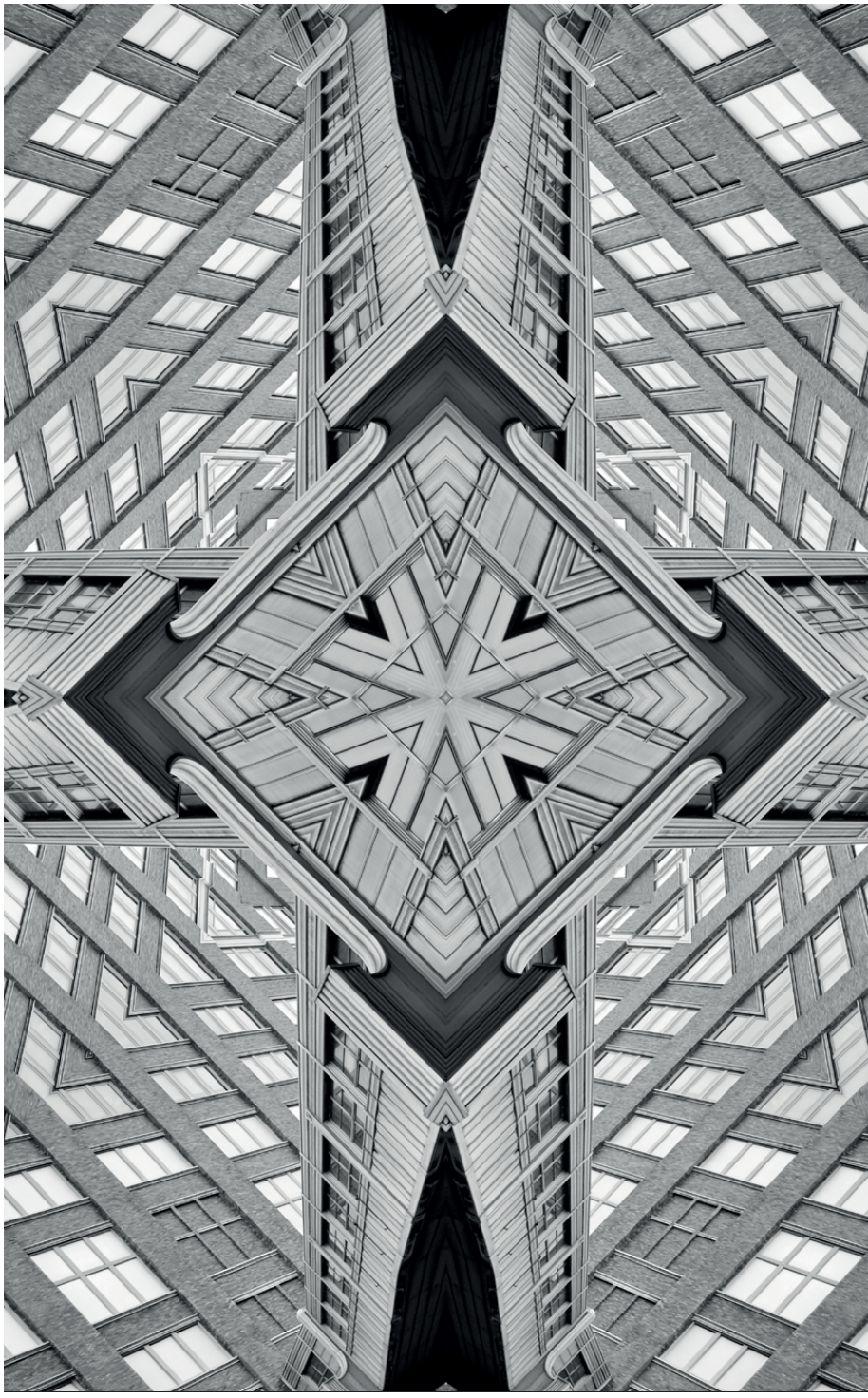
Issue Brief

ISSUE NO. 772
JANUARY 2025

ORF OBSERVER RESEARCH FOUNDATION



The Role of BRICS Leadership in Forging Climate and Health Strategies for a One-Health World

