainable development and infrastructure projects across the BRICS worth US$21 billion, spanning clean energy, water resource management, transport infrastructure, urban development and resource efficiency.[16] The Asian Infrastructure Investment Bank is another multilateral development bank that can cater to climate-proofed infrastructure investments in the BRICS. These entities will need to become pillars of strength to ensure large flow of investments.

Transparency is critical for a steady flow of finance for climate change adaptation and mitigation. It is also necessary to estimate the capital required for implementation plans and net-zero targets. This will emphasise the investment opportunities to the private sector. Only well-grounded and technically sound projects must be financed. All adaptation and mitigation projects must be closely monitored constantly for learning and trust-building.

CAPACITY BUILDING

Capacity building and human resource development must also move in tandem with finance for two important reasons. First, as green energy markets boom, sustainability moves from the margin to the mainstream and carbon neutrality becomes a quest; jobs and careers will emerge. About 1.2 billion jobs globally depend heavily on natural processes, and the energy transition is expected to create 24 million jobs and destroy six million jobs, effectively adding 18 million jobs.[17] Second, climate literacy will create conscious citizens who will be able to bend the demand curve. Formal and vocational training must be actively conducted to meet the immediate demands of the sustainability sector. India alone will need to educate and upskill 240 million children for green jobs in the future.[18]

Along with individual human resource development, institutional capacities in the BRICS countries must be strengthened.

"To curb climate change, the BRICS countries must race towards net-zero emissions while meeting their developmental challenges."

Once enhanced, institutions in the BRICS can have systematic data collection and information sharing methods, effective decision-making processes and better resource allocation and management capacity. This will empower them to work with experts and officials for impactful mitigation and adaptation measures. Local, sub-national and national abilities of institutions must be enhanced for meaningful action on the ground.

Information on climate change and its potential impact must be shared regularly with citizens via official press releases, social media platforms and news articles. This will build awareness and understanding over time, which will allow citizens to better adapt to the impact of climate change.

SUSTAINING INNOVATION

The BRICS countries must also jointly foster innovation. Recently they agreed on the science and technology innovation cooperation to open avenues for greater cooperation and partnerships.[19] Innovation could either be technological, market transformation with new business models, or a top-down policy and governance approach. In addition, it could foster incremental innovation through efficiency improvement in technology or disruptive innovation by introducing a new energy source.

For technological innovation, the research and development expenditure of countries play a significant role. Among the BRICS countries, China has the highest fraction of GDP spent on research and development, at 2.05 percent, while India has the lowest, at a mere 0.69 percent of GDP.[20] All BRICS nations will have to increase this spend for sustained technological innovation. Green hydrogen production, with its different membrane technologies, is an example of how technological innovation can substitute fossil and be a new fuel for the future. The model of co-innovation,[21] where companies across countries collaboratively and iteratively innovate, manufacture, and scale-up low carbon technologies jointly, could offer significant opportunities to contribute to mitigation actions in BRICS nations.

Market transformation can be brought about with new financial instruments and regulations. Green bonds have picked up in the last four years and can be deployed at scale to drive finance for clean energy transitions and change the markets. India has led the way for governance innovation by conceptualising and creating the International Solar Alliance. More such institutions and partnerships must be forged for deep decarbonisation and a net-zero emission future.

CONCLUSION

The BRICS nations are critical influencers of the global economy and must aim for climate leadership. Net-zero targets must be adopted not just as star announcements but followed thoroughly with rigorous and effective implementation plans across the economy. In the interest of the people, the planet and overall prosperity, the BRICS nations must collaborate strategically on technology, capacity building and innovation to achieve carbon neutrality.

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REVIVING A Global South STANCE ON CLIMATE ACTION

RODRIGO FRACALOSSI DE MORAES

Average global temperatures have increased by 1.2°C since the late nineteenth century,[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 policies and technologies. Yet, developing countries often argue that the richer countries should incur these costs proportionally since they were the main source of accumulated CO_2 currently in the atmosphere. Their positions draw on the principles of equity and fairness, and on the 'polluter-pays principle', which were formalised at the 1992 Rio Conference through the notion of common but differentiated responsibilities.

Nonetheless, there is increasing pressure on developing countries to cut greenhouse gas (GHG) emissions and collaborate more decisively in tackling climate change. There are 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. Exclusive GHG emission cuts for rich countries are environmentally ineffective and politically unfeasible.

Although pressures to cut GHG emissions are stronger on China than its BRICS compatriots, all five countries have strong shared interests on this issue. No large country in history has achieved high levels of development without burning substantial amounts of fossil fuel. Therefore, promoting development while working to mitigate (and adapt to) climate change is something new. 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 promoted simultaneously? How can developed countries be pressured to compensate for past emissions, which could then be used to promote renewable energy sources in developing countries?

At one extreme is the 'grandfathering emission' proposal through which 'prior emissions increase entitlements to future emissions'. From this standpoint, countries will have the right to emit the same percentages of previous emissions.[2] However, these schemes 'reward' rich countries for past emissions and penalise developing ones, entitling the latter to a relatively small percentage of emissions. They also do not consider that the marginal benefit (in welfare terms) of one extra tonne of emissions is larger for poor countries. 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, meaning individuals will be entitled to a certain volume of emissions. These proposals are fair for giving equivalent rights to people regardless of nationality and their ancestors' behaviour but are also politically unfeasible since they will mean massive GHG cuts (and costs) in rich countries.[3]

Importantly, 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 2050-60, doing so at the same speed as rich countries is probably unfeasible. Developing countries must pressure rich countries to compensate for past emissions and turn the principle of common but differentiated responsibilities into a largely accepted social norm.

ECONOMIC DEVELOPMENT AND FOSSIL FUELS

There is plenty of evidence that the development of rich countries was largely based on fossil fuel consumption.[4] As this produced severe negative externalities, these countries should certainly compensate others for past emissions. This could be done by supporting poorer countries in developing or transferring technologies related to climate change mitigation and adaptation. In addition, 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 45.2 percent of CO_2 accumulated emissions, while the BRICS are responsible for 25.1 percent (notably, the

Table 1

CO2 Accumulated Emissions and Consumption-based Recent Annual Emissions for G7 and BRICS countries

G7

COUNTRY	ACCUMULATED (SHARE) *	ANNUAL (SHARE) **	ANNUAL PER CAPITA (TONNES OF CO2) ***
US	25.1%	16.1%	17.7
Germany	5.6%	2.5%	10.6
UK	4.8%	1.6%	8.4
Japan	3.9%	3.9%	10.7
France	2.3%	1.2%	6.8
Canada	2.0%	1.6%	16.0
Italy	1.5%	1.3%	7.6
Total	45.2%	28.1%	-

BRICS

COUNTRY	ACCUMULATED (SHARE) *	ANNUAL (SHARE) **	ANNUAL PER CAPITA (TONNES OF CO2) ***
China	13.0%	24.3%	6.1
Russia ****	6.9%	4.6%	11.3
India	3.1%	6.1%	1.6
S. Africa	1.3%	0.9%	5.9
Brazil	0.9%	1.5%	2.5
Total ****	25.1%	37.4%	-

Source: Our World in Data.
Note: * until 2018; ** consumption-based, 2014-2018; *** consumption-based, average 2014-2018; **** production-based data for Russia.

