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RESEARCH ARTICLE

Climate Policy, Development, and Dependency in the Horn of Africa: A Comparative Analysis of Nationally Determined Contributions

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Abstract

This study examines the Nationally Determined Contributions (NDCs) of four Horn of Africa countries (Somalia, Ethiopia, Eritrea, and Djibouti) through a comparative qualitative analysis. Drawing on directed content analysis, the research conceptualizes NDCs not merely as technical policy instruments, but as political and developmental texts shaped by structural vulnerability and global governance dynamics. The findings reveal that climate policy in the region is predominantly framed through adaptation, related with core development priorities such

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as food security, water management, and livelihood protection. Mitigation efforts, while present, remain conditional and uneven, often embedded within narratives of green transition that are constrained by financial, technological, and institutional limitations. Across all four cases, climate commitments are strongly dependent on external finance, technology transfer, and Monitoring, Reporting, and Verification (MRV) systems, indicating the emergence of structurally mediated development pathways. The increasing prominence of Loss and Damage discourse highlights the limits of existing climate policy frameworks and foregrounds issues of climate justice and global inequality. The study argues that climate governance in the Horn of Africa reflects a broader configuration of development under conditions of dependency and vulnerability. In this regard, the anticipated COP32 in Ethiopia represents a critical opportunity to advance more equitable and context-sensitive climate policy frameworks.

Keywords: Climate change, Nationally Determined Contributions (NDCs), Horn of Africa, Climate Justice, Climate Policy.

Introduction

Climate change, one of the most urgent global challenges of our time, is not merely an environmental crisis in the context of the Horn of Africa (Ethiopia, Somalia, Eritrea, and Djibouti) but an existential barrier to development. In the arid and semi-arid ecosystems of East Africa, including the Horn of Africa, climatic shifts such as rising temperatures, erratic rainfall patterns, and rising sea levels trigger extreme weather events like severe droughts and floods; these directly threaten crop production and livestock, the region's primary livelihoods, and consequently its socio-economic structures (Bogale & Erena, 2022; Samatar, 2024; Schulman, 2019; Wardle & Phillips, 2025). The temperature increase of approximately 1.7°C recorded in the region since the 1960s, along with the radical shortening of rainy seasons and rising evaporation rates, directly threatens both ecological balance and macro-fiscal stability (Measho et al., 2019; Tesfai & Jing, 2020). Sudden and devastating flash floods following severe drought cycles (Kireyev, 2018; Waberi et al., 2023) deplete already limited water resources, accelerate soil erosion, and lead to a chronic decline in agricultural productivity (Debesai, 2020). This situation leads to reduced crop yields, large-scale livestock losses, food insecurity, and malnutrition, further deepening poverty in already vulnerable communities (Abdi et al., 2024; Hussein, 2025; Ibrahim et al., 2025). This extreme dependence on natural resources and rain-fed production transforms climatic shocks into direct human tragedies, confronting millions with food insecurity, "climate displacement," and local resource conflicts (Daba et al., 2025; Gezie, 2019; Tamire et al., 2025). Regional conflicts and increasingly uninhabitable environmental conditions result in the displacement of hundreds of thousands of people; these massive migration waves exert heavy pressure on inadequate healthcare infrastructures, exacerbating outbreaks of infectious diseases such as malaria, cholera, and measles (Hussein, 2025; Mohamed et al., 2024; Sinore & Wang, 2024; Teku & Eshetu, 2024).

Despite the extensive body of research on the region and the concrete data substantiating the climate crisis, the structural tensions between existing climate vulnerabilities and national development goals still necessitate in-

depth analysis. Rather than redefining the climate crisis in the Horn of Africa, this study aims to provide a strategic policy analysis by centering the Nationally Determined Contributions (NDC) documents of all four countries in the region (Ethiopia, Somalia, Eritrea, and Djibouti). The primary focus of the study is to systematically compare climate risks, adaptation priorities, emission reduction approaches, and the financial conditionalities required by these processes through these official documents.

The primary contribution of this study lies in examining, through NDC texts, the paradox between regional countries' aspirations for economic growth and industrialization and the constraints imposed by climate change. The core of our analysis examines the extent to which development visions in the agriculture, energy, and infrastructure sectors align with the region's acute climate vulnerability, or conversely, how these goals might exacerbate such fragility. By treating NDC reports not solely as commitment documents but as complex political and economic negotiation texts, this approach aims to provide evidence-based and strategic policy recommendations for regional governments ahead of COP32, to be held in Ethiopia in 2027. This study offers a critical contribution to the literature by scrutinizing the NDC strategies of the four Horn of Africa countries through the contradictions within the "development-climate-finance" triangle. Building climate resilience in the region is possible not only through technical solutions but by establishing comprehensive and coherent policy frameworks in which development goals are recalibrated in light of climate realities.

Climate Vulnerability and Development Challenges in the Horn of Africa

According to the Notre Dame Global Adaptation Initiative (ND-GAIN, 2024) report, countries in the Horn of Africa region experience significant vulnerability because of climate change. Based on this report, the vulnerability levels are ranked as follows: Somalia (0.611), Eritrea (0.592), Ethiopia (0.522), and Djibouti (0.502). This systemic vulnerability across the Horn of Africa creates distinct ecological manifestations and socio-economic pressure points in each country. To better comprehend the regional impacts of the climate crisis, it is essential to detail the local reflections of this general overview within the framework of

each country's unique geographical and structural conditions. In this regard, the analysis of the impacts of climatic shocks on livelihoods and social stability will commence with Somalia, which represents one of the most sensitive points in the region and is simultaneously grappling with the climate crisis alongside a post-conflict reconstruction process.

Despite contributing only 0.08% to global greenhouse gas emissions, Somalia stands as one of the most vulnerable countries in the world to the devastating impacts of climate change (Dirie et al., 2024; Ibrahim et al., 2025). Average temperatures in the country have risen by 0.9ºC over the last century; the convergence of this warming trend with erratic rainfall patterns and increasingly frequent extreme weather events such as prolonged droughts, flash floods, and cyclones leads to multidimensional crises (Abdi et al., 2024; Omar et al., 2025). The most destructive dimension of climate change in the country is observed in agriculture, livestock, and food security. The agricultural and livestock sectors, which form the backbone of the national economy and employment, are being destabilized by severe yield reductions, losses of staple crops such as maize and sorghum, and the death of millions of livestock due to recurrent droughts and floods (Dirie et al., 2024; Omer, 2024; Warsame et al., 2021). This sharp decline in production creates hunger, malnutrition, and chronic food insecurity among communities (Dirie et al., 2024; Ibrahim et al., 2025).

