
INDIA'S OBLIGATIONS UNDER THE UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE (UNFCCC) AND THE NATIONAL ADAPTATION PROGRAMMES OF ACTION (NAPAS): A LEGAL PERSPECTIVE

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ABSTRACT

This research examines India's UNFCCC commitments while analyzing how its National Adaptation Programmes of Action (NAPA) has evolved and been put into practice. India performs climate actions as a non-Annex I developing country through common responsibility standards that respect its capabilities while maintaining development objectives. The paper evaluates national climate initiatives that incorporate the National Action Plan on Climate Change (NAPCC) along with sector-specific missions and State Action Plans on Climate Change (SAPCCs) and also assesses the development process of the National Adaptation Plan (NAP). The paper performs an all-encompassing examination of Indian adaptation measures while showcasing national institutional construct and financial initiatives and their compatibility with international obligations under the Paris Agreement through thorough policy and legal evaluation. Analysis reveals several widespread obstacles which compromise the implementation and widespread use of adaptation initiatives including inadequate coordination between stakeholders and insufficient data access and limited funds available for implementation. Effective progress in climate adaptation governance for India requires combined planning together with stakeholder engagement and well-functioning monitoring systems to fulfill India's global climate commitments.

Introduction:

Climate change functions as one of the leading worldwide challenges of this century since it generates extensive environmental problems and economic and social consequences. The United Nations Framework Convention on Climate Change (UNFCCC) initiated its foundation as an international treaty to manage greenhouse gas (GHG) concentrations because dangerous anthropogenic interference threatened the climate system. As a foundation of the UNFCCC stands the principle Common but Differentiated Responsibilities and Respective Capabilities (CBDR-RC) which recognizes the divergent historical roles and environmental abilities of different states regarding climate change challenges. The concept applies crucially to India as well as other developing nations because their low emission levels do not protect them from climate risks that arise from their geographical conditions together with economic conditions and developmental imperatives. India faces significant climate risk challenges stemming from its extensive coastal areas and monsoon-fed agricultural system and populous territories which establish extensive susceptibility to extreme weather conditions and sea-level changes and precipitation alteration. India serves as a non-Annex I Party of the UNFCCC to tackle climate change furthering economic development goals. The Indian government established the National Action Plan on Climate Change (NAPCC) in 2008 because it identified the urgent need to address both climate adaptation and mitigation through its eight national missions. India launched the process of developing its first National Adaptation Plan (NAP) to create a complete strategy that strengthens climate resilience for vulnerable sectors of the nation. The National Adaptation Programmes of Action (NAPAs) in India function as adaptive programs that strive to make the country less exposed to risks and promote national development through adaptation measures while fulfilling UNFCCC and Paris Agreement commitments. This modernized framework evidences India's dedication to developing climate-resilient development strategies while presenting the both challenges and future opportunities for meeting international obligations and protecting public welfare.

India's Obligations as a Developing Country under the UNFCCC:

India's Obligations as a Developing Country under the UNFCCC: India operates under the UNFCCC's non-Annex I authority because it identifies as a developing nation and follows the common responsibility framework of CBDR-RC. The foundation principle acknowledges that every nation must work against climate change but developed countries who created higher

GHG emissions need to provide leading support to developing nations including India. The commitments of India focus on three key aspects which include capacity development and development priorities and fair climate governance practices¹. India must develop a GHG emissions and removals national inventory according to Article 4.1 of the UNFCCC and update the inventory periodically. India accomplishes this mandate through its biennial reports (BURs) with the fourth version (BUR-4) delivering an updated inventory of 2020 data which enhances climate transparency and enables progress monitoring. The government of India must establish and maintain periodic revisions of programs that address both mitigation strategies and adaptation approaches. The integration of sector-specific strategies in water resources management clarifies the two plans in India: National Action Plan on Climate Change (NAPCC) and the developing National Adaptation Plan (NAP)². India maintains its dedication to technology cooperation through the process of environmentally sound technology transfer and diffusion across its territories. The transfer of technology from developed countries is an essential condition to implement low-carbon development initiatives within the renewable energy sector and agriculture and transportation sectors. Through the National Afforestation Programme and Green India Mission India works on improving both the promotion and conservation of carbon sinks including forests and coastal ecosystems³.