US alone is responsible for 25.1 percent of CO_2 accumulated emissions) . The differences are especially huge in per capita terms since the G7 is home to about 10 percent of the world population while the BRICS has around 42 percent.

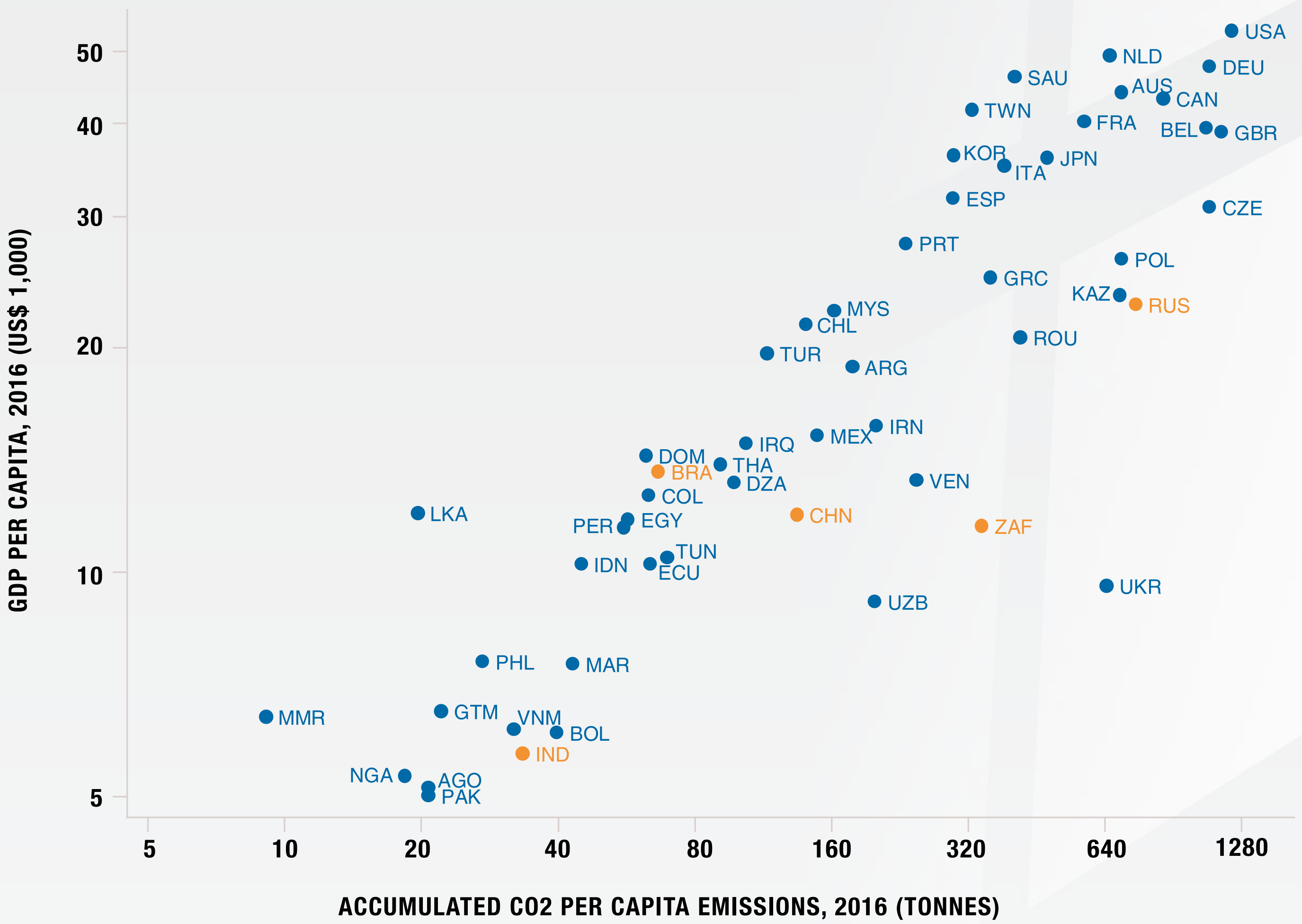
Comparing CO_2 emissions (accumulated and annual) from the G7 and BRICS countries also indicates substantial differences within each grouping (see Table 1). For instance, the UK's annual per capita emissions are about half of the US's emissions; Brazil's annual per capita emissions are around 40 percent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

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$5000.

Despite the historical need to use fossil fuels as a development instrument, 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 efficient in using energy sources than others. For example, Brazil achieved a higher level of development than South Africa while emitting less than a 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 very inefficient in doing so. Ukraine, for example, emitted as much CO_2 as—or 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 not a sufficient one. Data shows significant differences concerning the efficiency of producing long-term wealth using energy sources that emit CO_2. In other words, a country can explore fossil fuels 'purposelessly', not using them to promote long-term development.

Figure 1

Cumulative CO2 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).

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 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). The efficiency of fossil fuel consumption 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, only 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.

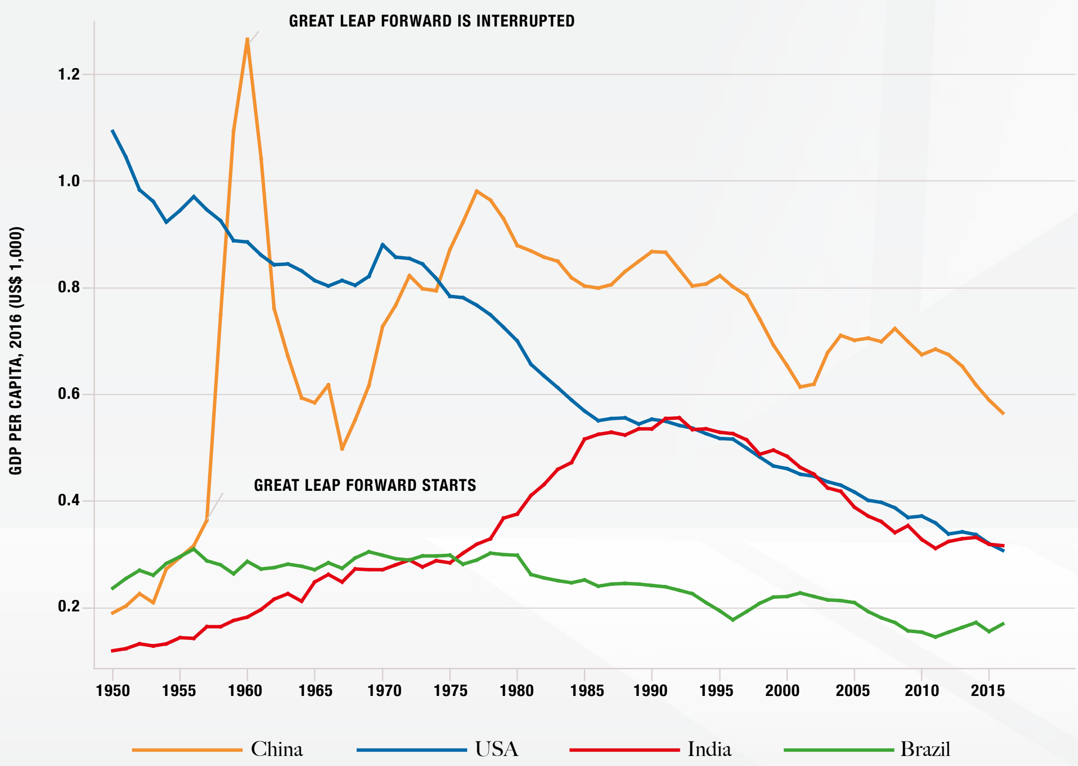
The environmental costs of development are not constant across time (see Figure 2). As energy use became more efficient, countries that developed earlier have a higher carbon footprint than those that developed later. Therefore, the development process of the US had a per capita carbon footprint that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

A potential counterargument 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).

