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Nationally Determined, Publicly Aligned?

Citizen Climate Policy Priorities and Sectoral Priority

Congruence in G20 NDCs

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Authorship declaration

This thesis was written by the author. Artificial intelligence tools were used in two clearly bounded ways during the research process, both limited to the technical classification workflow and neither extending to the substantive analysis, interpretation or writing of the findings.

First, ClimateBERT, specifically the `climatebert/distilroberta-base-climate-f` model (Webersinke et al., 2022), was used as the backbone of a supervised text classification process to assign NDC sentences to the 12 policy categories described in the methodology and appendix. The model outputs were treated as provisional classifications. All labels used in the final analysis were manually reviewed, confirmed or reassigned against the category definitions before being included in the calculation of NDC prioritisation scores.

Second, GitHub Copilot was used as a coding assistant to support the writing, running and debugging of Python code used to prepare the NDC text and execute the ClimateBERT classification workflow. Its use was limited to software implementation and model execution. It was not used to design the classification framework, conduct the sectoral priority congruence analysis, interpret the results, formulate arguments or write the thesis.

All analytical decisions, including the construction of the congruence measure, the application of the Substantive Alignment Typology, the contextual comparison and the interpretation of findings, were carried out and verified by the author. The author takes full responsibility for the content of this thesis.

This thesis does not contain AI-generated text and has been written by me only. The inputs from the other authors are clearly demarcated as a quote or followed by an in-text citation. Grammarly was used to detect grammar, spelling and punctuation mistakes.

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Given the limited availability of comparable data on citizen climate priorities, I also acknowledge the People's Climate Vote and the organisations and researchers involved in producing it.

Finally, I acknowledge all those already suffering from climate change, and all those who will continue to bear its impacts. This thesis is concerned with citizen priorities, but behind these priorities are people whose lives, livelihoods, homes, health, and futures are shaped by climate decisions often made far from them. I pay respect to the communities, citizens, workers, youth, Indigenous Peoples, civil society organisations, and climate-affected groups who continue to demand that climate action respond to lived realities as well as institutional targets. Although this thesis works with aggregate data and policy documents, it is written in recognition of the importance of making these voices heard in national climate commitments, and of the courage, knowledge, and persistence of those who continue to insist on more just, inclusive, and responsive climate governance.

Abstract

Nationally Determined Contributions are the central instruments through which the Paris Agreement translates global climate goals into national commitments, yet their nationally determined character establishes who authors them, not whose priorities they express. This thesis addresses a gap in climate governance scholarship by examining whether citizen climate policy priorities are substantively reflected in the thematic and sectoral content of Nationally Determined Contributions. Existing research largely treats public opinion as a driver of aggregate ambition, giving limited attention to whether citizens' sectoral priorities appear in national climate commitments. Therefore, this thesis asks: *How do citizen climate policy priorities correspond to the priorities expressed in the Nationally Determined Contributions of 13 Group of Twenty countries, and how does sectoral priority congruence vary across countries and policy domains?* The study contributes conceptually by developing sectoral priority congruence, extending substantive representation and policy congruence theory to NDCs as hybrid climate governance instruments. It uses a descriptive comparative design, drawing on the People's Climate Vote 2021 and model-assisted content analysis of Nationally Determined Contributions submitted between 2020 and 2023. Findings show that correspondence is partial, structured and selective. Citizen priorities are most consistently reflected in conservation, renewable energy and climate-friendly farming, while tangible delivery and protection domains, especially clean transport, resilient infrastructure and green jobs, are widely under-reflected despite strong public support. Accountability and governance-oriented domains receive more textual attention than citizen priorities would suggest. Country-level conditions, including consultation, democratic quality, climate vulnerability and fossil fuel dependence, provide limited explanatory leverage, while NDC breadth and sectoral specificity are the clearest correlates of measured congruence. Thus, alignment is shaped less by the overall strength of citizen climate demand than by how national climate commitments organise, distribute and make sectoral priorities visible, indicating that national ownership cannot be equated with substantive public alignment.