The Paris Agreement prompts India to establish Nationally Determined Contributions (NDCs) with three major goals: a reduction in GDP emissions intensity by 45% by 2030 relative to 2005 figures and the development of 50% electrical power using non-fossil fuels and the formation of a new carbon sink equivalent to 2.5–3 billion tons of CO₂. These NDCs prioritize adaptation goals especially in vital sectors such as agriculture and water resources in addition to their other objectives. As part of its United Nations Framework Convention on Climate Change commitments India presents objectives that protect international agreements together with national requirements for development and support vulnerable communities⁴.

National Adaptation Programmes of Action (NAPAs) in India:

The National Adaptation Programmes of Action (NAPAs) represent a significant advancement

¹ UNFCCC Article 3, Principle of CBDR-RC <https://unfccc.int/resource/docs/convkp/conveng.pdf>.

² India's Fourth Biennial Update Report (BUR-4), <https://unfccc.int/sites/default/files/resource/India%20BUR-4.pdf>.

³ UNFCCC Technology Transfer Framework, <https://unfccc.int/ttclear>.

⁴ India's NDC (2022), <https://unfccc.int/sites/default/files/NDC/2022-06/INDIA%20INDC%20TO%20UNFCCC.pdf>.

in India's climate adaptation approach which serves as the main component within its opposition strategy to combat climate change impacts. Under the UNFCCC framework NAPAs belong mostly to Least Developed Countries yet India developed its own specific NAPA design for national applications. In 2008 India initiated its adaptive climate strategy through the establishment of the National Action Plan on Climate Change (NAPCC) that organized eight National Missions to manage mitigation along with adaptation requirements. The National Mission on Sustainable Agriculture together with the National Water Mission and the National Mission for a Green India focus on responding to climate change impacts while building up the resilience of individual sectors⁵.

The country has started working on its first National Adaptation Plan (NAP) despite recognizing both the rising adaptation requirements and specific sector needs. Such a framework serves as a strategic long-term plan to develop integrated systems that improve the adaptive abilities of social groups and ecological elements as well as economic sectors⁶. The National Adaptation Plan focuses on nine priority sectors which stand as climate change vulnerability hotspots including water resources, agriculture practices, health services, disaster response programs, infrastructure stability, forests management, ecosystem preservation, poverty eradication measures and heritage conservation and adaptation funding mechanisms. Core development planning requires adaptive measures because India understands climate risks appear in multiple forms across nine vital sectors.

The NAP covers four major goals to decrease vulnerability alongside the development of institutional resilience at multiple levels alongside access to adaptation finances and promoting adaptation strategies across all policy levels by both national and sub-national authorities. The plan advances a continuous evolving method that depends on scientific data together with traditional knowledge and grassroots understanding for its direction. Through this initiative the NAP recognizes the necessity of integrating adaptation measures into development by establishing cross-sectoral coordination and involving stakeholders⁷. The government of India endorses State Action Plans on Climate Change (SAPCCs) for implementing nation-wide

⁵ India, UNDP Climate Change Adaptation, <https://www.adaptation-undp.org/explore/india>.

⁶ Down To Earth, *With climate change-induced hazards aggravating, preparations underway for India's first National Adaptation Plan*, <https://www.downtoearth.org.in/climate-change/with-climate-change-induced-hazards-aggravating-preparations-underway-for-indias-first-national-adaptation-plan>.

⁷ *Mainstreaming as a Means for Localizing and Implementing Adaptation Actions*, NAP Global Network, <https://napglobalnetwork.org/2020/06/mainstreaming-as-a-means-for-localizing-and-implementing-adaptation-actions/>.

adaptation strategies by adapting them to specific regional vulnerabilities. Financial assistance for implementation at both state and community levels is supported by funds from the National Adaptation Fund for Climate Change (NAFCC)⁸. The strategic move reflected by India's NAPAs leads development toward climate-resilience while supporting UNFCCC and Paris Agreement commitments.