However, this issue has been deeply explored, but there is not much evidence that an inverted U-shape relationship between CO_2 and development remains

Figure 2

CO2 Emissions Per Unit of GDP Produced (1950-2016)



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

when controlling for other covariates.[5] Moreover, periods of strong economic recession tend to reduce the efficiency of CO_2 consumption, as observed in China during the Great Leap Forward and Russia in the 1990s.

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

SOFT VERSION OF 'POLLUTER-PAYS PRINCIPLE'

Although the principle of common but differentiated responsibilities is at the core of developing countries' stance on climate change, it has lost strength as a normative project since the approval of the Kyoto Protocol. 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 major source of wealth?

In addition to using their resources to tackle climate change, developing countries should keep pressuring the developed world for greater support to poorer countries and compensation for past emissions. 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 tackle climate change in the developing world, the Organisation for Economic Co-operation and Development monitors the volumes of resources mobilised for this purpose (see Table 2).

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.

Therefore, there is a need to emphasise the norm of common but differentiated responsibilities and push for 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 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

Table 2

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

COUNTRY	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

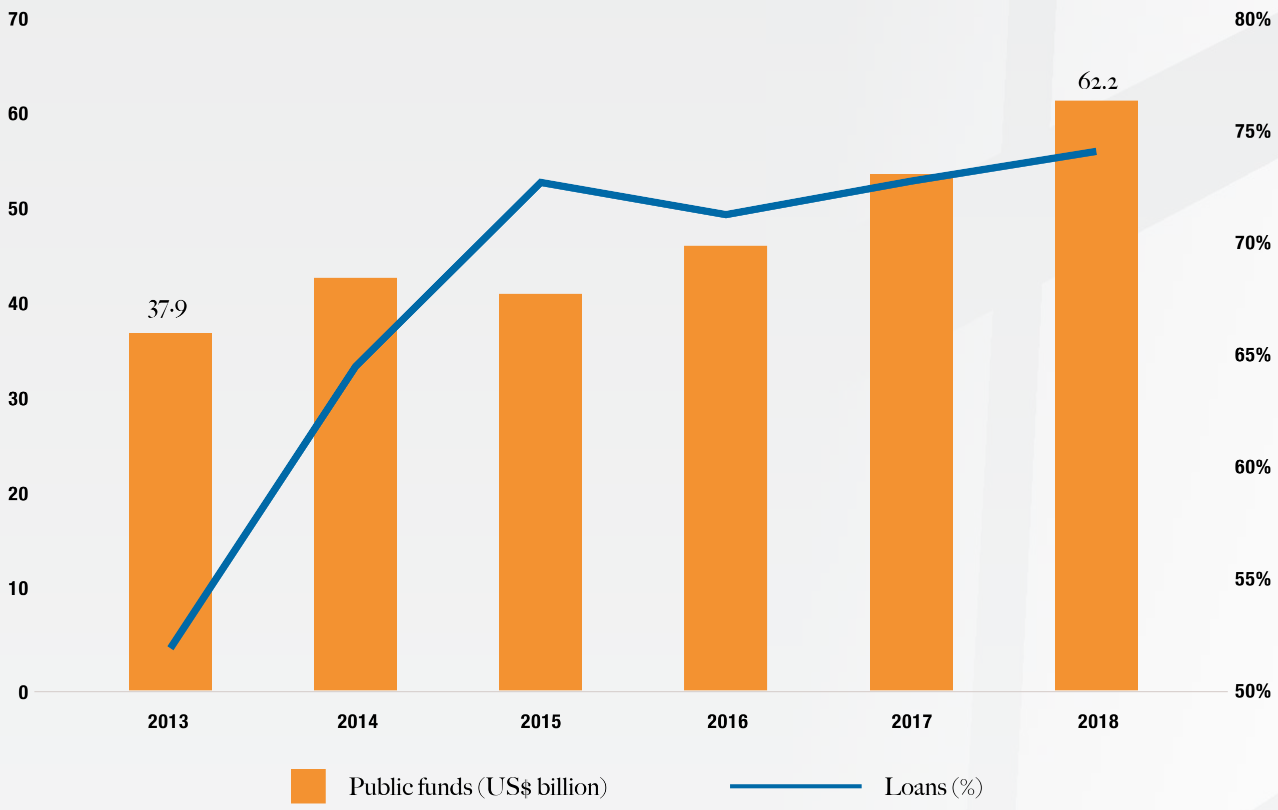
Source: OECD (2020).

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, consequentially, greater incentives to support low-carbon technologies. [9]

Figure 3

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



Source: OECD (2020).

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

CONCLUSION

If global average temperatures are to be kept below 2°C above pre-industrial levels, CO_2 cumulative emissions should never exceed 2.9 trillion tonnes, more than half of which has already been emitted.[10] However, climate change mitigation and adaptation are an additional set of problems for developing countries, which must contend with socio-economic challenges like low productivity, poor infrastructure, lack of affordable housing, and low education levels.

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

Developing countries must induce economic growth while also promoting sustainable development, and must pressure rich countries to take responsibility for massive past emissions. However, this should certainly not prevent the BRICS countries from adopting solid climate change mitigation policies, which are needed because of their growing GHG emissions and self-interest.

The first movers will likely 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. Chinese institutions, for example, are investing heavily in renewable energy research even as others lag, 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.

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REESTABLISHING GLOBAL Cooperation KEY TO ACHIEVING SDGS

LEONID GRIGORYEV

COVID-19 and its multiple variants have caused a breakdown in global governance and have profoundly impacted the global economy. This has resulted in profound changes to the morale and attitude of people and societies.

Amid this crisis, the ability of countries to achieve the Sustainable Development Goals (SDGs) has come under doubt. While countries had not made as widespread progress on the SDGs in the years before the pandemic,[1] the global health emergency has led to a reversal in many gains already attained. These include progress on SDG-1 (no poverty), SDG-3 (good health and well-being), SDG-5 (gender equality), SDG-10 (reduced inequality), and SDG-17 (partnerships to achieve SDGs).

THE RECESSION OF THE RICH

The pandemic-induced lockdowns affected poor and middle-income households across countries. A vast majority were deprived of a safe existence, predictable and reliable healthcare, education, recreation, and travel. They also constitute a majority of those who lost jobs or remained unemployed during the pandemic, especially migrant labourers. Meanwhile, the upper and middle classes, especially in developed countries, retained their jobs, wealth and incomes but lost access to habitual spending on recreation and entertainment, travel and tourism. This caused a "recession of consumption of the rich" in terms of the volume and value of lost sales.[2] The losses of the poor in developed and developing countries were huge in magnitude.

