Climate adaptation

A billion dollar COP-out?

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Abstract

Climate adaptation has become central to North-South relations, with hundreds of billions of dollars promised from developed to developing countries. Through the United Nations Framework Convention for Climate Change (UNFCCC) and its three pillars of mitigation, adaptation, and loss and damage. Yet despite facing radically different climate challenges, the countries included span the whole world, from landlocked to small islands, their plans are written in much the same way. This thesis examines what this convergence reveals about how adaptation planning operates and whose interests it serves.

The analysis draws on institutional and critical paradigms from development-, decolonial-, future- and climate adaptation studies to examine whether climate adaptation discourse reflects epistemological diversity or systematic control. Using structural topic modeling to analyze all 47 English-language National Adaptation Plans (NAPs) submitted to the UNFCCC, I examine the relationship between discourse concentration patterns and estimated effects across different groups of countries.

The findings hint at considerable convergence. Eight topics organize adaptation discourse, with *Mainstream* (Topic 8) dominating the texts at over 31%, three times more dominant than any other topic and appearing among the top three themes for every country group. Despite what one would assume, the effect of group membership was not highest for geographical factors (17%), but rather region (30%).

These patterns raise questions about adaptation planning. Where do these plans come from, and who determines their content? Whose interests do they serve? Is this convergence around "best practices" evidence of successful knowledge transfer, or does it represent epistemicide, the systematic elimination of alternative ways of understanding and responding to climate change?

While climate impacts remain uncertain and distant, dispossession and violence through adaptation planning are present. The safest approach may be avoiding institutional arrangements that systematically eliminate alternative knowledge systems, and to address the root cause of climate change: continued carbon emissions.

Chapter 1

Introduction

Climate change has become a central part of North-South relations. Even after the American withdrawal from all foreign aid, climate finance has reached its goals (CPI 2025). While there has been a lot of written on the need for climate finance, the state of it and what it ought to include, the scholarship on what it *is* on the global level, is less developed.

Climate adaptation is one of the three pillars of the UNFCCC, and the one most closely related to development aid. Here, institutional approaches dominate, with central actors being the World Bank (WB) and the International Monetary Fund (IMF) coordinating large flows of multilateral aid.

The changing climate impacts ecosystems, and it is through this disruption that climate damages could manifest themselves. These ecosystem services are ubiquitous, and the impact should they disappear is uncertain and full of risk. What is certain, is that the risk of large scale human suffering, is large (Calvin et al. 2023).

The large and unknown scale of these ecosystem risks makes climate adaptation something that could be present in any field, and at any scale. While they naturally impact the ecology, this can have follow on effects on the economy, on government, on health and virtually all other sector of life. This unknown future has to be managed in some way, and the current approach by WB and IMF, is to have the countries draw up NAPs where they draw up the next 30 to 50 years of policy.

These plans are a prerequisite for receiving climate adaptation funds from multilateral money pots (Mizuno and Okano 2024). Because of their scope, the plans cut across all sectors and deep into the future, they are policy documents that hold a lot of power. Understanding their content is thus central to understanding how the vulnerabilities and human suffering is going to be avoided.

1.1 Research questions and approach

The research questions are thus:

What is climate adaptation? Who decides?

- What are the NAPs about?
- Where do the plans come from? Who's plan is it?
- Is this justice?

Beyond concerns about vulnerability and suffering, two observations motivated this study. First, arguments that oil-producing countries like Norway should continue extraction while directing portions of profits toward Global South adaptation (Holden and Hoel 2024) raise fundamental questions about what adaptation enables. Does funding adaptation justify continued emissions?

Second, initial readings of specific NAPs revealed puzzling omissions and contradictions. The Marshall Islands plan largely excludes their substantial diaspora population, despite migration being central to their climate reality (WB and RMI 2023). Palestine produced a comprehensive adaptation plan while under occupation, raising questions about sovereignty and planning (State of Palestine and Smithers 2016). These examples suggested that NAPs might serve purposes beyond climate response—performing statehood, accessing finance, or legitimizing other agendas. Such observations prompted the broader investigation into what adaptation planning actually accomplishes.

This thesis employs post-structuralist concepts such as epistemicide (Santos 2016) and alternative development (Escobar 2018) to analyze climate adaptation discourse. However, the goal is not to compare knowledge systems or propose more effective solutions. Indigenous knowledge systems are their own field of study (L. E. Figueroa-Helland and Raghu 2016; L. E. Figueroa-Helland, Lindgren, and Pfaeffle 2016; L. E. Figueroa-Helland and Lindgren 2016; Stewart-Harawira 2015; Whyte 2018), as are pluriverse-approaches to design and society (Escobar 2018, 2020). While these perspectives inform the analysis, directly engaging them lies beyond this thesis's scope. A methodological tension exists in the search for alternative knowledge in a system that picks the most prominent one. The methods employed in the thesis are not able to catch counter-voices, subversion of the discourse, or other actions taken against the hegemony found.

Rather, the aim is to make climate adaptation *strange* (Li 2007). By stepping back and examining how it operates as a system of governance, what it renders visible and invisible, and whose interests it serves. Making climate adaptation strange means exploring it not as a natural or inevitable response to climate change, but as a particular way of organizing knowledge, resources, and power that could have been otherwise.

This thesis also tries to understand climate adaptation as the new 'dominant problematic', the interpretive grid through which the world is known and acted upon (Ferguson 1994, 19). Just as 'development' became the lens through which

the Global South was understood in the twentieth century, 'vulnerability' and its antidote 'resilience' now structure how we comprehend global inequalities.

1.2 Chapter overview

Chapter 2 situates climate adaptation within the international climate governance system. For decades, countries have negotiated how to respond to climate change through the United Nations Framework Convention on Climate Change (UNFCCC). The UNFCCC divides climate action into three main pillars: mitigation (reducing emissions), adaptation (adjusting to climate impacts), and loss and damage (addressing irreversible harms). Understanding this architecture is important, as the categories shape what kinds of climate responses are possible, who will pay for them, and how developing countries must frame their needs to access support.

Chapter 3 reviews two competing perspectives on adaptation planning, the 'adaptation nexus' approach seeking technical solutions and Paprocki (2018)'s 'adaptation regime' critique revealing colonial continuities. As climate adaptation is being mainstreamed into development practice, the chapter draws on development scholarship to understand these competing views. The institutional approach sees development as genuine response to real problems, and the role of the international community to bring technical expertise and resources to help communities realize their potential. The critical approach examines how development interventions, despite the good intentions of development professionals, reproduce dependencies and impose external frameworks that compete with local realities. These perspectives offer different explanations for why National Adaptation Plans might converge around similar themes globally.

Chapter 4 details the methodology used to get the data for the analysis. The chapter explains how structural topic modeling can reveal patterns of convergence and divergence. The challenge is to analyze 47 lengthy policy documents, with a combined word count of 2 030 660 systematically without losing important insights. Traditional qualitative methods would require months of manual coding and might miss patterns only visible at scale and through statistical testing. Computational text analysis, specifically structural topic modeling (STM), offers a way to let the corpus reveal its own structures, showing what countries talk about when they discuss adaptation and whether they all talk about the same things.

Chapter 5 presents the data from the STM, finding high discourse centralization across all categories with variations by income level, region, and geography. The structural topic model identified 8 topics that structure adaptation discourse, with technical topics dominating across all categories. The findings show all country groupings above baseline. Most surprising, regional institutional networks exert stronger influence on discourse than either climate vulnerability or income level. Low-income countries show the highest group effects despite moderate

dominance, suggesting that financial dependency constrains how poor countries can imagine climate adaptation. These patterns provide empirical hints for the theoretical concerns raised in Chapter 3 about epistemological convergence in climate governance.

Chapter 6 discusses these findings through the lens of critical theory. It argues that while adaptation is a part of the international frameworks for climate justice, adaptation might as well operate as epistemicide that forecloses alternative futures by rendering adaptation technical, rather than political. The discussion explores what the NAPs reveal about climate governance, not just what they contain, but what they exclude. The dominance of technical topics suggests adaptation is being rendered technical in ways that eliminate political discussion. The stronger influence of regional institutions over geographical realities indicates that administrative networks matter more than climate vulnerabilities. The relationship between economic status and discourse domination suggest how financial dependency might shape epistemological possibilities. These patterns suggest NAPs ability to deliver climate justice is problematic, as climate planning documents could be performances of institutional competence designed to access international finance.

Chapter 7 returns to the thesis's central questions about adaptation and power. The analysis reveals a troubling distribution of risk in climate governance. While adaptation interventions carry the inherent risk of maladaptation, and loss and damage mechanisms struggle with liability and responsibility, the only risk-free approach would be upstream, preventing emissions at source. Yet the portfolio architecture enables the opposite, treating risky downstream interventions as substitutes for emissions reduction. If climate adaptation operates as a portfolio option that can substitute for mitigation, fundamental questions about justice remain.

Chapter 2

Context

This chapter explains how international climate governance operates through the United Nations Framework Convention on Climate Change (UNFCCC) and its three main pillars: mitigation, adaptation, and loss and damage. Climate change presents both biophysical and political challenges that require a global response. Understanding how the UNFCCC attempts to manage this provides the context for examining the National Adaptation Plans (NAPs).

The first section traces climate change as a biophysical process, following the cascade from greenhouse gas emissions through ecosystem disruption to human impacts. It then examines how the UNFCCC emerged to address these challenges through its evolving institutional architecture. The second section explores the political dimensions of climate governance, examining how it operates through interventions, shapes North-South dynamics, and enables trade-offs between different response options.

Together, these sections establish climate adaptation as neither purely technical nor purely political, but rather as a domain where technical frames and political projects meet in the global South. This context is essential for understanding how National Adaptation Plans function, both as attempts to solve political problems and to govern relations between countries. The technical appearance of these plans may well obscure their role as instruments of control, a dynamic the rest of the thesis will explore.

2.1 Climate change and the three pillars

This section explains climate change as both a biophysical process caused by greenhouse gas emissions and a political process governed through the UNFCCC. It traces the cascade from emissions to human impacts and examines how the international community structured its response through evolving institutional frameworks.

The pathway from emissions to impacts follows a cascade of interconnected processes. Greenhouse gas emissions, primarily from fossil fuel combustion (approximately 85% according to IPCC estimates) and land-use changes including deforestation (approximately 15%), accumulate in the atmosphere (Calvin et al. 2023). These gases trap heat, altering energy balances and driving changes in temperature, rainfall patterns, extreme weather and rising sea level. The resulting climate changes disrupt ecosystems at multiple scales, from local habitat shifts to global circulation patterns, such as the Gulf stream.

Ecosystems provide essential services, like food and water, that human societies depend upon to function. As well as regulating services like flood control, cultural services tied to identity and place, and supporting services that maintain the conditions for life itself (Pascual et al. 2023). Rising temperatures shift species ranges and disrupt ecological relationships. Changing precipitation patterns affect water availability and agricultural productivity. More frequent and intense extreme events damage infrastructure and overwhelm natural buffers. Ocean acidification threatens marine food webs while sea-level rise inundates coastal ecosystems, with mangroves and their associated ecosystem services particularly vulnerable (Brander et al. 2012).

Agricultural systems face shifting growing zones, altered pest and disease patterns, and increased weather variability. Water resources become less predictable, with some regions experiencing intensified droughts while others face increased flooding. Coastal communities confront erosion, sanitization, and storm surge risks. Mountain communities, often overlooked in climate assessments, face unique challenges as changing precipitation and temperature patterns affect water provision, hazard regulation, and cultural services that mountain ecosystems provide (Grêt-Regamey, Brunner, and Kienast 2012).

The distribution of these impacts both create and reinforce fundamental inequities in the climate crisis. Those least responsible for emissions often face the most severe consequences (Williams 2020). Small island states that contribute negligibly to global emissions confront existential threats from sea-level rise. Sub-Saharan African countries with minimal industrial emissions experience intensified droughts and food insecurity. Meanwhile, industrialized nations with high historical emissions possess greater resources to buffer climate impacts through infrastructure, technology, and financial reserves. This inverse relationship between responsibility and impact shapes the political economy of climate governance.

The international community's response to climate change organized in the 1992 United Nations Framework Convention on Climate Change. This treaty established the institutional architecture for global climate governance, creating annual Conferences of the Parties (COPs) where nations negotiate collective responses. Over three decades, this framework has evolved from initial focus on emissions reduction to encompass a more comprehensive approach addressing both causes and consequences of climate change (Vanhala and Hestbaek 2016).

The UNFCCC structure follows the logic from these ecosystems. Mitigation addresses the root cause by reducing greenhouse gas emissions and enhancing carbon sinks. Adaptation manages unavoidable impacts by adjusting natural and human systems to actual or expected climate effects. Loss and damage, formally recognized in the Paris Agreement at COP21 in 2016, recognized that some climate impacts are beyond adaptation, and will require compensation or support for irreversible losses (E. Roberts and Huq 2015; Vanhala and Hestbaek 2016; Wallimann-Helmer 2023).

This three-pillar architecture emerged through decades of negotiation, reflecting evolving understandings of climate change and shifting power dynamics between nations. Since the UNFCCC is a consensus based forum, all countries have to agree for an agreement to be reached (Hall and Persson 2018). Another founding principle is that of Common, but differentiated responsibility (CBDR), where richer countries in the global North, with their historical emissions and current wealth, should bear a larger cost of climate action. The agreement included a list of countries in each group (Williams 2020).

Initially, the climate regime focused almost exclusively on mitigation, treating emissions reduction as the primary response. Developing countries, recognizing that some global warming was already locked in regardless of mitigation efforts, successfully pushed for adaptation to gain equal status. The 2010 Cancun Agreements formally established adaptation as the second pillar, creating institutional mechanisms like the Adaptation Committee and National Adaptation Plans process (Hall and Persson 2018). The system for mitigation was revised in the Paris Agreement, for legally binding emission cuts, to Nationally Determined Contributions (NDCs). These also included countries in the global South (Hall and Persson 2018).

Loss and damage followed a particularly difficult path. The concept emerged from small island states in the early 1990s but faced sustained opposition from developed countries fearing liability claims. Only after decades of advocacy, including walkouts and diplomatic pressure at successive COPs, did loss and damage achieve recognition as the third pillar in the 2015 Paris Agreement (E. Roberts and Huq 2015; Janzen et al. 2021; Brun 2016). Even then, developed countries insisted on language explicitly excluding liability and compensation in the outcome documents (Vanhala and Hestbaek 2016).