Oommen C Kurian, Debosmita Sarkar, and Shoba Suri

Abstract

The BRICS+ bloc, accounting for over 40 percent of the world's population and a substantial share of its forest area, can play a critical role in shaping responses to climate-related health threats. The grouping's leadership in harmonising policies across the domains of climate action and healthcare can have profound implications for global strategies to manage pandemics and protect planetary health. This brief makes a case for BRICS to champion the 'One Health' framework to understanding and addressing the nexus of climate change and public health.

Attribution: Oommen C Kurian, Debosmita Sarkar, and Shoba Suri, "The Role of BRICS Leadership in Forging Climate and Health Strategies for a One-Health World," *ORF Issue Brief No.* 772, January 2025, Observer Research Foundation.

Introduction

As the world confronts the intertwined crises of climate change and public health, BRICS+[a] nations have an increasingly crucial role to play in global governance. With the strategic expansion of BRICS to include other emerging economies,[1] the grouping possesses a unique confluence of environmental, economic, and public health opportunities that would allow them to overcome the multiple challenges that confront the world. Accounting for over 40 percent of the world's population and a substantial share of its forest area (Table 1), the BRICS+ bloc can be pivotal in shaping responses to climate-related health threats.[2] Their leadership in harmonising policies across the domains of climate action and healthcare can have profound implications for global strategies to manage pandemics and protect planetary health.

Table 1: BRICS+ and the World

Country	Population (2023)	Land Area (Km²)	Forest Area (Km²)	Migrants (net)	Urban Pop %	Share in World Population	Share in World Forest Area
India	1,42,86,27,663	29,73,190	7,10,388	-486136	36%	17.96%	1.80%
China	1,42,56,71,352	93,88,211	21,14,057	-310220	65%	17.92%	5.36%
Brazil	21,64,22,446	83,58,140	49,15,700	6000	88%	2.72%	12.47%
Russia	14,44,44,359	1,63,76,870	81,48,485	-136414	75%	1.82%	20.66%
South Africa	6,04,14,495	12,13,090	92,410	58496	69%	0.76%	0.23%
United Arab Emirates	95,16,871	83,600	3,247	0	94%	0.12%	0.01%
Iran	8,91,72,767	16,28,550	1,06,920	-39998	74%	1.12%	0.27%
Egypt	11,27,16,598	9,95,450	742	-29998	41%	1.42%	0.00%
Ethiopia	12,65,27,060	10,00,000	1,25,802	-11999	22%	1.59%	0.32%
BRICS	3,61,30,73,361	4,20,17,101	1,62,17,751	-	53%	45.42%	41.13%
World	7,95,39,52,567	13,49,40,000	3,94,35,076	-	57%	100.00%	100.00%

Source: Authors' own, using data from Worldometers[3]

a BRICS+ is an expanded BRICS that includes additional member countries. The grouping currently comprises: Brazil, Russia, India, China, South Africa (BRICS), plus the United Arab Emirates, Egypt, Ethiopia, and Iran.

Introduction

The One Health framework[b] offers a holistic methodological approach to understanding and addressing the nexus of climate change and public health.[4] One Health recognises the health of all species, including humans, and acknowledges the interconnectedness and bidirectional causality between human society and the broader natural ecosystem. This multidisciplinary framework is capable of addressing complex challenges that transcend national borders, which will be explored later in this article.