Global economic activity during the pandemic was affected far worse than during the 2008 recession. While goods were not affected as much, services consumption declined, which impacted many small and medium-sized enterprises. The monetary authorities of most countries and the Bretton Woods institutions reacted in March-April 2020 with some panic by infusing fiscal stimuli into their economies (to the tune of trillions of US dollars cumulatively) without in-depth research, all strictly political decisions of respective countries' authorities.

The stimuli disrupted traditional macro finances,[3] with unusual results during a recession, such as a rise in stock markets (and value of investment funds), a reduction in bankruptcies, and the increased flow of money into the real estate market and housing construction. The so-called economic recovery caused by the stimuli led to increased demand for housing and a rise in commodity prices. The industrial recovery is taking place around the world, even as GDP recovery is lagging.

Table 1

Key Parametres of Recession and Energy, 2019-2020

	2019			Consumption-based CO2 emissions, Mt				Production-based CO2 emissions, Mt			
	Population	GDP per capita	Income share held by highest 10%	1990	% of total	2017	% of total	1990	% of total	2017	% of total
World	7714	16.9		21541	100	33537	100	21427	100	33589	100
OECD	1258	44.7		12900	59.9	14200	42.3	12100	56.5	12600	37.5
United States	329	62.5	30.5	5100	23.7	5690	17.0	5120	23.9	5270	15.7
Germany	84	53.8	24.6	1160	5.4	895	2.7	1050	4.9	798	2.4
France	65	46.2	25.8	486	2.3	459	1.4	401	1.9	347	1.0
Italy	61	42.4	26.7	554	2.6	468	1.4	440	2.1	349	1.0
Spain	47	40.9	25.4	262	1.2	302	0.9	231	1.1	274	0.8
United Kingdom	68	46.7	26.8	658	3.1	557	1.7	601	2.8	387	1.2
Brazil	211	14.7	42.5	234	1.1	513	1.5	207	1.0	464	1.4
China	1434	16.1	29.3	2290	10.6	8550	25.5	2420	11.3	9840	29.3
India	1366	6.8	31.7	617	2.9	2260	6.7	616	2.9	2460	7.3
Russia	146	27.0	29.9	2430	11.3	1370	4.1	2530	11.8	1650	4.9
South Africa	59	12.5	50.5	206	1.0	341	1.0	313	1.5	463	1.4

	Emissions (production) per capita, t		Coal share in primary energy balance, %		GDP growth, %	Fiscal help	Lockdown	Energy Consumption*
	1990	2017	1990	2017	2020	2020	2020	2019 - 2020 (%)
World	3.9	4.4	25.2	27.1	-3.3			-4.0
OECD	10.3	8.9	23.6	16.5	-4.7			-7.0
United States	19.2	14.9	24.0	15.3	-3.5	16.7	69.0	-7.6
Germany	11.8	8.2	36.6	22.9	-4.9	11.0	62.2	-6.3
France	5.9	4.4	9.0	4.0	-8.2	7.7	63.9	-10.7
Italy	6.9	5.2	10.0	6.1	-8.9	6.8	66.2	-8.1
Spain	5.2	5.2	21.4	10.0	-11.0	4.1	67.9	-11.4
United Kingdom	9.6	5.3	30.6	5.4	-9.9	16.3	70.2	-9.3
Brazil	1.2	2.0	6.9	5.8	-4.1	8.3	70.8	-2.2
China	1.9	6.7	60.8	63.7	2.3	4.7	71.3	2.2
India	0.6	1.6	30.3	44.3	-8.0	3.1	81.0	-3.4
Russia	14.6	10.6	21.6	15.5	-3.1	2.9	60.1	-4.8
South Africa	6.5	7.4	74.2	74.3	-7.0	5.9	65.8	-3.8

ECONOMIC COMPULSIONS

With the global economy on the path to recovery, it is time to review the SDGs (and the current socioeconomic stress must be taken into account). Poverty (SDG-1) grew in developed and developing countries as they were cut off from labour income transfers, a problem addressed by an influx of government money.

Calculations for countries with more than US$45,000 (purchasing power parity of 2017) per capita (average equal US$60,000) show that the average real consumption declined by 6.37 percent with an average stimulus of 7.9 percent of GDP. However, for 16 countries with an average GDP per capita at US$27,000, there was a decline of consumption at 9.48 percent with stimulus at 5 percent of GDP (see Table1).[4]

As a rule, the richer the country, the more significant fiscal support. The less rich governments provided less support with tighter lockdowns. And naturally, the depth of reduction in personal consumption goes to the opposite. This kind of financial support was not available to developing countries, including the BRICS (see Table 1). In this recession, governments' massive anti-crisis financial support supported personal consumption and small and medium enterprises, not investments in new technologies. Bretton Woods institutions provided substantial financial support to low-income countries in what is referred to as "helicopter cash". But this could not compensate for the loss of income during the recession and beyond.

Healthcare systems (SDG-3) experienced immense stress with regards to workforce, medicines, equipment, facilities and knowledge. This was the perfect instance for global cooperation and to review priorities. A vaccine truce is urgently required as millions of people worldwide need monitoring, treatment and care, and financial assistance during the current and future epidemics. It is time to update SDG-3 with respect to the social structure of health systems. But instead, countries are busy clashing with each other, such as through sanctions, ignoring the needs of countless people. A new IMF project to issue US$650 billion special drawing rights for funding to low-income countries to provide citizens with free vaccines should compensate for the relatively weak bilateral assistance. But the project may have potentially divisive elements on industrial policy (or sanctions)—which country's vaccines are accepted for financing.

Post-COVID-19 responses to global health problems will require financing. This, in turn, may compete with financing for other SDGs. Hence, SDG-17 (partnership) should be bolstered. But post-pandemic economic recovery is also increasing inequality across several dimensions, especially SDG-8 (decent work and economic growth), SDG-10 (reduced inequalities) and SDG-12 (responsible consumption and production).

In 2021, the IMF estimated that China's GDP will grow 8.4 percent, while the US's grows 6.4 percent, surpassing 2019 levels (pre-pandemic).[5] Meanwhile, the rest of the world will struggle to reach the 2019 growth levels, and some may only achieve it in 2022. This means there will be continuous stress on the national budgets and debt, and the poor will need continuous support. In other words, hard budget constraints will drive political agendas instead of development objectives.

UPDATING THE SDGS

Inequality was rampant in 2020. Countries with high per capita income could sustain the hardship of lockdowns, and consumption decrease much easily, even though the sociological stresses were severe. This was also connected to the rich being in a better position to acquire goods and services in seclusion. Forced savings by the affluent strata due to lockdowns and closures brought some flows into the financial and real estate markets. Investment and pensions funds have retained their value during the crisis. This allowed the relatively rich to strengthen their wealth positions. Naturally, these options were not available for the poor in the developed world or elsewhere. As a result, social inequality is expected to increase. SDG-10 (reduced inequality) does not have any indicators for countries to pursue as part of their economic and social policies. And so, inequality in healthcare is striking everywhere, in the developed and developing world. Interestingly, the reduction in consumption by the rich during the pandemic has been healthy for the environment, in some ways making progress on SDG-12 (responsible consumption and production). Addressing social and economic inequality after the pandemic will be another reason for more justice and financing. The events of 2020-2021 call for more attention to the role of inequality in social life and the general SDG context.