Thus, each pillar represents a different version of the climate problem and its solutions. Mitigation frames climate change as a collective action problem requiring coordinated reduction of greenhouse gas emissions. Success is measured through quantifiable metrics: tons of CO2 equivalent reduced, renewable energy capacity installed and forest hectares protected. These clear metrics enable comparison across countries and sectors, supporting market mechanisms like carbon trading and results-based finance. The technical nature of mitigation aligns with dominant approaches in environmental economics and engineering, with their own criticisms (Wilhite and Salinas 2019).

Adaptation is harder to measure (Persson and Remling 2014). Unlike emissions reductions where the goal is a global benefit, adaptation is a local process (Hall and Persson 2018). Thus, successful adaptation varies dramatically throughout the world, with drought-resistant seeds in one location, flood defenses in another, and possibly institutional reforms elsewhere. This diversity resists standardization, making it difficult to compare adaptation efforts or determine appropriate funding levels.

Recent scholarship increasingly recognizes that adaptation has limits, thresholds beyond which adjustment is no longer possible or becomes prohibitively expensive (Mechler et al. 2020). These limits may be ecological; species cannot migrate fast enough, technological; there is no available solution, economic, claims resources that are needed elsewhere, or social; changes conflict with values. It also works as a possible threat from, or a side payment to, the smallest and most vulnerable countries (Hall and Persson 2018). Recognition of adaptation limits strengthens arguments for both aggressive mitigation and acknowledgment of loss and damage, challenging the notion that societies can simply adapt their way through any level of climate change (Vanhala and Hestbaek 2016).

Loss and damage introduces questions of justice and compensation that the technical frameworks of mitigation and adaptation attempt to avoid (Wallimann-Helmer 2023). By acknowledging that some climate impacts cannot be prevented or adapted to, loss and damage opens discussions about historical responsibility, reparations, and liability that developed countries have long sought to prevent (E. Roberts and Huq 2015; Vanhala and Hestbaek 2016). The language in current agreements provides recognition without clear obligations, creating what amounts to an "empty pillar" that is acknowledged in principle, but without substance (Janzen et al. 2021).

The UNFCCC framework thus embodies a fundamental tension. It provides essential institutional infrastructure for global climate cooperation, creating spaces for negotiation, knowledge exchange, and resource mobilization. The three-pillar structure acknowledges different dimensions of the climate challenge and creates pathways for action. Yet this same framework channels responses through technical modalities that may inadequately address underlying drivers of emissions and vulnerability. The question is not whether technical approaches are necessary—they clearly are—but whether they are sufficient, and what their dominance might obscure or preclude.

Yet climate governance also creates spaces for contestation and alternative visions. Vulnerable countries leverage moral authority to demand action. Social movements challenge technocratic approaches with claims for climate justice. Indigenous peoples assert traditional knowledge and practices as adaptation strategies. Pacific Island states demonstrate how apparently powerless actors can shape global discourse through strategic diplomacy (Carter 2020; Corbett et al. 2020). These contestations show that climate governance is an ongoing struggle over futures rather than just a technical exercise in planning.

2.2 Climate adaptation

> This section examines how climate governance operates through specific mechanisms and relationships. It explores how adaptation creates new forms of intervention, shapes North-South dynamics, and enables problematic trade-offs between climate responses.

As the *adaptation frontier* is movable, none of the technological, economic, social and cultural limits are a question of values, the adaptation process is a choice of tradeoffs (E. Roberts and Pelling 2018). This is an essentially political question, a question about what the future should be (Inayatullah 1990). It is also a central question in development studies (Ferguson 1994; Escobar 1995). There is thus considerable power in the ability to define what adaptation is, and what should be mitigation or loss and damage instead.

Considerable academic effort is spent defining these limits, and considering the trade-offs (Calvin et al. 2023). Each COP adds new mechanisms, funds, and frameworks attempting to bridge divides between developed and developing countries, between mitigation and adaptation priorities, between market and public finance approaches (Brun 2016).

This political process also gives rise to many frameworks, and complex mechanisms where countries try to avoid over-committing, and make sure others comply (Hall and Persson 2018). This also extends to climate adaptation, that currently is governed through non-binding pledges from countries at COP. Here countries pledge to give a certain amount of funds towards causes, such as climate adaptation, but their maintain a lot of freedom for how the funds actually will be dispersed.

The three-pillar architecture creates possibilities for trade-offs that reflect global power imbalances. In principle, the pillars address different aspects of climate change that require integrated responses. In practice, they become substitutes in a portfolio approach to climate action. Countries and institutions can choose emphasis on different pillars based on their interests or their views on effectiveness.

This portfolio logic enables problematic substitutions. High-emitting countries may prefer funding adaptation over reducing emissions, effectively paying to maintain fossil fuel consumption. The Warsaw International Mechanism for Loss and Damage was established partly to prevent adaptation funds from being diverted to compensation. Yet the boundaries between adaptation and loss and damage remain contested, creating opportunities for reclassification that serves donor interests (Vanhala and Hestbaek 2016; E. Roberts and Pelling 2018).

The economic framing of climate policy facilitates these trade-offs. Cost-benefit analyze compare mitigation costs against adaptation costs and residual damages. Integrated assessment models optimize resource allocation across response options. Carbon markets create equivalencies between emission reductions in different location (Eriksen et al. 2021).

The tension between maximizing collective welfare and respecting human rights illustrates these conflicts. Economic optimization might suggest that adaptation in densely populated, economically productive areas should receive priority. Yet this could abandon marginalized populations whose rights deserve equal protection. Similarly, cost-effectiveness might favor protecting existing development rather than transforming systems that produce vulnerability. The apparently technical choice of discount rates determines whose future counts in present decisions (Wallimann-Helmer 2023).

Developed countries prefer to channel adaptation finance through existing development institutions, maintaining control over resource allocation. Developing countries demand direct access and national ownership, rejecting paternalistic approaches that echo colonial relationships. The resulting compromise—multiple funds with different access modalities and governance structures—satisfies no one while creating transaction costs that consume substantial resources. Climate finance, as this process is called, is now higher that ever, with billions pledged (CPI 2025).

This complexity serves multiple functions. It provides space for different actors to pursue preferred approaches without directly confronting fundamental disagreements (Hall and Persson 2018). Countries can claim progress through various metrics—emissions intensity, renewable energy deployment, adaptation spending—without comparable benchmarks. The proliferation of climate funds allows donors to maintain control while appearing responsive to developing country demands. Technical work programs generate activity and expertise without requiring difficult political decisions.

The taxonomies that underpin this system are worked out by consultants around the world, and the funds for the production of the taxonomies can also be used for this (Gudmundsson 2024). Many countries spend a large portion of their aid on the knowledge production, a process that often happens in their own country.

This system is not very efficient. The transaction costs of navigating multiple funding mechanisms consume resources that could support implementation. The technical requirements for accessing climate finance favor countries with existing institutional capacity, potentially excluding those most vulnerable (Taylor and Harper 2014). The fragmentation of governance across issues and institutions enables forum shopping and reduces accountability. Most fundamentally, technical complexity obscures political choices about development pathways, resource distribution, and ecological limits.

The NAPs are state-centric frameworks (Mizuno and Okano 2024). This is not surprising, as the UNFCCC is an international arena, and states are the parties to the agreement (Williams 2020). The NAP process, established under the Cancun Adaptation Framework, represents a key mechanism through which global climate governance shapes national development trajectories (Mizuno and Okano 2024). Unlike project-based approaches of earlier adaptation efforts, NAPs require comprehensive, long-term planning across all sectors. Countries

must assess climate risks, identify vulnerabilities, prioritize interventions, and integrate adaptation into development planning. This comprehensive scope makes NAPs powerful instruments for reshaping governance.

The NAP process also shapes state-society relations within countries. By positioning national governments as the primary actors in adaptation planning, NAPs may centralize authority over resources and decisions. NAPs thus become instruments through which states extend control over territories and populations in the name of climate response (Paprocki 2018; Ferguson 1994).

Since climate adaptation is a local process, there is also a real risk of misreading what is needed, or that an action harms more than it contributes to adaptation, a process named maladaptation (Schipper 2020; Eriksen et al. 2021). While some of these downsides will be the subject for later chapters, the risk is especially real for "green grabbing", where land is taken for climate purposes. Forest peoples face dispossession from both climate impacts and climate interventions—a double exposure that governance frameworks fail to address (Wilhite and Salinas 2019). Indigenous communities find their territories targeted for carbon projects, renewable energy installations, and conservation initiatives that serve global climate goals while undermining local livelihoods (Dunlap 2018; Lyons, Richards, and Westoby 2014; Mousseau and Teare 2019). These interventions are justified through technical assessments of carbon sequestration potential or renewable energy resources, obscuring their political impacts on rights, sovereignty, and self-determination.

Maladaptive interventions may appear technically sound but fail to account for social and political contexts. Seawalls could protect wealthy areas while redirecting flooding to poor communities, drought-resistant crops could increase farmer dependence on corporate seeds. Planned relocation could destroy social networks all represent technically rational responses that may worsen vulnerability for some populations (Schipper 2020; Eriksen et al. 2021).

Chapter 3

Conceptual framework

This chapter presents the conceptual framework this thesis will use to understand the National Adaptation Plans. As we saw in Chapter 2, climate adaptation is being mainstreamed into development discourse. This makes it natural to look into the literature on development. This chapter will contrast the institutional and critical approaches in the three themes of development studies, and thus the NAPs: implementation, financing, and knowledge production.

The first section presents the debates on how development projects interact with realities on the ground. The second section discusses how these projects are, and should be, financed. The third section examines the competing knowledge production paradigms. The last section presents some of the recent research on climate adaptation, focused on Paprocki (2018) and Dewan (2022)'s work in Bangladesh, and synthesizes the concepts into the adaptation nexus, the institutional approach, and the adaptation regime, the critical approach.

The institutional approach to development begins with a genuine response to real problems. Climate change is set to bring suffering to people across the Global South and are not invented concerns, but rather daily realities for billions of people. The development apparatus come to this work with sincere commitment to improving lives. They bring technical expertise, financial resources, and accumulated knowledge from other contexts. Still, scholars argue that climate adaptation might actually create more vulnerability than it removes, and simply shift it between groups.

3.1 Implementation

> It is in the implementation development theories meet local realities and local peoples. This section reviews the difficulties development projects have with reaching the goals they have set for themselves.

Early development efforts focused on large-scale infrastructure and modernization. When these top-down approaches produced disappointing results, the sector underwent significant self-reflection (Escobar 1995). By identifying the most efficient interventions, often through statistical testing (Banerjee and Duflo 2019), the projects could reach their goals with as few funds as possible. This would again free up funds for new projects. This discussion of aid effectiveness is very prominent, and shapes how institutional development projects are implemented (Banks, Hulme, and Edwards 2015). Through standardized frameworks, such as the *logical framework approach* (LFA), the projects could be developed, monitored and evaluated, to find what worked and could be used in other contexts (Banks, Hulme, and Edwards 2015).

Participatory development emerged in the 1980s and 1990s as a critique of the top-down development at the time, promising to revolutionize practice by incorporating local knowledge, empowering communities, and ensuring interventions respond to actual needs rather than imposed blueprints (Chambers 1994, 1438). Communities would gather information about their own situation, identify their priorities, and take action themselves.

Chambers identifies three basic components of Participatory Rural Appraisal (PRA): methods, behavior/attitudes, and sharing (Chambers 1994, 1438). The behavioral shift proved especially significant. Outsiders had to step off their pedestals, sit down, hand over the stick, and listen and learn. Through field learning experiences, workshops, and villager-to-villager training, PRA methods spread across continents (Chambers 1994, 1438). Local people demonstrated they could map, model, rank, score, estimate, diagram and analyze, better than outsiders.

What began as radical critique of expert-driven development became a standardized toolkit applied everywhere. Chambers (1994) warned about formalism as a long-term danger. The urge to standardize and codify, often in the name of quality, leads to manuals and fixed procedures (1994, 1441). Participatory exercises, originally designed to empower communities, became efficient methods for gathering information required by project frameworks. The radical promise of participation, redistributing power and resources, gave way to participation as technique: stakeholder consultations, focus groups, participatory mapping (Banks, Hulme, and Edwards 2015).

The critical approach has focused on how development interventions interact with local realities. Ferguson (1994)'s analysis of development in Lesotho argues that development operates as an *anti-politics machine*. Development agencies create knowledge that about places and peoples that might have little in common with the realities on the ground, but matches the projects that the development agency is able to offer (1994, 20–21). In Lesotho, he argued, the fact that the economy was tightly integrated in the South African mining industry, was strategically overlooked, as it was out of reach of the project. Rather, the focus became overgrazing and establishing markets for the sale of cattle. As with a flick of a button, like an anti-gravity machine removes gravity, development

removes politics (Ferguson 1994, 256).

By removing politics, questions of land, resources, jobs, and wages become *technical problems*, that require technical interventions, rather than political issues requiring political solutions. This depoliticization is not just a side-effect, but central to the projects. While appearing to fail in their stated objectives, development projects succeed in expanding bureaucratic state power and restructuring social relations. Ferguson observes that the most important political effects of planned interventions may occur unconsciously, behind the backs or against the wills of planners (Ferguson 1994, 47). Establishing markets, building roads and outposts are all expansions of state power, despite the development targets not being met. Plans are always important, but never in quite the way planners imagine (Ferguson 1994, 48).

Li (2007) extends this analysis through her examination of development in Indonesia. She identifies two key practices that translate the will to improve into programs. First is *problematization*: identifying deficiencies needing rectification. Second is *rendering technical*, representing the domain to be governed as an intelligible field with specific boundaries and characteristics (2007, 7–8). These practices are inseparable. Problem identification links tightly to available solutions. They emerge together where certain diagnoses, prescriptions, and techniques are available to properly trained experts.

Questions rendered technical are rendered nonpolitical. Experts focus on the capacities of the poor rather than practices through which one group impoverishes another (Li 2007, 10). The local thus becomes a site of intervention, but not a source of political analysis. Development projects identify local problems, local needs, local capacities, but rarely examine how local vulnerability connects to broader political and economic structures. This localization of both problems and solutions allows development to proceed without confronting uncomfortable questions about global inequality or structural violence.

