# The Politics of Climate Change in the Developing World*

Guy Grossman†, Audrey Sacks‡, Alice Xu§

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**Abstract**

Climate change politics in the developing world remains understudied, despite the region's acute vulnerability and centrality to climate futures. This review synthesizes emerging research across three domains: public opinion and climate salience, the effects of climate exposure on political accountability, and the institutional production of climate risk. We highlight a core paradox—widespread public concern often coexists with limited climate literacy—suggesting that political salience stems from lived experience with environmental disruption rather than scientific attribution. Yet the literatures on climate and environmental politics have developed along separate tracks, limiting conceptual integration and obscuring how local environmental decline mediates climate risk. Turning upstream, we examine how institutions shape climate exposure itself. Climate vulnerability, we argue, is not simply inherited but politically constructed and unequally distributed through institutions that govern carbon sinks, build adaptive capacity, and determine political voice. We identify critical gaps around the distributive politics of adaptation, representation, and institutional sources of vulnerability.

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†David M. Knott Professor of Global Politics and International Relations, University of Pennsylvania ggros@sas.upenn.edu.

‡Lead Social Development Specialist, World Bank Group asacks@worldbank.org.

§Assistant Professor, School of Social Policy Practice, University of Pennsylvania. alicezxu@upenn.edu.

# 1 Introduction

Climate change is widely recognized as one of the most formidable policy challenges of the 21st century. However, the development of Political Science scholarship on the topic has long lagged that of other disciplines, particularly Economics, Geography, Demography, and the Natural Sciences (Bernauer 2013). Research on the politics of climate change has been largely led by scholars from other disciplines and published primarily in specialized or interdisciplinary journals, such as Global Environmental Change and Nature Climate Change. In recent years, this gap has narrowed, but the literature remains heavily skewed toward developed countries. Much of the literature continues to focus on the politics of mitigation in high-income countries, including studies of international climate negotiations (Bechtel, Genovese and Scheve 2019), the design of emissions trading schemes (Green 2021), and mass attitudes in the U.S. and Europe (Egan and Mullin 2017). This focus is not without justification: wealthy countries have contributed a disproportionate share of historical greenhouse gas emissions and arguably bear greater responsibility for addressing the climate crisis.[1] However, this emphasis overlooks a critical reality: the developing world is where climate change's impacts are most acute (Adom 2024), and where countries are also least equipped to address its effects.[2] The Global South is where the political dynamics of climate governance are most urgent and least understood.

This review centers the developing world in the study of climate politics. We focus on three lines of inquiry. First, how politically salient is climate change in developing countries? Are voters in developing regions aware of the phenomenon? To answer this question, we examine available public opinion data that measure levels of climate awareness, climate concern, and mass support for climate policies, and survey the literature on mass public opinion across developing countries in Section 2. In Section 3, we explore our second line of inquiry: whether and how exposure to climate-related shocks, such as floods, droughts, or heatwaves, influences political attitudes and electoral outcomes. Last, in Section 4, we reverse the causal chain, shifting the focus from the effects of climate exposure to examine its explanatory causes: political institutions.

[1] High-income countries contribute about 37-40% of current annual Global CO2 emissions (as of 2022). By contrast, it is 10-12% for Lower-middle-income countries, and less than 1% for Low-income countries—estimates derived from World Bank data (2022), Global Carbon Project.

[2] According to recent estimates, income losses in low-income countries are 60% higher than for high-income countries (Adil et al. 2025)

We advance four core claims. First, we highlight a paradox: in much of the developing world, low levels of climate literacy coexist with high levels of concern about climate change. This paradox suggests that the political salience of climate change does not require a scientific understanding or attribution to anthropogenic causes. Instead, citizens often experience climate risks through local environmental disruptions, such as erratic rainfall, water scarcity, or crop failure, that are more immediate and observable than global climate patterns. These experiences, although not consistently recognized as "climate change," make the phenomenon politically legible.

This observation leads to our second core claim: the study of climate politics and that of environmental politics have evolved mainly along separate tracks. Within Comparative Politics, environmental politics has traditionally focused on local and national struggles over pollution, land use, biodiversity loss, water access, and conservation. By contrast, climate politics emerged in the 1990s and 2000s as a transnational, often technocratic area of study within International Relations (see Bernauer (2013)). This international focus tends to downplay the national and subnational politics of climate governance, especially in the developing world (Bernstein 2001; Dryzek 2022). Similarly, while environmental politics offers tools for understanding how weak enforcement, clientelism, and distributive conflict shape resource use, it rarely links these dynamics to the broader challenges posed by climate change. Case studies of environmental degradation in the Global South, such as deforestation, coral reef loss, or aquifer depletion, are often not framed as contributions to climate politics, even though they represent key mechanisms through which vulnerability is realized (Hochstetler 2003; Herrera 2024*b*; Alcañiz and Gutiérrez 2022). In the Global South, we argue, these domains are inseparable. Climate change often becomes politically legible through the politics of local environmental decline. Bridging these literatures is essential to tracing the causal chain from institutions to climate exposure to political response.

Third, we observe that exposure to climate shocks does not automatically translate into political action. We review and classify studies into two distinct channels: an "attitudinal channel," which links personal experience to increased concern or salience (Keller et al. 2022), and an "accountability channel," which examines whether voters reward or punish incumbents for climate-related events (Cao, Kostka and Xu 2019; Cooperman 2022; Visconti 2022; Pianta and Rettl 2025). Each rests on different assumptions and exhibits distinct methodological challenges. However, both literatures face a deeper theoretical problem: climate change is not a discrete, observable

event. Without prior knowledge or interpretive frames, climate exposure may fail to generate meaningful updates to beliefs or behavior. This helps explain the mixed empirical findings across studies, especially in the Global South, where media access, trust in government, and political efficacy vary widely.

Fourth, we argue that climate exposure is not exogenous but is politically produced. Governments and institutions at different levels of government shape climate exposure through carbon sink management (Hochstetler and Keck 2007; Buntaine, Hamilton and Millones 2015; Mangonnet, Kopas and Urpelainen 2022; Sanford 2023; Xu 2025), the distribution of adaptive capacity (Adger, Lorenzoni and O'Brien 2009; Eriksen et al. 2020), and decisions about inclusion in climate decision-making (Hochstetler 2020; Slough et al. 2021; Dolšak and Prakash 2022; Baragwanath, Bayi and Shinde 2023; Gulzar, Lal and Pasquale 2024). However, Political Science has only begun to document how institutions shape the geography of climate harm.

Last, we observe that the next frontier in climate politics lies in understanding the political economy of adaptation. The dominant framing of climate politics—especially in the Global North—has centered around mitigation (Dolšak and Prakash 2022). However, for much of the developing world, this focus is misaligned with the lived realities and political imperatives on the ground. The existing literature on adaptation is heavily fragmented, with isolated case studies of particular interventions or anecdotal evidence about local initiatives, but lacks the kind of systematic, comparative analysis that would allow generalizable insights. We observe that where investments in formal adaptation from the state are scarce or absent, households and communities resort to informal adaptation strategies (e.g., migration, private cooling technology, new labor arrangements) (Carleton et al. 2024; Liu and Xu 2024), thereby dampening demands on the state and reducing the need for climate literacy and accountability. However, we know little about when these bottom-up adaptation responses can substitute or be co-produced with state-led programs.