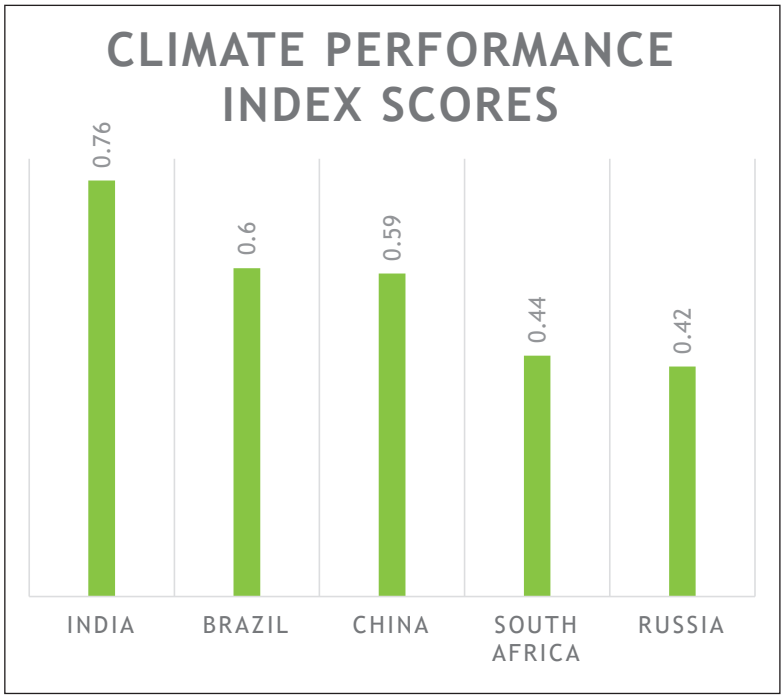
The idea that climate change and public health are linked is not new. In 2012, science writer David Quammen's book put the term, 'spillover effects', in the public consciousness.[5] The term refers to the way that infectious diseases jump from animals to humans, with the phenomenon often being exacerbated by environmental degradation and climate variability. Deforestation and habitat loss, driven by human activities, push wildlife into closer contact with human populations, increasing the risk of disease transmission. There is an inextricable link between human livelihoods and ecosystem services, particularly in the Global South, where climate change not only alters ecosystems and vector patterns but also impairs human well-being. This can lead to the emergence, and re-emergence, of diseases.[6]

The BRICS nations' vast forested terrains are not just lungs for the Earth but potential hotbeds for future pandemics. The effective management of these ecological assets, therefore, is a public health imperative, illustrating why a One Health approach is essential for predicting, preventing, and responding to spillover events.[7] The BRICS consortium, by leading in this integrated approach, can pave the way for the creation of a global strategy that effectively mitigates climate-related health risks and safeguards both biodiversity and the well-being of all nations.

b 'One Health' is a collaborative, multisectoral, and transdisciplinary approach—working at the local, regional, national, and global levels. Rudolf Virchow, a 19th-century German physician, is often credited as a pioneer of the One Health concept for his assertion that human and animal health are interlinked. Calvin Schwabe, often called 'the father of veterinary epidemiology', later popularised the term 'One Health' in the 20th century, refining and promoting the integrated approach.

BRICS has been a force in global climate diplomacy. Individually and as a collective, the BRICS countries have played a crucial role in shaping the trajectory of global climate action and sustainable development. The following discussion draws insights from two previously published studies on climate governance within the BRICS and the G20, exploring how the BRICS have fared in climate diplomacy, particularly focusing on their Climate Performance Index (CPI) scores[c] and examining whether health cooperation has negatively affected their performance.[8,9] Figure 1 shows the CPI scores for the BRICS countries

Figure 1: CPI Scores for the BRICS Countries



Source: D'Souza and Sarkar (2023)[10]

