BIMSTEC Cooperation for Addressing Environmental and Climate Change Challenges

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Policy Brief

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Background

The Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) unites seven nations: Bangladesh, Bhutan, India, Myanmar, Nepal, Sri Lanka, and Thailand. These countries share not only geographical proximity but also common environmental challenges, including climate change, natural disasters, biodiversity loss, and unsustainable resource exploitation. The BIMSTEC region is among the most vulnerable in the world to the impacts of climate change (Kelkar&Bhadwal, 2007). Rising sea levels, increasing temperatures, erratic monsoons, and intensified cyclones pose significant threats to millions of livelihoods. Coastal areas of Bangladesh, India, and Myanmar are especially at risk from rising sea levels, while Bhutan and Nepal grapple with glacial melt and its implications for water resources (Sahni et al., 2010; Townsley, 2004). Furthermore, environmental degradation—including deforestation, pollution, and biodiversity loss—continues to undermine the resilience of ecosystems across the region.

Environmental Trends in the BIMSTEC Region

The BIMSTEC member states collectively emit greenhouse gases at levels significantly below the global per capita average of 4.5 tons (Stanford Doerr School of Sustainability, 2023). In 2023, global emissions reached a record high of 36.8 billion tons, primarily driven by fossil fuel consumption and industrial activities (International Energy Agency, 2024). Among BIMSTEC nations, only India contributes a notable share, accounting for over 3% of global CO_2 emissions in 2022, with emissions steadily increasing over the past two decades due to rapid industrialization and growing energy demands. In contrast, the other BIMSTEC countries collectively contributed less than 1% of global emissions in the same year. Bhutan, in particular, stands out for maintaining an exceptionally low emission rate of under 1% over the past two decades, demonstrating a commitment to sustainable environmental practices despite the global rise in emissions.[1]

Figure 1 illustrates the total greenhouse gas emissions (in million tons of CO_2 equivalent) for BIMSTEC countries from 1990 to 2020. The data highlights a consistent upward trend in emissions across all nations,

with India experiencing the most significant increase, nearly tripling its emissions over this period. Bangladesh and Thailand also recorded substantial growth, driven by expanding industrialization and rising energy demand. In contrast, Bhutan maintained the lowest emissions throughout the period, although they have shown a slight upward trend. Myanmar, Nepal, and Sri Lanka exhibited moderate growth, with Myanmar and Nepal experiencing more pronounced increases in recent decades.

Table 1 provides a comparative analysis of total and per capita CO_2 emissions across BIMSTEC countries over the past two decades. The data reflects a general rise in emissions, underscoring the effects of economic growth and industrialization. Bangladesh and Nepal, despite starting from a low baseline, experienced significant increases in both total and per capita emissions. Bhutan and Sri Lanka, while having lower total emissions, showed steady growth in per capita figures. Myanmar's emissions initially declined in 2010 but surged by 2020. Thailand consistently recorded the highest per capita emissions among BIMSTEC nations, reflecting its reliance on energy-intensive industries.

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[1]https://bimstec.org/environment-and-climate-change