Taken together, these claims point to a set of distinctive political dynamics that remain underexplored in the study of climate governance. In the Global South, climate politics is often made visible through local environmental decline, shaped by weak or uneven institutional capacity, and mediated by patterns of exclusion from climate decision-making. By tracing the causal chain from climate exposure to political behavior—and reversing it to consider how institutions shape exposure itself—this review seeks to integrate fragmented literatures and clarify the mechanisms that

underpin the reciprocal relationship between climate vulnerability and political outcomes.

## 2 Climate Change Attitudes in the Developing World

This section reviews public opinion research in the developing world on climate awareness, concern, and policy support. **Climate awareness** refers to individuals' recognition of climate change, its existence, causes, and impacts, as a global phenomenon partly driven by human activity. **Climate concern** refers to the extent to which individuals perceive climate change as a serious issue, encompassing both cognitive and emotional responses. **Climate policy support** denotes public endorsement of government actions to mitigate (e.g., carbon pricing, renewable energy investments) or adapt (e.g., early warning systems, climate-smart agriculture) to climate change.

Understanding mass climate attitudes in developing countries is a first-order concern. In democracies and hybrid regimes, especially, governments are more likely to act on climate issues if voters demand action. Individuals who do not perceive climate change as sufficiently urgent or doubt its anthropogenic drivers are less likely to support costly policies for mitigation or collective adaptation efforts (Steg 2023). Without public concern, climate policies may lack salience, and more immediate development priorities will take precedence. Similarly, the ability of climate skeptics to block climate action depends on prevailing public beliefs.

Mapping attitudes in regions with high adaptation needs can help assess whether climate inaction stems from an awareness–action gap: the disconnect between growing knowledge of climate change and limited behavioral changes (Colombo et al. 2023). Without understanding climate attitudes, climate inaction is often explained simply as a lack of public demand. However, low demand may reflect underlying factors—such as insufficient concern, limited climate knowledge, misattributed causes, low expectations of communal cooperation, low trust in government, low self-efficacy, and weak climate salience—that scholars rarely examine systematically.

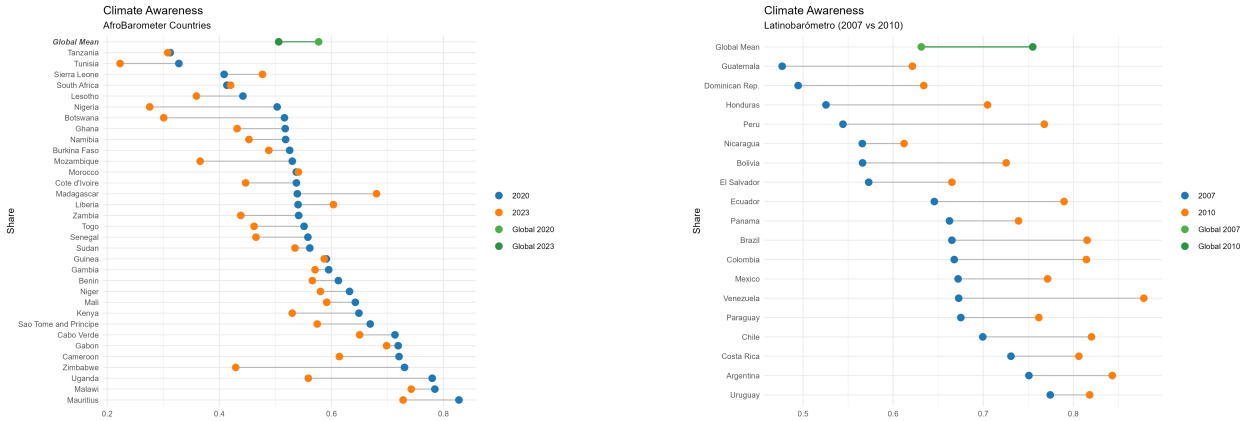
Based on the growing body of work and our analysis, we report four key findings. First, compared to developed countries, climate change awareness is markedly lower in developing countries. Even when individuals observe local environmental changes, their awareness that these changes are part of a global, human-caused phenomenon is limited. Second, notwithstanding relatively low climate knowledge, *concern* for climate change in developing countries is as high or

higher than in rich countries. Third, support for climate mitigation policies in developing countries is not lower than in high-income countries, and in many cases is higher.

## 2.1 Awareness and Anthropogenic causes

Climate change awareness remains low in many parts of the developing world, especially Sub-Saharan Africa and South and Southeast Asia (González and Sánchez 2022). We draw on survey data from Afrobarometer and AmericasBarometer to explore climate awareness across countries within these regions (see Figure 1). In 2008, fewer than 40% of respondents in Sub-Saharan Africa self-reported knowledge of climate change, with some countries reporting as low as 25–30%. As Figure 1 shows, by 2023, mean climate awareness in Africa rose but was still only 51%. Comparatively, climate awareness is significantly higher in Latin America, at approximately 75% in 2010 and over 80% in recent surveys. However, these levels still lag behind those reported for North America, Europe, and Japan, which report a mean climate awareness of over 90% (Lee et al. 2015).

Figure 1: Climate change awareness




(a) Climate Awareness: Africa

(b) Climate Awareness: Latin America

Note: This Figure plots national (weighted) means of climate awareness. The wording of the Latino-Barometer survey question is: "How much have you heard or read about global warming or climate change?"" We recoded responses such that "none" and "a little" have the value of zero, and "some" and "a lot" have the value of one. The Afrobarometer question is binary: "Have you heard about climate change, or haven't you had the chance to hear about this yet?".

Figure 1 reveals that climate awareness increased considerably in all Latin American countries between 2007 and 2010. In contrast, awareness declined in most African countries between

2020 and 2023. The study of attitudinal change over time remains a significant gap in the literature. Widespread data sparsity and inconsistencies in survey design—particularly the lack of repeated questions across waves—make it challenging to study temporal trends in most developing countries. Overall, the knowledge, attitudes, and predictors of climate change in the Global South remain poorly understood.

Low awareness does not reflect a lack of perceived environmental change. Many people, especially farmers, in low- and middle-income countries report rising temperatures, soil toxicity, erratic rainfall, and water scarcity (Kabir et al. 2017). However, experiencing local environmental changes does not necessarily mean individuals can attribute these changes to an anthropogenic, global phenomenon. Consistent with this, in 2020, only 41% of Afrobarometer respondents in Africa identified human activity as the primary cause of climate change (Simon 2023).