Implementation in practice involves complex processes of *translation and brokerage* that official accounts might miss (Bierschenk, Chauveau, and de Sardan 2002). Development professionals must navigate between different worlds of meaning. Mosse (2011) show how development brokers actively build social, political, and economic roles rather than simply following scripts (2006, 14). They are not passive recipients, but active agents reconciling competing worldviews and interests.

Dewan (2022)'s ethnography in Bangladesh provides insight into this brokerage work. Development brokers engage in strategic code-switching between official narratives and contextual realities, maintaining donor-facing scripts in English while preserving contextual knowledge in Bangla (2022, 547). Mosse (2011) argues that these contradictions development professionals face are standard. They must secure their place within complex institutional contexts, managing relationships, negotiating positions, building networks, dealing with contingency and compromise, producing viable data, meeting targets and budgets. Simulta-

neously, they must present themselves as bearers of transferable knowledge and universal expertise. Professional status requires transforming messy particulars into clean universals, extracting technical knowledge from the relationships that produce it (Dewan 2022; Bierschenk, Chauveau, and de Sardan 2002).

Participatory development creates an additional paradox. Development workers must hide their expertise and agency to maintain their identity as mere facilitators of community action (Mosse 2011). One Indian community worker insisted his contribution was nothing because he only facilitated and mobilized the community who held the real power (Mosse 2011). When being an expert means pretending not to be one, when action requires apparent inaction, professional identity becomes increasingly difficult to maintain.

Mosse (2011), Bierschenk, Chauveau, and de Sardan (2002) and Dewan (2022) thus all argue that development professionals, being its own profession, are skilled at donor management. By learning each agency's preferences, buzzwords, and cycles, they develop projects that can attract funding from multiple sources, carefully packaging the same activities in different ways for different audiences. The time and expertise required for this financial diplomacy diverts resources from actual development work. As one project manager explained, success means "maintaining relationships with donors and the government" rather than achieving development outcomes (Mosse 2011).

Scott (1998) argues that the *simplification*, and thus rendering technical, is not a byproduct of interventions, but central to government itself. The result is radically simplified designs for social organization that inevitably fail because they cannot accommodate the complexity of actual social life (Scott 1998, 7). Crucially, Scott highlights the role of practical knowledge, often also referred to as vernacular knowledge (Escobar 2018), that comes only from experience, which development schemes systematically ignore (Scott 1998, 6). These high-modernist development schemes fail precisely because they attempt to replace practical, local knowledge with abstract, standardized, technical knowledge. This is a practice that Slaughter (2024) argues still is central to thinking today, especially with the belief in data and computer science, and artificial intelligence, to solve global issues.

3.2 Financing

> This section explores how development financing is based on a system of conditions, debt, and how financial mechanisms that shape what kinds of development gets funded and thus become possible.

While the section above dealt with the implementation of projects, the financing for these projects exists for itself, in the global aid system. All aid is accounted in the Organisation for Economic Co-operation and Development (OECD) dataset for Official Development Assistance (ODA). The OECD Development Assistance Committee (DAC) maintains the *taxonomies* for the data, and makes it available

through the Creditor Reporting System (CRS). This system is changed regularly, to better reflect the knowledge and policies of the OECD (WP-STAT 2022, 2020b, 2020a). While the system is centralized, aid donors are responsible for reporting their own aid.

The data is then used for either research or for donor countries reporting. It is through these taxonomies that the money pledged at COP (as discussed in Chapter 2) is accounted. Here, the dollar amount could be written as loans, grants, or grant equivalent loans (loans given at a lower-than-market rate) and through NGOs, states or global funds (UN 2024a). Yet, over 70% of flows are from a donor state to a donor country, as grants, although around half is implemented by actors other than the government (UN 2024a).

The *financing gap* is the starting point for development aid (Bernards 2024, 88). Poor countries need finance they do not have: money for roads, schools, hospitals, agricultural programs. As we will explore more below, this financing gap could be calculated separate from implementation, creating a structure where implementation, financing, and knowledge production are handled by different actors. The institutional approach sees this financing architecture as neutral plumbing for moving money where it's needed and most effective. They've shifted from advocacy to service delivery, becoming contractors implementing donor projects rather than representatives of grassroots movements (Banks, Hulme, and Edwards 2015, 710).

Development finance now increasingly happens through complex financial instruments: blended finance, green bonds, public-private partnerships, that promise to mobilize private capital for development goals (UN 2024a; CPI 2025). This *financialization* risk deepening, rather than resolving, dependencies (Bernards 2024, 94). Developing countries must offer increasingly favorable terms to attract private investment, including guarantees that transfer risk from private investors to public institutions.

Public-private partnerships (PPPs) exemplify these new financing mechanisms. The PPPs are often presented as as win-win arrangements that combine public purpose with private efficiency (Asian Development Bank 2008, 9). More recently though, they have been reimagined as an easier way of getting private capital involved in development (Bernards 2024, 98). Governments provide guarantees, tax breaks, and regulatory concessions to attract private investment, effectively subsidizing private profit with public resources. When projects fail, as they might, public institutions bear the costs while private partners are protected through complex contractual arrangements (Bernards 2024, 98). A third of the 100 billion dollars pledged to climate adaptation was to come from private funds, and only half of it actually materialized (Bernards 2024, 92).

A central point of discussion is thus the role of the state, or the developing state specifically. With the post-World War II international order established the *sovereign* nation-state as the fundamental unit of international relations and development, decolonization created new independent states that were expected

to pursue their own developmental paths (Mamdani 1996). The institutional approach to development took this sovereignty as given, treating states as autonomous actors capable of making policy choices that would determine their futures. International cooperation would facilitate technology transfer and capacity building between sovereign equals, enabling newly independent states to modernize and eventually join the ranks of developed countries (Escobar 1995, 4).

This formal sovereignty did not address the history of colonialism, and scholars argue that the new states were a continuation of colonial relationships in new forms. As Rodney (1989) argues, the very process of creating independent African states occurred within a framework that ensured continued exploitation (Rodney 1989, 13). The wealth created by labor and resources in the Global South continued to be grabbed by capitalist countries, while restrictions were placed upon capacity to make maximum use of economic potential. Rodney (1989) named the newly independent nation leaders "African sell-outs" (1989, 36). They became part of the definition of underdevelopment, local elites whose interests aligned with metropolitan capital rather than national development. Political independence without economic power meant that real decision-making remained centered outside national boundaries (Rodney 1989, 34).

Mamdani (1996)'s analysis of the bifurcated state reveals how structural dependency operates through inherited colonial institutions (Mamdani 1996, 18). Post-independence African states maintained fundamental structures of colonial governance. The state is both present, in its ability to enforce laws and regulations through its bureaucratic and coercive apparatus, and too absent, in its failure to provide development or represent popular interests. This institutional inheritance means that states, even with local leadership, might function more as mechanisms for managing populations rather than representing them (Mamdani 1996).

As the sovereign power, the state is also supposed to provide security (L. Figueroa-Helland and Borg 2014). The process in what is deemed a security issue is described by Wæver (1995) as *securitization*. In this process, an issue is transformed into a security issue through language (Wæver 1995, 48). And when that happens, the issue is transferred from society and into the scope of Government (Wæver 1995, 52). Securitization is thus not simply that an issue is important or produces vulnerability, but that it has been transferred to the state to deal with it. Insecurity is a securitized issue, without a security solution. Security is when the issue has a security solution (Wæver 1995, 52).

3.3 Knowledge Production

This section presents the competing knowledge production paradigms. As the future is uncertain, it contrasts the institutional view of expert knowledge to navigate this, with critical perspectives on how

development knowledge override other ways of knowing.

The future is uncertain. These questions, a central issue in development, involve interconnected systems, long time horizons, and radical uncertainty (De Jong et al. 2025). The institutional approach argues that expert knowledge, properly gathered and applied, can help societies navigate these uncertainties and make better decisions about their futures. As the World Bank argues, technical expertise can help manage this uncertainty through systematic analysis, risk assessment, and evidence from other contexts (WB 2021). By using tools for thinking about the future: scenario planning, probabilistic forecasting, sensitivity analysis. Without these tools, societies might be paralyzed by uncertainty or make choices they later regret.

International institutions serve as repositories of global experience. The World Bank positions itself as a "knowledge bank" that collects lessons from development interventions worldwide (WB 2021; De Francesco and Guaschino 2020; Mizuno and Okano 2024). This accumulated knowledge, properly synthesized and transferred, promises to help countries avoid repeating mistakes and adopt proven solutions. The alternative, learning only through trial and error, seems wasteful and unnecessary when knowledge already exists. Technical expertise also promises to overcome the limitations of local knowledge. Communities understand their immediate contexts deeply, but may lack information about broader systems.

The institutional approach emphasizes evidence-based policymaking (De Francesco and Guaschino 2020). Rather than relying on ideology or intuition, development decisions should follow rigorous analysis. Randomized controlled trials can identify what interventions actually work (Banerjee and Duflo 2009). Cost-benefit analysis can determine optimal resource allocation. Monitoring and evaluation systems can track progress and enable course correction (Örtengren 2004).

The production of development knowledge occurs through what Haas (1992) calls "epistemic communities," networks of professionals with recognized expertise and authoritative claims to policy-relevant knowledge (Haas 1992, 3). These communities share beliefs, validity tests, and policy projects. They define problems in ways their expertise can address (Haas 1992). The development professional might be understood as their own epistemic community (De Francesco and Guaschino 2020). Policy documents result from complex negotiations between team members with different disciplinary backgrounds, institutional pressures, and career incentives (Mosse 2011). What appears as technical analysis often reflects political compromises, like the outcome documents from the COPs discussed earlier Chapter 2. Statistics that seem objective emerge from hurried fieldwork, strategic assumptions, and creative accounting. The "will to believe" in development, the need to maintain institutional legitimacy and career prospects, shapes what knowledge gets produced and validated (Mosse 2011).

Chambers' work on Participatory Rural Appraisal revealed both the promise and

limits of changing who produces knowledge. PRA methods showed that rural people could conduct sophisticated analyses of their situations, often revealing insights that outside experts missed (Chambers 1994). Communities created detailed maps, seasonal calendars, wealth rankings, and problem trees. Yet as Chambers (1994) recognized, PRA could become another standardized toolkit, a way of extracting local knowledge for external use rather than genuinely shifting power over knowledge production (1994, 1442).

Yet as discussed above, development practice and expert knowledge operates through specific mechanisms that shape the results. The post-structuralist critique, beginning with Ferguson's analysis of development in Lesotho, demonstrates how development discourse transforms political questions into technical problems requiring expert solutions (Ferguson 1994; Li 2007; Scott 1998). Through the anti-politics machine, complex histories of dispossession might become "lack of human capital.", while political conflicts over resources become "weak property rights." Structural inequality becomes "market failure." This rendering technical, as Li (2007) describes it, extracts problems from their political contexts and inserts them into frameworks where expert knowledge can be applied (Li 2007, 7).

The future orientation of climate adaptation and development makes imagining the future a central part of development (De Jong et al. 2025). The interest in more holistic future planning has also reached the global stage, with the recent *Futures summit* and *Pact for the future* (UN 2024b). Inayatullah (1990) distinguishes between *predictive epistemologies* that assume the future can be known through scientific methods, interpretive approaches that see multiple possible futures, and critical perspectives that examine how power shapes which futures can be imagined (Inayatullah 1990, 116).

Development planning relies on predictive epistemologies, such as economic projections, demographic forecasts and climate models. These tools don't simply predict the future but actively construct it by making certain pathways appear inevitable and others unthinkable (Inayatullah 2013; Godhe and Goode 2018). This inability to imagine other futures is what Goode and Godhe (2017) argues is "capitalist realism". These technical tools embed particular assumptions about what matters, whose knowledge counts, and what changes are possible.

Santos (2016) extends the idea of capitalist realism to advance the concept of "epistemicide" to describe how certain ways of knowing are not simply marginalized but actively destroyed (Santos 2016). Western modernity operates through what he calls "abyssal thinking" that renders certain forms of knowledge as non-existent (2016, 177). On one side lies science, expertise, and rational planning; on the other, traditional knowledge, local practices, and alternative cosmologies dismissed as belief or superstition. This is not merely exclusion but active destruction, as communities internalize the superiority of Western knowledge and abandon their own ways of knowing (Santos 2016).

By constructing countries as "underdeveloped", Escobar (1995) argues that

development creates the very reality it claims to describe. Countries learn to see themselves through categories that development institutions recognize: GDP per capita, human development indices, governance indicators (1995, 5). These categories don't simply describe reality but actively construct it. A country becomes "least developed" not through some natural process but through classification systems that privilege certain measures over others. Once classified, countries must present themselves through these categories to access resources, reinforcing the reality that development discourse creates. Their futures are locked in, as they end goal is for them to become like the industrialized countries in the Global North (Escobar 1995).

Escobar (2018)'s concept of the "pluriverse", offers a framework for understanding an opposition to the abyssal thinking (Escobar 2018). The key idea is that different communities inhabit different worlds constituted by distinct relationships between humans, non-humans, and territories. The "One-World World," a singular reality defined by Western modernity that eliminates other ways of being and knowing is the most powerful. Development, even when it claims to incorporate local knowledge, operates within this singular world, unable to escaping the abyssal thinking (Escobar 2018). So to counter an epistemicide by the One-World World, to create a "World where many worlds fit" (Escobar 2018), is to construct a pluriverse.

3.4 The Adaptation Nexus and the Adaptation Regime

> This section synthesizes recent climate adaptation research to present two frameworks. The adaptation nexus sees integration of climate considerations into development as necessary and beneficial, while the adaptation regime critique examines how adaptation may reproduce colonial patterns through technical governance.

Climate adaptation has emerged as the primary framework through which developing countries must now articulate their development needs Chapter 2. The patterns discussed above are visible in the implementation, financing, and knowledge production of responses to climate change. Two frameworks emerge from the literature: the adaptation nexus and Paprocki (2018)'s adaptation regime. These represent not simply different perspectives but fundamentally different ways of understanding what adaptation is, how it operates, and what it accomplishes.

The adaptation nexus presents climate adaptation as an urgent technical challenge requiring coordinated response. Climate change poses real threats to development gains (Calvin et al. 2023). Rising temperatures, changing precipitation patterns, and extreme weather events affect agriculture, infrastructure, health, and livelihoods. The institutional approach sees adaptation as the necessary integration of climate considerations into development planning.