Another critical dimension of climatic shocks is their impact on water resources and public health. Rising temperatures and evaporation lead to the rapid depletion of groundwater reserves, reduced flow rates in major rivers such as the Shabelle and Juba, and severe drinking water shortages; meanwhile, floods destroy water, sanitation and and hygiene (WASH) infrastructures, causing the contamination of limited water supplies (Hussein et al., 2025; Omar et al., 2025). Deteriorating hygiene conditions and the limited access to clean water trigger the rapid spread of infectious disease outbreaks, including cholera, measles, malaria, and polio (Hussein et al., 2025). As a consequence of these ecological, economic, and health-related challenges, large-scale displacement and migration intensify. Millions of Somali citizens are forced to migrate internally and across borders in search of water, food, and basic survival, leading to extreme overcrowding and humanitarian crises in urban areas with inadequate infrastructure and in makeshift internally displaced persons (IDP) camps (Dirie

et al., 2024; Momeni et al., 2024; Samatar, 2024).

Eritrea, characterized by arid and semi-arid climatic features, is among the primary countries profoundly experiencing the devastating impacts of climate change (Debesai, 2020; Tesfai & Jing, 2020). Average temperatures in the country have increased by approximately 1.7ºC since 1960, further weakening the resilience of already fragile ecosystems (Measho et al., 2019). The historical five-month summer rainy season has contracted to as little as two and a half months, and the shortening or complete absence of early-season rains severely disrupts the agricultural production cycle (Tesfai & Jing, 2020). Approximately 80% of the country's population relies on traditional rain-fed agriculture and livestock for their livelihoods, both of which are highly dependent on climatic conditions (Debesai, 2020). Due to low productivity, the agricultural value produced by small-scale farmers constitutes a very small portion of the gross domestic product; this situation results in 66% of the population suffering from malnutrition and 37% living in extreme poverty (Tesfai & Jing, 2020). Normalized Difference Vegetation Index (NDVI) analyses based on satellite data also indicate a significant decline in vegetation greenness across the country, particularly in shrublands and agricultural areas, due to increasing drought and erratic rainfall (Measho et al., 2019). While extreme temperatures are projected to cause serious yield losses in heat-sensitive crops such as wheat, environmental issues, including deforestation, desertification, and erosion, combine with climatic shocks to rapidly diminish the productive capacity of the soil (Debesai, 2020; Ghebru et al., 2012).

Rising temperatures, erratic rainfall patterns, and increasingly frequent extreme weather events such as droughts and floods directly threaten agricultural production in Ethiopia (Abebaw, 2025; Daba et al., 2025; Tamire et al., 2025). These climatic shifts lead to significant declines in the yields of staple cereals, including maize, wheat, teff, and sorghum, as well as crop failures and the rapid spread of agricultural pests like desert locusts (Demem, 2023; Hailu & Teka, 2024). Similarly, the livestock sector suffers extensively from the drying up of fodder and water resources, degradation of rangelands, heat stress, and epidemics; this results in increased livestock mortality and productivity losses (Bogale & Erena, 2022; Feleke et al., 2025). On the environmental dimension, rising temperatures and variable precipitation trigger deforestation, severe soil

erosion, loss of biodiversity, and acute water shortages leading to the drying up of rivers and lakes, such as Lake Abijata (Teku, 2025). All these agricultural and environmental devastations deepen food insecurity and malnutrition crises, compromise public health by increasing the prevalence of malaria and water-borne infectious diseases, and cause forced migration as well as substantial declines in the national gross domestic product (Tamire et al., 2025; Teku & Eshetu, 2024; Ware, 2022).

Djibouti is one of the countries that experiences the destructive impacts of global climate change most profoundly, both in environmental and macroeconomic dimensions. Average temperatures in the country are steadily rising and are projected to reach 32ºC by the end of the century (Kireyev, 2018). Alongside this temperature increase, the frequency of severe droughts has intensified; in particular, the chronic droughts experienced between 2007 and 2011 caused significant destruction to agricultural lands and vegetation, while leading to large-scale livestock losses and a 3.9% loss in the country's national income (Dabar et al., 2022; Waberi et al., 2023). In Djibouti, which possesses only 0.04% of arable land (Wardle & Phillips, 2025), rising sea levels directly threaten agriculture and clean water resources alongside drought; the intrusion of ocean water into groundwater along the coastline leads to salinization, causing freshwater wells to become unusable and dry up (Kireyev, 2018; Schulman, 2019). Another problematic dimension of climate change in the region is sudden and destructive flash floods. Extreme weather events following prolonged droughts, such as Cyclone Sagar in 2018, lead to floods, the destruction of thousands of homes, and the collapse of critical infrastructure, further exacerbating living conditions in the country. While struggling to manage its own people's limited resources, the country is also exposed to influxes of refugees fleeing conflicts and climate crises in neighboring countries such as Somalia and Yemen, which further intensifies the pressure on already limited resources (Kireyev, 2018; Schulman, 2019; Waberi et al., 2023).

Existing studies have extensively documented the environmental, agricultural, and socio-economic impacts of climate change in the Horn of Africa. However, considerably less attention has been devoted to how these vulnerabilities are translated into climate governance frameworks and development strategies through Nationally Determined Contributions (NDCs). Rather than treating

NDCs as technical climate policy documents, this study conceptualizes them as political and developmental texts that reveal how states negotiate the tensions between climate vulnerability, development aspirations, and global governance structures.

This research approaches the climate crisis in the Horn of Africa not merely as an environmental catastrophe, but as a multilayered development challenge ranging from food security to macro-economic stability, and from social resilience to new-generation dependency relationships. Given the unique vulnerabilities and strategic positions of the regional countries (Somalia, Ethiopia, Eritrea, and Djibouti), understanding the development narratives interwoven into climate policies is of vital importance ahead of COP32.

Theoretical Framework: Climate Vulnerability, Dependency, and Structurally Mediated Development Pathways

Climate change is widely recognized as a global phenomenon. However, its impacts are distributed unevenly across countries and populations. Contemporary climate vulnerability scholarship emphasizes that exposure to climatic hazards alone does not determine vulnerability. Rather, vulnerability emerges through the interaction of environmental risks with social inequalities, institutional capacities, economic structures, and historical development trajectories (IPCC, 2023; Ribot, 2014). Consequently, countries facing similar climatic threats may experience substantially different adaptation capacities and developmental outcomes. This perspective has been particularly influential in climate justice debates, which argue that the burdens of climate change are disproportionately borne by countries that have contributed least to global greenhouse gas emissions (Shan, 2023).

These inequalities are especially visible in the Horn of Africa, where recurrent droughts, floods, food insecurity, ecosystem degradation, and climate-related displacement intersect with persistent developmental challenges. Existing research has demonstrated that climate change continues to intensify vulnerabilities across key sectors such as agriculture, water resources, public health, and rural livelihoods in countries including Somalia, Ethiopia, Eritrea, and Djibouti (Samatar, 2024; Seife, 2020; Sinore & Wang, 2024; Teku & Eshetu, 2024).

While these studies provide valuable insights into the consequences of climate change, they offer comparatively limited attention to how states translate such vulnerabilities into policy priorities, development strategies, and international climate commitments through Nationally Determined Contributions (NDCs).