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List of acronyms and abbreviations

ACE	Action for Climate Empowerment
ClimateBERT	Climate-specific Bidirectional Encoder Representations from Transformers model
CMA	Conference of the Parties serving as the meeting of the Parties to the Paris Agreement
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
COP	Conference of the Parties
CP	Conference of the Parties
CSO	Civil society organisation
ECLAC	Economic Commission for Latin America and the Caribbean
G20	Group of Twenty
GDP	Gross domestic product
GHG	Greenhouse gas
GtCO ₂ e	Gigatonnes of carbon dioxide equivalent
ICCPR	International Covenant on Civil and Political Rights
IEA	International Energy Agency
N/A	Not applicable
NAP	National Adaptation Plan
NDC	Nationally Determined Contribution
OECD	Organisation for Economic Co-operation and Development
OHCHR	Office of the United Nations High Commissioner for Human Rights
p.p.	Percentage points
RQ	Research question
SD	Standard deviation
SDG	Sustainable Development Goal
SQ	Sub-question
UDHR	Universal Declaration of Human Rights
UfU	Unabhängiges Institut für Umweltfragen
UN	United Nations
UNDP	United Nations Development Programme
UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNGA	United Nations General Assembly
UNU	United Nations University
V-Dem	Varieties of Democracy

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1 Introduction

“They might be written by governments, but climate action is in the hands of everyday citizens and advocates, too. By demanding bold plans, pressing for renewable energy, and phasing out fossil fuels for good, we can hold leaders accountable to keep people — not polluters — their priority. “

- Victoria MacKinnon in Global Citizen (2025)

1.1 Problem statement

The 2015 Paris Agreement established a global framework for limiting warming to well below 2°C, preferably 1.5°C, while strengthening countries’ capacity to adapt to climate change (UNFCCC, 2015a). Its central implementation instruments are Nationally Determined Contributions (NDCs), through which global climate objectives are translated into national mitigation and adaptation commitments (ibid.; Hsu et al., 2020; Röser et al., 2020; Dolinga et al., 2024). Under the Agreement’s 5-year ratchet mechanism, its 196 Parties must submit and periodically update commitments specifying how they intend to reduce emissions, adapt to climate change, and finance climate action, with each successive contribution expected to reflect their “highest possible ambition” (UNFCCC, 2015a, Art. 4). Their defining feature is national determination: within a common international framework, each Party defines its own targets, sectoral priorities, and implementation pathways, retaining substantial discretion over how climate action is framed, prioritised, and communicated (Guan and Wang, 2025; Röser et al., 2020; Tørstad et al., 2020). Yet national determination establishes who authors these commitments, not whose priorities they express. NDCs are written by governments, while their social, economic, and distributive consequences are experienced by citizens (Hill and Pruett, 2024; Khan, 2024). National ownership therefore leaves open whose priorities NDC content reflects.

Because climate action distributes costs and benefits unevenly across households, workers, firms, regions and vulnerable groups, citizen priorities provide a meaningful benchmark for assessing the social grounding and representational dimensions of national commitments (ibid.; Briot and Leroy, 2024; Dolinga et al., 2024). Congruence

between NDC content and citizen priorities can strengthen the social legitimacy and practical durability of climate governance, as broad societal support may facilitate implementation and reduce resistance to the distributive and structural reforms associated with climate action (Guan and Wang, 2025; Hill and Pruett, 2024; Hsu et al., 2020; Dolinga et al., 2024; Welsch, 2025). This expectation is reflected in the Paris framework itself, which requires Parties to report on public participation in the planning processes (Hill and Pruett, 2024; OHCHR, 2025; UNFCCC, 2015a). Most parties now report having engaged non-Party stakeholders during recent NDC cycles, signalling a growing formal commitment to inclusive climate governance (UNFCCC, 2025).