From this perspective, the convergence observed in adaptation planning reflects successful coordination and learning. Countries face similar challenges and can benefit from shared approaches. The World Bank's Climate Change Action Plan positions adaptation at the intersection of climate science, development planning, and disaster risk reduction (WB 2021). This nexus requires breaking down silos between sectors, integrating across scales from local to global, and coordinating among multiple actors. The complexity demands common frameworks and standardized approaches to enable comparison and aggregation.

Within the nexus framework, implementation challenges are primarily matters of capacity and coordination. Countries need technical assistance to conduct vulnerability assessments, as the IPCC guidelines recommend specific methodologies for evaluating exposure, sensitivity, and adaptive capacity (Calvin et al. 2023). They require institutional strengthening to manage complex planning processes that span multiple ministries and levels of government. The logical frameworks and results-based management systems that structure adaptation planning provide necessary tools for managing this complexity and ensuring accountability to both citizens and donors (WB 2021).

The financing architecture represents a pragmatic response to adaptation's enormous costs. Stern, Songwe, and Bhattacharya (2022) reviewed adaptation costs in developing countries and put it at tens of billions annually (Stern, Songwe, and Bhattacharya 2022; Buchner et al. 2023). Here, the traditional aid insufficient, requiring innovative mechanisms to mobilize private capital (Bernards 2024; UN 2024a). This capital is to be raised through blended finance, green bonds, and climate funds (Buchner et al. 2023).

Knowledge production within the nexus operates through scientific assessment and technical innovation. The IPCC synthesizes thousands of studies to provide authoritative climate projections (Calvin et al. 2023). Development banks collect and disseminate adaptation experiences across countries. This accumulated expertise helps countries avoid mistakes and adopt proven approaches. The nexus acknowledges problems but sees them as challenges to be overcome through better practice. The gap between planning and implementation can be narrowed through improved project management (UNEP 2024). The mismatch between global frameworks and local realities can be addressed. The persistence of vulnerability despite adaptation investments indicates the need for more resources and better targeting, not fundamental flaws in the approach.

The adaptation regime presents climate adaptation as a mechanism of control that extends existing patterns of domination. Paprocki (2018)'s analysis of Bangladesh reveals how adaptation operates as a "socially and historically specific configuration of power" that governs the landscape of possible intervention (Paprocki 2018, 957). The regime doesn't simply respond to climate change but actively constructs it as a particular kind of problem requiring particular solutions that serve specific interests.

Agrawal (2005)'s concept of "environmentality" extends Ferguson's analysis

into environmental governance, showing how subjects are transformed through technologies of government. Through community-based forest management in India, villagers become environmental subjects who internalize conservation logics not through coercion but through participation in regulatory practices. This transformation, from forest users to forest guardians, occurs through new institutions, knowledge practices, and the formation of environmental subjects (Agrawal 2005, 8).

From this perspective, convergence in adaptation planning might just be the operation of power. The rendering technical of climate vulnerability obscures climate change's political roots. Eriksen et al. (2021) argue that vulnerability emerges from other causes than just climate change itself (2021, 3). Adaptation planning might focus on technical adjustments rather than addressing structural causes. The anti-politics machine that Ferguson (1994) identified in development could operate through climate discourse, transforming the political question of adaptation into technical questions of climate change.

To access climate finance, countries have to present themselves through categories that donors recognize. As Dewan (2022) argues, development professionals describe climate change as "the most amazing spice" to attract funding, adding it to any project regardless of relevance (2022, 539). The elaborate apparatus of plans, assessments, and frameworks disciplines both states and populations into particular ways of understanding and responding to climate change that maintain rather than challenge existing arrangements. Climate finance could just be relabeled aid, as Scoville-Simonds, Jamali, and Hufty (2020) argue, with donors retrofitting adaptation into development assistance, rather than providing anything new (2020, 8).

Because of the future orientation of climate adaptation, this could lead to a form of *anticipatory ruination* (Paprocki 2018, 969). By casting the future as a climate dystopia, where damages from climate change are inevitable, all other issues are seen as connected. This is *climate reductionism*, collapsing all political issues into a single, inevitable process of climate change (Hulme 2011). These different interventions are justified both by present knowledge, and in the uncertainty of the future (Paprocki 2018, 958).

The experiments are meant to test out and evaluate the different possible approaches to adaptation, much in line with the institutional approach to development approaches like the LFA (Örtengren 2004), and to find the most effective interventions through constant evaluation (Paprocki 2018, 963). All approaches become "no-regrets" approaches, since anything would still be better than the dystopian climate future. Paprocki (2018) found that this process led to dispossession, the loss of land by peasants, to shrimp agriculture and migration to the big cities (2018, 966). As rural livelihoods, the most vulnerable to climate change, also is seen as obsolete and backwards, climate adaptation is seen as an "opportunity" to shift to something else (Paprocki 2018, 969).

Chapter 4

Methods

This chapter presents some literature on computational text analysis and the implementation of it in this thesis. Text is in many ways the language of power. The production of it is a central part of governance, and the plans and knowledge produced is often used to justify political decisions. Until recently, access to these texts has been locked behind considerable time commitment through manual coding or other manual processes. The proliferation of digital policy documents presents an opportunity for researching beyond policy statements, and a way to get a better understanding of how an issue is understood and implemented across the world.

The first section explains the recent advances in computational text analysis and the use cases these studies have. The second section goes through the implementation of the structural topic model (STM) used to analyze the NAPs.

By systematically identifying what countries talk about and testing how category membership influences these discussions, the analysis can supplement closer readings of specific plans or ethnographic work. It also provides a quicker way of bridging the gap between critical theory and traditional policy analysis, as the tools, when already developed, are quick to use.

4.1 Computational Text Analysis

> This section explores how computational text analysis, specifically structural topic modeling, can systematically examine discourse patterns in the National Adaptation Plans. It explains how topic modeling works with critical discourse analysis to reveal both what is said and what remains unsaid in policy documents.

Computational text analysis is a growing field, dedicated to getting insights out of very large amounts of text. As the NAPs are all very long policy documents,

the approach might be well suited.

Traditional qualitative analysis of such a corpus would require months of manual coding and then potentially miss patterns that only become visible at scale. Yet this corpus contains critical insights into how climate adaptation is understood, framed, and operationalized globally. The challenge is to systematically explore these patterns without predetermined hypotheses, allowing the corpus to reveal its own structures before interpreting them through competing theoretical lenses.

Topic modeling, running algorithms that finds what words are most likely to be written together in a text, offers a systematic approach to exploratory analysis. Topic models enable researchers to analyze larger corpora, might reduce researcher bias, make analysis reproducible, and systematize larger amounts of text than a single person could process (Jacobs and Tschötschel 2019). Rather than replacing critical interpretation, topic modeling removes uninteresting details and noise from large numbers of texts to enable comparison across key themes.

Critical discourse analysis attempts to understand how meaning is created and shared through speech and text (Jacobs and Tschötschel 2019; Mullet 2018). It is especially concerned with the most "important", dominating or hegemonic discourse, as that is an expression of power. Concepts only gain meaning in relation to other concepts, and this meaning emerges in the relationship between speaker and listener. Establishing who is the speaker and listener, who decides, in a corpus, is something discussed below (see Chapter 6). Crucially, discourse analysis recognizes that texts don't merely express reality but creates its own. When countries describe their vulnerability and adaptation needs, they are not merely reporting facts as much as they are constructing themselves as particular kinds of subjects requiring particular kinds of interventions (see Chapter 3).

Topic models are well suited for critical discourse analysis, because it assumes that words only gain meaning in context and can have multiple meanings within the same corpus (Jacobs and Tschötschel 2019, 473). A term like "resilience" might signify community strength in one context and market integration in another. "Participation" could indicate genuine power-sharing or ritualistic consultation. The method doesn't resolve these ambiguities but makes them visible for interpretation. This aligns with an understanding of critical discourse analysis as examining how discourse creates, maintains, and legitimizes social inequality, not through explicit statements but through the patterns of what can and cannot be said (Mullet 2018; Escobar 1995).

While traditional discourse analysis must analyze changes in discourse through specific events to establish hegemonic patterns, topic modeling can analyze discourse as it exists across an entire corpus without requiring a triggering event (Jacobs and Tschötschel 2019, 477).

A simple way of finding the dominating discourse is by looking for possible convergence. Recent research has looked at convergence in urban climate governance discourse (Westman, Castán Broto, and Huang 2023), albeit not computationally. They found that despite the large influx of new actors in the discourse, something

they assumed should make the discourse more diverse, the discourse actually became more homogeneous.

The structural topic model (STM) extends basic topic modeling by incorporating metadata to test how document characteristics influence topic prevalence (M. E. Roberts, Stewart, and Airoldi 2016). This proves particularly relevant for the NAPs corpus, where metadata about income level, geographic vulnerability, regional grouping, and submission date might systematically influence how adaptation is discussed.

Structural topic modeling has proven valuable for analyzing political discourse in various contexts. Curry and Fix (2019) used STM to examine how American state high court judges use Twitter, discovering that judges behave differently from typical politicians, they express fewer opinions and share more personal content, but increase political messaging during election years (Curry and Fix 2019, 388). Genovese (2015) applied STM to Vatican communications, exploring how religious authorities engage in international politics. Using just a two-topic model distinguishing political from religious themes, they found that the Vatican strategically times different types of communications in response to world events (Genovese 2015, 2).

As topic modeling is a way to explore the latent topics in a corpus, the model should be tuned to the research question at hand (Jacobs and Tschötschel 2019). The NAPs are specific policy documents about the same general theme (climate governance) in the same genre (national plans). Thus, they need a different pre-processing than a corpus of tweets (Curry and Fix 2019) or papal political communication (Genovese 2015). A central trade-off for the analysis is how to handle acronyms, national names, and acronyms. For texts within the same genre addressing similar topics the natural number of topics tends to be lower (Jacobs and Tschötschel 2019, 474). Whether this limitation reflects genuine convergence around universal challenges or artificial constraint through institutional frameworks remains open for interpretation.

An alternative approach would have been to use sentence transformers or other embedding models that convert text segments into high-dimensional vectors, then apply clustering algorithms to identify thematic groups, similar to how large language models process text. Models like BERT transform sentences, paragraphs, or documents into dense vectors, strings of numbers like [0.23, -1.45, 0.67…] that represent positions in an abstract semantic space learned during training. Unlike topic models, which produce interpretable probability distributions ("this document is 30% about topic 1, 20% about topic 2"), these embedding vectors are opaque. Documents cluster together based on mathematical distance, but the individual dimensions are difficult to analyze.

The sentence transformer approach offers some advantages. It can handle multiple languages without translation, an important note as only 47 of 64 of NAPs are in English. The sentence transformers might also capture more subtle relationships. However, these embeddings have the same issues as other AI models, like Large

Language Models (LLM). This "black box" problem makes it impossible to trace how language dominates discourse, identify which specific terms create convergence, or connect patterns to the concepts for a real discussion. But it also limits the analysis to English language plans, and excludes many countries.

4.2 Structural Topic Modeling

> This section details the technical process of analyzing the NAPs, from document processing through model estimation to the statistical tests. It explains the choices made in preparing texts, setting parameters, and testing whether observed patterns reflect genuine constraints or random variation.

The data collection began by scraping the UNFCCC NAP Central website using the R package `rvest` (Wickham 2024). The website presents the NAPs in an HTML table format, which required systematic extraction of country names, submission dates, and PDF download links. The scraping function first retrieved the webpage content, and then parsed it into a data frame. The extraction process handled several complexities: some countries had multiple submissions, dates needed parsing from various formats into standardized ISO format, and PDF links required validation to ensure they pointed to accessible documents.

The scraped data was separated into two structures. First, a tokens dataset containing document IDs and PDF links for the text extraction pipeline. Second, a metadata dataset containing document IDs, country names, and submission dates for the analysis. Error handling was implemented to manage connection timeouts and missing data, with failed extractions logged for manual review. The final scraped dataset contained all the English language plans with complete metadata. This automated approach ensured reproducibility while maintaining flexibility to handle the irregularities common in web-based document repositories.

The preprocessing pipeline began by standardizing the 47 English-language NAPs into comparable analytical units. Initial processing retained documents containing 2 030 660 tokens representing a vocabulary of 114 512 unique terms. Standard text preprocessing steps, lowercasing, punctuation removal, and number removal, were applied uniformly (M. E. Roberts, Stewart, and Tingley 2019). By stemming the words, removing their ending to have fewer words (e.g., "adapt," "adaptation," "adapting" → "adapt"), the vocabulary was reduced, while the meaning of them to a large degree was kept. This choice prioritized thematic coherence over lexical precision, accepting that some meaning distinctions would be lost (e.g., "adaptation" versus "adaptive" collapsed to "adapt") in exchange for more robust topic identification.

Despite these steps, early models were very influenced by noise, such as "——-" and other artifacts of the PDF quality. This was solved by first setting the minimum word length at three characters and then excluding words that appear in fewer than 10% of the texts (23) or more than 80% (179).

The early topics were very influenced by one single country. This was solved by defining stopwords, words that do not carry semantic value for our analysis, based on country names as the plans referred to themselves. These geographic stopwords were generated using the `countrycode` package to extract country names and add demonyms, preventing the emergence of topics defined purely by national identifiers (Arel-Bundock, Enevoldsen, and Yetman 2018). This removed 305 geographic terms that would have dominated topic distributions given the documents' frequent self-references.

Because of the different length of the documents, the larger documents influenced the topic distribution, contributing to the topics being very national. The segmentation algorithm targeted approximately 200 segments across the corpus, calculating optimal segment length dynamically based on total words. Documents shorter than 50 words remained intact, while longer documents were split at approximately 10 154-word intervals, creating 223 analytical segments that document metadata while enabling a more fair topic allocation across countries regardless of their plans' length.

To enable the statistical testing, the document metadata took another path than the text data. I matched the country on the UNFCCC website (to the standard world bank names, to later match these entries to the other datasets I needed for the metadata. To get the UN classifications for Land-locked Developing Countries (LLDC) and the Small Island Developing States (SIDS) I got the list from the UN website. By scraping the SIDS-list and LLDC-list, I made sure to always have the most up-to-date data. For the income and region data, the World Bank statistics package was used and added the standardized region and income level (Piburn 2020). The country names were then matched this back. The complete metadata can be seen in Table 4.1.

id	name	region	income	iso3c	year	time	geo
nap_001	Albania	Europe & Central Asia	Upper middle income	ALB	2021	Middle	Other
nap_002	...	...	...	...	...	...	...