The SDG agenda (to be achieved by 2030) has suffered due to the complexities of the pandemic and its impacts, and these are unlikely to disappear soon. The BRICS countries are at different stages of development and will need to restructure their investment resources (private, financial and state-owned) for immediate needs and long-term growth. Capital formation rates are relatively stable, and the crisis may reduce them for a few years. Socioeconomic plans will need updating, as is underway in many countries, including BRICS.

CLIMATE, SDGS AND THE WAY FORWARD

Climate change mitigation has become an important political objective around the world. Climate change appears to be the only global problem that could unite all countries towards a common goal, and the public is keen to see some policy action on it. Nevertheless, one may wonder why global efforts are concentrated around this one big problem (climate change) and task (mitigation and adaptation) while other issues persist.[6] What is certain is that to work together, the global community needs a common objective. Unfortunately, humankind does not appear keen to resolve complex development problems like poverty, energy poverty and healthcare inequalities through one locomotive of energy sector transformation.

Here are some of the major problems within the energy transition framework that countries must prepare themselves to tackle:

- Reduction of energy consumption in 2020 is now dependent on growth and industrial recovery
- Tourism and travel are lagging but may pick up

in 2022 before major changes in related and allied technologies
• Investments are flowing into real estate and housing
• A general focus on obligations instead of cooperation and coordination
• Pandemic recovery may require new social solutions.[7]
• Achieving the SDGs means interconnected solutions are needed, not separate ones
• Green recovery is a good idea but needs comprehensive planning
• Social costs of decarbonisation, reallocation of the labour force, especially in coal mining regions
• Equitable emission reductions

Hard recessions and pandemic-induced budget constraints are defining the BRICS countries' investment resources for achieving the SDGs. Current demands are now galvanising the reallocation of financial resources, especially those meant for energy and climate change mitigation.

The Russian economy is currently in an industrial recovery phase (in the middle of 2021). Despite the increase in commodity prices, non-energy exports account for roughly half of all export commodities in the first half of this year (as new customs data shows).[8] Russian authorities have been concerned about low growth for a while now but are now keen to develop the next set of projects to boost growth and address climate change mitigation. China is growing on domestic expenditure and exports ahead of the rest of the world. Brazil, India and South Africa are all fighting new variants of COVID-19. And the character of recovery helps industrial and commodity producers (by countries and branches) but is still stressful for low-income service suppliers. State finances (primarily debts) have been overextended, with unclear consequences in the medium term if interest rates (and inflation) were to grow.

In 2020, a general solution would have sufficed. "The BRICS countries need a good global environment with predictable governance, improved domestic institutions, and a strong focus on inequality. The SDGs are different for all countries, but many problems and interests are common. The success of BRICS countries in achieving the SDGs is a crucial precondition for global success, stability and progress."[9]

But more recent experience in 2021 shows us that what is needed is national-level prioritisation. It should go from immediate goals during the recession and recovery to the transformation of national healthcare and other institutions for the prolonged safety and health of these countries. Capital formation rates are limited, and there will be many needs to invest and finance. There is no miracle solution for reaching the new normal with economic growth, less inequality and more sustainability. No finance, no technology may come shortly to the rescue of the BRICS or other countries. Optimising the global response to the pandemic and recession will need reestablishing global cooperation. Predictable global governance could give people a chance to manage urgent and long-term problems.

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ASSESSING BRICS Climate Finance AND SUSTAINABLE DEVELOPMENT GOALS

HONG LAN AND YAHAN CHEN

Climate change has had significant impacts on the environment, including increased frequency of the El Niño phenomenon, continuous rise in sea levels, more prolonged and frequent droughts, and extreme heat conditions in some countries.

Approximately one-third of the world's population lives within 60 kilometres of the coastline in dense cities, often economic powerhouses. The expansion of marine water and the melting of ice and snow at the North and South Poles may raise sea levels by 50 centimetres by 2100.[1] This will endanger the coastal areas, especially the densely populated and economically developed cities.

Agriculture and natural ecosystems in many parts of the world might be unable to quickly adapt to rainfall patterns, rapid changes in global temperature, and increased carbon dioxide concentration. This can lead to great agricultural disasters and widespread destruction of forest vegetation. For instance, in recent years, there have been numerous forest fires worldwide, including in the Amazon rainforest and Australia.

Climate warming may also increase the risk of infectious and non-infectious diseases and raise mortality rates. High temperatures will increase the burden on the human circulatory system. The rise in temperatures will increase the incidence of malaria, lymphatic filariasis, schistosomiasis, kala-azar, dengue fever, and encephalitis in many countries.[2] Such incidents will lead to substantial economic losses and casualties in all countries.

POTENTIAL BRICS INTERVENTIONS

The 2030 Agenda for Sustainable Development fundamentally changed the traditional concept of development from a one-sided pursuit of economic growth to inclusive growth and coordinated economic, social and environmental development. In this context, sustainable development is the core, and the BRICS should insist on using the concept of green development to lead economic and social development. It should also actively explore new paths for ecological, circular, low carbon and efficient green development. It must promote economic transformation, establish a green economic development model and embark on a new path of green development. That, and the win-win situation of ecology and economy, is the common goal for all countries.

There are only ten years left to achieve the Sustainable Development Goals (SDGs). Under the current technological conditions, the total carbon emissions are closely related to a country's energy consumption. This is an inevitable product of the economic development of emerging industrial countries. With the industrialisation and continuous growth of emerging economies, such as the BRICS countries, the total carbon emissions have also increased.

The BRICS is a participant in global climate governance and a builder of mechanisms for it. It is important to study how the BRICS nations and other emerging countries innovate international systems around the Paris Agreement, explore new paths for human development, and lead the future institutional change of global climate governance system amid an anti-globalisation environment.

"Climate finance can help transform industry into a low carbon one, and can guide investment and financing to green and low-carbon projects."

Developed countries have less room for improving energy efficiency and incur higher costs based on the current level of economic development and industrialisation benchmarks. The industrialisation of developing countries represented by the BRICS is still starting, and there is more room for improving production methods. At the same time, at this stage, developing countries are unable to break away from the high dependence on carbon emission industries, and relevant technical equipment to achieve emission reduction, which requires abundant capital. Developing countries find it difficult to obtain technical assistance from developed countries and frequently undertake the transfer of carbon emissions from developed countries, which makes developing countries under enormous pressure of emission reduction.

To resolve the contradiction between developed countries and developing countries on emission reduction obligations, small-scale climate cooperation in large developing countries represented by the BRICS is particularly important. The BRICS should lead the transformation of global climate governance thinking, actively shape a more just and reasonable global climate order and safeguard the interests of developing countries.

The demand for climate investment and finance is huge. It is estimated that it will take US$6.9 trillion per year to achieve the SDGs by 2030.[3] The 2019IPCC special report on global warming also shows that the world needs between US$1.6 trillion and US$3 trillion in energy investment to maintain global temperatures within the 1.5°C scenario to avoid the most harmful effects of climate change.[4]

Climate finance treats climate change as the goal, which can be achieved through carbon reduction, the optimisation and adjustment of the industrial structure at the regional and national levels.

Climate finance can strengthen the transformation of industry into a low-carbon one. It can bring more social capital into green and low-carbon industries and projects by guiding investment and financing. It can also promote the industrialisation of low-carbon industries and low-carbon technologies.