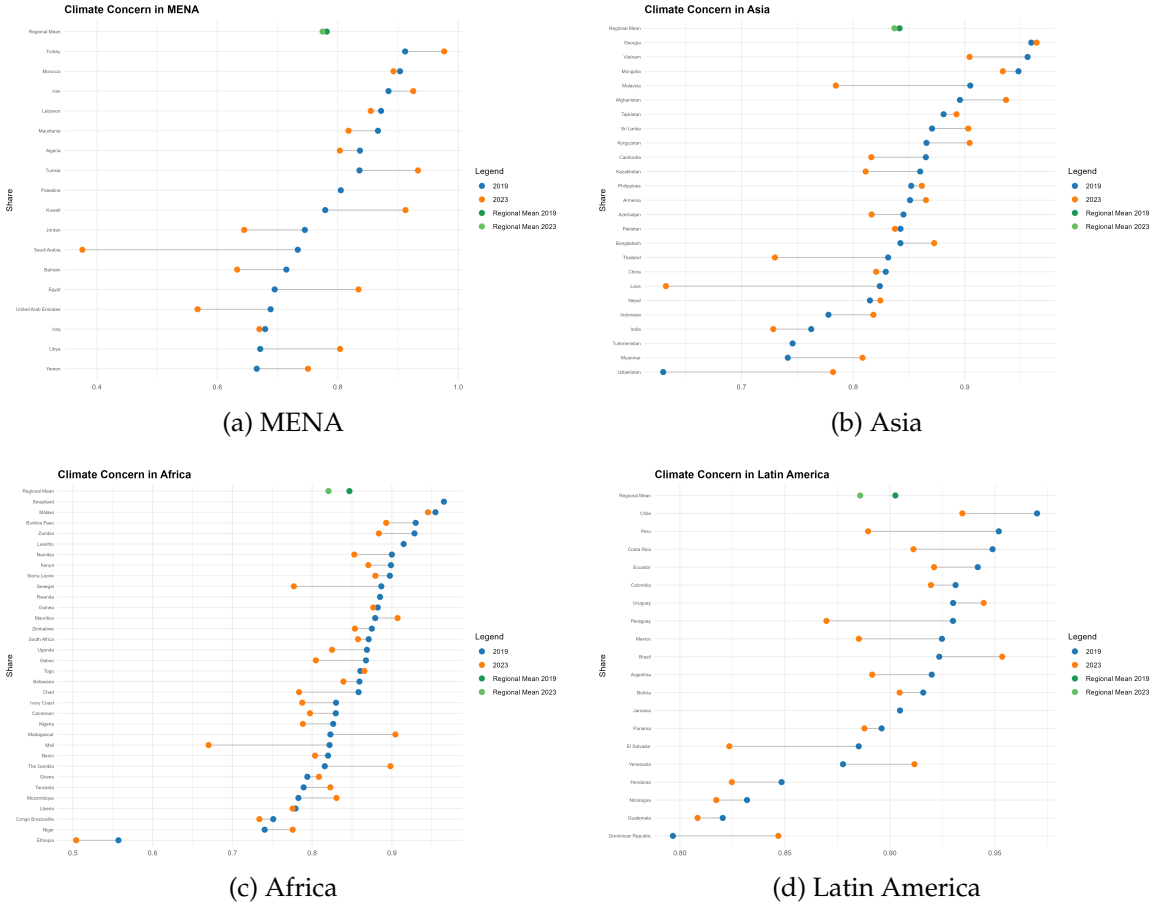
Aligning with information-deficit models, access to climate information via education systems and media is a central barrier to improved climate awareness in developing countries. Secondary schooling is strongly correlated with climate knowledge across most developing countries, including those in Africa (Simpson et al. 2021) and Latin America (Spektor, Fasolin and Camargo 2023). Media access also drives climate awareness and shapes climate views (González and Sánchez 2022), especially in low-education contexts. Social media plays a growing but uneven role: Platforms like YouTube and Instagram (but not Facebook) correlate positively with climate awareness (Gómez-Casillas and Gómez Márquez 2023). However, low media literacy can make social media users vulnerable to misinformation and climate skepticism (Strudwicke and Grant 2020). The influence of digital information access on climate attitudes in developing countries deserves further study.

### 2.2 Climate Concern

We draw on survey data measuring climate concern levels in 2019 and 2023 from the Lloyd's Register Foundation's World Risk Poll for countries in all developing regions. As Figure 2 shows, two patterns stand out. First, concern is high across the developing world, with rates of approximately 90% in Latin America, 83% in Africa and Asia, and 78% in the MENA region—often matching or exceeding levels in high-income countries. Second, concern generally outpaces awareness

in low-income countries. Contrary to some claims (e.g., Van der Linden 2015), being concerned about a changing climate does not require high climate awareness. Instead, local environmental changes, rather than abstract climate knowledge, are often the key drivers of concern.

Figure 2: Climate change concern (2019 to 2023)




(a) MENA (b) Asia

(c) Africa (d) Latin America

Note: This Figure plots national (weighted) means of climate concerns in 2019 (blue) and 2023 (orange) using the World Risk Poll (121 countries). The wording of the survey question is: "To what extent do you think climate change is a threat to your country in the next 20 years?" We recoded responses such that "Not a threat at all,' and "Don't know,' have the value of zero, and "Somewhat serious threat' and "Very serious threat' have the value of one.

## 2.3 Policy Support

Even when climate concern is high, addressing climate change through mitigation and adaptation policies is not necessarily a top priority for citizens. In the developing world, there is often the immediacy of other, more pressing issues. Measuring support for climate policies in developing countries is hindered by data scarcity and the sensitivity of responses to question wording.

However, despite data limitations, existing evidence suggests relatively strong support for climate policies, even in the face of low awareness and limited state capacity.

The Gallup World Poll (2022–2023, 125 countries) includes an indirect measure of policy support: willingness to contribute 1% of household income monthly to combat global warming. In low-income countries, 60–70% of respondents expressed willingness (Andre et al. 2024). The Trust in Science and Science-Related Populism (TISP) Survey (2022–2023), covering 68 countries, directly measures support for five climate policies. Analysis shows broad support in developing countries, particularly for expanding renewable energy and conservation measures, such as protecting forests (Cologna et al. 2025).

Support for different climate policies is not universal. The nature of the policies explains some of the observed variation: support tends to be higher when policies are framed in terms of environmental conservation, pollution, or agriculture. Support for mitigation policies (e.g., carbon taxes or green infrastructure) increases when individuals perceive these policies as fair (Dechezleprêtre et al. 2025). Thus, an emerging strand of policy discourse repackages mitigation around "co-benefits" such as green jobs, technological innovation, cleaner air, and improved public health. However, a two-country survey experiment shows that these frames attract no more public support than the traditional focus on climate-risk reduction (Bernauer and McGrath 2016). Variation in climate policy support is also a function of trust in government: it is higher when people view their governments as sufficiently competent (Meckling and Benkler 2024; Fesenfeld 2025). Conversely, low political trust, especially in contexts of perceived corruption or unresponsiveness, can dampen support even among those with high climate concern (Andrews et al. 2025).

Community attributes, such as (perceived) social norms and second-order beliefs, also explain variations in policy support. Where climate action is rare or stigmatized, people may hide their concerns and policy preferences; where it is normalized among peers, concerns and support for action rise (Todorova et al. 2025; Cologna et al. 2025). Climate attitudes spread through social signaling and cues. For instance, peers, including those on social media, shape one's perception of whether floods are 'natural hazards' or attributed to climate change. Very few studies leverage these network dynamics, making them a promising avenue for future research.