To address this gap, the present study draws upon insights from dependency theory and contemporary climate governance scholarship. Classical dependency theorists argued that development opportunities available to peripheral economies are shaped by their position within broader structures of the global political economy (Cardoso & Faletto, 1979; Wallerstein, 2004). From this perspective, development is not solely the product of domestic choices or institutional performance. Rather, it is conditioned by unequal relationships that structure access to resources, capital, technology, and decision-making power. Although these arguments originally emerged within debates on industrialization and economic development, they continue to offer valuable analytical tools for understanding contemporary global inequalities.

Recent scholarship has extended these insights into the field of climate governance. Climate action increasingly depends upon international financial flows, technology transfer mechanisms, carbon market arrangements, adaptation funds, and complex systems of monitoring, reporting, and verification (MRV) established under the Paris Agreement framework (Ciplet et al., 2015; Sarr, 2018; Sovacool, 2023). While these mechanisms are intended to facilitate climate action and support vulnerable countries, they may simultaneously create new forms of external dependence. Access to climate finance, technical expertise, and institutional support often becomes a prerequisite for the implementation of national climate strategies, particularly within low-income and climate-vulnerable countries. Thus, climate governance may function not solely as a mechanism for environmental protection but as a structure through which asymmetrical relationships are reproduced, negotiated, and occasionally transformed.

Building upon these debates, this study employs the concept of structurally mediated development pathways. The concept refers to development trajectories that remain formally national in design and implementation

but are substantively shaped by external financial resources, technological infrastructures, governance standards, reporting requirements, and international policy frameworks. Such pathways do not imply the absence of national agency. Rather, they highlight the reality that contemporary development strategies increasingly emerge through interactions between domestic priorities and global governance structures. In the context of climate policy, NDCs provide a particularly useful site for examining these dynamics because they simultaneously articulate national development aspirations, climate adaptation needs, mitigation commitments, and expectations regarding international support.

This study approaches NDCs not merely as technical climate policy documents but as political and developmental texts that reveal how states negotiate the complex relationships among climate vulnerability, development priorities, international obligations, and emerging dependency dynamics. Through a comparative analysis of the NDCs of Somalia, Ethiopia, Eritrea, and Djibouti, the study seeks to illuminate how climate governance frameworks simultaneously create opportunities for resilience-building and generate new forms of reliance upon external financial, technological, and institutional resources. Accordingly, to empirically ground the conceptual framework of this study and to systematically analyze the NDC documents, the methodological approach, data sources, and document analysis procedures are detailed in the following section.

Methodology

Data Sources and Document Scope

This study is based on a qualitative analysis of official Nationally Determined Contributions (NDCs) submitted by four countries in the Horn of Africa (Somalia, Ethiopia, Eritrea, and Djibouti) to the United Nations Framework Convention on Climate Change (UNFCCC). NDCs constitute the primary policy instruments through which countries articulate their climate mitigation and adaptation commitments under the Paris Agreement (Röser, et. al., 2020). Beyond their technical function, these documents also reflect broader national development

priorities, governance capacities, and engagement with global climate regimes. NDCs govern state conduct through multiple functions such as progress tracking, trust-building, influencing others, differentiating responsibilities, and gatekeeping access to benefits and obligations (Jernnäs, 2024). They operate both as domestic and international commitments and as negotiating positions, with content varying strongly across countries (Leinaweaver & Thomson, 2021). Studies also show that NDCs are political narratives revealing tensions over justice, equity, responsibility, and vulnerability rather than just technical plans (Mills-Novoa & Liverman, 2019).

The selection of these four countries is guided by both geographical coherence and shared structural characteristics, including high climate vulnerability, low historical greenhouse gas emissions, and limited adaptive capacity. The Horn of Africa represents one of the regions most exposed to climate variability and extreme weather events, particularly recurrent droughts and food insecurity, while simultaneously contributing minimally to global emissions (IPCC, 2022; World Bank, 2023).

It should be noted that the analyzed NDCs differ in terms of submission periods and revision cycles. While Ethiopia and Somalia have recently updated their NDCs (NDC 3.0), Eritrea and Djibouti rely on earlier submissions or updated versions that may not be fully harmonized in terms of structure and reporting standards. This temporal asymmetry reflects uneven institutional capacities and update frequencies across countries. Rather than treating this solely as a limitation, the study interprets these differences as analytically meaningful, revealing how climate governance is shaped by disparities in technical, financial, and administrative capacities. Accordingly, the analysis focuses on thematic patterns and policy orientations rather than direct quantitative comparisons of ambition levels.

The document corpus consisted of four official Nationally Determined Contributions (NDCs) submitted under the Paris Agreement framework: Somalia's Third Generation Nationally Determined Contribution (NDC 3.0) (2025), Ethiopia's Nationally Determined Contribution 3.0 (2025–2035), Eritrea's Nationally Determined Contributions Report (2018), and Djibouti's revised

Contribution Déterminée au Niveau National (CDN) (2025). Together, these documents comprised 180 pages of policy material and represented the most recent nationally endorsed climate policy frameworks available for each country at the time of analysis. The Somalia NDC consisted of 50 pages, the Djibouti revised NDC of 71 pages, the Ethiopia NDC 3.0 of 29 pages, and the Eritrea NDC of 30 pages. The documents were retrieved from official government publications and the UNFCCC NDC Registry between March and April 2026. While the Somalia, Ethiopia, and Eritrea documents were published in English, Djibouti's revised NDC was published in French. To preserve contextual accuracy, the original French version was analyzed and key passages relevant to the coding framework were translated by the researchers during the analytical process.

Analytical Approach and Research Questions

This study employs a directed qualitative content analysis combined with thematic coding to examine how NDCs frame the relationship between climate change and development. Directed content analysis is particularly appropriate when existing theoretical frameworks guide the coding process, allowing the researcher to validate, refine, and extend conceptual categories (Hsieh & Shannon, 2005).

In this study, the analytical framework is informed by two interrelated strands of literature: 'climate vulnerability and inequality' and 'dependency perspectives in global environmental governance'. These theoretical lenses provide a structured basis for identifying key dimensions such as adaptation priorities, mitigation strategies, financial conditionality, technological dependency, and the emergence of Loss and Damage discourse.

Unlike purely inductive thematic analysis, which derives categories solely from the data, directed content analysis enables a theoretically grounded reading of documents while still allowing for the emergence of new themes (Elo & Kyngäs, 2008; Schreier, 2012). Given that NDCs are not neutral technical documents but politically constructed texts reflecting national priorities and global negotiations, this approach is particularly suitable for capturing both explicit policy commitments and implicit discursive patterns.

Building on the analytical framework outlined above, this study examines how Nationally Determined Contributions (NDCs) in the Horn of Africa operate simultaneously as climate policy instruments, development frameworks, and political narratives shaped by structural vulnerability. Rather than approaching these documents as purely technical roadmaps, the analysis explores how climate action is embedded within broader socio-economic priorities and governance constraints.