Alignment of India's NAPAs with its UNFCCC Commitments:

The National Adaptation Programmes of Action (NAPAs) under evolution toward National Adaptation Plan (NAP) comply with India's United Nations Framework Convention on Climate Change (UNFCCC) and Paris Agreement requirements. The dominant requirement for this alignment stems from Article 4.1 of the UNFCCC that compels all Parties to create national programs which combine adaptation and mitigation strategies and synchronize them with national development plans⁹. The Indian National Adaptation Plan stands as a direct implementation of UNFCCC obligations by aiming to minimize climate sensitivities in nine core sectors such as water and disaster management that are further elaborated in the Nationally Determined Contributions under the Paris Agreement. The NDCs of India guarantee specific efforts to develop adaptive capabilities alongside development programs that increase resilience especially for climate-sensitive sectors of marginalized communities¹⁰. The NAP enhances adaptation efforts by integrating climate response requirements into national and sub-national planning processes which fulfills the mandate of UNFCCC for comprehensive climate change management. The government of India demonstrates its dedication to reporting alongside international standards by submitting Adaptation Communications to the UNFCCC including the December 2023 publication. Research conducted by the Grantham Research Institute on Climate Change and the Environment suggests that India's adaptation strategy shows good conceptual foundation yet its implementation faces challenges from coordination efforts and financial sustainability alongside execution speed¹¹. India shows a firm institutional dedication through its NAP and sectoral missions to achieve climate obligations while applying

⁸ ResearchGate, Temporarily Unavailable

https://www.researchgate.net/publication/327328716_Implementing_climate_change_adaptation_lessons_from_India_s_national_adaptation_fund_on_climate_change_NAFCC.

⁹ UNFCCC Article 4.1, <https://unfccc.int/resource/docs/convkp/conveng.pdf>

¹⁰ India, UNDP Climate Change Adaptation (Mar. 14, 2025), <https://www.adaptation-undp.org/explore/india>.

¹¹ India's approach to adaptation: A good start but lacks a strong long-term focus, Grantham Research Institute on climate change and <https://www.lse.ac.uk/granthaminstitute/news/indias-approach-to-adaptation-a-good-start-but-lacks-a-strong-long-term-focus/>.

them to fulfill national development requirements.

Specific Adaptation Actions and Policies Implemented under India's NAPAs:

The Indian National Adaptation Programmes of Action (NAPAs) developed multiple extensive adaptation measures which spread across different national sectors through diverse governmental levels. The National Action Plan on Climate Change (NAPCC) from 2008 started eight national missions which included explicit adaptation components. In line with its mission the National Mission on Sustainable Agriculture (NMSA) works through promoting climate-resilient farming through water-use efficiency, soil health management, and integrated farming systems¹. The National Water Mission works to enhance water-use efficiency by 20% while establishing sustainable water resources availability as one of its strategic goals¹². The forestry sector employs adaptive measures through compensatory afforestation programs together with forest fragmentation reduction plans along with the implementation of National Afforestation Programme (NAP) and the Green Credit Programme. Through these programs the goal is to boost both carbon storage facilities and natural ecosystems' durability¹³. The Integrated Coastal Zone Management (ICZM) project alongside MISHTI implements measures to safeguard mangrove ecosystems and coral reefs as part of coastal adaptation efforts to protect against sea-level rise and storm surges.