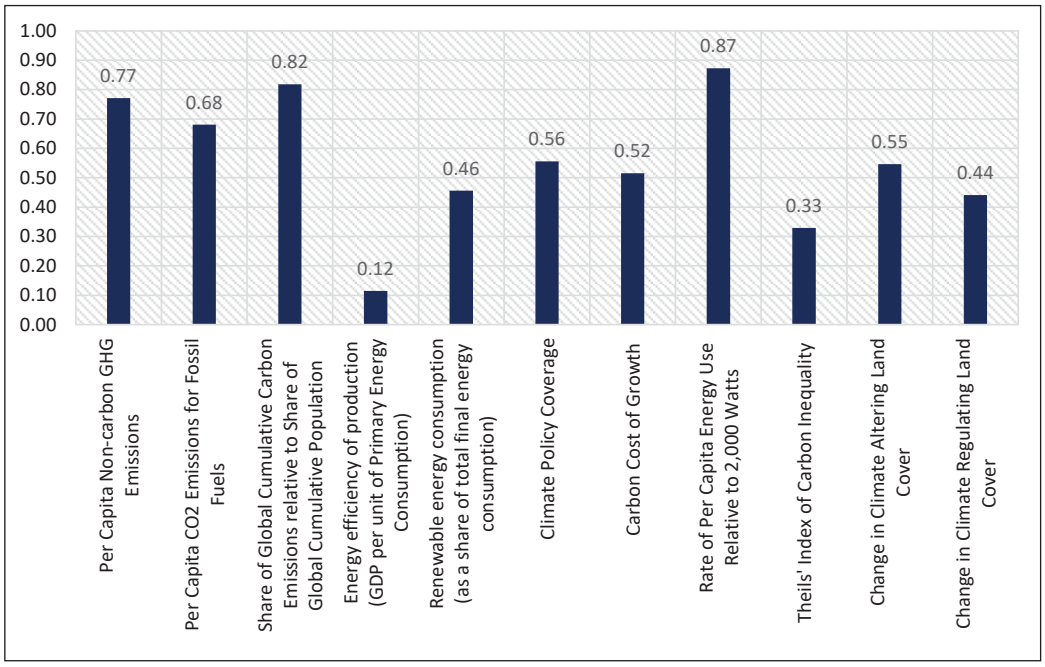
With a dynamic approach to climate diplomacy, the BRICS countries actively engage in multilateral forums such as the United Nations and the G20 to advocate for comprehensive climate policies and sustainable environmental

c The Climate Performance Index (CPI), developed by ORF, incorporates 11 quantitative indicators: Per Capita CO_2 emissions from fossil fuels; Per Capita non-CO_2 GHG emissions; Share of Global Cumulative Carbon Emissions relative to Share of Global Cumulative Population; Carbon Cost of Growth; Theil Index of Carbon Inequality; Rate of Per Capita Energy Use Relative to 2,000 Watts; Energy efficiency of production; Renewable energy consumption; Percentage Change in Climate Altering Land Cover; Percentage Change in Climate Regulating Land Cover; and Climate Policy Coverage.

practices. Their commitment to climate action is underpinned by an emphasis on the Common but Differentiated Responsibilities (CBDR) framework,[d] reflecting their collective aspiration for a balanced approach to climate change that accommodates their diverse developmental trajectories and environmental vulnerabilities.

India's leadership in climate performance within the BRICS, as well as among all G20 members, underscores the potential for developing nations to contribute meaningfully to global climate action while pursuing their development objectives. Brazil and China have also made notable strides in climate action.[11] Figure 2 shows the average performance of the BRICS economies across various domains of climate action.

Figure 2: Average Performance of BRICS Countries on Climate Action



Source: D'Souza and Sarkar (2023) [12]

d The 'Common But Differentiated Responsibilities (CBDR)' framework, formalised by the United Nations Framework Convention on Climate Change (UNFCCC) at the 1992 Rio Earth Summit, emphasises the responsibility of all countries and international organisations for cooperation in addressing concerns related to global environmental sustainability, while recognising the need of each state to bear this responsibility in accordance with the general principles of equity.

Historically, the primary focus of the BRICS' climate diplomacy efforts has been on mitigation and adaptation. The intersection of health and environmental policy for disease prevention has now emerged as an area ripe for the expansion of cooperation. Indeed, the current national climate action strategies of the BRICS countries lack an explicit focus on health cooperation; this gap will need to be filled as more evidence is found of the interlinkages between climate change and public health outcomes.