Within this perspective, the study is guided by five interrelated research questions. First, how do NDCs integrate climate action with core development priorities such as poverty reduction, food security, and energy access (RQ1)? Second, how are adaptation and mitigation priorities distributed across key sectors in Somalia, Ethiopia, Eritrea, and Djibouti (RQ2)? Third, to what extent do these documents frame the green transition as a pathway for sustainable development, and to what extent do they reflect emerging forms of external dependency (RQ3)? Fourth, how do articulated financial needs, technology transfer requirements, and institutional capacity constraints contribute to the formation of conditional development pathways (RQ4)? Fifth, how is the discourse of Loss and Damage positioned in relation to vulnerability, displacement, and long-term development risks (RQ5)?

These questions guide the directed qualitative content analysis, enabling a comparative and theoretically informed interpretation of how climate policy is articulated at the intersection of development, vulnerability, and global governance. The findings are further interpreted in light of evolving international climate negotiations, particularly in the lead-up to COP32 to be hosted in Ethiopia.

Coding Strategy and Comparative Matrix

The analysis was conducted through a multi-stage coding process. First, a preliminary codebook was developed based on the conceptual framework and research questions. This codebook included categories such as climate risk framing, adaptation priorities, mitigation strategies, financial and technological needs, development linkages, justice discourse, and references to Loss and Damage.

Second, each NDC document was systematically coded at the level of paragraphs and policy statements. Particular attention was paid to recurring themes, sectoral priorities, and the language used to describe financial and technological dependencies. The coding process combined deductive categories derived from theory with inductive refinements emerging from the data.

Third, the coded data were organized into a comparative matrix (Table 1), which enabled cross-country analysis across multiple dimensions. This matrix serves as a structured analytical tool that facilitates the identification of similarities and differences among countries, particularly in terms of how climate action is embedded within broader development narratives.

Rather than reducing the analysis to binary indicators or quantitative scores, the matrix adopts a qualitative comparative approach, presenting condensed analytical summaries for each dimension. This allows for a more nuanced interpretation (Bowen, 2009) of policy orientations, especially in contexts where formal targets and data availability vary significantly across countries. Moreover, the findings are presented through a thematic structure, in which the comparative matrix provides the empirical foundation for four overarching themes: adaptation as development, mitigation and green transition, conditionality and dependency, and the role of Loss and Damage.

The coding framework initially consisted of ten deductive categories derived from the conceptual framework and research questions: climate risk framing, vulnerable groups and social impacts, adaptation priorities, mitigation strategies, development linkages, climate finance, technology transfer, institutional capacity and MRV systems, Loss and Damage, and dependency-related narratives. During the coding process, these categories were iteratively refined through repeated reading and cross-case comparison, allowing the incorporation of inductively emerging sub-themes while preserving theoretical coherence.

Coding Procedure, Document Characteristics, and Reliability

The analysis was conducted through a structured multi-stage qualitative coding procedure. In the first stage, all NDC documents were read in their entirety to

establish familiarity with the overall policy architecture, sectoral priorities, and climate-development narratives articulated within each document. During this phase, analytical memos were generated to identify recurring themes and notable policy emphases.

In the second stage, a preliminary codebook was operationalized using the deductive categories derived from the theoretical framework and research questions. Coding was conducted manually through systematic document analysis and comparative coding matrices developed in Microsoft Excel. The coding unit consisted primarily of policy statements, strategic objectives, implementation frameworks, financing commitments, and institutional arrangements described within the NDCs.

In the third stage, coded segments were compared across countries to identify convergences and divergences in climate governance approaches. This process facilitated the development of broader analytical patterns that extended beyond individual policy commitments and captured underlying development trajectories, governance assumptions, and dependency dynamics.

The coding process ultimately generated four overarching analytical themes: (1) Adaptation as Development, (2) Mitigation and the Promise of Green Transition, (3) Conditionality, Finance, Technology and MRV, and (4) Loss and Damage, Climate Justice and Emerging Dependencies. These themes provided the basis for the thematic structure of the findings section.

To enhance analytical rigor and consistency, coding decisions were revisited throughout the research process and continuously compared against the original policy documents. Cross-case comparisons were conducted repeatedly to ensure conceptual consistency across the four national contexts. Rather than relying on statistical measures of intercoder agreement, reliability was strengthened through iterative coding, transparent category development, and systematic comparison between documents, consistent with established approaches in qualitative content analysis (Hsieh & Shannon, 2005; Schreier, 2012).

Table 1. Preliminary Coding Framework

Initial Coding Category	Analytical Focus
Climate Risk Framing	Vulnerability, exposure, climate threats
Vulnerable Groups	Social impacts and affected populations
Adaptation Priorities	Agriculture, water, health, resilience
Mitigation Strategies	Emission reduction measures
Development Linkages	Poverty reduction, SDGs, growth
Climate Finance	Funding requirements and support
Technology Transfer	Technological needs and innovation
MRV and Institutional Capacity	Governance and reporting systems
Loss and Damage	Climate-induced losses and risks
Dependency Narratives	External support and conditionality

Findings: Comparative Analysis of NDCs

Before presenting the thematic findings, Table 1 summarizes the key dimensions of comparison across the four countries, including climate risks, adaptation priorities, mitigation approaches, development linkages, and finance-related conditionalities.

Table 2. Comparative Analytical Matrix Derived from NDC Content Analysis

Analytical Dimension	Djibouti	Eritrea	Ethiopia	Somalia
1) NDC Profile	Updated NDC (2025, revised French version); economy-wide, adaptation-focused with sectoral mitigation	NDC (2018); earlier-generation document; limited updates; sector-based approach	NDC 3.0 (2025); recently updated, economy-wide, integrated with national development plans	NDC 3.0 (2025); recent and comprehensive; strong adaptation and resilience framing

Analytical Dimension	Djibouti	Eritrea	Ethiopia	Somalia
2) Climate Risk Framework	High exposure to drought, coastal risks, heat stress, and water scarcity	Drought, land degradation, rainfall variability, and desertification dominate	Multi-hazard: drought, floods, heat, agricultural stress, infrastructure vulnerability	Extreme vulnerability: drought, floods, food insecurity, conflict-linked climate risks
3) Vulnerable Groups / Social Impacts	Urban poor, water-insecure populations, coastal communities	Rural populations, farmers, pastoralists; food insecurity	Smallholder farmers, pastoralists, low-income groups; climate-sensitive livelihoods	Displaced populations, pastoralists, women, and conflict-affected communities
4) Adaptation Priorities	Water management, urban resilience, coastal protection, agriculture	Agriculture, water resources, forestry, land management, health	Climate-smart agriculture, water, energy, urban systems, health, early warning	Agriculture, water, disaster risk reduction, food security, resilience systems
5) Mitigation Priorities	Renewable energy, transport efficiency, urban emissions	Energy, transport, forestry (LULUCF), agriculture	Strong mitigation: forestry (carbon sink), renewable energy, EV transition	Limited mitigation; focus on energy access and small-scale interventions
6) Mitigation Commit-ments and Targets	65% emission reduction by 2030 relative to BAU (conditional and unconditional components specified in the revised NDC)	12.6% unconditional / 38.5% conditional reduction by 2030	70.3% GHG reduction by 2035 relative to the revised BAU pathway	34% GHG reduction relative to BAU by 2035, with quantified sectoral mitigation targets embedded within a broader adaptation and resilience framework