The Smart Cities Mission together with Atal Mission for Rejuvenation and Urban Transformation (AMRUT) enables the integration of climate-resilient features and sustainable urban development practices through their mainstreamed adaptation policies. Health care preparedness against climate-sensitive diseases receives support from the National Action Plan on Climate Change and Human Health (NAPCCHH) which strengthens public health resilience. The majority of Indian states utilized State Action Plans on Climate Change (SAPCCs) to create region-specific vulnerability-based adaptation strategies at their respective sub-national levels. The financial resources of these projects come from the National Adaptation Fund for Climate Change (NAFCC). This funding mechanism supported thirty projects within three sectors - agriculture, water, and forestry - across India. Climate and weather information systems receive programmatic enhancement through Mission Mausam to achieve better early warning capabilities and adaptive planning execution. A research paper in

¹² *National Water Mission, Ministry of Jal Shakti, Department of Water Resources, RD & GR, Government of India*, <https://nwm.gov.in>.

¹³ *India, UNDP Climate Change Adaptation*, <https://www.adaptation-undp.org/explore/india>.

the Journal of Environmental Management demonstrates that India has achieved important policy development achievements together with pilot project implementation yet systemic challenges persist in adaptation project oversight and scalability¹⁴. Different levels of systematic adaptation across various sectors demonstrate India's broad and progressing approach to climate change impacts which supports both national priorities and UNFCCC commitments.

Evaluation of the Progress and Effectiveness of India's NAPAs:

The assessment of India's National Adaptation Programmes of Action (NAPAs) alongside their initiatives from the National Action Plan on Climate Change (NAPCC) and newest National Adaptation Plan (NAP) demonstrates a blend of positive achievements and ongoing problems. The National Adaptation Programmes of Action received international praise for their early institutionalization because of the eight missions from NAPCC which target climate-sensitive sectors like water energy and ecosystems. The National Mission for Sustainable Agriculture alongside the National Water Mission has implemented adaptive methods which include water conservation strategies and drought-tolerant plant breeding programs and watershed implementation approaches. Although these missions established a solid base there are limitations when measuring their adaptation results because they lack proper evaluation frameworks¹⁵. Local adaptations in agriculture forestry and health are possible through State Action Plans on Climate Change (SAPCCs) which implement national strategies on a regional basis. These implementation plans demonstrate variable success levels throughout different states because states possess varying levels of institutional capacity while facing dissimilar conditions regarding data accessibility and financial backing. Pilot projects under the National Adaptation Fund for Climate Change have received support but the program's impact is small and lacks integration with national development initiatives.

Multiple organizations including the Climate Action Tracker with the Grantham Research Institute have determined that India shows moderate to insufficient progress in adaptation efforts compared to the scaled-up measures needed under the Paris Agreement. Several obstacles hinder adaptation efforts because of inadequate ministry coordination and disjointed

¹⁴ Biesbroek, R. et al. (2022). *Barriers and enablers to climate adaptation in India*, *Journal of Environmental Management*, <https://doi.org/10.1016/j.jenvman.2022.115986>

¹⁵ *An Evaluation of India's National Action Plan on Climate Change – Shakti Foundation*, https://shaktifoundation.in/wp-content/uploads/2014/02/napcc%20evaluation%20report_july%2020%202012.pdf

data systems and weak involvement of stakeholders throughout planning phases and execution stages. The Journal of Environmental Management published a 2022 paper which underlines the necessity for advanced monitoring frameworks because unfavorable indicator systems alongside insufficient periodic reviews create doubt concerning adaptation program effectiveness¹⁶. The absence of a unified adaptation information system prevents organizations from conducting long-term assessments or making decisions supported by data. India takes a major stride forward by developing an autonomous dedicated National Adaptation Plan which applies previous lessons and introduces a dynamic scientific planning method. The NAP stresses the significance of cutting across sectors while creating plans based on gathered evidence and delivering improved climate risk evaluation systems. Through its mechanism the NAP introduces methods to communicate adaptation progress to the UNFCCC which improves both transparency and the ability to track results. Implementation scalability and institutional collaboration along with sustainable financial funding systems remain essential as India develops its adaptation policy framework in the correct direction. The implementation of sustainable adaptation requires India to sustain its efforts in merging development strategies with adaptation goals and develop robust MRV systems to fulfill both national ambitions and UNFCCC obligations.