Figure 1: Total Greenhouse Gas Emissions of BIMSTEC Countries (Mt of CO2 Equivalent)
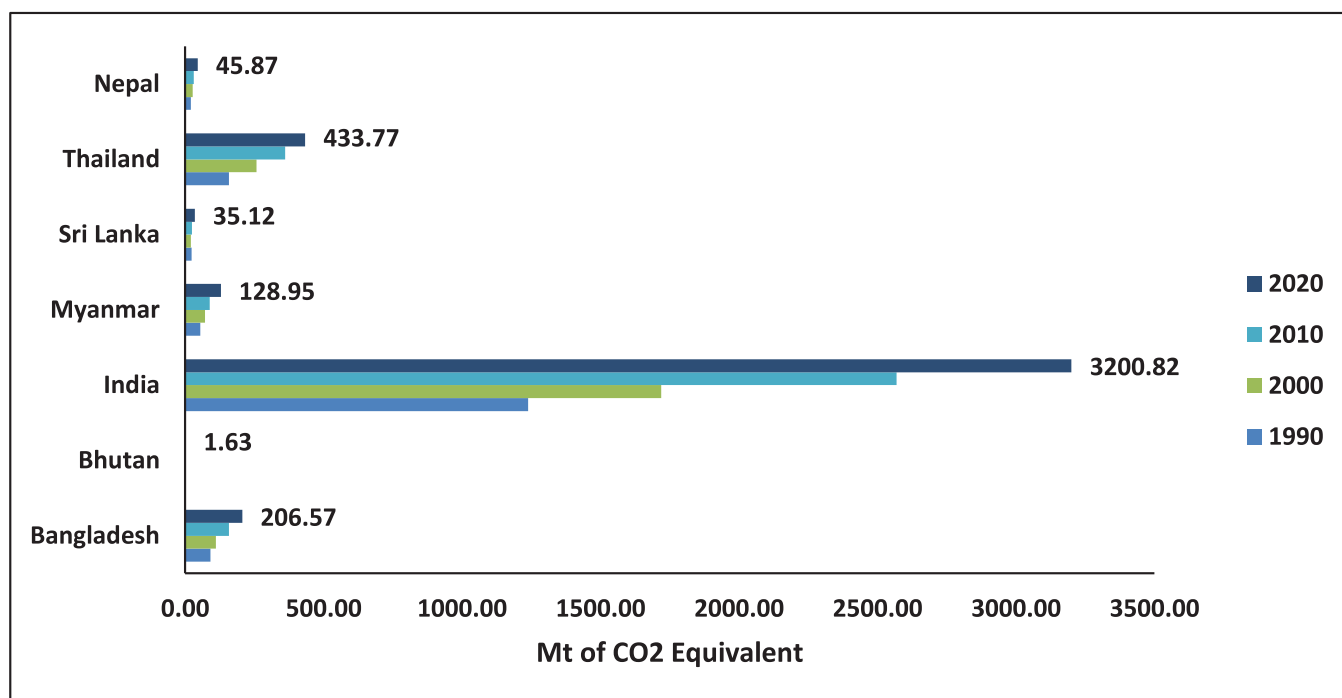
Source: World Bank²

Table 1: CO2 Emissions of BIMSTEC Countries (Mt and Mt Per Capita)

| CO2 Emissions of BIMSTEC Countries						
Country Name	2000		2010		2020	
	Mt	Mt Per Capita	Mt	Mt Per Capita	Mt	Mt Per Capita
Bangladesh	20.69	0.16	50.49	0.34	85.49	0.51
Bhutan	0.39	0.66	0.49	0.70	1.04	1.34
India	937.86	0.89	1659.98	1.34	2200.84	1.58
Myanmar	9.44	0.21	8.13	0.16	33.87	0.63
Sri Lanka	10.93	0.58	13.07	0.63	21.85	1.00
Thailand	168.94	2.68	240.77	3.53	265.48	3.71
Nepal	3.22	0.13	4.64	0.17	14.95	0.51

Source: World Bank³

Figure 2 highlights the growing dependence on non-renewable energy sources across the BIMSTEC region by illustrating the share of renewable energy consumption as a percentage of total final energy consumption from 2000 to 2021. The data reveals a noticeable decline in renewable energy reliance across all member states. For example, Bangladesh experienced a sharp decrease, with renewable ener-gy's share falling from 60.2% in 2000 to just 25% in 2021, indicating a significant shift toward fossil fuels and other non-renewable sources. Bhutan and Nepal continue to lead the region in renewable energy usage, though both have seen slight declines over the years. India and Myanmar also recorded reductions, with Myanmar's share dropping steeply from 84.6% in 2010 to 62.9% in 2021. Sri Lanka's renewable energy consumption declined moderately, while Thailand consistently reported the lowest share of renewable energy among BIMSTEC countries throughout the period.