Analytical Dimension	Djibouti	Eritrea	Ethiopia	Somalia
7) Financing Needs	Strong dependence on external finance; limited domestic capacity	High reliance on international funding for both mitigation and adaptation	Significant financing needs; distinguishes domestic vs international support clearly	Significant dependency on international climate finance
8) Technology Transfer & Capacity (MRV)	Capacity gaps; need for data systems, institutional strengthening	Emphasis on capacity building, M&E (Monitoring & Evaluation) systems, and technology transfer	Advanced MRV system development; strong institutional coordination	Weak institutional capacity; strong need for MRV and governance support
9) Green Transition Framing	Seen as opportunity for sustainable urban and energy transition	Framed cautiously; aligned with development constraints	Strongly framed as green growth and development pathway	Framed primarily as resilience rather than growth opportunity
10) Dependency Risks	High dependency on external finance and technology	Structural dependency on international support	Conditional commitments create structured dependency pathways	Remarkable dependency due to fragility and limited state capacity
11) Loss and Damage	Mostly implicit; linked to coastal and water risks	Implicit; framed through vulnerability and environmental degradation	Explicit recognition (including vulnerability and resilience framing)	Explicit and central; linked to displacement, food insecurity, and crisis
12) Development Linkages	Strong link to SDGs, water access, and urban development	Linked to agriculture, infrastructure, and poverty reduction	Deep integration with development plans (10 YDP)	Development framed through survival: food security, stability, humanitarian resilience

Note: The matrix synthesizes findings derived from the qualitative coding of NDC documents and therefore combines direct policy commitments with analytical interpretations generated

through comparative content analysis.

Table 1 reveals a clear and consistent pattern across the Nationally Determined Contributions (NDCs) of Horn of Africa countries, highlighting the dominance of adaptation-oriented priorities over mitigation commitments. While all four countries recognize the importance of emissions reduction, climate action is predominantly framed through development-related concerns such as food security, water management, and livelihood protection. Ethiopia stands out with a more institutionalized and ambitious framework, integrating mitigation targets with long-term development strategies and advanced MRV (Monitoring, Reporting, Verification) systems (Federal Democratic Republic of Ethiopia, 2025). In contrast, Somalia's NDC (Federal Government of Somalia, 2025). reflects an adaptation-heavy structure shaped by extreme vulnerability and fragile governance conditions. Eritrea and Djibouti occupy an intermediate position, emphasizing sectoral adaptation and limited mitigation within constrained institutional capacities (State of Eritrea, 2018; République de Djibouti, 2025).

Across all cases, climate commitments are strongly conditioned by external finance, technology transfer, and capacity-building requirements, indicating that NDCs function not only as climate policy instruments but as development frameworks embedded within asymmetrical global governance structures. This pattern underscores the "low emissions–high vulnerability" paradox and points to the emergence of structurally dependent pathways in climate governance.

Building on these overarching patterns, a more fine-grained thematic analysis is required to unpack how these dynamics are articulated across different policy domains. The following sections examine the NDCs through a set of interrelated themes, beginning with the central role of adaptation in shaping development trajectories.

Adaptation as Development

Across the Nationally Determined Contributions (NDCs) of Horn of Africa countries, adaptation emerges as the central organizing principle through which climate change is conceptualized and addressed. Rather than being framed as a discrete policy domain, adaptation is deeply embedded within

broader development priorities, reflecting the structural conditions of low-income, climate-vulnerable contexts. In this sense, climate policy is articulated through the language of livelihoods, food systems, water access, and social resilience, indicating that adaptation functions as a development strategy as much as an environmental response.

A close reading of the NDCs reveals that all four countries (Somalia, Ethiopia, Eritrea, and Djibouti) prioritize adaptation sectors that are directly tied to survival and socio-economic stability. Agriculture occupies a particularly central position, given its role as the primary livelihood source and its sensitivity to climatic variability. In Eritrea's NDC, for instance, adaptation planning is structured around agricultural development, water resource management, land rehabilitation, and public health systems, all of which are framed as essential for sustaining livelihoods under increasing climatic stress (State of Eritrea, 2018). Similarly, Djibouti's revised NDC emphasizes water scarcity, urban vulnerability, and coastal risks, situating adaptation within the context of infrastructural and ecological fragility (République de Djibouti, 2025).

Ethiopia's NDC presents a more institutionalized and comprehensive articulation of this adaptation–development nexus. Adaptation priorities are distributed across multiple sectors, including climate-smart agriculture, water and energy systems, urban infrastructure, health, and early warning mechanisms, reflecting a multi-scalar approach to resilience building (Federal Democratic Republic of Ethiopia, 2025). These sectors are explicitly linked to national development planning frameworks such as the Ten-Year Development Plan and long-term low-emission strategies, demonstrating how adaptation is integrated into state-led development trajectories. This integration suggests a deliberate effort to align climate resilience with economic growth and poverty reduction objectives, thereby reinforcing the role of adaptation as a foundational component of development policy.

In Somalia, the adaptation emphasis becomes even more pronounced, shaped by the country's acute vulnerability and fragile governance context. The NDC foregrounds drought, food insecurity, displacement, and disaster risk reduction, framing climate change as an immediate threat to human security and state

stability (Federal Government of Somalia, 2025). Adaptation measures are thus oriented toward safeguarding basic needs and stabilizing social systems, rather than advancing long-term mitigation pathways. This configuration reflects a context in which development itself is contingent upon the capacity to cope with recurring climate shocks.

These patterns indicate that adaptation in the Horn of Africa is not merely a response to environmental change, but a structural necessity shaped by complex socio-economic and ecological vulnerabilities. The prominence of sectors such as agriculture, water, and health points to the centrality of what can be described as "everyday resilience" which is the capacity of individuals and communities to sustain livelihoods under conditions of chronic uncertainty (Wassie et al., 2023). In this regard, adaptation policies are less about future-oriented climate scenarios and more about managing present-day risks that are already embedded in development deficits.

At the same time, the strong emphasis on adaptation reveals important asymmetries in the global climate regime. While mitigation remains a central expectation at the international level, the limited historical responsibility and low emissions profiles of these countries shift the focus toward adaptation as a matter of climate justice. Ethiopia's NDC explicitly acknowledges the intensifying impacts of climate change on vulnerable populations and positions resilience-building as a core national priority. This framing aligns with broader Global South narratives that emphasize differentiated responsibilities (Shan, 2023) and the need for support in addressing disproportionate climate impacts.

However, the embedding of adaptation within development strategies also raises critical questions regarding the nature of development itself. The NDCs suggest a model in which development is increasingly defined through climate resilience, potentially narrowing the scope of transformative economic change. When adaptation becomes the primary lens through which development is pursued, there is a risk that structural inequalities and underlying drivers of vulnerability remain insufficiently addressed (Eriksen et al., 2021). In this sense, adaptation-oriented development may stabilize existing conditions rather than fundamentally transforming them.