Challenges and Limitations Faced by India in Implementing its NAPAs and Meeting UNFCCC Commitments:

India continues to face various barriers and resource shortages which limit both its ability to carry out National Adaptation Programmes of Action (NAPAs) and meet its obligations under the United Nations Framework Convention on Climate Change (UNFCCC). However, it began its climate change response through the National Action Plan on Climate Change (NAPCC) and the National Adaptation Plan (NAP). The main barrier involves having insufficient resources that are also unpredictable. While adaptation actions need extended financial support because of their long-term infrastructure nature most domestic funding stays restricted through fragmented sources and limited access to international funding such as the Green Climate Fund (GCF) faces complicated application requirements and technical capability shortages at both national and sub-national levels. India's ability to enhance adaptation measures becomes severely limited because wealthy nations fail to deliver their promised funds through the

¹⁶ Biesbroek, R. et al. (2022). Barriers and enablers to climate adaptation in India, *Journal of Environmental Management*, <https://doi.org/10.1016/j.jenvman.2022.115986>

UNFCCC framework. Technological limitations further inhibit progress. Developing nations encounter problems accessing and purchasing modern adaptation technologies which specialized agricultural water health and coastal management sectors need. Developed nations continue to move at a slow rate in sharing technology with developing nations while it serves as essential responsibility under the UNFCCC. Government functions face delays together with inefficiencies because ministries and departments at different levels of authority struggle to coordinate with each other effectively. Numerous states continue to face challenges in implementing adaptation targets from their national plans because they have limited technical ability along with insufficient institutional systems.

The lack of robust climate data and risk assessment tools, particularly at the regional and local levels, poses another major limitation. Finding success in adaptation planning depends heavily on available climate impact projections that need precise and localized information. The access to climate science remains challenging for both local government entities and vulnerable communities of India because of inadequate data collection and weak monitoring systems¹⁷. The Grantham Research Institute on Climate Change and the Environment reveals in its published study that missing data constraints evidence-based decision-making throughout the policy creation process and adaptive planning achieves irregular intervention results¹⁸. Long-term adaptation requirements face competition against short-term development targets as a crucial difficulty. The nation of India selects economic expansion and infrastructural development above considering climate effects because poverty runs high and socioeconomic challenges remain severe across the country. The absence of integrated development planning between adaptation and adaptation and development results in unfavorable climatic impacts and environmental damage. Local community involvement together with stakeholder participation in adaptation planning is insufficient which reduces the effectiveness and social acceptance of NAPA-related projects. Monitoring and evaluation (M&E) systems for adaptation efforts need better development throughout India. Adaptation interventions face challenges due to the absence of well-defined measurement metrics and systematic reporting systems that assess both progress and intervention success. Coincidentally M&E systems need to be fully developed to execute proper tracking and adapt measures due to unknown rate of

¹⁷ *NAP Progress Report – UNFCCC*, <https://unfccc.int/sites/default/files/resource/NAP-progress-publication-2023.pdf>.

¹⁸ *India's approach to adaptation: A good start but lacks a strong long-term focus*, Grantham Research Institute on climate change and <https://www.lse.ac.uk/granthaminstitute/news/indias-approach-to-adaptation-a-good-start-but-lacks-a-strong-long-term-focus/>.

adaptation objective fulfillment and feedback-based modifications. Without institutional feedback loops organizations lack time-based learning opportunities and potential improvement benefits.