It also uses public and social capital cooperation mechanisms effectively and attracts social capital via guiding and demonstrating public funds. This capital can be invested in photovoltaic power generation, wind power and other renewable energy industries to increase the proportion of renewable energy in a country's total energy consumption to optimise the energy structure; and achieve the SDGs.

The obstacle for BRICS is that not every financial institution in each member country will agree with the concept of sustainable development and will be willing to bear the responsibilities and costs. The degree of sustainable finance in each member country is not balanced, and the green finance products that can be traded in member countries are insufficient.

In recent years, China has established a series of institutional frameworks, such as the top-level framework of green finance, green credit instruments and bond instruments, and incentives and restraint policies for institutional construction. As the most important part of green finance, China's climate finance has made progress in credit and bond instruments.

Under the initiative of its central bank, China has adopted green finance development as a national strategy and supported the national blueprint for a green finance system established in 2016.

"In just a few years, the average annual scale of China's climate finance reached 2.1 trillion yuan (US$320 billion), making it one of the world's largest contributors to climate finance over this period. China's green bond market also grew into the world's largest source of labelled green bonds. At the end of 2019, there were 997 billion yuan (US$140 billion) of outstanding loans, an average annual growth of 30 percent."[5] An initiative was undertaken to consider the inclusion of green standards in the Belt and Road Initiative investment. In 2020, China's renewable energy investment accounted for a large proportion of overseas investment for the first time. In July 2020, the China Development Bank issued three-year green financial bonds worth 10 billion yuan (US$1.6 billion) on the theme of 'Addressing Climate Change' and 'Bond-Connect' in multiple markets for low-carbon transportation and other projects. According to the Climate Bonds Initiative (CBI) statistics, in 2019, green bonds worth 216.8 billion yuan (US$31.3 billion) met the CBI climate bond standards. The main investment areas include transportation (37 percent), energy (28 percent), water resources (18 percent) and construction (6 percent).[6]

PROMOTING CLIMATE FINANCE

The BRICS can promote climate finance in the following ways:

• Establish a multilateral climate finance mechanism

The current international financing structure for climate change comprises three parts—bilateral assistance (developed countries directly assisting developing ones); multilateral assistance (through institutions like the Climate Investment Fund and World Bank); and the mechanism model created by the United Nations Framework Convention on Climate Change.

These mechanisms include:

- Global Environment Facility
- Adaptation Fund
- Climate Investment Fund
- Green Climate Fund
- Reducing Emissions from Deforestation and Degradation

Climate finance is an issue that requires grand international environmental assistance. At the national and global level, the traditional response plans include formulating laws and regulations and establishing international institutions and organisations to act as global sponsors. In these plans, economy and finance are important channels to solve global climate problems. Many studies have pointed out that multilateral mechanisms are superior to bilateral aid.[7] The World Bank, multilateral organisations controlled by the UN, and multi-regional development banks are better placed to influence recipient countries.

Compared to bilateral donors, multilateral institutions can assist many countries and projects. Multilateral aid also tends to be in support of the needier countries. Developing countries should not rely only on developed countries to provide climate-related assistance, but must help other countries like it. A multilateral mechanism for climate finance established within the BRICS can go a long way in realising these goals.

- **Climate finance and information disclosure system**

The clear and credible definition, measurement and reporting of climate finance is critical to building trust, promoting accountability and ensuring effectiveness. The BRICS should collate climate finance data, establish a statistical system for green finance, including climate finance, and formulate a standard system for climate finance. The standards for green loans, green financing, and green bonds are not yet unified. There are also different views on the climate attributes of passenger railways, nuclear power, and the clean use of fossil energy.

Due to the lack of supervision and statistical guidance, commercial banks have not yet established a climate finance statistical system. In the future, the BRICS should study, establish and improve climate finance standards, such as climate credit, climate bonds, and carbon finance. They can be based on international standards like the Equator Principles,[8] the European Union's Sustainable FinanceTaxonomy,[9] the Green Bond Principles,[10] and the Climate Bonds Standard.[11]

Deepening carbon accounting research, providing basic support for greenhouse gas emission reduction and climate finance standards are the most pertinent concerns for the BRICS.

In terms of a climate information disclosure system, over 30 countries and regions have established environmental, social, and governance (ESG) information disclosure systems for listed companies, gradually shifting from "encouraging disclosure" to "explanation without disclosure" and "compulsory disclosure".

There should be further improvements in the disclosure of climate finance information, through ESG reports, selection criteria, expected climate benefit targets, and capital use plans. The BRICS should establish and improve public infrastructure, and build a platform for climate information tracking, disclosure and supervision.

Third-party agencies should strengthen the evaluation, certification, and supervision of climate finance, such as climate loans and bonds. The BRICS must strengthen communication with all stakeholders (government, investors, media, environmental protection organisations and the public) and fully disclose information about carbon emission reduction in climate finance projects.

In terms of evaluation and rating, the BRICS should promote the transformation of credit rating agencies with ESG responsible investment concepts and improve the important elements required for the sound operation of the climate finance market. Institutions like Brazil's SR Rating, and China's Dagong International Credit Rating, and the World Credit Rating Group should respond to ESG statements on credit ratings under the Principles for Responsible Investment; learn from the ESG rating methods of other firms; incorporate ESG factors into the stock, bond and sovereign credit rating process; and fully integrate the concept of sustainable development and long-term political and economic risks.

The asset management industry of BRICS should pay attention to ESG factors in the investment process of enterprises. It must enhance the awareness of ESG-responsible investment by launching a BRICS green investment or similar investment initiatives.

Banks and securities self-regulatory organisations in the BRICS countries can refer to the practice of the Asset Management Association of China's Green Investment Guidelines.[12] They can issue climate investment guidelines for public funds, private securities investment funds for pensions, adopt strategies to support responsible investment to improve the social performance of investment activities. They can also increase effective demand for sustainable finance assets and services, and improve the overall welfare of stakeholders such as companies, investors, exchanges, regulatory agencies and civil society.

- **Innovate climate finance instruments**

Commercial banks and development financial institutions in the BRICS should draw on the Equator Principles or implement green credit policies, while innovating green credit products, and developing innovative tools such as pollution-emission mortgage loans, patent-right pledge loans, and financial credit for farmers. Likewise, insurance companies and reinsurance institutions should vigorously promote the upgrading and innovation of green insurance products, increase the types of insurable risks, and expand the effective coverage of insurance clauses.

The BRICS should also accelerate the development of carbon finance and develop basic carbon financial products, including carbon funds, carbon bonds, carbon insurance, carbon index trading, and carbon asset mortgage loans.

To finance sustainable infrastructure projects, efforts should be made to explore non-sovereign loan business models with different loan structure arrangements (like public-private partnerships), actively establish a business model to meet the needs of the majority of stakeholders, and develop partnerships to expand the project scope beyond BRICS to other emerging economies and developing countries for greater influence.

The BRICS must innovate carbon financial derivatives, such as carbon forwards, carbon futures, carbon options, and carbon swaps to cope with the repricing of financial assets in the future.

Commercial banks in the five BRICS countries can also promote complementary advantages through project recommendations and syndicated loans to supplement working capital to underwrite New Development Bank (NDB) bonds, and use a series of financial tools to help the NDB manage various risks and strengthen cooperation.