This becomes even more urgent as the BRICS countries experience graver implications of climate change. Between 2016-2019, the average annual mean surface temperature change has been highest for the BRICS countries, combined, compared to the G20, OECD, and global average (Table 2). Rising temperatures intensify health challenges, including the risk of epidemics.

Table 2: Average Annual Mean Surface Temperature Change (2016-19; in degrees Celsius)

BRICS	G20	OECD	World
1.48	1.38	1.41	1.47

Source: D'Souza (2022)[13]

Many BRICS members have been active participants in global and regional health diplomacy initiatives.[14] During the COVID-19 pandemic, for example, when vaccines manufactured by the multinational pharmaceutical giants were accessible largely to the wealthier countries, BRICS emerged as a crucial source of doses for the developing world. Such unified representation in global health governance frameworks, however, remains confined to internal cooperation. The grouping will need to grow its external influence amid the spread of communicable diseases—a spillover of climate change impacts.[15] Engaging the BRICS platform in external cooperation could enhance the bloc's ability to address the interrelated challenges of global health and environmental sustainability.

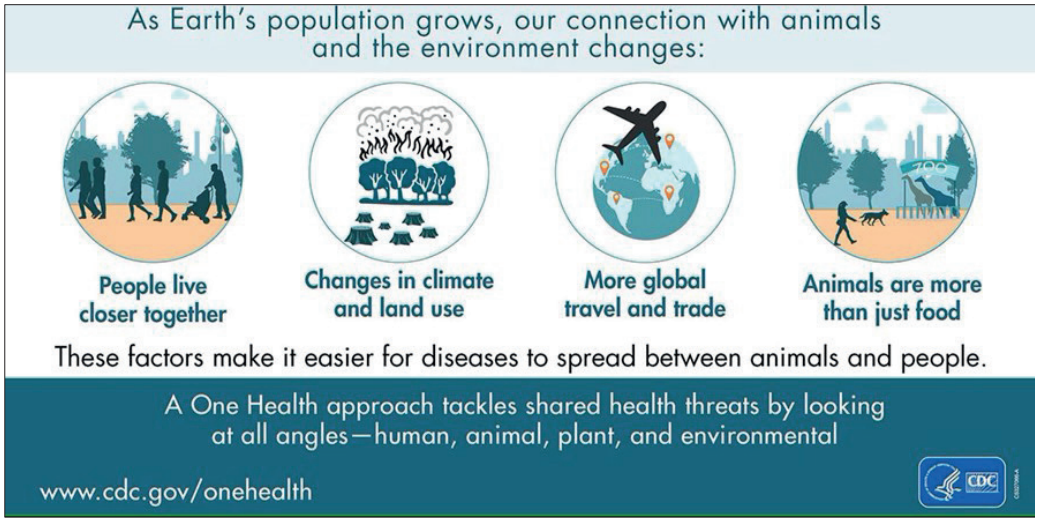
For the BRICS bloc to enhance its influence in global climate and health diplomacy effectively, a more pronounced integration of health cooperation into their climate action frameworks is essential. Such integration not only aligns with the One Health approach, but also enhances the BRICS' scope to influence the global agenda on climate diplomacy and health governance.[16]

BRICS+ Countries' Performance in Climate and Health Diplomacy

Additionally, with the BRICS+ expansion that brought together six of the world's top oil producers and four biggest natural gas producers, energy politics could continue to occupy centrestage in the BRICS' collective stance on climate governance.[17] The principal consensus around developmental concerns underpinning the BRICS+ expansion provides a strong foundation for bolstering the forum's stance on climate and health diplomacy through the 'One Health' approach.