Table 4.1: An example of the metadata collected for a country

The metadata was then matched with the segmented text, and both were fed into STMs function to prepare a Document Frequency Matrix (dfm). This is simply a data structure for of each segment, the metadata and a count of how many times a word is mentioned in that segment (M. E. Roberts, Stewart, and Tingley 2019).

A central reason for choosing the STM approach is that it makes it possible to pass these metadata variables to the model, through a prevalence formula ~ global_category + income_level + region + geography + time_period. This

tells the model to also model the relationship between the variables, enabling us to test the hypotheses (M. E. Roberts, Stewart, and Tingley 2019).

Category	Subcategories
Income	Low income, Lower-middle, Upper-middle and High income
Region	Europe & Central Asia, Latin America & Caribbean, South Asia, Sub-Saharan Africa, East Asia & Pacific, Middle East, North Africa, Afghanistan & Pakistan
Geography	SIDS, LLDC and Other
Time	Early (-2019), Middle (2020-2022), Late (2023-)

Table 4.2: The categories and subcategories used in the STM analysis.

The last step before running the model is to decide on how many topics the model should output. After running a wide variety of topics, 8 was decided, as it had high quality and distinct topics while keeping the amount of topics to analyze and present in Chapter 5 as low as possible. This might have traded off some granularity (M. E. Roberts, Stewart, and Tingley 2019), although a larger number of topics would need to be grouped to be analytically useful, making more topics redundant.

Model estimation employed variational expectation-maximization with 61 iterations, using spectral initialization for stability across runs (M. E. Roberts, Stewart, and Tingley 2019). After the model had been run on the 223 it was aggregated back to document level. Here, I averaged the topic proportions across the segments for each document, getting a topic proportion for all topics, per plan.

To better understand the topics, I implemented two more metrics. First, I reviewed the top 5 FREX (frequency-exclusivity) metric identified terms that were both common within topics and distinctive across them, for all the 8 (M. E. Roberts, Stewart, and Airoldi 2016). The most distinct one was picked as the name of the topic. Then, to get a better understanding of the topic distribution, all topics with more than 7% proportion in a document were counted.

For the group testing, the calculation proceeded in four steps. First, for each category, the mean topic distribution is extracted across all documents in that group, creating a characteristic discourse profile. Second, the top 3 topics by proportion are identified for each group. Third, the proportion of total discourse of these topics added together. Fourth, this raw score is normalized against a uniform baseline where discourse distributes equally across all topics, producing a 0-1 scale where 0 represents perfect distribution and 1 represents complete concentration. This normalization ensures that values have consistent meaning regardless of the number of topics in the model, with a value of 0.5 representing 50% more concentration than expected under uniform distribution.

Establishing whether observed these patterns actually carry any weight beyond being random variation, I use the built-in functionality in STM. Here, STM runs a series of regressions to estimate the effect that group membership has on the topic proportions in the groups (M. E. Roberts, Stewart, and Airoldi 2016).

An important methodological consideration involves the aggregation of subcategory results to category-level estimates. To facilitate interpretation and comparison across the three categorization schemes, effect sizes from individual subcategories (e.g., each income level) were averaged to create category-level measures (e.g., overall income effect).

This approach treats all subcategories equally regardless of sample size or internal variance, prioritizing interpretative clarity over statistical precision. While this simplification may mask heterogeneity within categories, it enables direct comparison of whether income, region, or geography most strongly influences adaptation discourse patterns.

The analysis tests whether category membership significantly predicts the prevalence of that category's dominant topics, with effect sizes indicating the strength of group-level constraints on discourse. High effect sizes suggest limited epistemological autonomy. Countries within such groups converge on similar discourse patterns, while low effect sizes indicate greater flexibility for countries to pursue diverse adaptation framing within their group.

Chapter 5

Findings

This chapter presents the findings from the structural topic modeling analysis of 47 National Adaptation Plans. The analysis reveals both what countries discuss when planning for climate adaptation and how membership in different categories shapes these discussions. The patterns that emerge suggest systematic constraints on adaptation discourse that operate across diverse contexts.

The chapter has in two sections. The first examines the topics identified in the topic model and the thematic structure of global adaptation discourse. The second analyzes how category membership, by income, region, geography, and time, heavily influences topic prevalence, looking at both the concentration within the top topics, as well as STM's estimated effects.

Together, these findings reveal a paradox: despite removing the most common and rare words to focus on meaningful variation, adaptation discourse shows remarkable convergence around technical themes. This convergence varies systematically by category membership in ways that suggest institutional networks matter more than climate vulnerabilities in shaping how countries discuss adaptation.

5.1 Topics

> This section examines the topics that structure global adaptation discourse. Each topic is characterized by its FREX terms, proportion of total discourse, and the countries where it features most prominently.

Mainstream (Topic 8) commands an extraordinary 31% of the entire corpus—more than triple any other topic—while appearing meaningfully in 45 of 47 national plans. The FREX terms "*Mainstream*, *Learn*, *Agreement*, *Pari* and *Progress*" reveal a discourse centered on planning infrastructure itself. The term *mainstream* signals the integration of climate considerations into existing

development frameworks, while *learn* points to knowledge transfer mechanisms central to international climate architecture. References to the Paris Agreement (*pari*, *agreement*) situate this within global governance structures, and *progress* likely refers to advancement metrics required by international reporting, other towards other goal.

The *Mainstream* label captures how this topic represents the backbone of adaptation planning: the frameworks, agreements, and institutional arrangements that define what adaptation is, and can be. Its dominance suggests that regardless of whether countries face sea-level rise, desertification, or mountain glacial retreat, all must first engage with the technical governance language. The relationship between topic prevalence and document coverage reveals fundamental patterns in how adaptation discourse operates globally. Figure 5.1 maps each topic according to their share of total discourse (x-axis) and their presence across documents (y-axis), showing how the topics are distributed through the corpus.

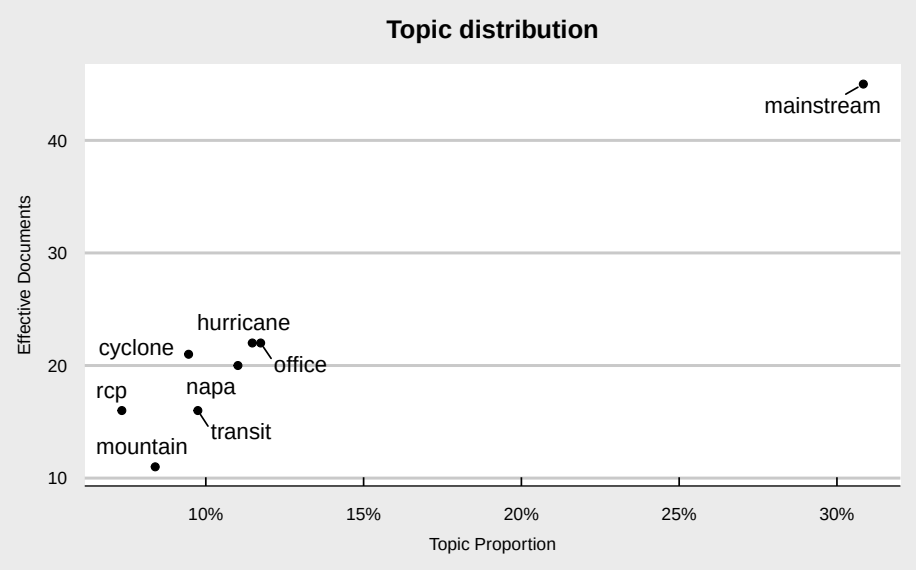

Figure 5.1: Topics by proportion and document coverage. The mainstream topic dominates both dimensions.

The remaining topics address diverse vulnerabilities and planning dimensions, though all filtered through institutional lenses and operating at much smaller scales.

Napa (Topic 1) occupies 11% of discourse and appears meaningfully in 20 documents. It has the FREX terms "*Ment*, *Tion*, *Napa*, *Percent* and *Pro*" and features the most in Chad (59%), Mozambique (57%). The fragmented nature of most terms gives some doubts about the validity of the topic or as artifacts from the word-splitting that might have been in the pdfs. *Ment* (might be

from development, management, government), *Tion* (adaptation, mitigation, implementation), and *Pro* (from project, program, process), alongside *Percent* still suggests that this topic captures some planning language. Only *Napa* provides clear thematic content, referencing the National Adaptation Programme of Action framework, the predecessor to the NAP (Mizuno and Okano 2024).

Cyclone (Topic 2) comprises 9% of the corpus, present in 21 documents, with FREX terms "*Cyclon*, *Tropic*, *Decad*, *Sea* and *Rise*" dominated by Philippines (49%), Tonga (31%). The coherent terminology around tropical weather systems (*Cyclon*, *Tropic*) and temporal patterns (*Decad*, *Sea*, *Rise*) validates this topic's thematic integrity. The *Cyclone* name reflects the focus on vulnerabilities central to many coastal and island nations.

Mountain (Topic 3) represents only 8% of discourse across 11 documents, with FREX terms "*Republ*, *Feder*, *Mountain*, *Summer* and *Accord*" and presence in Serbia (79%), Bosnia and Herzegovina (68%). The terms mix governmental structures (*Republ*, *Feder*) with geography (*Mountain*), seasonality (*Summer*), and formal agreements (*Accord*). This captures federal republics discussing mountain environments and seasonal variations, and the *Mountain* label is appropriate.

Hurricane (Topic 4) at 11% appearing in 22 documents shows FREX terms "*Marin*, *Island*, *Hurrican*, *Coastal* and *Mangrov*" concentrated in Kuwait (50%), St. Lucia (46%). The marine and coastal terminology (*Marin*, *Island*, *Hurrican*, *Coastal*, *Mangrov*) is a coherent set of terms around coastal vulnerabilities. The *Hurricane* name captures this.

Office (Topic 5) constitutes 12% found in 22 documents with FREX terms "*Offic*, *Climate-Resili*, *Medium*, *Secretariat* and *Depart*" prominent in Bhutan (52%), Nepal (51%). The bureaucratic vocabulary (*Offic*, *Climate-Resili*, *Medium*, *Secretariat*, *Depart*) reveals institutional architecture considerations, with *Climate-Resili* suggesting these offices focus specifically on resilience building. The *Office* label captures this administrative focus.

Transit (Topic 6) at 10% in 16 documents with FREX terms "*Transit*, *Task*, *Instrument*, *Indigen* and *Territori*" dominated by Brazil (69%), Argentina (68%). The terminology spans infrastructure (*Transit*), planning processes (*Task*, *Instrument*), and indigenous rights (*Indigen*, *Territori*). The *Transit* label captures only one dimension of what appears to be a complex intersection of infrastructure development and indigenous territorial governance. Brazil and Argentina's dominance suggests this topic reflects Latin American contexts where infrastructure projects navigate indigenous rights.

Rcp (Topic 7) comprises 7% across 16 documents with FREX terms "*Rcp*, *Rainfal*, *Ensembl*, *Confid* and *Trend*" appearing in West Bank and Gaza (73%), Sudan (26%). The technical climate science vocabulary (*Rcp* for Representative Concentration Pathways, *Rainfal*, *Ensembl*, *Confid*, *Trend*) forms the clearest thematic cluster, representing the modeling and projection work underlying

vulnerability assessments. The *RCP* name identifies this as the technical scientific foundation of adaptation planning.

Topic	Prop	Docs	Terms	Countries
Napa (Topic 1)	11%	20	*Ment*, *Tion*, *Napa*, *Percent* and *Pro*	Chad (59%), Mozambique (57%)
Cyclone (Topic 2)	9%	21	*Cyclon*, *Tropic*, *Decad*, *Sea* and *Rise*	Philippines (49%), Tonga (31%)
Mountain (Topic 3)	8%	11	*Republ*, *Feder*, *Mountain*, *Summer* and *Accord*	Serbia (79%), Bosnia and Herzegovina (68%)
Hurricane (Topic 4)	11%	22	*Marin*, *Island*, *Hurrican*, *Coastal* and *Mangrov*	Kuwait (50%), St. Lucia (46%)
Office (Topic 5)	12%	22	*Offic*, *Climate-Resili*, *Medium*, *Secretariat* and *Depart*	Bhutan (52%), Nepal (51%)
Transit (Topic 6)	10%	16	*Transit*, *Task*, *Instrument*, *Indigen* and *Territori*	Brazil (69%), Argentina (68%)
Rcp (Topic 7)	7%	16	*Rcp*, *Rainfal*, *Ensembl*, *Confid* and *Trend*	West Bank and Gaza (73%), Sudan (26%)
Mainstream (Topic 8)	31%	45	*Mainstream*, *Learn*, *Agreement*, *Pari* and *Progress*	Armenia (71%), Albania (64%)

Table 5.1: Summary of adaptation discourse topics identified through structural topic modeling

5.2 Groups

> This section examines how category membership shapes adaptation discourse, showing that regional institutional networks have a much stronger influence than geography, income level, or time period.

Regional groupings demonstrate the most powerful influence on adaptation discourse, with an average effect size of 30%, much higher than income (22%), geography (17%), or time (9%). This dominance suggests that regional institutional architectures, like development banks, technical assistance programs, or consultant networks, create a convergence around climate knowledge that outweighs all the other factors.

Europe & Central Asia exhibit the strongest regional effect at 46%, nearly half the total possible effect size. Countries in this region show dominance of 69% concentrated on *Mountain*, *Mainstream* and *Transit*. Despite the region

being very large and diverse, from EU members to Central Asian republics, these plans are very similar. The emphasis on mountain ecosystems alongside mainstream planning suggests either genuinely shared vulnerabilities or adoption of standardized regional templates and approaches-

South Asia follows with an effect size of 42%, the second highest among regions. With only four plans in the dataset, this region nonetheless shows dominance of 67% focused on *Office*, *Mainstream* and *Cyclone*. The concentration suggest that the nations have institutions or other shared regional resources in common.

Sub-Saharan Africa and Middle East, North Africa, Afghanistan & Pakistan both show effect sizes of 27%. Sub-Saharan Africa's dominance of 52% through *Mainstream*, *Napa* and *Office* reflects the region's longer engagement with adaptation planning through NAPA frameworks. Meanwhile, MENA's lower dominance of 35% but equal effect size suggests that while this region explores more diverse topics, countries within it still converge strongly around *Rcp*, *Mainstream* and *Transit*.