The insurance mechanism should reflect the support and guidance for sustainable industries. It should aid the timely launch of green car insurance, green construction insurance, and green enterprise loan guarantee insurance with preferential policies in terms and rates. It must safeguard the interests of potential victims, and launch catastrophe insurance, and encourage enterprises to strengthen their own risk control. It must use environmental liability insurance and ecological agriculture insurance, to meet the various needs of society and enterprise-level sustainable development.

The BRICS countries can optimise their ESG information disclosure systems from the perspectives of institutional investor participation, national-level laws and regulations, to include the implementation system of stock exchanges, diversified ESG asset management strategies to encourage investors, expanded ESG responsible investment, and increased diversity of climate finance.

• Strengthen international cooperation on climate finance

The BRICS should make the geo-connections among their member states a booster for cooperation in climate finance. China, India and Russia, should play a demonstrative role in promoting sustainable financial cooperation in the grouping. China and Russia should seize the strategic opportunity of the Belt and Road Initiative and the Eurasian Economic Union to connect with each other and give full play to the economic and cultural comparative advantages of the two countries' enterprises while facing Central Asian countries.

They should adopt the consulting team model of "going out" of Chinese financial institutions and the "invite in" of Russian consulting companies, which can help the agriculture, natural resources, energy infrastructure in countries of the Commonwealth of Independent States. They can also provide sustainable finance cooperation to countries with fragile ecological and poor business environments, such as Kazakhstan and Tajikistan.

But climate finance is only a tool to promote energy conservation and emission reduction for domestic enterprises. Only the realisation of a low-carbon economy can lead to the realisation of the SDGs. A green master fund that can invest in low-carbon private equity and securities investment funds in BRICS should be launched, specifically to support the development of clean technology companies, the cross-border transfer of related patented technologies, and to ensure low-carbon climate finance and investment through more targeted official development assistance, other types of development funds or private investment.

In addition, the BRICS countries should open and optimise channels for mutual climate finance market transactions, connect member states in series with other countries, and carry out broader sustainable financial cooperation. The first is to establish a green bond market for the BRICS.

China's vigorous efforts in the development of green finance and the construction of ecological civilisation in recent years can be advantageous to the BRICS. The BRICS governments and environment-conscious companies should use the Shanghai Stock Exchange as an offshore platform to issue special green treasury bonds, and promote the convergence of green project and green bond recognition standards, and improve the cross-border issuance and trading of green treasury bonds in the BRICS countries. The NDB can play an active role in this. It should be supported by establishing regional centres in Africa and Latin America, radiating to other developing countries in these regions by strengthening the geographical connection, and expanding its membership to meet the financing needs of sustainable infrastructure projects in these regions.

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FINANCING REGENERATIVE AGRICULTURAL PRACTICES THROUGH Innovation IN BRICS

THULISILE N. MPHAMBUKELI

We now have greater insights into how the world's ecosystem works. There is an understanding that we need to fertilise soil naturally and lock away carbon dioxide. Climate change is a serious challenge today, a ticking bomb that goes off now and then before resetting.[1] For instance, 2019 was reported to be the second warmest year on record,[2] and then 2020 tied with 2016 to become the hottest year.[3] Humankind continues to experience one climate crisis after another, especially since many national governments and public administrations have largely neglected the Sustainable Development Goals (SDGs).[4]

The COVID-19 pandemic has shown that we live with uncertainty. But even amid the gloom of the pandemic, there were some positives; for instance, 2020 saw a decrease of about three billion tonnes in global carbon dioxide emissions. Yet, this positive spin-off is temporary, and those emissions will rise once the global economy starts to recover.[5] If we are serious about reversing the effects of climate change, we need to act now.

In a global gridlock on issues such as climate change, the BRICS can play a decisive role in stimulating change by taking advantage of the decline of the West. The BRICS's leading commitment to global issues such as climate change could provide a necessary solution to strengthen its soft power.[6] But, will the BRICS's respect for the economic systems of its member states stop it from doing what is right? The implementation of the SDGs is more critical now than ever before. Still, the framework provided by the 17 SDGs and the 169 targets and indicators has not been effective in enabling wide societal change to overcome the implementation deficit since 2015.[7] This continues, though scientists have agreed that if we change the way we relate to our environment, it is possible to reverse global warming.[8]

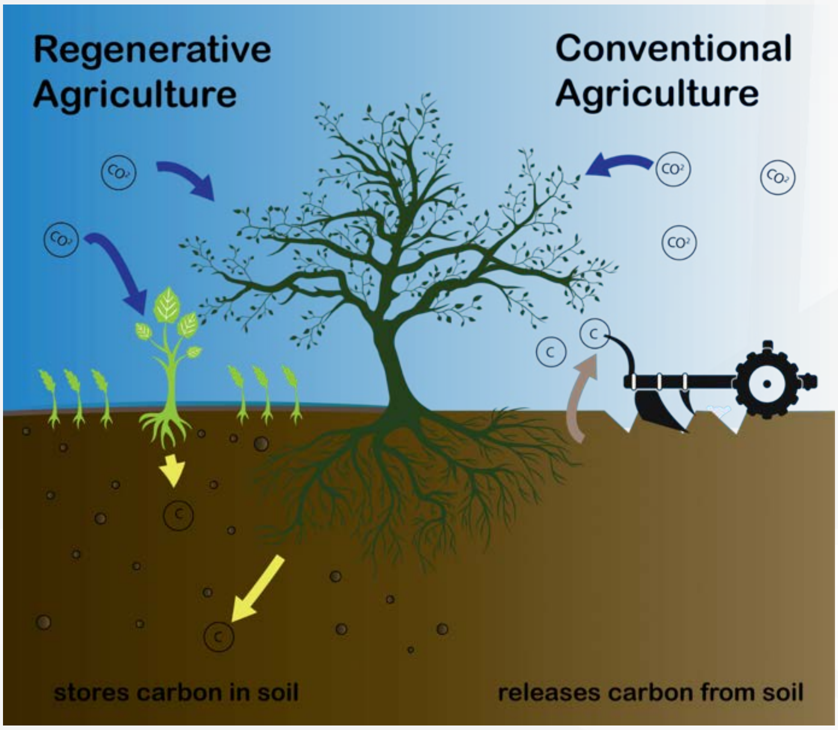
This essay demonstrates the BRICS's commitment to finding innovative ways to fund climate change and SDG-related transformative projects. From economic development to water scarcity and biodiversity loss,[9] agricultural practices are central to several significant challenges that contribute to climate change today. The essay argues that BRICS climate change financing and innovation could work if a joint fund is formed to finance 'low hanging fruits' such as regenerative agricultural practices. If implemented correctly, they can contribute significantly to mitigate carbon emissions and improve soil quality. Regenerative agriculture is a holistic land management practice that leverages the power of photosynthesis in plants to close the carbon cycle and build soil health, crop resilience and nutrient density.[10]

REGENERATIVE AGRICULTURAL PRACTICES

Promoted since the late 1970s, regenerative agriculture is a concept that describes maintaining and improving resources through the continuous organic renewal of the complex living system.[11] Regenerative means a morphogenic replacement of lost or damaged parts or structures in organisms or ecosystems.[12] "Regenerative agriculture seeks to improve the health of the soil that has been depleted of nutrients over many years of exploitative farming, and could benefit from a reboot of its microbiological make-up ... [It] is a general term for practices that improve soil

Figure 1

Regenerative vs Conventional Agriculture



Source: Osk Reddy[14]

conditions on cropland ... Although not exhaustive, some examples of regenerative practices include reduced use of synthetic pesticides and fertilisers, less frequent tilling, and cover cropping." [13]

In essence, healthy soil is a carbon sink, storing a vast amount of carbon withdrawn from the atmosphere by plants via photosynthesis.