Mitigation and the Promise of Green Transition

While adaptation constitutes the dominant axis of climate policy across the Horn of Africa, mitigation is not entirely absent from national strategies. Rather, it is articulated in a more constrained and context-specific manner, shaped by low emissions profiles, limited industrial bases, and pressing development needs. Within this framework, mitigation is frequently framed through the discourse of green transition, renewable energy expansion, and sustainable development pathways. However, a closer examination of the NDCs reveals significant variation in ambition, institutional capacity, and the extent to which mitigation is embedded within broader development strategies.

Among the four countries, Ethiopia presents the most comprehensive and ambitious mitigation framework. Its NDC outlines a substantial emissions reduction target (approximately 70% relative to a business-as-usual scenario by 2035) supported by sectoral strategies in forestry, renewable energy, and transportation (Federal Democratic Republic of Ethiopia, 2025). Forestry-based carbon sequestration plays a central role, reflecting Ethiopia's reliance on land-use interventions as a key mitigation pathway. In parallel, the transition toward renewable energy and the promotion of electric mobility signal an effort to align climate mitigation with long-term economic transformation. Importantly, these mitigation commitments are embedded within national development plans, suggesting that Ethiopia seeks to position green transition as a driver of structural change rather than as a purely environmental obligation.

In contrast, mitigation in Somalia is markedly limited in scope and ambition. Given the country's minimal contribution to global emissions and its acute vulnerability to climate impacts, the NDC places far greater emphasis on adaptation than on emissions reduction (Federal Government of Somalia, 2025). Mitigation measures are largely confined to small-scale interventions in the energy sector, often linked to improving energy access rather than reducing emissions per se. This reflects a broader pattern in which mitigation is subordinated to immediate development needs, particularly in fragile and conflict-affected contexts.

Eritrea occupies an intermediate position, combining modest mitigation

ambitions with a clear acknowledgment of external constraints. Its NDC outlines emissions reduction targets of 12.6% under unconditional scenarios and up to 38.5% conditional upon international support, indicating a dual-track approach that differentiates between domestic capacity and externally supported actions (State of Eritrea, 2018). Mitigation strategies focus on key sectors such as energy, transport, agriculture, and land use change, with particular emphasis on forestry as a carbon sink. This conditional structure highlights the extent to which mitigation ambition is directly linked to access to finance, technology transfer, and institutional support.

Djibouti's updated NDC reflects a similarly constrained but strategically framed approach to mitigation. The country identifies three primary sectors (energy, agriculture/forestry/land use (AFOLU), and waste) as key areas for emissions reduction (République de Djibouti, 2025). Within the energy sector, the transition toward renewable energy is emphasized, particularly in light of the country's heavy reliance on imported fossil fuels. However, this transition is framed within the context of structural limitations, including infrastructural deficits and financial constraints. As a result, mitigation is presented less as an autonomous policy objective and more as a component of a broader green development vision.

Across all four cases, the notion of green transition emerges as a central narrative linking mitigation to development. Renewable energy expansion, improved energy efficiency, and sustainable land use practices are consistently framed as opportunities for economic modernization, energy security, and environmental sustainability (Chou et al., 2023). Yet this opportunity-oriented discourse coexists with significant structural constraints. The reliance on external finance, imported technologies, and international expertise raises important questions about the feasibility and autonomy of these transitions (Khaleel & Yusupov, 2025).

In particular, the mitigation strategies outlined in the NDCs often depend on conditional commitments tied to international support. Ethiopia's ambitious targets, Eritrea's dual-track mitigation scenarios, and Djibouti's reliance on external investment models all illustrate how green transition pathways are

mediated by global financial and technological systems. This conditionality suggests that mitigation in the Horn of Africa is not solely a matter of domestic policy choice but is embedded within broader structures of global climate governance.

Moreover, the sectoral composition of mitigation strategies reveals a tendency toward what might be described as "resource-based mitigation," particularly in the form of forestry and land-use interventions. While such approaches can contribute to emissions reduction, they also reflect the limited industrial diversification of these economies and their dependence on natural resource management (Li et al., 2023). This raises further questions regarding the long-term sustainability and transformative potential of these mitigation pathways.

In this regard, the green transition in the Horn of Africa can be understood as a dual process. It represents a pathway toward low-carbon development, offering opportunities for energy access, technological upgrading, and environmental sustainability. On the other hand, it is shaped by structural constraints that may limit its transformative capacity and reinforce existing dependencies. The coexistence of these dynamics underscores the need to interpret mitigation not simply as a technical policy domain, but as a deep political and economic process situated within unequal global structures.

Conditionality, Finance, Technology, and MRV

A defining feature of the NDCs in the Horn of Africa is the central role of financial, technological, and institutional constraints in shaping climate action. Across all four countries, climate commitments are articulated through a framework that links implementation capacity to external support, revealing a pattern in which mitigation and adaptation strategies are contingent upon access to international resources. This configuration positions climate governance within a broader political economy of dependency, where national policy ambitions are mediated by global financing mechanisms, technological infrastructures, and reporting requirements (Ciplet et al., 2022).

The NDCs consistently emphasize the scale of financial needs relative to domestic capacity. In Eritrea's case, both mitigation and adaptation measures are explicitly tied to external assistance, with conditional scenarios significantly

exceeding unconditional commitments (State of Eritrea, 2018). Similarly, Djibouti's updated NDC outlines a financing structure that combines public expenditure, official development assistance, and private sector investment, including public–private partnerships and foreign direct investment (République de Djibouti, 2025). This hybrid model reflects an attempt to mobilize diverse funding sources, yet it also underscores the limited fiscal space available at the national level.

Ethiopia's NDC provides a more elaborate articulation of this conditional structure, distinguishing clearly between domestically financed actions and those dependent on international support. The document highlights the need for concessional finance, blended funding mechanisms, and expanded private sector participation, while also acknowledging that current levels of international climate finance remain insufficient to meet its mitigation targets (Federal Democratic Republic of Ethiopia, 2025). This distinction between unconditional and conditional commitments reveals a layered approach to climate policy, in which ambition is calibrated according to anticipated external inputs. Somalia's NDC reflects an even stronger reliance on international support, with climate action framed largely in terms of externally funded adaptation and resilience programs (Federal Government of Somalia, 2025).

Technology transfer constitutes another key dimension of this conditionality. All four NDCs highlight the need for access to advanced technologies in areas such as renewable energy, climate-smart agriculture, and early warning systems. However, these technologies are largely external to domestic production systems, requiring importation, technical expertise, and ongoing maintenance support. In Eritrea, technology transfer is explicitly linked to the implementation of mitigation and adaptation projects, alongside capacity-building initiatives (State of Eritrea, 2018). Djibouti similarly emphasizes technological modernization in energy and infrastructure sectors, though within the constraints of limited domestic innovation capacity (République de Djibouti, 2025).

In Ethiopia, technological transformation is more deeply institutionalized, particularly through initiatives related to renewable energy expansion and

electric mobility. Yet even in this comparatively advanced case, the scaling of such technologies depends heavily on international partnerships and financing arrangements (Federal Democratic Republic of Ethiopia, 2025). This suggests that technological upgrading, while central to the discourse of green transition, remains embedded within transnational networks of knowledge and capital, raising questions about the autonomy of domestic development pathways (Whitfield & Wuttke, 2025).