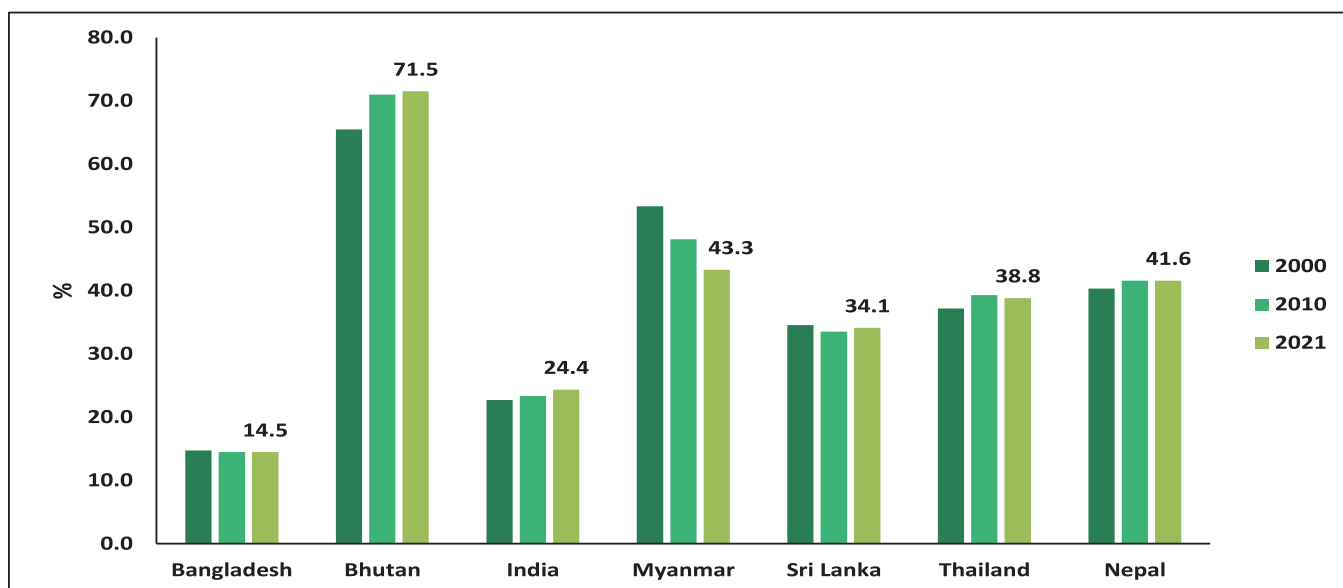**Figure 2: Renewable Energy Consumption of BIMSTEC Countries (% of Total Final Energy Consumption)**
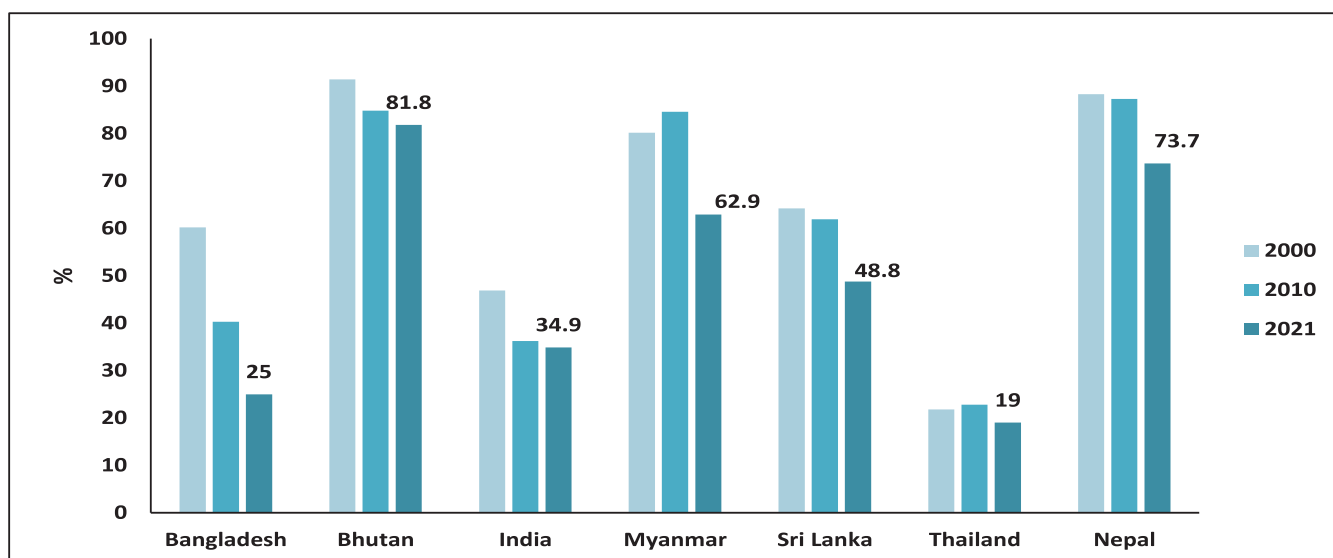
Source: World Bank[4]

The forested area in the BIMSTEC region spans 1,331,999.3 square kilometers, making up nearly 38.31% of the entire region.[5] Figure 3 highlights contrasting trends in forest cover among BIMSTEC countries, reflecting varying approaches to forest management and environmental conservation. Bhutan stands out with the highest and steadily increasing forest cover, underscoring the success of its robust conservation practices. Nepal and India also exhibit positive trends, indicating the impact of ongoing afforestation and reforestation initiatives. In contrast, Myanmar has experienced a significant decline in forest cover, pointing to widespread deforestation and land-use changes. Bangladesh shows minimal change in forest cover, suggesting limited progress in reforestation efforts.