Individual-level factors also shape climate policy support. People often oppose mitigation policies when they perceive personal costs to their 'way of life' (Bush and Clayton 2023), and

material self-interest (Dechezleprêtre et al. 2025). Conversely, those most vulnerable to climate impacts—such as residents of coastal areas, small islands, or agricultural regions—are more likely to support climate action. Again, vulnerability, not climate knowledge, is the primary driver of support (Hornsey and Pearson 2024). Unlike in high-income countries, partisan identity and ideology play a more minor role in developing countries (Spektor, Fasolin and Camargo 2023). However, ideological proxies—such as individualism (Spektor, Fasolin and Camargo 2023) and belief in interventionist deities (González and Sánchez 2022)—can reduce support for climate policy. These patterns align with political psychology theories, such as motivated reasoning, although such frameworks remain underutilized in this context.

In sum, limited public investment in climate mitigation and adaptation in developing countries does not appear to reflect low public concern or widespread resistance to costly policies (though see Obradovich and Zimmerman (2016) for evidence that climate platforms can reduce electoral support in Africa). One explanation is that climate policy lacks salience among voters, though this possibility remains untested. Another is weak government responsiveness and accountability. Supporting this view, Wappenhans et al. (2024) find that even after extreme weather events, increased public concern does not translate into greater political attention to environmental issues (measured using parties' public communication), pointing to a disconnect between climate impacts and political responsiveness—a key area for future research.

### 2.4 Way forward

Public opinion research on climate attitudes in developing countries faces several limitations. First, despite a growing number of studies on the determinants of climate attitudes, the literature remains highly fragmented and under-theorized. The modal study regresses a measure of climate attitudes—e.g., climate awareness, belief in human-causation, climate concern, or policy support—on numerous independent variables, then reports which has the greatest predictive power (e.g., González and Sánchez 2022; Todorova et al. 2025). Such designs allow scholars to make progress in mapping the correlates of climate attitudes; however, a theory-driven portrait of the most important predictors across different types of climate attitudes remains elusive.

Second, data sparsity further limits public opinion research in developing countries. Stan-

dardized governance-focused national surveys often lack comprehensive questions related to climate change, reflecting low donor priorities for addressing climate issues. The AsiaBarometer contains none; the Afrobarometer and Latinobarómetro ask about climate change awareness in some rounds but omit questions on concern or policy support. Their temporal coverage is also low, hindering analysis of long-term trends in most developing countries. Inconsistent inclusion of climate questions across survey rounds further complicates efforts to track opinion over time. Limited topical depth further constrains efforts to link attitudes to behavior. Major climate opinion datasets (e.g., YPCCC, World Risk Poll) offer better topical coverage but are limited in geographic scope. Furthermore, they are often designed in the Global North, with less attention to locally salient framings such as agricultural seasons.

Another important avenue for future work is testing different messaging, tools, and interventions to increase climate literacy (e.g., Atkins et al. 2024). While this is an active research agenda in the Global North (e.g., Bergquist, Mildenberger and Stokes 2020), there is a notable dearth of work on these topics in developing countries, particularly research sensitive to local conditions, concerns, prevailing narratives, and frames. From a policy perspective, research should focus on the conditions under which individuals and communities may prioritize climate-related investments over other priorities, such as social protection, education, healthcare, and infrastructure, and the impact of climate literacy on supporting these investments.

## 3 Effects of Climate Change Exposure

The previous section discussed the determinants of climate attitudes in the developing world. Alongside this mostly atheoretical body of work, a vast and growing literature explores the effect of exposure to extreme weather events on climate attitudes and behavior. We classify these studies into two distinct literatures, which, although developed in parallel, rarely cite each other and employ different theoretical frameworks. Figure 3 maps the various pathways through which climate exposure is linked to citizen demand for climate action. Existing studies tend to focus on only one link of this causal chain or assume the reduced form, examining how climate exposure affects voting behavior without unpacking the different links. We aim to trace the whole causal chain—from exposure to awareness, from awareness to policy demand, and demand to political

response—highlighting where the literature has skipped steps and where critical gaps remain.

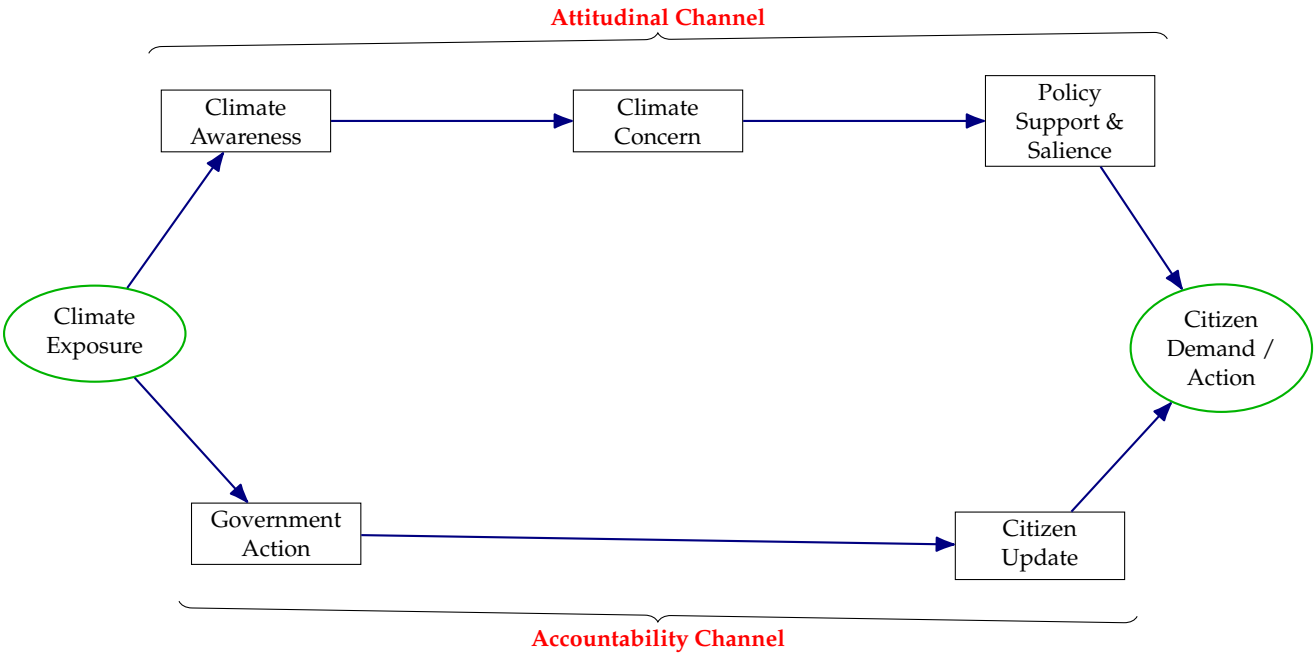



Figure 3: Flow from climate exposure through attitudes to citizen demand/action.

### 3.1 Attitudinal Channel

Researchers working within the attitudinal channel argue that climate inaction arises from the perceived psychological distance of its impacts—seen as temporally distant, geographically remote, or affecting others rather than oneself (Keller et al. 2022), and the uncertainty surrounding this distance (Sisco 2021). Direct, personal experience with climate risks is thought to reduce this distance and uncertainty, increasing emotional and cognitive engagement, climate concern, issue salience, and ultimately support for individual or collective climate action (Leiserowitz 2006). This effect may be especially pronounced in low-education contexts, where personal experience often resonates more than abstract information (González and Sánchez 2022). The effect may also be amplified when people face salient (i.e., flooding) as opposed to subtle shocks (i.e., contamination of irrigation water with salinity due to rising sea-levels) (Patel 2025).