A particularly significant dimension of this framework is the role of Monitoring, Reporting, and Verification (MRV) systems. Within the NDCs, MRV is presented as a technical requirement for ensuring transparency, accountability, and alignment with international standards. Ethiopia's NDC, for instance, emphasizes the strengthening of MRV systems as a key component of its climate governance architecture, linking data systems, institutional coordination, and policy evaluation mechanisms (Federal Democratic Republic of Ethiopia, 2025). Eritrea also highlights monitoring and evaluation tools as essential for tracking progress and ensuring effective implementation (State of Eritrea, 2018).

However, MRV systems extend beyond their technical function. They operate as institutional infrastructures that condition access to climate finance and participation in global climate governance (Xu et al., 2016). The ability to generate reliable data, comply with reporting standards, and undergo verification processes is often a prerequisite for accessing international funding mechanisms, including those related to adaptation and Loss and Damage (van Deursen & Gupta, 2024). In contexts where institutional capacity is limited, this creates an additional layer of dependency, as countries must rely on external expertise, funding, and technical assistance to meet these requirements.

This dynamic can be interpreted through the lens of global governance asymmetries. Climate finance, technology transfer, and MRV systems are embedded within standardized frameworks that reflect the priorities and capabilities of more developed economies (Bracking & Leffel, 2021). For countries in the Horn of Africa, engagement with these systems involves adapting to externally defined norms and procedures, which may not fully align with local institutional realities. As a result, climate action becomes structured through a set of externally mediated conditions that shape both the scope and direction of national policies.

At the same time, this conditional framework does not simply constrain national agency; it also creates strategic opportunities. Governments actively engage with international mechanisms to secure funding, build institutional capacity, and position themselves within global climate negotiations. Ethiopia's differentiated approach to conditional and unconditional commitments illustrates how countries can leverage these structures to expand their policy space while signaling ambition to international partners (Federal Democratic Republic of Ethiopia, 2025). Djibouti's emphasis on public–private partnerships and regional energy integration similarly reflects an effort to navigate these constraints through diversified financing strategies (République de Djibouti, 2025).

The NDCs reveal a climate governance landscape in which finance, technology, and MRV systems are deeply interconnected. These elements form a structural framework that shapes how climate action is conceptualized, implemented, and evaluated (Sarr, 2018). In this regard, development pathways are increasingly conditioned by external resources and institutional requirements, giving rise to forms of dependency that are embedded within the very architecture of global climate governance. Understanding this dynamic is essential for interpreting the limits and possibilities of climate policy in the Horn of Africa, as well as for assessing the broader implications of the green transition in low-income and climate-vulnerable regions.

Loss and Damage, Climate Justice, and Emerging Dependencies

Across the NDCs of Horn of Africa countries, the discourse of Loss and Damage (L&D) occupies an increasingly visible position, reflecting a broader shift in global climate governance toward acknowledging irreversible climate impacts and their socio-economic consequences. While earlier climate policy frameworks focused primarily on mitigation and adaptation, the inclusion of Loss and Damage signals a growing recognition that certain climate-related harms cannot be prevented or adequately adapted to. In this context, L&D emerges as a critical lens through which vulnerability, justice, and development are rearticulated (Mechler et al., 2020).

The extent to which Loss and Damage is explicitly addressed varies across

the four countries, yet its underlying logic is present in all cases. Somalia and Ethiopia provide the most direct engagement with the concept. Ethiopia's NDC incorporates Loss and Damage within its broader adaptation and resilience framework, linking it to vulnerability, climate-induced shocks, and long-term development risks (Federal Democratic Republic of Ethiopia, 2025). This inclusion reflects an institutional recognition that climate impacts extend beyond manageable risks and require dedicated policy attention. Similarly, Somalia's NDC frames climate change as a driver of displacement, food insecurity, and socio-political instability, implicitly situating Loss and Damage within a broader narrative of human security and state fragility (Federal Government of Somalia, 2025).

In contrast, Eritrea and Djibouti do not foreground Loss and Damage as a distinct policy category, yet their NDCs contain implicit references to climate-induced losses. Eritrea's emphasis on recurrent droughts, land degradation, and declining agricultural productivity points to cumulative damages that affect livelihoods and ecological systems (State of Eritrea, 2018). Djibouti's focus on water scarcity, coastal vulnerability, and economic losses associated with extreme weather events similarly reflects a context in which climate impacts translate directly into development constraints (République de Djibouti, 2025). In these cases, Loss and Damage is embedded within the language of vulnerability and risk, rather than articulated as a separate institutional domain.

This variation in explicitness does not diminish the analytical significance of Loss and Damage; rather, it highlights the uneven institutionalization of the concept across different national contexts. More importantly, it underscores the shared reality that climate impacts in the Horn of Africa are already producing material losses that challenge existing development trajectories. These losses in Horn of Africa, manifest in multiple forms, including reduced agricultural yields, infrastructure damage, health risks, and forced displacement, thereby linking climate change to broader processes of socio-economic disruption (Omokpariola et al., 2025).

The prominence of Loss and Damage also brings questions of climate justice to the forefront. The Horn of Africa countries contribute minimally to global greenhouse gas emissions, yet they face disproportionate impacts

from climate change. This asymmetry reinforces claims for differentiated responsibilities and the need for international support mechanisms that address historical inequalities (Seife, 2020). Ethiopia's NDC explicitly situates its climate commitments within a framework of fairness and equity, calling for enhanced global cooperation and burden-sharing (Federal Democratic Republic of Ethiopia, 2025). Such statements align with broader Global South discourses that frame climate change as an issue of distributive and procedural justice (de Arruda Filho et al., 2024).

At the same time, the institutionalization of Loss and Damage within global climate governance introduces new dynamics of dependency. Access to L&D-related funding mechanisms often depends on compliance with international reporting standards, the ability to quantify losses, and the capacity to design and implement eligible projects (Liu et al., 2024). These requirements intersect with the MRV systems discussed earlier, creating a layered structure in which countries must demonstrate technical competence and administrative capacity in order to access financial support. In contexts where such capacities are limited, this can reinforce reliance on external expertise and institutional frameworks (Doshi & Garschagen, 2020).

This dynamic raises critical questions regarding the transformative potential of Loss and Damage mechanisms. While these frameworks are intended to provide compensation and support for vulnerable countries, they may also reproduce existing asymmetries by embedding assistance within conditional and bureaucratic processes (Roberts & Pelling, 2019). As a result, the promise of climate justice is mediated by governance structures that can both enable and constrain national agencies.

Furthermore, the linkage between Loss and Damage and development trajectories suggests that climate-induced losses are not merely episodic events but structural factors shaping long-term socio-economic outcomes (Warner & van der Geest, 2013). In Somalia, for instance, climate shocks contribute to displacement and conflict dynamics, thereby affecting state stability and development prospects (Ahmed et al., 2024). In Djibouti and Eritrea, cumulative environmental stress interacts with infrastructural limitations and economic

vulnerabilities, reinforcing cycles of underdevelopment (Kanda et al., 2023). These patterns indicate that Loss and Damage should be understood as an ongoing process rather than a discrete category of impact.