Climate change presents massive challenges to human, animal, and environmental health, necessitating a comprehensive approach that recognises their interconnectedness.[18] The 'One Health' framework integrates these domains, emphasising collaboration among health, agriculture, environment, and other sectors to address climate-related health risks (Figure 3).[19] This holistic model is critically important in addressing the interconnections between climate change and public health, particularly because these domains are tightly linked through shared ecosystems and environmental resources. Climate change exacerbates public health problems by altering the habitats of disease vectors and reservoirs, thereby increasing the risk of zoonotic diseases—or those illnesses that transfer from animals to humans. This is particularly salient in BRICS countries, which are already facing profound public health challenges driven by climatic shifts, such as malaria spread by expanding mosquito territories aggravated by high temperature or respiratory illnesses exacerbated by increased air pollution.

Figure 3: The 'One Health' Approach



Source: Centers for Disease Control and Prevention[20]

When applied to the interconnectedness of climate change and public health, the One Health framework becomes particularly relevant due to the complex and interlinked nature of these issues. For example, changes in temperature and precipitation patterns can affect vector-borne diseases like malaria and dengue fever, impacting both human and animal health.[21] Additionally, extreme weather events such as hurricanes or floods can lead to food and water shortages, affecting human and animal populations alike.[22]

The 'One Health' Approach to Climate-Health Risks

In applying the One Health approach, BRICS nations can better predict and control these emerging health threats by fostering an integrated surveillance and response system that spans human health services, veterinary care, and environmental science. An integrated approach is essential for BRICS countries not only to safeguard the health of their populations but also to contribute effectively to global health resilience in the face of ongoing environmental changes.

'One Health' enables collaboration between different sectors and disciplines, such as environmental science, public health, veterinary medicine, agriculture, and policymaking.[23] It emphasises both adaptation to the changing climate and resilience-building measures in communities and ecosystems to withstand the impacts of climate change, such as promoting sustainable agriculture practices or preserving biodiversity.[24] Policy support is crucial for creating an enabling environment that fosters collaboration and innovation in addressing climate-related health risks.[25] Another key aspect is research and monitoring the linkages between climate change and health, monitoring disease patterns and environmental indicators, and evaluating the effectiveness of interventions.[26]

The BRICS countries have diverse healthcare initiatives and cooperation efforts that align with the One Health approach.[27] Table 3 shows several examples of programmes that have been successfully implemented using the One Health framework. These initiatives underscore the utility of the One Health approach in not only managing but also pre-emptively addressing health issues that cut across human, animal, and environmental boundaries.

Table 3: BRICS Case Studies of Successful Programmes

Country	Initiative/ Programme	Nature of Cooperation	Case Study
Brazil	Brazil's National Dengue Control Plan 2002[28]	Brazil collaborated with neighbouring countries on disease surveillance and control.[29]	*Aedes aegypti* Control Strategies[30]
Russia	National Plan for Zoonotic Diseases[31]	Russia participated in international collaborations such as the Eurasian Economic Union's[32] veterinary cooperation.	The successful containment of the H5N8 avian influenza outbreak[33]
India	National Vector Borne Disease Control Program[34] and the National Health Mission[35]	India recently collaborated with neighbouring countries on water and vector-borne disease management, demonstrated through initiatives with Nepal[36] and Bhutan.[37]	Successful polio eradication campaign[38] through comprehensive vaccination and surveillance efforts
China	China CDC's One Health Platform[39]	China engaged in international partnerships such as the Belt and Road Initiative Health Cooperation,[40] promoting health infrastructure development.	Response to the H7N9 avian influenza outbreak[41]
South Africa	National Institute for Communicable Diseases[42]	South Africa continues to collaborate with regional partners on disease control.[43]	Response to the Ebola outbreak in West Africa[44]

Source: Authors' own, using various open sources.