A key epistemological challenge in the *attitudinal channel* literature is that climate change is a systemic, statistical phenomenon—not a discrete event that can be directly "experienced." Individuals may encounter abnormal weather conditions, but these are only proxies for climate change,

whose detection as an anomaly requires careful statistical analysis of deviations from long-term trends. To address this, researchers often treat climate-related shocks (e.g., floods, wildfires, severe heatwaves, droughts) as the most observable manifestations. Yet individuals often view such hazards as natural rather than climate-related, limiting their effect on attitudes. As such, reducing psychological distance depends heavily on prior knowledge that climate change influences the frequency and intensity of these hazards (Reser and Bradley 2020). These effects hinge on prior beliefs: without a prior climate framework, individuals may not link local personal experience to climate change; with one, such experiences can reinforce belief in global patterns.

A central debate in this literature concerns how to conceptualize "experiencing the consequences of climate change." Political scientists typically equate direct experience with *objective exposure*, measured using gridded climatic datasets. While this raises risks of ecological fallacies—especially with highly aggregated survey data—it has the benefit of treating event exposure as exogenous to prior beliefs. Social psychologists, by contrast, focus on *subjective experience*: for an event to shape attitudes, it must be perceived as unusual, personally relevant, and memorable. This conceptualization aligns better with theories of risk perception. Yet self-reports are likely endogenous—those who believe in climate change are more likely to interpret events as such. Unsurprisingly, self-reported hazard exposure has a strong and consistent effect on climate concern and policy support (Cologna et al. 2025; Dablander 2025; González and Sánchez 2022; Spektor, Fasolin and Camargo 2023). Objective hazard exposure measures, by contrast, do not (Cologna et al. 2025; Lee et al. 2015; Simpson et al. 2021; Xia et al. 2022).

### 3.2 Accountability Channel

In parallel to the *Attitudinal Channel* literature where climate 'exposed' individuals supposedly update on climate risk, a different body of work has explored the effect of (objective) climate exposure on electoral outcomes. In this literature, exposed citizens use both a climatic event and the government's response to it (both its actions and inaction) to update their beliefs about the government: in particular, its capacity (Birch and i Coma 2023; Cole, Healy and Werker 2012), effectiveness in mobilizing resources (Blankenship et al. 2021), trustworthiness (Ahmad and Younas 2021; Ahlerup et al. 2024), and responsiveness (Cooperman 2022; Lazarev et al. 2014). In some

studies, citizens also update their capacity for collective action (e.g., Balcazar and Kennard 2025) and increase their demand for social capital and civic participation (Liu and Xu 2024). There is evidence that exposure to a climatic event can effectuate programmatic shifts towards political candidates who support redistribution and reconstruction (Visconti 2022; Pianta and Rettl 2025). Theoretically, updating is also a function of how the hazard is framed as part of political processes (by the press, opposition parties, friends, local leaders, or social media) (Rubin 2018). However, we are not aware of a paper that rigorously explores the mediating factor of such narratives.

Accountability theories, particularly retrospective voting, primarily shape the link between natural hazards and voting behavior (Rubin 2018). Voters use natural hazard impacts and the government's responses to those impacts as a heuristic. If the government uses the event to signal responsiveness, it benefits electorally (e.g., Lazarev et al. 2014; Gallego 2018), but if it fails to respond adequately, it suffers electoral losses (Katz and Levin 2016). Government response is a function of various factors, such as electoral cycles (Cao, Kostka and Xu 2019; Cooperman 2022), incentives for promotion among local officials (Wu and Cao 2021), the scale of the climatic event (Birch and i Coma 2023), the alignment between local and national governments (Blankenship et al. 2021), and the logic of clientelistic exchange (Gallego 2018; Querubín and Labonne 2024).

Beyond voting behavior, a nascent literature also examines whether hazard exposure can directly influence government behavior and the structure of politics and institutions. Evidence is mixed regarding whether extreme weather events increase attention to environmental and climate issues among political elites and parties (Wappenhans et al. 2024). However, natural disasters shape who enters politics. In Brazil, floods decrease the average age and educational attainment of political candidates, displacing rent-seeking individuals in favor of professionals with outside career options (Fasolin and Valentim 2024). More fundamentally, disasters can also alter the institutional architecture of the state. Recent cross-national evidence suggests that natural disasters lead to increased fiscal and administrative centralization, particularly when events occur far from the capital or are geographically dispersed (Han, Tang and Yu 2025). Disasters may encourage re-centralization by highlighting the need for national coordination. These findings highlight that climate hazards may not only disrupt electoral behavior but also reshape the underlying distribution of authority within states. A vast literature also links climate shocks to political violence (see Koubi (2019) for a review).

Notably, with few exceptions, in most studies, there is nothing unique about climate change per se: objective climatic events (such as fires, floods, and droughts) are treated as an exogenous shock that is sufficiently salient to voters to affect electoral outcomes. Only a small number of studies explore outcomes related to climate change: Amirapu, Clots-Figueras and Rud (2023) find that following extreme temperature shocks that reduce agricultural productivity in the growing season before elections, voters are more likely to elect agriculture-oriented candidates who campaign on environmental issues, including irrigation, farm loans, and electricity for agriculture. Similarly, using the case of Chile, Visconti (2022) finds evidence consistent with the idea that disaster victims shift their support toward candidates with ideologies perceived to match post-disaster needs better. Yet a key puzzle remains: exposure influences voting even when it does not affect climate attitudes– a tension the literature has yet to resolve.

### 3.3 Thorny methodological problems

Both "attitudinal" and "accountability" studies suffer from the lack of theoretical clarity on the degree of exposure required to influence attitudes. What level or type of exposure shifts attitudes, and is attitudinal change necessary for political or behavioral responses? These questions remain largely unresolved. Researchers also disagree on which types of hazards should matter most—those that are most clearly attributable to climate change (e.g., heatwaves), those that are most salient to the senses (e.g., floods), or those that are most damaging and therefore memorable (e.g., hurricanes and cyclones). These divergent conceptualizations of "experience" and "hazards" create definitional and methodological tensions across studies (Keller et al. 2022).

The fact that the political science literature on extreme weather exposure, climate attitudes, and behavior suffers from weak theoretical foundations spills over into methodological inconsistencies. Researchers make arbitrary decisions about exposure metrics, relevant time scales (when the hazard event took place relative to the time of the survey or elections), and units of analysis (e.g., the grid, ADM2, ADM1, constituency, country) without clear theoretical justification (Howe et al. 2019). Both literatures also tend to focus on the reduced form with little attempt to explore the entire causal chain.

# 4 Effects of Institutions on Climate Management

The preceding sections examined how voters in developing countries perceive and respond to climate change. These analyses implicitly presuppose a political context in which public opinion matters and citizens can hold leaders accountable. However, across much of the developing world, political regimes are more varied, with many countries characterized by authoritarian or hybrid systems and limited electoral accountability. In these settings, voter attitudes, while important, cannot fully explain climate outcomes. Political institutions operate differently in developing countries, and pathways from citizen preferences to policy are often more indirect and complex.