The relationship between discourse dominance and group effect sizes reveals how different categorization schemes create varying levels of constraint on national adaptation planning. Figure 5.2 maps these patterns across all subcategories.

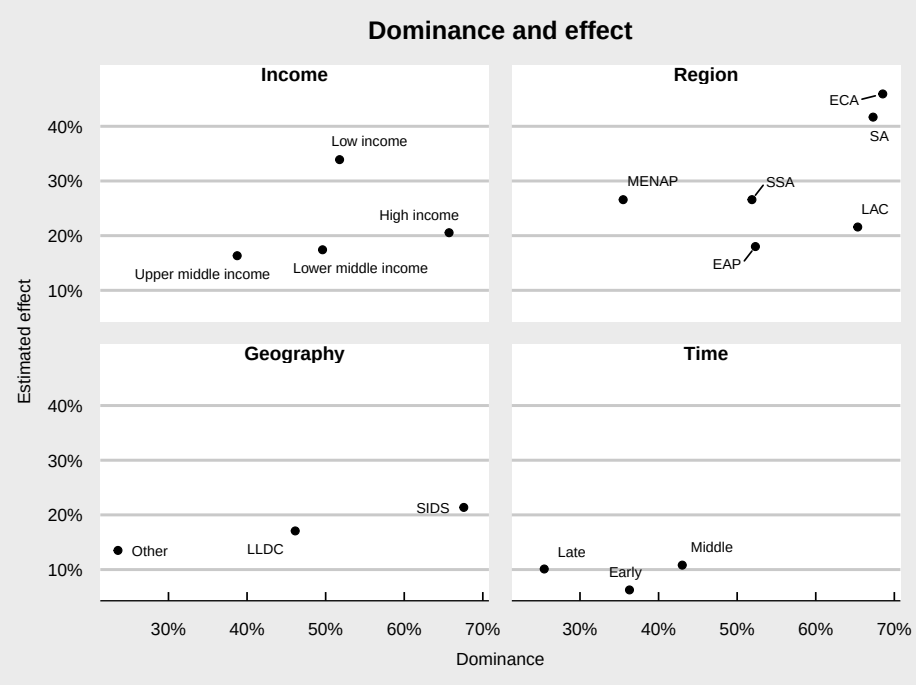

Figure 5.2: Dominance and Effect Size by Category. Each panel shows a different categorization scheme.

High-income countries show extreme topic concentration (66%) but moderate group effects (21%), while low-income countries display lower dominance (52%) but the highest income-group effect (34%). This suggests that discourse concentration and group conformity might not be directly related. Figure Figure 5.3 presents the aggregate patterns, confirming regional categories as the primary organizing force in global adaptation discourse.

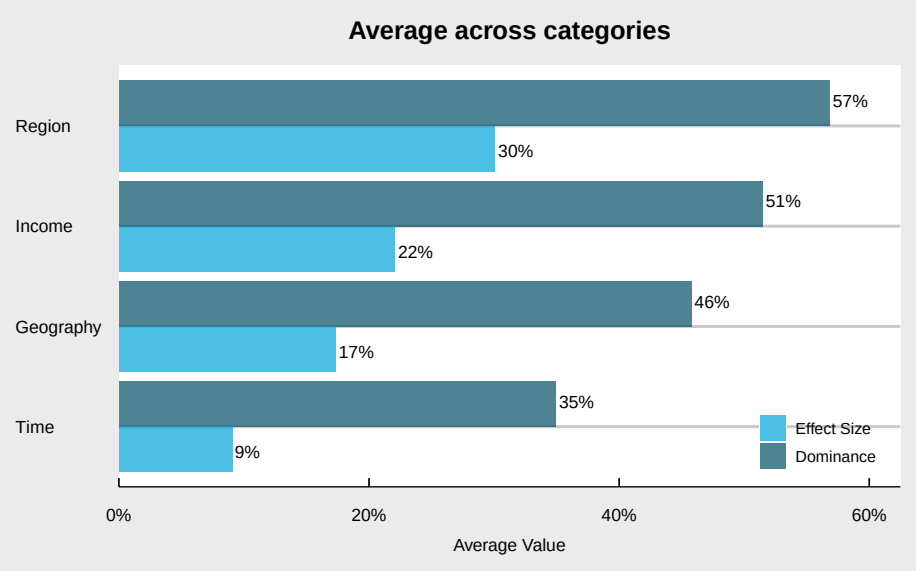

Figure 5.3: Average dominance and effect size by category. Regional patterns show the strongest effects.

The consistently high values across both metrics for regions, compared to the variation in other categories, reinforces that institutional geography trumps physical geography in shaping how countries articulate climate responses.

Income categories show an overall effect size of 22%, revealing counterintuitive patterns. Low-income countries demonstrate the highest effect within this category at 34%—nearly double that of upper-middle income countries (16%). This extreme convergence among poor countries, despite their geographic and climatic diversity, suggests powerful standardizing forces operate through development assistance and technical support mechanisms.

Low-income countries focus on *Napa*, *Mainstream* and *Rcp* with dominance of 52%. The prominence of NAPA, the old NAP process, alongside mainstream planning might reflect how these countries have been adapting for a while, or that they must demonstrate fluency in both historical and contemporary adaptation frameworks. Their limited autonomy in discourse construction likely reflects dependence on external technical assistance and the need to align with donor priorities. High-income countries show dominance of 66% concentrated on

Mainstream, *Hurricane* and *Transit*, yet their effect size of 21% sits mid-range. This combination of extreme topic concentration with moderate group coherence suggests that while wealthy countries converge on certain topics, they maintain some flexibility in how they articulate them. Upper-middle income countries have the room to maneuver in their plans, with the lowest dominance (39%) and smallest effect size (16%) focused on *Mainstream*, *Mountain* and *Hurricane*.

Geographic vulnerability classifications show an overall effect of 17%, lower than the other categories. Countries sharing similar climate vulnerabilities show less discourse similarity than countries in the same World Bank region, challenging assumptions about environmental determinism in adaptation planning.

Small Island Developing States exhibit the highest dominance in the entire dataset at 68%, focusing on *Mainstream*, *Hurricane* and *Cyclone* with an effect size of 21%. This concentration seems to reflect shared threats from sea-level rise and tropical cyclones. Yet even here, *Mainstream* (Topic 8) dominates alongside obviously relevant island concerns, suggesting institutional requirements constrain even the most vulnerable nations. Landlocked Developing Countries show moderate patterns with dominance of 46% through *Mainstream*, *Office* and *Napa* and effect size of 17%. Surprisingly, all of the topics are technical and governance-related, despite the group being defined by their geography. Other countries display the lowest geographic dominance at 24% with an effect size of 14% focused on *Mainstream*, *Transit* and *Napa*.

The time periods have the weakest effects at 9%, suggesting adaptation discourse has not substantially evolved over the decade of NAP development. While individual periods show variation—middle period plans (2019-2021) demonstrating highest dominance at 43% focused on *Mainstream*, *Napa* and *Hurricane*—the overall temporal effect remains minimal.

Early submissions (2015-2018) show dominance of 36% with the lowest temporal effect of 6% on *Mainstream*, *Hurricane* and *Office*. Middle period submissions exhibit the highest temporal convergence at 11%, coinciding with clearer guidelines and more rigid finance requirements. Late submissions (2022-2025) display the lowest dominance at 25% but maintain substantial effect size of 10% on *Mainstream*, *Cyclone* and *Office*. The temporal patterns reveal no clear trajectory toward either convergence or divergence, suggesting that once established, adaptation planning frameworks persist regardless of accumulating experience or evolving climate science.

Category	Group	Dominance	Effect	Topics
Income	High Income	66%	21%	*Mainstream*, *Hurricane* and *Transit*

Category	Group	Dominance	Effect	Topics
Income	Upper-Middle Income	39%	16%	*Mainstream*, *Mountain* and *Hurricane*
Income	Lower-Middle Income	50%	17%	*Mainstream*, *Office* and *Cyclone*
Income	Low Income	52%	34%	*Napa*, *Mainstream* and *Rcp*
Region	Europe & Central Asia	69%	46%	*Mountain*, *Mainstream* and *Transit*
Region	Latin America & Caribbean	65%	22%	*Mainstream*, *Transit* and *Hurricane*
Region	South Asia	67%	42%	*Office*, *Mainstream* and *Cyclone*
Region	Sub-Saharan Africa	52%	27%	*Mainstream*, *Napa* and *Office*
Region	East Asia & Pacific	52%	18%	*Mainstream*, *Cyclone* and *Hurricane*
Region	MENA, Afghanistan & Pakistan	35%	27%	*Rcp*, *Mainstream* and *Transit*
Geography	Small Island Developing States	68%	21%	*Mainstream*, *Hurricane* and *Cyclone*
Geography	Landlocked Developing Countries	46%	17%	*Mainstream*, *Office* and *Napa*
Geography	Other	24%	14%	*Mainstream*, *Transit* and *Napa*
Time	Early (2015-2018)	36%	6%	*Mainstream*, *Hurricane* and *Office*
Time	Middle (2019-2021)	43%	11%	*Mainstream*, *Napa* and *Hurricane*
Time	Late (2022-2025)	25%	10%	*Mainstream*, *Cyclone* and *Office*

Table 5.2: Discourse patterns by category membership showing dominance and effect sizes

Chapter 6

Discussion

This chapter discusses the research questions in light of the conceptual framework and findings. The first section discusses what the NAPs are about, and equally interesting, what they are not, by analyzing the topics and their terms. The second section discusses where these plans come from, examining who might actually write these documents and under what constraints. The third section reviews the impacts on climate justice, exploring whether adaptation as currently structured can deliver on its promises. The last section discusses what this might mean for climate adaptation, and who decides the climate adaptation futures.

The nexus framework helps explain how convergence might enable coordination and learning. The regime framework reveals how standardization might eliminate alternatives and maintain dependencies. Together, they suggest adaptation operates through multiple, sometimes contradictory dynamics that require careful analysis to understand.

6.1 What are the NAPs about?

> This section examines what the topic model reveals about NAP content, exploring both the dominance of technical governance language and the systematic absence of alternative epistemologies. It considers whether standardization represents necessary coordination or problematic homogenization.

The structural topic model shows a pattern: *Mainstream* (Topic 8) comprises 31% of all discourse, dwarfing other topics. What might this dominance tell us? The terminology suggests the planning of planning, the documents are concerned with procedures, frameworks, and institutional arrangements. The prevalence of terms like *mainstream* could indicate how climate considerations are being absorbed into existing structures, while words like *learn* and *progress* might point toward incremental improvement within fundamentally unchanged systems. This

concentration is also striking, as the scholarship on the NAPs themselves, argue that the process is not standardized enough (Mizuno and Okano 2024).

Looking beyond *Mainstream* (Topic 8), other topics group into two groups. One directly institutional, with *Napa* (Topic 1), *Office* (Topic 5), *Transit* (Topic 6) and *Rcp* (Topic 7), and one geographical, with *Cyclone* (Topic 2), *Mountain* (Topic 3), *Hurricane* (Topic 4).

Climate adaptation seems to be a particular problematization where the starting point is already given. These are international plans, authored by states, and this shapes everything that follows. The dominance of government language is not accidental, nor is it the result of ill-will. It seems more to be the default language in these plans. Still, this language also shows what is absent. If vulnerability supposedly drives adaptation needs, where is it? None of the topics have FREX terms like poverty, livelihoods, or inequality. These social issues have not made it into the plans. This might be the result of rendering climate adaptation technical (Li 2007). Society and community is absent from all the topics, except for *Transit* (Topic 6) where indigenous is mentioned, but in the context of transit and task.

This pattern might be an artifact of the modeling, but this pattern repeats itself across tests of more and fewer topics, and on models run on subsets of the data. It is also normal for topics to have overlapping FREX terms, something that we do not see here.

By both problemizing climate adaptation in this way, and rendering the responses technical, one could argue that these reports treat climate adaptation as an anti-politics machine (Ferguson 1994). Instead of dealing with the real vulnerabilities on the ground, the international community and the national governments that write the reports, might avoid these political issues. What is clear, though, is that the bureaucratic reach of the state is being expanded. This is something we will be coming back to below.

It is difficult to say something about simplification from a method that is based on removing information from a corpus. But remembering that argument that simplification is a central feature of governance, the quality of the topics without overlapping terms, hints at a very simplified view of climate adaptation. Despite analyzing 2 030 660 words, we find remarkably limited thematic range, suggesting the simplification happens before computational analysis even begins. This represents might be climate reductionism, where complex socio-ecological realities are reduced to parameters that fit within technical models (Hulme 2011).

If we approach these patterns through the adaptation nexus framework, the results might be read differently. There, this technical language represents something necessary, a common vocabulary enabling crucial coordination across diverse contexts. When countries facing radically different climate challenges nonetheless employ similar planning frameworks, this could facilitate valuable knowledge exchange. By having a shared set of concepts and language, experiences in one context might inform approaches somewhere else.

The adaptation nexus perspective emphasizes integration across sectors and scales as essential for effective climate response. From this view, *Mainstream* (Topic 8)'s dominance might reflect successful institutional learning. Countries have recognized that climate impacts cut across traditional sectoral boundaries, affecting agriculture, water, health, and infrastructure simultaneously. The technical governance language could represent a maturing understanding that adaptation requires comprehensive, coordinated responses rather than piecemeal interventions (WB 2021).

The future orientation climate adaptation is visible in *Mainstream* (Topic 8) with *progress*, *Cyclone* (Topic 2) with *decade*, `topic_7_name` *trend* and of course *Rcp*. The nexus framework might interpret this as evidence of science-policy integration, where countries are successfully incorporating climate projections into planning processes. This is a predictive epistemologies (Inayatullah 1990). These predictions, with their certainty about temperature increases and precipitation changes decades hence, create a particular relationship with time something we will explore more in depth below. The future becomes something to be modeled rather than shaped through present political choices. When explained variance for such distant predictions will inevitably be minimal, why do they dominate? Perhaps because prediction delays politics.

Despite climate change being framed globally as a security threat, there's surprisingly little crisis language about vulnerability or poverty in these plans. When the terms are mentioned in the topics, *Cyclone* (Topic 2) and *Hurricane* (Topic 4), they are done so without any of the governmental terms, but rather ecological, like *mangrove*, or geographical, like *island*. The interpretation of this is not a given. It might be how the terms cluster in the texts, that cyclones are discussed together with these factors, or, in a more critical interpretation, that they are not connected. The plans might be more focused on securing the state from climate change, than the state securing the population (Wæver 1995). If climate change leads to large scale suffering, governments should prepare for that their populations might turn on them.