The 'One Health' Approach to Climate-Health Risks

Collaboration among BRICS countries in the realms of research and public health offers a powerful template for addressing global health crises, particularly those exacerbated by climate change. The global response to the COVID-19 pandemic—illustrated by BRICS members like China, India, and Russia stepping up to the plate to fill the shortage of vaccines produced by the pharmaceutical giants—highlights the potential of joint action.[45] Such a collective approach need not be limited to emergencies; it could extend into regular health surveillance systems, for example, that integrate climate data to enhance predictability and responsiveness to vector-borne diseases. By sharing data and resources, BRICS nations can streamline their responses to these public health threats, enhancing both the speed and efficacy of their interventions.

Further, BRICS initiatives to integrate environmental monitoring with health surveillance exemplify the application of the One Health approach, emphasising the importance of interdisciplinary strategies in public health planning. The collaboration extends beyond handling immediate crises to strengthening health systems against future threats through advanced preparation and shared knowledge. For example, the use of remote sensing and geographic information systems (GIS) for real-time disease tracking and management of water-borne illnesses in areas prone to flooding—a scenario expected to worsen with climate change—demonstrates the innovative use of technology in surveillance.[46]

The interlinkages between climate change and public health is undeniable, with climate-related disasters posing direct and indirect risks to human health.[47] The frequency and severity of extreme weather events have escalated, prompting a re-evaluation of traditional diplomatic and governance approaches to climate and health. In the context of the pandemic treaty[e] and the pandemic fund[f]—two emerging global platforms that are key in the operationalisation of the One Health approach—there is a need for integrating a comprehensive and multifaceted approach to the management of pandemics. Such a strategy should advocate for equity, strengthen health systems, and align with existing health frameworks to ensure effective global responses in the future.[48] BRICS can play a constructive role in this process, in its unique role as a representative grouping of both developing and emerging economies.

In this era of unprecedented environmental challenges marked by recurrent public health crises, the role of multilateralism in fostering global cooperation to address the climate-health nexus and facilitating comprehensive solutions has never been more critical. The BRICS grouping's unified stance on climate-resilient public health systems can underscore the importance of collaborative efforts among nations to tackle the multifaceted challenges of climate change.[49] This approach is, therefore, instrumental in fostering international cooperation, sharing technological innovations, and mobilising financial resources necessary for the purpose.

Furthermore, the One Health Framework emerges as a critical lens through which the interlinkages between climate change and public health can be addressed. The BRICS nations, with their vast natural resources, diverse ecosystems, and significant agricultural sectors, can be at the forefront of applying the One Health approach to mitigate the impacts of climate change on public health, thereby ensuring the well-being of their populations and ecosystems.

The BRICS countries have increasingly positioned themselves as active participants in global climate governance initiatives.[50] Through eco-diplomacy, these nations are increasingly influencing the global climate discourse, advocating for more equitable and inclusive approaches to environmental

e The Pandemic Treaty is a proposed WHO-led legal agreement aimed at enhancing global pandemic preparedness and response by improving international cooperation and ensuring equitable resource distribution. Negotiations are ongoing, with a target completion date in May 2024.

f The Pandemic Fund is intended to finance global health infrastructures to improve preparedness and response capabilities for future pandemics, addressing financial and resource gaps highlighted by COVID-19.

governance. Their stance on prioritising development needs alongside climate mitigation and adaptation efforts resonates with many developing countries, making BRICS a critical voice in international negotiations.

Recognising the importance of their vast forest cover in biodiversity and ecosystem conservation, the BRICS countries have initiated afforestation and reforestation programs to restore degraded natural habitats and expand forest cover to enhance ecosystem resilience.[51] The BRICS countries also recognise the importance of addressing foodborne, waterborne, and vector-borne diseases through improved environmental governance.

They have implemented measures to improve quality through better water governance and pollution control, including monitoring and regulating industrial discharges, agricultural runoff, and sewage treatment to reduce the contamination of water sources.[52] The BRICS countries have also implemented vector control programs, including mosquito control measures, habitat management, and public awareness campaigns, to mitigate the spread of vector-borne diseases and protect vulnerable populations. Ensuring food safety is critical for preventing foodborne illnesses caused by contaminated food and water. BRICS countries have established food safety regulations, standards, and inspection systems to monitor food production, processing, and distribution chains and prevent outbreaks of foodborne illnesses.