This divergence foregrounds an important observation: before examining how climate exposure generates political responses, we must first understand how institutions shape exposure itself. Climate change disproportionately affects developing countries; however, within the developing world, variations are substantial. These differences in exposure are not simply a function of geography or poverty, but are deeply rooted in national, subnational, and local institutions that structure both individual and collective responses. Institutional structures help explain why some governments protect carbon sinks while others allow their destruction, and why some communities withstand climate shocks while others remain exposed. Climate vulnerability is not only inherited; it is politically produced.

In this section, we examine how institutions structure the incidence, severity, and salience of climate exposure. We extend the causal chain introduced earlier by identifying a precursor leg as described in Figure 4.

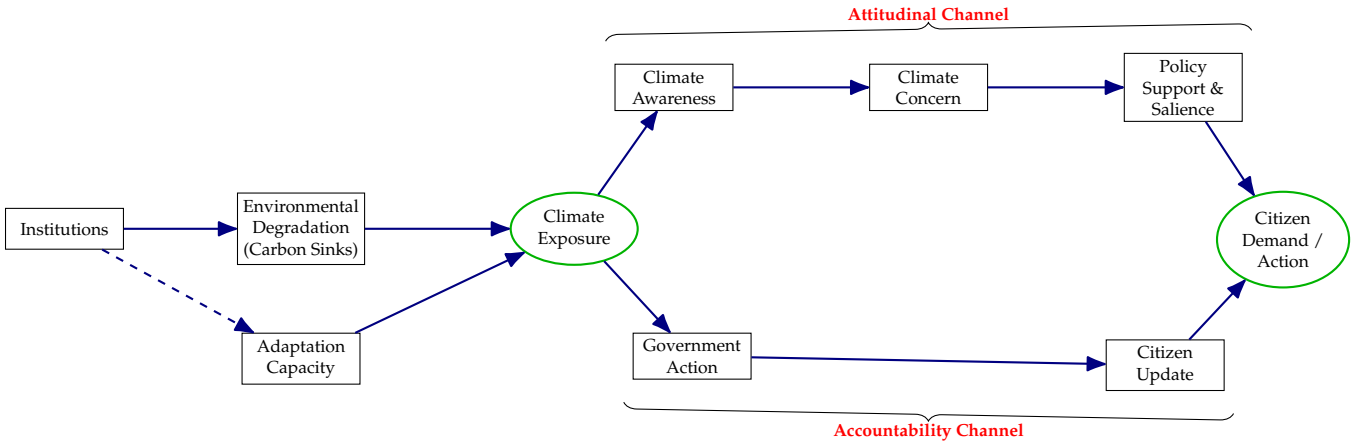



Figure 4

We treat climate exposure not as exogenous, but as an outcome of political and institutional forces. Specifically, we analyze how political institutions at national and subnational levels produce variation in climate exposure through three mechanisms: (1) governing the protection or destruction of carbon sinks, (2) shaping differential adaptive capacity, and (3) determining whose voice and authority matter over these decisions. These institutions are not merely background conditions that mediate climate effects; instead, they are political causes of climate vulnerability.

We advance four core claims. First, political institutions and sociopolitical attributes shape climate exposure—they precede it in the causal chain. Climate impacts do not simply "happen" to countries and communities; they are politically produced. Differences in regime type, state capacity, and governance norms help explain why some jurisdictions raze carbon-rich forests or site factories in floodplains, while others shield those assets (Hochstetler 2020). We lack systematic evidence on how institutions operate both as causal variables in generating differential exposure and as mediators conditioning the welfare effects of similar climate hazards. Cross-national datasets that link institutional design to granular exposure or impact data are rare.

Second, because institutions sit upstream of exposure, they also shape the downstream political pathways reviewed in Sections 2 and 3. In settings with weak state capacity, households and communities often rely on informal adaptation measures—migration, land repurposing, changing agricultural practices, livelihood diversification, water conservation, private cooling, or labor reorganization—to cope with climate change. These bottom-up responses may complement, substitute for, or crowd out state action, muting the attitudinal and accountability pathways emphasized earlier. When informal strategies substitute for public provision, they can reduce pressure on governments and diminish demand for climate responsiveness. However, we know little about who adapts informally, when states step in to complement these responses, or how institutional incentives structure that balance.

Third, bridging the long-divided literatures on environmental and climate politics is essential for tracing causal chains. What was once framed as "environmental" politics—pollution control, deforestation, and land use—is often central to global climate governance. Environmental degradation is often the entry point through which citizens first experience climate change, making these "local" struggles central to any account of carbon production and climate awareness.

Finally, we highlight a paradox of representation: those with the most granular knowledge of

environmental change (e.g., Indigenous Peoples, forest-dependent communities, and informal urban dwellers) are frequently excluded from arenas where adaptation policy and finance are negotiated. Although political science increasingly acknowledges this gap, systematic analysis of how political voice is allocated and its consequences for adaptation and resource distribution remains scarce. The subsections that follow explore four key themes—carbon-sink governance, adaptive capacity, political voice, and distributive justice—to demonstrate how institutions influence the response to climate change, as well as its spatial and temporal dimensions.

### 4.1 Carbon sinks

One of the most consequential ways political institutions shape climate exposure is through governance of carbon-absorbing ecosystems. This is especially critical in developing countries, which contain most of the world's remaining carbon sinks and biodiversity reserves: tropical forests, peatlands, and wetlands. These ecosystems serve as natural buffers against climate change, yet the literature often treats deforestation, pollution, and degradation as local environmental issues, obscuring their centrality to global climate dynamics. Reframing environmental degradation as the destruction of carbon sinks highlights its centrality to climate politics. Yet few studies examine how this degradation translates into uneven and "slow" climate harms across space and communities (for an exception, see Herrera (2024*b*)).

Regime type is key for understanding how governments manage ecosystems and balance economic development with environmental protection. Early work suggests democracies perform better due to greater accountability and responsiveness (Midlarsky 1998; Li and Reuveny 2006; Bayer and Urpelainen 2016). However, evidence from developing countries complicates this view. Democratic competition can incentivize short-term resource extraction, particularly where state capacity is weak. Xu (2025) shows that political competition in the Brazilian Amazon encourages deforestation via "bureaucratic packing," while Sanford (2023) finds that democratic transitions often involve trading forest concessions for electoral support. Some autocracies, in contrast, can impose longer-term environmental planning by avoiding veto players and electoral volatility (Bayer, Urpelainen and Xu 2016; Beeson 2010; Beiser-McGrath, Bernauer and Prakash 2023; Xu 2025).

Decentralization introduces another layer of institutional variation in carbon sink governance. Land-use and environmental regulation delegated to local governments can enable policy innovation but also create opportunities for elite capture. In Argentina, governors weakened forest protections to avoid conflict with agribusiness (Milmanda and Garay 2019). In Argentina, subnational bureaucratic capacity explains differences in conservation outcomes (Alcañiz and Gutierrez 2020). In Brazil, political alignment with the federal government increases the likelihood of Protected Area designation (Mangonnet, Kopas and Urpelainen 2022), and the role of NGOs and activists cannot be understated (Hochstetler and Keck 2007; Barham, Bayi and Murillo 2024).