However, the formalisation of participation provides limited indication of the extent to which citizens and stakeholders influence the priorities expressed in NDCs. Consultation processes, though increasingly reported, have been criticised for remaining uneven, procedural or tokenistic, frequently amounting to one-way communication in which stakeholder input rarely shapes the final content of NDCs (Briot and Leroy, 2024; Cherry-Virdee and Zagema, 2026; Hill and Pruett, 2024; Khan, 2024; Peterson et al., 2023). Moreover, public concern and demand for action explain little of how ambitious national pledges are once structural and institutional conditions are accounted for (Drummond et al., 2018; Jensen, 2022; Tørstad et al., 2020; Welsch, 2025). Where citizen and governmental priorities have been compared directly, they also appear to diverge. Citizens tend to prioritise concrete policy measures, social co-benefits and distributive considerations, whereas NDCs frequently foreground technical targets, aggregate emissions trajectories and sectoral governance frameworks (Guan and Wang, 2025; Stephenson et al., 2019). Consequently, NDCs may function primarily as technocratic compliance documents oriented towards international signalling, with weaker links to domestic responsiveness, public ownership, durability and implementation (Guan and Wang, 2025; Hill and Pruett, 2024; Welsch, 2025).

1.2 Knowledge gaps

Against this background, existing research on NDCs has largely focused on ambition levels, emissions pathways, institutional capacity and procedural participation, with

comparatively little attention to whether, and how, citizen priorities are substantively reflected in NDC content. Therefore, two gaps remain:

1. Existing scholarship lacks a consolidated framework for conceptualising NDC citizen alignment as a question of substantive representation and policy congruence; and
2. There is limited systematic evidence on whether NDCs' sectoral content corresponds to representative citizen climate policy priorities across countries and policy domains.

1.3 Research questions

This study addresses these gaps by developing a framework for conceptualising NDC–citizen alignment as a form of policy congruence and by empirically examining the alignment between citizen climate policy priorities and the thematic and sectoral content of NDCs across 13 (Group of Twenty) G20 countries. Conceptually, it reconceptualises NDC–citizen alignment as a form of policy congruence situated within the broader standard of substantive representation and develops an interpretive framework that consolidates the conditions associated with variation in congruence across countries and policy domains. Drawing on the People's Climate Vote 2021 dataset and NDCs submitted between 2020 and 2023, the study adopts a comparative approach that descriptively maps (in-)congruence between citizen climate policy priorities and NDC content, and explores how this varies across countries and policy domains. It asks: *How do citizen climate policy priorities correspond to the priorities expressed in the NDCs of 13 G20 countries, and how does sectoral priority congruence vary across countries and policy domains?*

Sub-questions

1. How can NDC-citizen alignment be conceptualised as a form of substantive representation through sectoral priority congruence, and what theoretical expectations can explain variation across countries and policy domains?
2. What are the descriptive patterns of citizen climate policy priorities, NDC sectoral prioritisation and their sectoral priority congruence across 13 G20 countries?

3. Which country-level and policy-domain conditions are associated with higher or lower sectoral priority congruence?

1.4 Focus and scope

This study's focus on sectoral priority congruence between citizen climate policy priorities and G20 NDC content has several implications. First, it foregrounds NDCs because they are the main formal instrument through which countries translate the Paris Agreement into nationally defined strategies. Unlike sector-specific legislation or ad hoc announcements, NDCs are legally anchored, publicly submitted and organised around a five-year enhancement cycle, making them the most consolidated and systematically comparable expression of national priorities and climate ambition (Hsu et al., 2020; Röser et al., 2020; UNFCCC, 2015a). They integrate mitigation, adaptation, finance, sectoral priorities and implementation strategies into a single national commitment while linking climate action to wider economic domains, including budgeting, taxation, industrial policy and investment planning (Guan and Wang, 2025; Hill and Pruett, 2024). Critically, NDCs are not merely diplomatic pledges; they increasingly guide domestic implementation, international finance allocation and assessments of national ambition (ibid.; Wencker and Carlitz, 2024; Dolinga et al., 2024). Thus, NDCs provide a suitable basis for analysing how governments formally articulate and prioritise climate action within the Paris framework.