This absence might be interpreted differently through our two lenses. The regime framework might read this absence as more troubling evidence of an epistemicide, where these specific ways of understanding climate adaptation eliminates the alternatives (Escobar 2018; Santos 2016). From this perspective, the technical language is not innocent, it does not help or compliment, but displaces them. Communities must translate their understanding into technical categories to exist, but in the translation, meaning is lost. The rendering technical isn't just a process but an erasure, what cannot be rendered technical effectively ceases to exist in these frameworks.

The nexus framework might see this as a necessary trade-off. The standardization enables coordination, even if it sacrifices some local specificity. The more work is put into establishing the knowledge, the better it becomes. With the technical language as a lingua franca, local knowledge could be incorporated and dealt with, allowing communities to maintain their own practices alongside the formal

planning.

The presence of *Napa* (Topic 1) with its references to earlier NAPA processes suggests some path dependency. Countries that developed National Adaptation Programmes of Action years ago seem to carry them forward in their new. This continuity might represent valuable institutional memory as countries build on established foundations. Or it might indicate some form of lock-in, where earlier choices constrain current possibilities. It also questions the development of new frameworks, a central part of the plans, if old plans play a large role in the new ones.

Despite finance fundamentally shaping adaptation possibilities, financial terms appear nowhere as distinctive FREX features in any topic. The only hint is *instrument* in *Transit* (Topic 6). This finding could either be the result of the financial terms being so popular that they were sorted out by our above 80% cut-off, being so present that the model cannot see it. This is an issue all the absence-arguments above have. Or, it could be the result of financing not being the central part of the plans. The plans might be about establishing *departments*, *secretariats*, *offices,* and *programmes* that fit into the taxonomies and structures of the other sections. The countries might aim to demonstrate that they are capable of managing the climate funds, in accordance with the *mainstream* views on what it should be used for.

6.2 Where do the plans come from?

> This section investigates who actually writes these plans, examining how regional patterns and income effects suggest complex networks of consultants, institutions, and technical assistance shape what appears as national planning. It explores how authorship relates to authority and legitimacy.

The statistical patterns present a puzzle that challenges the assumption that climate adaptation is purely about adapting to the biophysical effects of climate adaptation. Regional institutional categories show substantially stronger effects (30% than geographical categories (17%, with income falling between these poles 22%. The finding suggests that World Bank regional groupings, supposedly administrative categories created for development lending, predict adaptation discourse better than shared geographies or economic development.

Within the regional groups, two groups stand out in particular, Europe & Central Asia (ECA) and South Asia (SA). They score the highest both for the dominance of topics (69% and 67%) and in the estimated effect of the group (46% and 42%). Despite these similarities, they only have one topic in common, *Mainstream* (Topic 8).

The adaptation nexus successful knowledge transfer and productive coordination in regional bodies. Regional development banks and other international cooper-

ation platforms could be functioning as intended. By creating communities of practice where countries learn from neighbors facing comparable challenges within similar institutional contexts, they enable knowledge sharing and development. The Asian Development Bank, African Development Bank, Inter-American Development Bank, and other regional bodies have developed sophisticated climate programs. Following from the last section, they have an established lingua franca for dissimulation of knowledge.

Europe and Central Asia's convergence could exemplify this process working effectively. While the none of the countries in the group are members of the EU, they three of the six countries in the group (Albania, Serbia, Moldova) are candidates for membership. The European Union's climate governance architecture is extensive, with its Adaptation Strategy, technical guidance, and funding mechanisms, and promote beneficial standardization and integration across the EU. This is a central part of the EU's mission (Wæver 1995).

Multiple coordination layers, from EU-wide policies to sub-regional initiatives, could enable countries to share learning while adapting frameworks to specific contexts. The top topics, "`europe_central_asia_topics`" emphasize both institutional and geographical themes, although *Mountain* (Topic 3) is the most institutional of the geographical topics. This coordination comes at an obvious cost, with the group having the highest estimated effect.

South Asia's convergence (67% dominance, 42% effect) is harder to explain through formal institutions. South Asia has no central union. The top topics, "*Office*, *Mainstream* and *Cyclone*," suggest a different mechanism at work. The prominence of *Office* (Topic 5) points toward some shared form of administration. As half of the countries in the category (Bangladesh and Sri Lanka) are former British colonies.

The presence of *Cyclone* (Topic 2) reflects genuine shared vulnerabilities—monsoons, cyclones, and glacial melt—but these geographical realities get filtered through common institutional templates. Interestingly, South Asia, and especially Bangladesh, is where both Paprocki (2018) and Dewan (2022) has done their work on climate adaptation. That this region has one of the highest estimated effects is therefore not surprising.

There are six countries in the Europe and Central Asia group, and four in South Asia, making it possible to argue that the concentration we are seeing is an artifact of the group size. While effect sizes represent the strength of group membership's influence on topic prevalence regardless of group size, statistical significance testing accounts for sample size differences. The significant effects found even in smaller regional groups suggest that the findings are more than just than statistical artifacts.

The finding that time groups are the least important show that the knowledge might not evolve much. While there is a small pattern that suggest that the estimated effect of time group is getting weaker over time, this might also be an artifact of what countries submit when, since they only submit once. Early

submissions might come from countries with existing capacity or those prioritizing climate diplomacy. Middle period submissions might represent countries responding to increased finance availability and technical support. Recent submissions might include those who waited to learn from others' experiences or who needed more time to develop institutional readiness.

There are two ways of understanding these findings, they are either the plans attempting to fit into a framework, a taxonomy, or the product of an epistemic community (Haas 1992). The first explaination is focused on the plan itself, and the second is on the authorship of the plans.

The central part of the financialization of aid is the finance gap, and for climate adaptation, the adaptation gap (UNEP 2024). The plans are needed to qualify for climate adaptation funds, and thus must conform to a language, and present issues in a way, that donor can review and report. The finance gap between what countries can provide themselves and what donors provide, creates pressure for conformity.

When countries know that certain elements, be they vulnerability assessments, prioritization frameworks or monitoring systems, are expected for funding access, these elements must appear, regardless of relevance. With the focus on blended finance, and other instruments for mobilizing private capital, the financialization of adaptation also means transforming climate response into investment opportunities, requiring countries to present their vulnerabilities in terms legible to financial institutions.

The patterns reveal deeper dynamics of how **coordination** might be counterproductive. Making rigid assumptions about distant futures, as seen in the dominance of predictive frameworks, represents coordination for its own sake. As those working with societal planning in 2000 could never have predicted remote work and Teams meetings, current plans' certainty about 2050 seems misplaced. Perhaps the movement toward longer, larger plans should be reversed? Better systems are often simply better designed, not more expensive or more comprehensive.

The plans emerge as the product of many different processes, that the national authorship might obscure. The reports are normally prepared by an external consultant and the approved by the most relevant Ministry, and some are voted through the legislative body as well (Mizuno and Okano 2024; WB and RMI 2023). The epistemic community is not just sharing knowledge, but also serves as the authors community. This community has a cost of entry, possibly a degree in a related science, and a network of professionals (Mosse 2011). Being a part of this community is central, both for the job and the salary from it, but also for recognition.

These regional convergences ultimately suggest the "politics of the reasonable". Either fearing exclusion from the community, or the termination of a contract, by wearing too far from the accepted form of knowledge, the individuals involved

in the production of the plan might adapt. By playing it safe, being inside what is deemed reasonable, the author takes on less risk (Mosse 2011).

This form of brokerage is inherent in most knowledge work, it is a common populist critique of governments, but there might be longer between the epistemic community and the people impacted by the work in developing contexts. The taxonomies are developed in the North, and implemented in the South.

The concept of epistemic community might also be helpful to understand the pluriverse-critiques (Escobar 2018). Most communities, perhaps all, are based on some common understanding of the world and how it presents, on a common epistemology. So, by elevating the epistemological community of development professionals and academics, of which this thesis is a part, one might also elevate one community above the other (Santos 2016; Escobar 2018). This is something to be discussed in the next section.

The nexus framework would emphasize how convergence enables comparison, aggregation, and knowledge transfer. Common frameworks allow the Green Climate Fund to assess proposals, enable countries to learn from each other, and facilitate technical support. Without some standardization, international cooperation might become impossible, or the process become disorganized and uneven.

The regime framework would counter that this standardization comes at a cost. When epistemic communities become too coherent, when coordination becomes conformity, the capacity for innovation and appropriate responses disappears. The question isn't whether to have epistemic communities, but who will decide.

6.3 Is This Justice?

> This section explores what the patterns mean for climate justice, examining whether adaptation's technical framing transforms political questions into bureaucratic processes. It considers how the portfolio approach to climate action might enable problematic substitutions between mitigation, adaptation, and loss and damage.

6.3.1 Development redux

As climate adaptation is becoming the main problematic in development, it is important to establish whether or not it is actually different from development. The patterns found in the structural topic model suggest that adaptation is development redux. The dominance of mainstream planning discourse at 31%, the stronger influence of regional institutional categories (30%) compared to geographical vulnerabilities (17%), and the systematic relationship between income and discourse autonomy all point to adaptation functioning through existing development apparatus, rather than changing it.

If adaptation is transforming political questions about responsibility and resources into technical problems requiring expert management, it might mirror what development did before it (Ferguson 1994; Escobar 1995). The adaptation frontier, could become fixed through planning frameworks that predetermine what adaptation can be.

If adaptation operates as development redux, if it colonizes futures while maintaining dependencies, if it depoliticizes while securitizing, this could fundamentally undermine the portfolio approach to climate governance. The assumption that adaptation investments can compensate for mitigation shortfalls becomes problematic if adaptation reproduces rather than reduces vulnerabilities.

The portfolio assumes fungibility: that adaptation funding can substitute for emission reductions, that resilience building can offset continued harm, that technical assistance can replace resource transfer. But if adaptation operates as a regime that maintains rather than transforms vulnerability, these substitutions might merely displace rather than address injustice.

The convergence patterns suggest the three-pillar architecture might function not to achieve climate justice but to manage its impossibility within existing structures. Mitigation could proceed too slowly because it threatens accumulation. Adaptation might become development redux because transformation would require redistributing power. Loss and damage could remain an "empty pillar" (Janzen et al. 2021) because accepting liability would demand reparations.

Through the portfolio lens, this appears as unfortunate implementation challenges requiring better coordination, more finance, improved planning. Through the development critique lens, it might reveal the architecture doing what it was designed to do—creating space for different actors to pursue preferred approaches without confronting fundamental disagreements (Hall and Persson 2018), maintaining activity and expertise without requiring difficult political decisions.

The temporal dimensions potentially add another layer to this critique. The securitization that demands urgent action might prevent the deliberation necessary for just responses. The anticipatory ruination that justifies intervention might create permanent dependency. The colonization of futures might foreclose transformative possibilities. Together, these temporal dynamics could ensure that adaptation planning manages rather than challenges the structures producing vulnerability.

6.3.2 Trade-off

The extraordinary convergence around mainstream planning discourse (31% of the corpus), combined with regional effects (30%) overshadowing geographical vulnerabilities (17%), illuminates a fundamental tension in climate adaptation. While climate impacts manifest locally, the apparatus for responding operates through nation-states and international institutions. This scalar mismatch

reveals how adaptation planning might invert the environmental maxim "think global, act local" into something more like "think local, act global."

The three-pillar architecture, as described in Chapter 2, creates what could be understood as a portfolio approach to climate action. This structure emerged through decades of negotiation, with each pillar representing different political compromises. In principle, the pillars address distinct aspects requiring integrated response. In practice, they become substitutable options in a portfolio approach to climate action. High-emitting countries prefer funding adaptation over reducing emissions, in a process that effectively pays to maintain fossil fuel consumption. The framing facilitates trade-offs, with cost-benefit analyses that compares mitigation costs against adaptation costs and loss and damage (Eriksen et al. 2021). Integrated assessment models optimize resource allocation across response options. The apparently technical choice of discount rates potentially determines whose future counts in present decisions (Wallimann-Helmer 2023).

A harm-reduction approach would understand the pillars differently—as non-substitutable obligations addressing different injustices. Mitigation addresses the injustice of continued emissions that harm others. Adaptation addresses the injustice of unequal vulnerability to unavoidable impacts. Loss and damage addresses the injustice of irreversible losses imposed on those least responsible (Vanhala and Hestbaek 2016; E. Roberts and Huq 2015). From this perspective, funding adaptation cannot compensate for insufficient mitigation, just as loss and damage payments cannot justify continued harm.

From an adaptation nexus perspective, this portfolio approach is a sophisticated integration that maximizes efficiency across climate responses. The ability to optimize across pillars could enable countries to identify synergies, avoid redundancies, and achieve multiple objectives through coordinated action. Substitutability is flexibility, allowing response strategies tailored to specific national circumstances and comparative advantages.

Through an adaptation regime lens, the portfolio approach might function as a mechanism for avoiding fundamental change. The ability to substitute adaptation for mitigation could allow continued accumulation while managing its consequences. The promise of loss and damage might deflect demands for immediate emission reductions. The entire architecture could maintain the appearance of comprehensive response while protecting the structures that produce vulnerability.

6.3.3 Justice

The justice implications of the different approaches are unclear. The questions "What is climate adaptation?" and "Who decides?" cannot be separated. Definition and decision are intertwined processes through which certain actors establish what counts as legitimate response to climate change. The patterns in National Adaptation Plans suggest these processes might systematically

privilege state institutions and international organizations while marginalizing the communities experiencing climate impacts.

The dominance of technical governance language suggests adaptation has been rendered into what Ferguson (1994) would recognize as an anti-political domain. The stronger influence of regional institutions over geographical realities indicates that administrative power might matter more than material vulnerabilities. The systematic relationship between economic status and discursive freedom reveals how poverty might correlate with epistemologicial subordination.

Through the adaptation nexus lens, this architecture could represent necessary coordination for managing complex, multi-scalar challenges. National governments aggregate local needs, coordinate across sectors, ensure accountability to both citizens and donors. The convergence around planning procedures might reflect successful adoption of proven frameworks that enable learning across contexts. Technical standardization could facilitate the comparison, aggregation, and transfer of knowledge essential for effective response.