At the local level, literature mainly outside political science documents indigenous and local knowledge on carbon sink management and community-driven responses among Indigenous Peoples and Local Communities (IPLCs). IPLCs, comprising just 5% of the global population, manage 25% of Earth's land and support 80% of its biodiversity (Garnett et al. 2018). Their customary institutions play a critical role in mitigation and adaptation. In Southeast Asia, communities use local rules—such as logging bans, riverbank vegetation requirements, and elevated storage—to manage flood risks (Hiwasaki et al. 2015). Despite this capacity, political science has largely neglected how states can support IPLCs without undermining their autonomy. With few exceptions (e.g., Gulzar, Lal and Pasquale 2024), little research addresses legal recognition or co-governance models that protect rights and scale up successful practices. Improving IPLCs' negotiating capacity is another avenue for reform. In Liberia, which lost 15% of its tree cover between 2002 and 2024, communities often lease forests without securing fair compensation. Christensen et al. (2024) find that training communities in interest-based negotiation reduced deforestation and improved the value of forest agreements.

Payment for Ecosystem Services (PES) programs provide another promising pathway to incentivize conservation by compensating communities for their efforts. PES programs aim to reduce practices like logging and crop burning while promoting poverty alleviation (Jayachandran 2023).[3] PES complements household-level interventions such as training in climate-smart agriculture (Aker and Jack 2023) and social protection programs to buffer weather shocks (Macours, Pre-

[3] A 2014 meta-analysis found limited impacts, but recent studies are more encouraging. In Uganda, Jayachandran (2023) shows that payments reduced deforestation and improved livelihoods. In India, Jack et al. (2025) find that unconditional upfront payments increased compliance with anti-burning policies.

mand and Vakis 2022).[4] To our knowledge, no studies examine the politics and institutions (e.g., local property rights) behind PES adoption and effective implementation. Large-scale rollout is challenging, as it requires integrating data on livelihoods, income, and land rights with institutional frameworks for payment delivery, particularly in remote, unbanked areas. Future research should investigate how institutions such as property rights and political incentives influence PES design and whether similar models can be applied to marine and coastal conservation.

### 4.2 Adaptation to Climate Change

Political institutions further shape climate exposure by structuring adaptive capacity. Differential vulnerability and voice in climate governance build on the Environmental Justice (EJ) framework. Developed initially around struggles over toxic waste siting, EJ scholarship traces how environmental harms and access to public protections map onto race, class, gender, and other social divides (Walker 2012). Climate scholarship extends these insights, showing that sea-level rise, drought, and heat waves disproportionately impact lower-income countries and marginalized communities (Dolšak and Prakash 2022). We treat EJ as encompassing both "environmental" and "climate" justice and emphasize the institutional forces that shape these inequalities.

The emerging literature on adaptation politics sheds light on how sociopolitical dynamics structure both top-down and bottom-up responses. A growing body of work documents how migration (Draper 2022; Arias and Blair 2022) and labor formalization (Liu and Xu 2024) are strategies for climate adaptation. Dependence on migration (Vinke et al. 2020) and community adaptation strategies can absolve governments of responsibility for long-term in situ adaptive planning. Recent work demonstrates that while such private investments can cushion heat and income losses, they exacerbate existing inequalities (Carleton et al. 2024). Because these bottom-up strategies often substitute for drainage upgrades, social protection, or early warning systems, they can blunt citizen pressure for state-led programs, weakening the attitudinal and accountability channels outlined in Sections 2 and 3. However, we lack systematic, comparative understanding of the institutions and political structures that determine this substitution logic—when and why bottom-up adaptation crowds out, complements, or catalyzes government action.

Emerging research highlights the unintended consequences of informal bottom-up adapta-

[4] Recent reviews include Delavallade, Gittard and Vaillant (2025) and Rexer and Sharma (2024).

tion efforts. While intended to reduce vulnerability, adaptation can backfire when poorly designed or politically captured, a concept referred to as maladaptation Dolšak and Prakash (2018). Thus, there is a strong case to evaluate adaptation not only for technical efficacy, but also for distributional consequences (Eriksen et al. 2020). Far from being politically neutral, power relations shape adaptation and can entrench existing inequalities. These insights underscore the need for political analysis: adaptation is not politically inconsequential.

Formal programs, too, often fail when they ignore local realities or political dynamics. Climate aid frequently follows donor priorities rather than local needs (Gaikwad, Genovese and Tingley 2025). Protective infrastructure and relocation schemes may displace the poor (Sovacool and Linnér 2016), and conservation programs sometimes exacerbate environmental degradation. In Aceh, Indonesia, a youth ranger program improved economic outcomes and modestly decreased illegal logging, but was associated with increased small-scale mining (Paler et al. 2015). These examples highlight that adaptation and mitigation programs must be both technically sound and politically embedded to avoid unintended harm.

Despite these challenges, national and subnational governments are increasingly investing in top-down climate adaptation programs that integrate national policy with local implementation. Indonesia's ProKlim program supports village-level mitigation and adaptation; Brazil's *AdaptaCidades* integrates resilience planning across 11 states. Kenya's County Climate Change Funds empower local communities to manage climate finance (Crick et al. 2019), and Nepal and the Philippines have institutionalized local adaptation priorities through national frameworks (Woodruff and Regan 2019). Social insurance programs can buffer climate-induced income loss, yet the institutional conditions shaping these programs' effectiveness remain poorly understood.

Successful adaptation depends not only on program design but also on the integration of local knowledge. IPLCs, though socioeconomically marginalized, often possess deep insight into environmental variability (Ramos-Castillo, Castellanos and Galloway McLean 2017). A global review of 119 studies identified 1,851 locally led adaptation responses (Schlingmann et al. 2021). A recent RCT in Indonesia found that combining tailored climate information with deliberative processes increased support for local climate projects (Erbaugh et al. 2025). These findings highlight the importance of participatory institutions that incorporate community-specific knowledge.

However, significant knowledge gaps remain. Case studies abound, but cross-contextual

analysis of local adaptation strategies—by states, communities, or households—is rare, mainly due to data limitations. Similarly, public opinion research has largely overlooked demand for adaptation policies in the Global South. While public support for mitigation is increasingly studied, we know little about how citizens evaluate adaptation policies, which groups demand them, or how they prioritize them relative to other urgent needs under fiscal constraints. Existing research often conflates climate impacts with general policy salience, without distinguishing between support for adaptation and mitigation (Hornsey and Pearson 2024; Andre et al. 2024). Most existing adaptation literature focuses on household or firm-level behavior and is grounded primarily in economics, with less attention to community-level dynamics or the political economy factors (e.g., social networks, local institutions, and governance arrangements) that shape either top-down government investments or bottom-up collective adaptation.

Where comparative work exists, it tends to focus narrowly on the role of institutions in shaping climate aid distribution. International green aid often favors countries with institutional credibility or geopolitical alignment over those with the greatest need (Gaikwad, Genovese and Tingley 2025). Subnational capacity is also consequential: some local agencies enact protective policies, while others, constrained by limited resources and discretion, see climate shocks deepen existing vulnerabilities. These gaps are not just technical—they are political choices about investment, voice, and inclusion.