Instead of conventional agriculture, regenerative is the answer to water scarcity, food security, and climate change (see Figure 1). Regenerative practices seek to facilitate the production of nutritious, sustainably grown food, fibre and clean water cycles.[15] They boost soil biota diversity and health and increase biodiversity above and below the soil surface while expanding water-holding capacity and sequestering carbon at greater depths. Thus, it can draw down climate-damaging levels of atmospheric CO_2 and improve soil structure to reverse civilisation-threatening, human-caused soil loss.[16]

BRICS, CLIMATE CHANGE AND SDGS

With a new institutional framework for individual and collective action in place, jointly defined through SDGs and the Paris Agreement on Climate Change, the world has been speculating on how and when the BRICS will play a role to support international action to address environmental problems.[17] Since 2009, the BRICS has emphasised its commitment to fight climate change. In the 2009 Declaration, the BRICS countries stated that they stood ready for constructive dialogue on dealing with climate change based on the principle of common but differentiated responsibility, given the need to combine measures to protect the climate with steps to fulfil their socioeconomic development tasks.

The group adopted the BRICS Leaders' Xiamen Declaration in September 2017, reaffirming their commitment to implement the 2030 Agenda for Sustainable Development fully. They committed to enhance BRICS cooperation on climate change and expand green financing. They agreed to take concrete actions to advance result-oriented cooperation in areas such as prevention of air and water pollution, waste management and biodiversity conservation. Concerning agriculture, BRICS agreed to deepen cooperation in five priority areas:

- Food security and nutrition
- Adaptation of agriculture to climate change
- Agricultural technology cooperation and innovation
- Agricultural trade and investment
- Application of communication technology in agriculture to contribute to the achievement of SDGs

The BRICS countries recognise that they constitute a significant part of the world's population, land area and natural resources, and that their choices have a global significance.[18] To this end, the BRICS implemented several projects that aim to promote cooperation on climate change and sustainable development. For instance, the Youth Energy Agency encourages young scientists and researchers from the BRICS countries to conduct research, promote public awareness, and scale up the UN 2030 Agenda.[19] This agency also launched a platform, the BRICS Sustainable Ideas Bank, that seeks to systematise the collection of public input data regarding SDG-related ideas relevant for the BRICS countries, monitor the dynamics of SDG-driven proposals, and amplify SDG-friendly suggestions and participation throughout the BRICS states.

PROPOSALS

The BRICS must adopt the right strategy to finance regenerative agriculture. This essay puts forward three specific strategic proposals that have the potential to facilitate the implementation of several SDGs (specifically 1, 2, 3, 6, 13, 15 and 17; see Figure 2).[20] These proposals can help the BRICS implement specific climate change projects to meet the SDGs and highlight innovative ways to utilise its capacity to play a major role in the fight.

Figure 2

Sustainable Development Goals

Source: UN PAGE[21]

- **Proposal 1: A Regenerative Agricultural Working Group**

The BRICS countries practice regenerative agriculture, but they are not systematically organised. In Brazil, Rizoma Agro is on a mission to revert the climate crisis by scaling regenerative organic agriculture. It sought innovative ways to add citrus production in agroforestry efficiently and found a way to profit from organic eggs, fruit production, grain production, and dairy.[22]

In Russia, after several years of a near-collapse of the food and agricultural system, President Vladimir Putin announced that the country should become a leader in organic food in 2015. Subsequently, in 2016, Russia banned the breeding and cultivation of genetically modified organisms. In a speech in January 2018, Prime Minister Dimitri Medvedev announced that Russia would capture 10 percent to 25 percent of the global market for organic food.[23]

In India, there is great interest in regenerative agriculture. The country understands that its future lies in organic farming and empowers local farmers to employ techniques that give back to the land rather than take away from it. Furthermore, practices focused on building high-quality soil, retaining rainwater, improving the water cycle, increasing biodiversity, and promoting human and animal welfare are highly valued in India.[24]

Small organic farmers in China's Yunnan Province are employing natural ways of farming that avoid the use of pesticides and fertilisers that are detrimental to the soil. They have chosen closed systems and agroecological methods of farming. These farmers understand that agricultural ecosystems work at a personal, societal and institutional levels and are a self-sustaining economic business model.[25]

South Africa has a Regenerative Agricultural Association, a non-profit, education and advocacy organisation that is working to stop the catastrophic consequences of industrial agriculture by facilitating farmers and consumers in transitioning to regenerative agriculture.[26]

Evidently, various activities across the BRICS countries are scaling regenerative agriculture and finding new ways to protect the soil. They are also working on drawing down carbon from the atmosphere like soil cultivation.[27] The BRICS must establish a regenerative agricultural working group to focus only on these projects, specifically those that facilitate locking carbon in the soil.

- **Proposal 2: Biosequestration of CO2 in Soil**

Within the context of climate change, scientists have agreed that it is possible to implement carbon drawdown practices from the atmosphere and lock it in the soil, and build resiliency into the ecosystem.[28] Thus, enhanced sequestration of atmospheric CO_2 in the soil, ultimately as stable humus, may prove a more lasting solution than temporarily sequestering CO_2 in the standing biomass through reforestation and afforestation. Such actions will also help reverse land degradation processes, thus contributing to sustained food productivity and security for the people in the regions concerned.[29] The BRICS should fund the biosequestration of CO_2 in the soil.

- **Proposal 3: Agricultural Projects That Reduce Use of Cancer-Causing**

  Pesticides

Pesticides kill microbes in the soil and in our bodies too. In essence, monoculture is not designed for the betterment of the soil, but to kill it. All regenerative agricultural practices that heal our soil—the Earth's skin—will also heal our climate.[30] The use of pesticides is evident across the BRICS and researchers are increasingly worried about the long-term health implications of the dramatic increases in pesticide use. They warn about an epidemic of chronic diseases, particularly prostate and breast cancer and other cancers like non-Hodgkin lymphoma.[31] For instance, Brazil is one of the largest agricultural producers globally and the second-largest country exporting these products, which plays an important role in the local economy.[32] However, in 2015 alone, some 899 million litres of pesticides were sprayed on their crops, and Mato Grosso, Paraná and Rio Grande Sul, Brazil's agricultural production corridors (where production strongly relies on the use of chemicals), used the largest quantities.[33]

Numerous studies linked pesticides such as clopyralid, cypermethrin, diazinon, and permethrin to cancer with decades of damage to human, animal and environmental health; in essence, these substances have been deemed to be poisonous.[34] The BRICS should fund agricultural projects that reduce the use of cancer-causing pesticides across its member countries.

CONCLUSION

This essay has put forward three proposals that advocate regenerative agricultural financing in the BRICS. It demonstrated that carbon dioxide and agriculture are not 'the bad guys' but, if channelled through the right procedures, could significantly improve the quality and access of drinking water and nutrition and lead to food security. BRICS climate change financing and innovation could work if the Regenerative Agricultural working group creates a joint fund. The fund can correctly implement these practices and significantly contribute to the mitigation of carbon emissions and improve the soil quality.

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