Yet through the adaptation regime lens, this same architecture might reproduce and intensify existing power asymmetries. The state-centric structure privileges certain actors while excluding others. The technical requirements eliminate non-conforming knowledge. The financial dependencies discipline countries into particular pathways. Together, these elements might ensure that adaptation reinforces rather than transforms the structures producing vulnerability.

Knowledge production

The temporal patterns in the NAPs reveal another dimension of control. Planning horizons extending to 2050 or 2100 represent claims on the future that might lock in current arrangements. When states submit long-term adaptation plans, they potentially project existing borders, institutions, and power relations forward despite the transformative pressures climate change could bring.

Climate models provide apparent scientific justification for these extended timeframes, yet they might also naturalize particular assumptions. Future scenarios could embed current development trajectories, governance structures, and economic systems as background conditions rather than variables that might change. The technical apparatus of prediction potentially makes certain futures appear inevitable while rendering others unthinkable.

As Inayatullah (1990) argues, the ability to imagine different futures is itself a form of power. When adaptation planning extends current arrangements indefinitely, it might foreclose alternative pathways that communities could develop through their own responses. The convergence around technical planning potentially represents not just epistemological narrowing but temporal colonization—determining not just how adaptation is understood now but how it can be imagined in the future.

More concretely, adaptation investments might create path dependencies that be-

come self-fulfilling. Large-scale infrastructure, institutional systems, and capacity building programs all assume continuity of current arrangements. Once established, these create constituencies for their continuation, sunk costs that resist abandonment, and frameworks that shape how future problems are understood.

The systematic relationship between economic power and discourse patterns reveals differentiated control over adaptation futures. Low-income countries showing the highest effect size (34%) compared to upper-middle income countries (16%) suggests that poverty correlates with discourse conformity. Wealthier nations might maintain greater autonomy in defining their adaptation pathways, while poorer countries must adopt standardized approaches to access resources.

This creates what might be understood as epistemological inequality. Those facing the most severe climate impacts have the least freedom to define what adaptation means for them. They must translate their understanding into technical categories, perform vulnerability through prescribed frameworks, and articulate needs in languages that donors recognize. Meanwhile, those most insulated from climate impacts—through geography, wealth, or technological capacity—shape the frameworks through which adaptation is understood globally.

The distinction between embedded and distant knowledge proves crucial here. Those living in particular places develop understanding through sustained engagement with specific environments. This embedded knowledge captures relationships, patterns, and changes that external assessment might not perceive. By contrast, the distant knowledge of technical planning, however sophisticated its models and frameworks, remains abstracted from the specificities that matter for effective response.

The systematic privileging of distant over embedded knowledge in adaptation planning potentially ensures that those least familiar with local conditions shape responses to local impacts. International consultants design vulnerability assessments. Regional banks determine funding priorities. UN agencies establish planning frameworks. Meanwhile, communities with generations of experience managing environmental variability must translate their knowledge into forms these distant actors recognize or risk exclusion from adaptation resources.

Financing

The architecture of global climate governance positions nation-states as essential intermediaries between local climate impacts and international resources. Communities cannot submit their own adaptation plans to the UNFCCC. They cannot directly access climate finance. Every adaptation initiative must pass through national governments that may or may not represent community interests.

This arrangement might serve multiple functions. For the nexus perspective, states provide necessary coordination, aggregation, and accountability. They can mobilize resources at scale, enforce regulations across territories, and represent populations in international negotiations. The near-universal inclusion of

mainstream planning discourse might indicate successful institutional learning about effective governance arrangements.

For the regime perspective, however, this state-centrism might operate as a mechanism of control. Governing local ecosystems is inherently an embedded process, requiring intimate knowledge of specific places, seasons, and relationships. This embedded governance cannot easily be managed from distant capitals through standardized procedures. When rural communities must articulate needs through urban bureaucracies, when indigenous peoples must request support from governments that have historically marginalized them, when ethnic minorities must work through institutions that exclude them, the state becomes less coordinator than gatekeeper.

The patterns suggest that contested governments might use adaptation planning to strengthen their positions rather than address vulnerability. The technical nature of adaptation planning could allow governments to perform responsiveness while avoiding questions about representation or rights. Climate adaptation potentially becomes another arena where control over the state apparatus matters more than effectiveness in addressing climate impacts.

Climate finance might operate similarly to structural adjustment—creating debt obligations, requiring policy reforms, and potentially locking countries into particular development pathways. Countries must restructure their economies to become "climate-resilient," adopt new governance frameworks to access funds, and accept continuous monitoring to maintain support. The Green Climate Fund's readiness programs, the World Bank's climate investment funds, bilateral climate finance—all potentially require institutional changes that could reshape state capacity and sovereignty.

This financial architecture might create new forms of dependency masked as climate cooperation. Countries could become dependent on technical assistance to produce bankable projects, on international consultants to navigate funding mechanisms, on donor priorities to define adaptation needs. The promise of climate finance—now reaching hundreds of billions as noted in Chapter 2—potentially generates its own political economy where access to resources requires performing vulnerability in prescribed ways.

The state-centric structure of this architecture assumes that national governments can effectively represent diverse interests within their borders. Yet as noted in the broader climate governance literature, authoritarian regimes may prioritize regime stability over citizen welfare, while contested governments might use adaptation planning to strengthen their positions rather than address vulnerability. The technical nature of adaptation planning allows governments to perform responsiveness while avoiding questions about representation or rights.

Communities experiencing climate impacts might face what can be understood as triple exposure. They face direct climate impacts—droughts, floods, storms intensifying due to global emissions. They face structural vulnerabilities—poverty, marginalization, dispossession that shape their capacity to respond. Now they

might face adaptation interventions that create new risks—displacement for infrastructure projects, debt from climate-smart agriculture, exclusion from ecosystem restoration areas.

Yet this urgency potentially coexists with what (Paprocki 2018) calls anticipatory ruination—a condition where the future is colonized by dystopian imaginaries that justify present interventions. NAPs project futures of increasing vulnerability, cascading risks, and potential catastrophe. These projections, while scientifically grounded, could create a permanently temporary state where countries are always preparing for impacts, always one planning cycle away from resilience, always requiring one more intervention to achieve security.

The result might be that adaptation planning, despite its forward-looking rhetoric, actually prevents the kind of reimagining that navigating climate change might require.

The combination of securitized urgency and anticipatory ruination could create a temporal trap. Countries must act immediately based on dystopian projections, using standardized frameworks, without time to imagine alternatives. The emergency never ends because the threat never fully materializes—it always remains in the future, requiring constant preparation. This permanent emergency might serve to discipline countries into particular forms of planning while foreclosing possibilities for different relationships with climate, environment, and development.

Implementation

6.3.4 Goals of adaptation

Perhaps the fundamental tension revealed by these patterns is between two visions of adaptation. The nexus approach seeks to manage climate impacts within existing systems through better planning, stronger institutions, and increased resources. It assumes that current structures can be reformed, capacities can be built, and coordination can be improved to deliver effective adaptation.

The regime analysis suggests something different: that these very systems might produce vulnerability and prevent the transformations adaptation could require. From this perspective, technical planning doesn't enable adaptation but constrains it within frameworks that maintain existing power relations. Institutional strengthening doesn't build adaptive capacity but extends control. Financial flows don't reduce vulnerability but create new dependencies.

The patterns in National Adaptation Plans cannot definitively resolve this tension, but they raise crucial questions. Can genuine adaptation emerge within architectures that privilege states over communities, technical knowledge over embedded understanding, and standardization over diversity? Do current frameworks enable the transformations that climate change might require, or do they foreclose them?

What seems clear from the convergence patterns is that these questions cannot be answered through technical analysis alone. They require political engagement with fundamental issues of power, knowledge, and representation. The future of adaptation depends not just on planning procedures and funding mechanisms but on whose knowledge counts and who gets to decide what adaptation means.

The extraordinary similarity across radically different contexts—the dominance of technical governance, the influence of regional institutions, the correlation between poverty and conformity—suggests that current approaches might be managing the consequences of emissions while maintaining the structures that created the crisis. Whether this represents necessary coordination or problematic control, productive standardization or epistemological violence, remains an open question that affected communities must be central in answering. For financing, the story might be more difficult

True repoliticization would allow fundamental disagreements about causes, responsibilities, and futures to be debated and contested. Social movements and indigenous peoples challenge these technocratic approaches with claims for climate justice, asserting traditional knowledge and practices as legitimate adaptation strategies (Carter 2020). Yet the patterns suggest an absence of this politics but an abundance of policy. Countries generate extensive plans, detailed frameworks, and sophisticated assessments while the underlying questions about power, alternatives, and transformation remain outside the bounds of discussion. The result might be busy-ness without contestation, activity without alternatives.

The convergence patterns suggest current frameworks might be structurally incapable of delivering the diversity of responses that effective adaptation could require. When all countries must speak the same institutional language, when all plans must follow similar structures, when all assessments must use comparable methodologies, the variety of ways to understand and respond to environmental change potentially disappears.

Yet recognizing these patterns also reveals their contingency. If convergence results from institutional arrangements rather than natural necessity, then different arrangements could produce different outcomes. Direct access mechanisms might enable communities to pursue locally-determined responses without state mediation. Pluralistic knowledge systems could recognize different ways of understanding environmental change as equally valid. Adaptive governance might enable institutional transformation rather than extending current arrangements.

These alternatives remain marginal not necessarily because they're ineffective but potentially because they threaten existing structures. They would reduce state gatekeeping, undermine technical authority, and prevent institutional lock-in. They would require recognizing knowledge that cannot be standardized, governance that doesn't follow state forms, and futures that diverge from projected pathways.

Chapter 7

Conclusion

As Chapter 2 demonstrated, the UNFCCC architecture creates a framework where adaptation, mitigation, and loss and damage potentially can substitute for each other, rather than being necessary compliments. This portfolio approach means that wealthy nations can fund adaptation projects instead of reducing their own emissions, while developing countries would have to reshape their entire societies through comprehensive planning processes to access climate finance.

The chapter showed how NAPs emerged from this architecture not as neutral planning tools but as prerequisites for funding, shaped by institutional requirements. This may explain why the plans show such remarkable convergence around technical topics rather than the diverse responses to diverse vulnerabilities one expects. This context helps understanding the patterns in the empirical analysis, that countries speak the language of institutional procedures not only because they are the right ones, but also because this is the language they have to use.

The conceptual framework developed in Chapter 3 provides concepts to think with when analyzing the convergence patterns found in the NAPs. The institutional approach would see the dominance of technical topics as successful coordination, countries learning from each other and adopting proven frameworks. The critical approach suggests something different, that countries must adopt particular languages and frameworks not because they work, but because they unlock resources. The adaptation nexus and adaptation regime concepts helped frame whether NAPs represent technical solutions to climate challenges or mechanisms that maintain dependencies while appearing to address vulnerability.

The methods presented in Chapter 4 provided tools for quantifying the content across the NAPs. These computational methods made the convergence across all categories visible. This suggests that the constraints come from the planning process itself rather than through any explicit requirement.

The findings presented in Chapter 5 hints at what the theoretical framework argues, adaptation discourse shows high centralization around technical topics regardless, with the *Mainstream* (Topic 8) dominating the corpus with 31% of the content. For the groups, the regional effect size of 30%, nearly double that of geographic vulnerability, hints that regional institutions are more important than any other metric. The inverse relationship between income and discourse autonomy, with low-income countries showing the highest effect sizes of the income groups, at 34%, suggests that financial dependency constrains how poor countries can imagine climate adaptation. These patterns provide empirical backing for the theoretical concerns raised in Chapter 3 about epistemological convergence in climate governance.

As the discussion in Chapter 6 argued, the patterns in NAPs suggest adaptation operates through multiple, sometimes contradictory dynamics. The dominance of technical governance language indicates that political questions have been rendered into technical processes. The regional effects exceeding geographical ones reveals how institutional networks constrain discourse more than climate realities. The relationship between poverty and conformity confirms that financial dependency shapes epistemological possibilities. These dynamics suggest adaptation functions as what Ferguson (1994) called an 'anti-politics machine', appearing to address climate vulnerability while, behind the backs of the planners, maintaining the structures that produce it. The question is not whether countries can adapt to climate change, but whether they can do so on their own terms.

7.1 The COP-out(come)

The title of this thesis captures a double meaning the analysis confirms. Climate adaptation represents both a literal "Conference of Parties outcome"—the institutional response to demands for climate justice—and a "cop-out" in the colloquial sense: an evasion of responsibility. While Southern countries reshape their societies through adaptation planning, Northern countries continue the emissions that drive climate change.

This portfolio approach to climate governance embeds a fundamental asymmetry of risk. Mitigation directly reduces harm at source—a risk-free intervention that prevents damage. Adaptation, however, carries inherent risks of maladaptation, where interventions designed to reduce vulnerability may actually increase it. Seawalls accelerate erosion elsewhere. Irrigation systems deplete aquifers. Resettlement programs destroy social networks. Meanwhile, loss and damage mechanisms remain paralyzed by liability disputes that wealthy nations refuse to resolve. The only genuinely risk-free approach to climate governance would be upstream: preventing emissions rather than managing impacts.

Yet the current architecture enables precisely the opposite. It treats inherently risky downstream interventions as substitutes for risk-free upstream prevention.

Every dollar spent on adaptation planning in vulnerable countries is a dollar not spent on industrial transformation in the countries driving emissions. The $300 billion pledged at COP29 for climate finance by 2035 continues this pattern—another decade of experimenting with adaptation in the world's most vulnerable places while emissions continue unabated.

The homogeneity revealed in NAPs, discourse centralization—shows this is not climate adaptation but institutional adaptation. Countries adapt not to changing rainfall or rising seas but to donor requirements and funding criteria. They develop capacity not to navigate environmental change but to navigate international bureaucracies. The patterns prove adaptation operates as epistemicide, systematically eliminating alternative ways of knowing and responding to environmental change while imposing singular frameworks that foreclose alternatives.

The question is not whether wealthy countries will provide adaptation finance—they already are and will provide more. The question is whether this finance will continue operating as a cop-out, allowing the North to avoid fundamental changes while appearing to help the South. Real transformation requires abandoning the pretense that Northern institutions can manage Southern adaptation. It requires recognizing that the most effective adaptation support the North can provide is to stop driving the climate change that makes adaptation necessary. Until then, adaptation remains what this analysis reveals it to be: not climate justice but its most sophisticated evasion.

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