Figure 3: Total Forest Area of BIMSTEC Countries (% of Land Area)

Source: World Bank[6]

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[5]https://bimstec.org/environment-and-climate-change
[6]https://databank.worldbank.org/

Existing Mechanisms of BIMSTEC and Policy Initiatives

The BIMSTEC leaders have pledged to strengthen cooperation on environmental conservation and sustainable development through the Environment and Climate Change (ECC) sector. At the 5th BIMSTEC Summit, held in Colombo, Sri Lanka, on March 30, 2022, they endorsed the restructuring of BIMSTEC's sectors and sub-sectors to enhance focus and coordination.[7] As a result, the Environment and Climate Change sector became one of the seven priority sectors, with Bhutan taking the lead.

The Joint Working Group on Environment and Climate Change (JWG-ECC) serves as the central mechanism for overseeing the ECC sector. Its decisions are submitted to the BIMSTEC Senior Officials Meeting (SOM) and subsequently to the BIMSTEC Ministerial Meeting for review and approval. To date, the JWG-ECC has convened twice, first in 2022 and again in 2023. During its second meeting, the group successfully finalized the Plan of Action for Environment and Climate Change, emphasizing three key priorities: biodiversity, waste management, and climate change.

During the 19th BIMSTEC Ministerial Meeting, held virtually on March 9, 2023, the "Mountain Economy" was designated as a sub-sector within the ECC.[8] This reflects the vital role mountains play in ensuring water conservation, energy resources, food security, climate adaptation, and biodiversity preservation for BIMSTEC countries. Additionally, the BIMSTEC Centre for Weather and Climate (BCWC) was established in 2014 to enhance the scientific research capacity related to weather and climate for member states.[9] The key objectives of BCWC are to
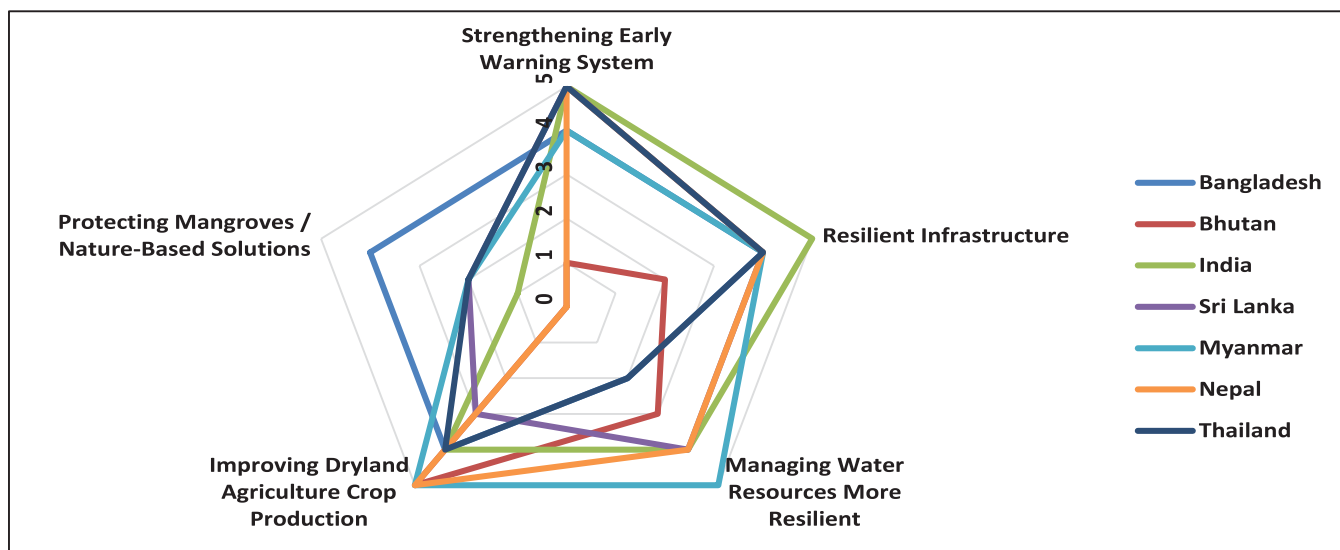
1) Facilitate collaboration among member states in both fundamental and applied research on weather and climate.
2) Enhance scientific capacity building in weather and climate studies.
3) Support and promote the publication of key research findings within the BIMSTEC cooperation framework.

The BIMSTEC Centre for Weather and Climate (BCWC) organizes training programs on climate modelling, facilitates the creation of a regional data-sharing network, and supports joint research initiatives aimed at improving weather forecasting techniques to mitigate disaster risks.