In this sense, Loss and Damage operates at the intersection of climate change, development, and global inequality. It captures the limits of adaptation, the inadequacy of mitigation in addressing current harms, and the need for redistributive mechanisms within the international system (Roberts & Pelling, 2019). At the same time, it reveals how such mechanisms are embedded within institutional arrangements that may reproduce dependency relations.

COP32 and the Horn of Africa

Africa in Global Climate Negotiations

Africa has increasingly occupied a more visible and assertive position within global climate negotiations, particularly in the frame of growing recognition of climate vulnerability and historical inequities. Previous Conferences of the Parties (COPs) hosted on the continent (COP7 Marrakech, COP12 Nairobi, COP17 Durban, COP22 Marrakech, and COP27 Sharm El-Sheikh) have played a salient role in foregrounding issues such as adaptation, climate finance, and Loss and Damage. In particular, COP27 marked a turning point with the formal recognition of a Loss and Damage funding mechanism, reflecting long-standing demands from vulnerable countries (Naylor & Ford, 2023).

These developments align with broader shifts in global climate governance, where the Global South has increasingly emphasized equity, differentiated responsibilities, and the need for financial and technological support (Marquardt et al., 2023; Sovacool, 2023). Within this evolving landscape, African countries have sought to reposition themselves from passive recipients of climate impacts to active participants shaping negotiation agendas (Roger & Belliethathan, 2016). Nevertheless, structural asymmetries in finance, technology, and institutional capacity continue to limit the extent to which this growing visibility translates into substantive influence (Winecoff, 2020).

Why COP32 in Ethiopia Matters

The anticipated hosting of COP32 in Ethiopia represents a significant moment for the Horn of Africa and for the broader African continent. It provides a notable opportunity to consolidate and amplify regional priorities that are already visible in national policy documents such as NDCs.

As demonstrated in this study, the NDCs of Horn of Africa countries consistently foreground adaptation, climate vulnerability, and development challenges, while simultaneously highlighting the limitations imposed by financial and institutional constraints. In this regard, COP32 offers a strategic platform to elevate three interconnected issues: adaptation finance, Loss and Damage, and development justice. These priorities reflect the lived realities of countries that contribute minimally to global emissions yet face disproportionate climate impacts (IPCC, 2022).

Hosting COP32 in Ethiopia also carries symbolic and practical implications. Symbolically, it reinforces the visibility of climate-vulnerable regions within global governance frameworks. Practically, it creates opportunities for regional coordination, agenda-setting, and coalition-building among African states. Ethiopia's relatively more institutionalized climate policy framework (Federal Democratic Republic of Ethiopia, 2025) further strengthens its capacity to act as a regional interlocutor, linking national experiences with global negotiation processes.

At the same time, the effectiveness of COP32 in advancing these priorities will depend on the extent to which global actors engage with the structural dimensions of climate vulnerability. Without meaningful commitments to finance, technology transfer, and capacity building, the risks identified in the NDCs, particularly those related to dependency and conditionality, are likely to persist.

Policy Recommendations and Conclusion

Building on the findings of this study, several policy implications emerge for both national governments and international actors. First, access to Loss and Damage funding mechanisms should be expanded and simplified. Existing frameworks often involve complex application procedures and stringent reporting requirements (Doshi & Garschagen, 2020), which can limit accessibility for countries with constrained institutional capacities. More flexible and context-sensitive mechanisms are therefore needed to ensure that support reaches the most vulnerable populations effectively.

Second, adaptation finance must be scaled up significantly. Current funding levels remain insufficient relative to the magnitude of climate risks faced by countries in the Horn of Africa (UNEP, 2024). In this regard, increased grant-based financing, rather than loan-based instruments, would help avoid deepening debt burdens while simultaneously supporting long-term resilience-building efforts.

Third, technology transfer initiatives should be tailored to local contexts. Rather than relying on standardized and externally driven solutions (Pandey et al., 2022), technology transfer mechanisms should prioritize appropriateness, affordability, and long-term sustainability. This requires strengthening local capacities not only for technology adoption but also for maintenance, adaptation, and innovation, thereby enhancing the durability and effectiveness of climate interventions.

Fourth, support for Monitoring, Reporting, and Verification (MRV) systems and broader institutional capacity-building efforts should be strengthened without imposing exclusionary conditionalities. Although transparency and accountability remain important principles within climate governance frameworks (Gupta & van Deursen, 2025), excessive emphasis on compliance requirements can create barriers to accessing climate finance. Consequently, capacity-building initiatives should focus on facilitating participation and implementation rather than reinforcing exclusionary standards.

Lastly, development strategies should be grounded in local realities and

supported through inclusive governance frameworks. Climate policy should not be treated as a separate policy domain but should instead be integrated into broader socio-economic planning processes that address inequality, vulnerability, and long-term development needs. Such an approach would strengthen the alignment between climate action and sustainable development objectives across the region.

This study has examined the Nationally Determined Contributions (NDCs) of four Horn of Africa countries (Somalia, Ethiopia, Eritrea, and Djibouti) through a comparative and sociologically informed lens. The findings demonstrate that climate change in this region is not merely an environmental issue, but a deeply embedded development challenge shaped by vulnerability, resource constraints, and unequal global governance structures.

Present study has limitations. First, the analysis relies exclusively on official NDC documents and therefore reflects stated policy intentions rather than implementation outcomes. Second, NDCs are political documents that may not fully capture domestic policy debates, institutional constraints, or informal governance processes. Therefore, future studies could complement document analysis with interviews, policy tracing, and implementation assessments.

Across all four cases, climate policy is framed primarily through adaptation and resilience, reflecting the immediate pressures of climate impacts on livelihoods, food systems, and infrastructure. At the same time, mitigation efforts and green transition strategies are conditioned by external finance, technology transfer, and institutional capacities, revealing the emergence of structurally dependent pathways. The growing prominence of Loss and Damage further underscores the limits of existing policy frameworks and highlights the need for more equitable global responses.

These dynamics point to a reconfiguration of development under climate pressure. In the Horn of Africa, development is increasingly shaped by the need to manage risk, secure external resources, and navigate complex governance arrangements. This makes climate justice central to any meaningful development trajectory, linking local vulnerabilities to global responsibilities.

In this regard, COP32 in Ethiopia represents a critical opportunity to translate these insights into action. By foregrounding adaptation, Loss and Damage, and equitable development, it can contribute to a more inclusive and responsive climate governance framework. The extent to which this potential is realized will depend on the willingness of the international community to address the symptoms of climate vulnerability as well as its structural causes.

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This study did not include human participants and therefore did not require ethical approval.

Use of Generative AI:

The authors used ChatGPT solely for language editing and grammar correction. After using this tool, the manuscript was carefully reviewed and edited by the authors, who take full responsibility for the content of the final version.

Conflict of Interest

The authors declare no conflict of interest.

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