Strategic Recommendations for the BRICS Leadership in Climate and Health Diplomacy

The BRICS countries are uniquely positioned to address the dual challenges of climate change and public health, which are increasingly converging in a world where environmental issues directly impact human well-being. Their strategic expansion and socio-economic diversity provide them with a unique perspective and potential for leadership in global health and climate governance.

In recent years, BRICS has demonstrated a growing commitment to integrating climate action with health strategies, recognising the intrinsic link between the environment and public health. This is evident in their active participation in international forums such as the United Nations Framework Convention on Climate Change (UNFCCC) and the World Health Organization (WHO), where they advocate for comprehensive policies that address both climate resilience and health equity. The alignment of health and environmental policies is crucial not only for enhancing disease surveillance and management but also for fostering sustainable urban and rural development that considers health outcomes as central to planning processes.

The CPI scores and an assessment of performance along specific indicators already show that the BRICS has fared well across various domains of climate action, outperforming the G20 and OECD in many parameters, highlighting the forum's leadership potential in global climate governance. Moreover, the inclusion of countries like the UAE and Egypt in BRICS expands the platform's geographical and strategic scope, introducing new dynamics into the collective's approach to climate and health diplomacy. These countries could bring additional insights into managing arid climates and rapid urbanisation, which are critical for developing adaptive strategies that serve both developmental and environmental objectives. This expanded bloc's role in international climate and health negotiations can help bridge the gap between developed and developing nations, advocating for fair and equitable climate solutions that also promote public health resilience.

Recommendations

1. **BRICS should pioneer integrated climate and health policy frameworks to set a global standard for sustainability and health resilience.**

By synthesising environmental and health policies, BRICS can demonstrate how intertwined strategies enhance the ability to combat climate-related health challenges. This approach would streamline efforts in urban planning to increase green spaces, reduce air pollution, and lower heat-related health issues. Proactive integration of such policies can serve as a model for other nations, illustrating the benefits of a unified response to the complexities of climate change and public health.

2. **BRICS must seek enhanced roles in global health governance to influence climate-related health policies.**

Active participation in forums like WHO and UNFCCC is crucial for ensuring that health implications are considered in climate policies at the global level. BRICS can advocate for policies that integrate health safeguards into climate action, fostering a more cohesive international approach to these interlinked crises. Their involvement can facilitate the adoption of comprehensive health and climate strategies that are inclusive and equitable.

3. **The BRICS bloc should champion the 'One Health' approach as a foundational strategy in global health and environmental governance.**

This recommendation underscores the importance of a multidisciplinary perspective that includes human, animal, and environmental health to address the global challenges posed by climate change. By promoting the One Health approach, BRICS can lead global efforts to improve surveillance, enhance disease prevention, and increase ecosystem management, which are critical for mitigating the health impacts of climate change.

4. **BRICS should facilitate the development and global transfer of innovative technologies for climate resilience and health.**

Leveraging their technological capabilities, BRICS countries can lead in the creation and distribution of advanced solutions to climate and health issues. This includes renewable energy technologies, efficient disease surveillance systems, and advanced water purification processes. Promoting technology transfer to developing countries can help ensure that global climate resilience is built on equitable access to essential technologies.

5. **BRICS can demonstrate how integrated approaches to climate change and public health pave the way for a sustainable and healthy future.**

As global leaders, the BRICS countries have a unique opportunity to show the world how harmonising climate action and public health strategies can enhance societal resilience. By implementing policies that are inclusive of environmental and health aspects, BRICS can showcase effective strategies that other nations could emulate, promoting a comprehensive, integrated approach to the pressing issues of our time.

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