Integration of India's NAPAs with National Development Plans and Broader Climate Change Strategies:

The integration of India's National Adaptation Programmes of Action (NAPAs) into its broader development and climate policy architecture represents a strategic and evolving approach to ensure climate-resilient growth. Through the ongoing process of integrating National Adaptation Programmes of Action (NAPAs) with India's broader development and climate policy structure, the nation progresses toward achieving sustainable climate-resilience. Adaptation to climate change demands integration throughout national and sub-national development plans, which India currently implements. India started this initiative with the National Action Plan on Climate Change (NAPCC) launched in 2008, that set eight national missions to protect essential development sectors linking socio-economic growth. Adaptation measures have been integrated as essential components into the original missions which focused on mitigation activities. Through the National Mission on Sustainable Agriculture India pursues low-emission agriculture practices while building resilience against climate variability through soil health assessment tools and climate-adapted seeds combined with water preservation methods. The country is establishing its inaugural National Adaptation Plan (NAP) to integrate adaptation efforts across different sectors while integrating them with development programs already in place. The NAP expressly directs adaptation objectives towards major national developmental priorities including poverty reduction and health improvements alongside infrastructure strength and personal safety objectives thus enabling adaptation measures to advance socio-economic growth¹⁹. The nine NAP priority sectors that include water, agriculture, health, ecosystems, disaster management, traditional knowledge, adaptation finance, livelihoods, and heritage directly support India's national developmental goals thus producing multi-dimensional adaptation planning activities.

Local development contexts receive operational guidance through State Action Plans on Climate Change (SAPCCs) which function as important sub-national programs. The plans

¹⁹ *Building climate resilience in India by initiating the national adaptation plan process and scaling up adaptation finance*, UNDP Climate Change Adaptation, <https://www.adaptation-undp.org/projects/building-climate-resilience-india-initiating-national-adaptation-plan-process-and-scaling>.

integrate adaptation strategies into the policies affecting regional agricultural development together with water management and urban construction while focusing on state-specific climate-related risks. Implementations of climate resilience approaches are integrated into centrally sponsored welfare schemes like MGNREGA and NRHM to align their objectives with National Adaptation Plan for Climate Change²⁰. The NITI Aayog stands as India's foremost policy think tank which performs essential evaluations regarding climate action-development planning coherence. The "Strategy for New India @75" mentions that climate resilience needs to be added to every sector and proposes planning system transformations and irrigation system upgrades to match adaptation needs²¹. The implementation of integrated strategies faces ongoing obstacles because climate and development agencies do not have effective coordination and ministries show inconsistent integration and local authorities lack the capacity for successful implementation. The NAP Global Network through its 2020 research indicates that linkages between institutions and policies along with community inclusion along with targeted financing generate successful integration. The ongoing integration of adaptation into national planning represents India's step toward pervasive development-centered climate resilience yet institutional improvement and improved oversight remain essential for achieving this goal completely.

Conclusion:

Local development contexts receive operational guidance through State Action Plans on Climate Change (SAPCCs) which function as important sub-national programs. The plans integrate adaptation strategies into the policies affecting regional agricultural development together with water management and urban construction while focusing on state-specific climate-related risks. Implementations of climate resilience approaches are integrated into centrally sponsored welfare schemes like MGNREGA and NRHM to align their objectives with National Adaptation Plan for Climate Change. The NITI Aayog stands as India's foremost policy think tank which performs essential evaluations regarding climate action-development planning coherence. The "Strategy for New India @75" report of NITI Aayog highlights the necessity of climate resilience throughout all sectors while advocating for adaptation-oriented changes in urban planning and irrigation systems and energy infrastructure development. The

²⁰ Ravi S. Prasad & Ridhima Sud, *Implementing Climate Change Adaptation: Lessons from India's National Adaptation Fund on Climate Change (NAFCC)*, researchgate (2018).

²¹ *Strategy for New India @75 – NITI Aayog*, https://www.niti.gov.in/sites/default/files/2019-01/Strategy_for_New_India_0.pdf

implementation of integrated strategies faces ongoing obstacles because climate and development agencies do not have effective coordination and ministries show inconsistent integration and local authorities lack the capacity for successful implementation. The NAP Global Network through its 2020 research indicates that linkages between institutions and policies along with community inclusion along with targeted financing generate successful integration. India continues working to unify adaptation strategies within its national planning framework while showing progress in developing climate-resilient development models yet requires enhanced national coordination and monitoring to reach this objective.