Second, the study uses citizen climate policy priorities as the benchmark for assessing NDC content because they offer the most direct available indication of domestic social demand for climate action. This choice rests on four grounds. Institutionally, the Paris framework encourages Parties to report on public participation and planning when communicating their NDCs, indicating that commitments should be informed by domestic societal input as well as technical reporting requirements (UNFCCC, 2015a, 2018; OHCHR, 2025). Democratically, citizen priorities provide a benchmark rooted in substantive representation, enabling the study to assess whether national policy reflects the priorities of the populations in whose name it is made (Hill and Pruett, 2024; Khan, 2024). Distributively, NDCs shape sectoral transitions and allocate the costs and benefits of climate action unevenly across social groups and regions, making reflected priorities

a question of procedural and distributive justice (Hill and Pruett, 2024; Briot and Leroy, 2024; Dolinga et al., 2024). Practically, alignment with citizen priorities may support implementation, as broad societal backing can strengthen the durability, feasibility and perceived legitimacy needed for long-term decarbonisation (Hsu et al., 2020; Guan and Wang, 2025; Jensen, 2022).

Third, the study focuses on the G20 because it combines global climate relevance with substantial internal variation. Large-scale survey evidence shows strong public support for climate action across much of the G20, including renewable energy expansion, forest protection, climate-friendly agriculture and investment in public transport (Flynn et al. 2021). Yet it remains unclear whether these priorities are substantively reflected in national NDCs. This gap is especially significant because the G20 accounts for 83% of global emissions and thus strongly shapes the credibility and feasibility of the Paris Agreement's goals (Statistisches Bundesamt, 2025; UNEP, 2025). Domestic climate strategies in these countries influence global mitigation pathways through direct emissions trajectories and through their effects on international ambition, policy diffusion and climate finance norms under the UNFCCC framework (Azeem, 2023; UNFCCC, 2021; IEA, 2023). Moreover, the G20's political, institutional and economic heterogeneity makes it an instructive comparative setting for examining whether, and under what conditions, citizen climate priorities are reflected in national climate strategies (Itsubo et al., 2018; Shah et al., 2025; Schirm, 2013).

This focus also defines the study's boundaries. The thesis does not evaluate NDC implementation, legal enforceability, emissions outcomes or the full range of domestic climate policy. It analyses textual prioritisation in NDCs, not whether countries deliver on their commitments. As such, it does not adjudicate who should own, govern or determine NDC content, nor argue that citizen priorities should override scientific evidence, international obligations, technical feasibility or long-term climate objectives. It also does not assess consultation quality, the representation of specific marginalised groups or the participatory chain through which preferences may enter climate policymaking. Because the study relies on aggregate citizen survey data, it cannot examine individual differences by gender, age, income, region, rurality, Indigenous status or climate

vulnerability. Therefore, the findings should be read as a diagnostic assessment of sectoral priority congruence between representative citizen survey data and formal NDC content, not as a comprehensive evaluation of climate policy responsiveness or participatory climate governance.

1.5 Relevance

This study makes three contributions. Scientifically, it brings literatures on substantive representation and policy congruence into dialogue with climate governance scholarship on NDC ambition and participation, which have rarely engaged one another. It reframes the relationship between citizen climate priorities and NDC content as substantive alignment, rather than treating public opinion only as a potential driver of aggregate ambition. Building on this, it develops an interpretive framework that conceptualises NDC–citizen alignment as sectoral priority congruence and consolidates the institutional, political, economic and exogenous conditions theorised to shape variation across countries and policy domains - conditions previously fragmented across separate research fields. Methodologically, it directly compares nationally representative citizen survey data with the thematic and sectoral content of primary NDC documents, offering a replicable approach for future comparative work as NDC cycles continue. Empirically, it provides a systematic cross-national assessment of congruence across G20 countries, identifying where citizen-supported priorities are reflected, under-reflected or displaced in national climate commitments. Thereby, it responds to calls for closer attention to how NDCs are prepared and grounded, since poorly defined commitments, weak data foundations and limited stakeholder buy-in can reduce the likelihood of successful implementation (Röser et al., 2019).