Challenges and Policy Priorities

While BIMSTEC countries share many geological similarities, their adaptation strategies must address unique national needs (Roy, 2017). Figure 4 highlights the climate adaptation priorities of BIMSTEC countries, comparing their focus across five key areas: strengthening early warning systems, developing

Figure 4: Priorities of Climate Adaptation for BIMSTEC Countries

Source: UNESCAP[10]

[7] https://bimstec.org/environment-and-climate-change
[8] https://bimstec.org/mountain-economy
[9] https://bimstec.org/bimstec-centre-for-weather-and-climate
[10] https://rrp.unescap.org/adaptation-and-priorities/bimstec#paragraph-id--20196

resilient infrastructure, managing water resources, improving dryland agriculture, and protecting mangroves through nature-based solutions. The data reveals that early warning systems and resilient infrastructure are universally prioritized, with India, Nepal, and Thailand leading efforts in these areas. Bangladesh and Myanmar place significant emphasis on nature-based solutions, particularly mangrove protection, while Bhutan and Myanmar prioritize enhancing dryland agriculture. Water resource management receives moderate attention across most countries, though the level of prioritization varies considerably.

The region frequently experiences extreme weather events such as tropical cyclones, thunderstorms, heat waves, floods, and droughts, making it one of the most disaster-prone areas in the world. Notably, it accounts for over 80% of global cyclone-related deaths (Danda, 2020). South Asia, in particular, faces high vulnerability to climate change, marked by increasingly erratic weather patterns. While some areas endure declining rainfall and prolonged droughts, others experience heightened precipitation, leading to devastating flash floods (Khatun, 2019). These climatic shifts, including rising temperatures and irregular rainfall, further exacerbate public health challenges by fostering the spread of diseases such as malaria, dengue, and diarrheal illnesses (Kamruzzaman, 2019).

Given the region's acute vulnerability to climate threats, adaptation efforts must go beyond national responses to embrace coordinated regional initiatives (Rashmi, 2022). Key strategies include real-time information sharing and embedding climate adaptation into regional development plans. The region has considerable potential for knowledge exchange, with stronger nations providing capacity-building and technical support to less-resourced countries (Das & Bandyopadhyay, 2015).

However, BIMSTEC's ambitious cooperation efforts face significant challenges due to ongoing regional tensions. Issues such as the Teesta water-sharing dispute between India and Bangladesh and the Rohingya refugee crisis involving Myanmar threaten to undermine collaborative initiatives (Kamruzzaman, 2019). Addressing these unresolved conflicts is crucial to ensuring the success of current and future regional climate adaptation efforts.

Conclusion and Policy Suggestions

BIMSTEC can strengthen its environmental and climate efforts by deepening collaboration through joint initiatives. By moving beyond geopolitical tensions and adopting a holistic approach to interconnected challenges such as climate change, the region can achieve more effective outcomes for sustainable development. Aligning environmental policies across member countries as part of regional cooperation will enhance coordination. While climate challenges are inevitable during a country's development, there are sustainable strategies to mitigate these issues. For instance, in the BIMSTEC region, agriculture is a significant contributor to greenhouse gas emissions, and pesticide use exacerbates the problem. However, the adoption of renewable energy and investment in human capital development can help reduce these emissions (Sharma et al., 2021). Continued collaboration and dialogue are essential to advancing these efforts.Based on the environmental challenges and cooperation mechanisms discussed, this study proposes the following policy initiatives:

1. **Developing a Unified Regional Adaptation Plan**: This plan should include real-time information sharing on climate threats, such as early warning systems for natural disasters.
2. **Shifting from Fossil Fuels to Renewable Energy**: Encouraging this transition across the region through incentives, technology transfer, and support for capacity-building programs in energy management.
3. **Expanding Joint Efforts in Climate Resilience and Disaster Management**: Focusing on early warning systems, climate modeling, and coordinated responses to enhance regional preparedness.
4. **Promoting Afforestation, Reforestation, and Sustainable Land-Use Practices**: Establishing regional initiatives that support these environmental goals.
5. **Providing Technical Assistance and Capacity-Building**: Encouraging stronger nations like India and Thailand to offer technical support and training for less-resourced countries in the region.

6. **Resolving Geopolitical Tensions**: Addressing ongoing geopolitical issues that threaten environmental cooperation within the region.

7. **Standardizing Environmental Policies and Regulations**: Developing unified environmental policies and regulations across BIMSTEC countries to promote best practices in sustainable development and foster legal alignment for effective cross-border cooperation.

These policy recommendations are expected to enhance BIMSTEC's ability to address climate challenges, encourage collaboration, and promote sustainable environmental practices across the region.

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