### 4.3 Climate Politics as Distributive Politics

Political institutions further shape climate exposure by structuring who participates in environmental management and climate governance. Inclusion determines whether conservation or adaptation policies succeed, how to distribute benefits and burdens, and how these distributions might exacerbate existing inequalities. Early international relations scholarship framed climate change as a global commons problem—a "tragedy of the commons" requiring sovereign cooperation (e.g., Barrett 2003). This logic remains central to research on emissions reduction and international agreements. However, as climate impacts become more visible and spatially uneven, they are increasingly understood as distributive conflicts—over costs, risks, and political representation (Aklin and Mildenberger 2020; Alcañiz and Gutiérrez 2022; Roberts and Parks 2006).

This distributive turn reframes both mitigation and adaptation. Decarbonization generates global public goods but imposes localized costs. For example, in fossil fuel-dependent communities, achieving equitable green transitions is a political necessity. Adaptation, too, is fundamentally distributive: it involves allocating public goods and infrastructure in the face of unequal vulnerability. Adaptation is not just a technocratic necessity but a political struggle over resources and representation.

The literature on "just transitions" policies illustrates these distributive tensions. Decarbonization policies often generate backlash from workers and communities whose livelihoods depend on fossil fuel industries, creating political challenges that many governments struggle to manage effectively. Comparing Brazil and South Africa, Hochstetler (2020) shows that energy transitions are shaped not only by international pressure or environmental need, but also by the political coalitions, institutions, and development models that structure state–market relations. A global analysis of 32 fossil fuel reforms, such as raising gasoline taxes and reducing fuel subsidies, reveals that most are reversed within five years (Martinez-Alvarez et al. 2022).Similarly, Mahdavi, Martinez-Alvarez and Ross (2022) demonstrate that between 2003 and 2015, net fossil fuel taxes and subsidies remained essentially unchanged, with policy stasis driven more by fiscal constraints than political opposition. In response to these challenges, governments are experimenting with compensatory policies designed to support affected populations through job retraining programs, infrastructure investment, green economic development, and redistribution of carbon tax revenues (Gaikwad, Genovese and Tingley 2022). The credibility of these promises is central, as communities often fear policy reversal or neglect (Gazmararian and Tingley 2023). Evaluating the effectiveness of such compensatory programs represents a promising avenue for future research. Inclusive, well-designed transitions can be practical and electorally rewarding.

The existing literature also identifies several institutions that support adaptation and the management of "carbon sinks" by marginalized communities. Programs that enhance land tenure and local authority, especially among Indigenous Peoples, have been linked to reduced deforestation (Gulzar, Lal and Pasquale 2024; Baragwanath, Bayi and Shinde 2023). Participatory mechanisms can further enhance targeting and legitimacy, particularly when supported by robust enforcement capacity and adequate funding. Community monitoring can strengthen compliance with deforestation limits (Slough et al. 2021) and wetland management (Herrera 2024*a*). By con-

trast, participation without institutional support often fails to achieve its goals. In Ecuador, land titling and participatory reforms had little effect on deforestation in the absence of state backing (Buntaine, Hamilton and Millones 2015). Inclusion alone is insufficient; effective policy must link participation to power and adequate resources.

Institutional design also mediates how social and ethnic cleavages shape climate outcomes. Ruling coalitions may shield co-ethnics from environmental risks (Dawson et al. 2025), and support for climate policy varies by identity and proximity to political power (Zucker 2022). Intergroup contact can increase support for inclusive climate action (Gaikwad and Zucker 2024), but institutional channels are necessary for those preferences to translate into sustainable policy.

In summary, across the developing world, political institutions significantly influence the implementation and inclusivity of climate policy, the preservation of carbon sinks, the scope of adaptation efforts, and the equity and legitimacy of policies. These foundations are crucial for understanding the political roots of climate exposure and designing effective climate governance. Three cross-cutting insights emerge. First, treating pollution, deforestation, or land use as "environmental" rather than "climate" politics obscures their role in managing the planet's carbon sinks. Bridging these literatures reveals that classic political science concerns—such as state capacity, clientelism, power inequality, and regulatory capture—remain central to climate outcomes. Second, adaptation is not a technocratic add-on; it is a distributive arena shaped by institutional gaps. Bottom-up responses may cushion shocks but can also have negative unintended consequences, and they may substitute for state provision, thereby dampening demand for public action. Third, those with the most place-based knowledge—IPLCs, forest dwellers, and informal residents—are often excluded from the arenas where climate finance and rules are made, perpetuating a deep representation gap.

Despite a growing literature, major blind spots remain:

1. **Institutional drivers of exposure**. We still lack systematic evidence on how regime type, decentralization, customary law, and property rights shape exposure and mediate climate impacts. Cross-national datasets linking institutional design to fine-grained hazard and outcome data are rare.

2. **The politics of adaptation**. Research has only begun to explain when informal strategies

crowd out, complement, or catalyze public programs—and how fiscal or electoral incentives shape that balance. Comparative studies on institutional conditions and citizen preferences for adaptation are urgently needed.

3. **Representation and justice**. We know little about how institutions include or exclude IPLCs and vulnerable groups from climate decisions, or how that exclusion affects vulnerability and legitimacy. Political voice should be treated not just as a normative good, but as a variable shaping exposure and resilience.

Addressing these gaps requires theory-driven measures of institutional design and better data on local adaptation and finance flows. The challenge now is not only to document vulnerability, but to explain—and ultimately redress—the political processes that produce it.

## 5 Conclusion: New Directions for a Changing Climate

Climate change disproportionately affects the developing world and is projected to push an additional 132 million people in these regions into extreme poverty by 2030 (Jafino et al. 2020). In recent years, we have made important progress in understanding the politics of mitigation, especially in high-income democracies. Despite growing attention to climate governance, its institutional and distributive dimensions in the developing world remain critically understudied.

The current literature on climate change remains fragmented, often focusing on isolated outcomes or assuming reduced-form relationships without addressing underlying mechanisms. This review calls for deeper political science engagement with climate challenges in the Global South. We also emphasize the need to understand climate change through a comprehensive causal chain, from environmental shocks to individual awareness, policy preferences, issue salience, and ultimately, political and social behavior —and in reverse: how politics shape risk exposure in the first place. Several core insights emerge from our review. First, contrary to assumptions, concerns about climate change are often higher in developing countries, despite lower levels of formal climate knowledge. Second, climate exposure does not consistently translate into shifts in political behavior. Its effects depend on prior beliefs, local context, and whether institutional channels enable interpretation and response. Third, we emphasize the role of institutions in structuring

the distribution of climate risk and highlight the importance of integrating local knowledge and participatory mechanisms into climate governance.

These findings point to a research agenda that treats climate vulnerability as a political outcome and climate adaptation as also a deeply political process—shaped by exclusion, inequality, and struggles over representation in climate decision-making. Future work should investigate how institutions shape exposure and response, how citizens understand and act on risk, and how distributive conflict plays out through adaptation. As climate finance expands, bridging these knowledge gaps is urgent—not only to inform policy but to ensure that the most vulnerable communities are empowered to shape and benefit from climate solutions.

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