From an International Development Studies perspective, the study speaks to core concerns around representation, inequality and inclusion in global climate governance. By comparing aggregate citizen priorities with national climate commitments, it assesses whether climate strategies reflect broadly expressed societal demand or diverge from it. Such incongruence may indicate political exclusion or elite-driven policymaking, particularly where unequal power relations, institutional constraints or external influences shape whose priorities enter climate planning, risking reproducing

marginalisation and weakening the social foundations of equitable, resilient and sustainable development. Therefore, the study contributes to debates on inclusive governance by examining whether global climate commitments, translated into national policy documents, substantively reflect domestic societal priorities.

Socially, misalignment has both practical and normative consequences. Policies perceived as detached from public priorities can provoke resistance and erode the sustained societal commitment required for long-term decarbonisation, weakening the implementation that NDCs are meant to support (Jensen, 2022; Guan and Wang, 2025). This is especially consequential in the G20, whose governments shape the global climate trajectory, yet whose scale, economic power and often technocratic policy processes can distance climate planning from the publics who bear its costs. The under-reflection of citizen priorities also raises distributive justice concerns, particularly where the costs of climate action and inaction fall most heavily on groups least responsible for emissions and most exposed to climate impacts (Dolinga et al., 2024; Hill and Pruett, 2024). Identifying where citizen priorities are under-reflected, and which conditions are associated with such incongruence, thus offers civil society, policymakers and researchers an empirical basis for making NDCs more responsive, durable and legitimate (Briot and Leroy, 2024; Guan and Wang, 2025; Jensen, 2022).

1.6 Thesis structure

This thesis proceeds in eight chapters. Following this introduction, Section 2 contextualises the NDC framework by outlining its flexibility, participatory expectations and ambition gaps. Section 3 reviews literature on NDC determinants, participation and policy–public incongruence, before Section 4 develops the theoretical framework of substantive representation and sectoral priority congruence and derives hypotheses on their cross-national and cross-sectoral variation. Section 5 presents the research design, data, operationalisation and alignment measurement strategy. Section 6 presents the descriptive empirical analysis, mapping patterns of alignment and misalignment across the 13 countries and policy domains. Section 7 explores variation in congruence by examining both policy-domain conditions and country-level factors, and Section 8 concludes with the findings, implications, limitations and future research directions.

2 Context: Nationally Determined Contributions in the Paris Agreement

This chapter situates the study within the institutional context of the NDC framework by outlining its flexible design and the resulting variation in NDC ambition, content and implementation (Section 2.1), before examining the participation expectations attached to NDC processes and their limits (Section 2.2).

2.1 The NDC framework: flexibility and variation in ambition, content and implementation

NDCs are multifunctional instruments linking international climate objectives to domestic economic transformation (Hsu et al., 2020; Vogt-Schilb and Hallegatte, 2017). Internationally, they operate as public pledges and voluntary targets to both the global community and domestic citizens (Hill and Pruett, 2024; Welsch, 2025). Domestically, they function as national climate action plans and sectoral roadmaps, translating broad goals into measures across energy, transport and land use (Hill and Pruett, 2024; Hsu et al., 2020; Vogt-Schilb and Hallegatte, 2017). Their preparation can also coordinate agencies, raise political awareness and encourage institutional innovation that reduces ministerial silos (Day et al., 2015; Röser et al., 2020; Ozor et al., 2024a). Furthermore, NDCs can serve as budgeting and resource-mobilisation tools, especially through conditional targets signalling financial and technical needs to donors and development banks (Wencker and Carlitz, 2024). They also provide an authoritative basis for assessing national policy outputs within the five-year ratchet mechanism (Guan and Wang, 2025) and create platforms for stakeholder engagement by formally recognising non-state actors, including cities, businesses and civil society, in climate action (Hsu et al., 2020; Khan, 2024; Ozor et al., 2024a).

The Paris framework deliberately combines mandatory communication with substantial national discretion. UNFCCC (2015) guidance requires NDCs to address mitigation, adaptation, finance, technology, capacity building and transparency, but does not prescribe their relative weight. Therefore, Parties can structure contributions around domestic political priorities, economic circumstances and planning capacities (Guan

and Wang, 2025; Taibi et al., 2020). This marked a shift towards bottom-up climate governance, moving from the more target-prescriptive architecture of the Kyoto Protocol to a country-driven system in which states formulate and communicate their own climate strategies, away from “mandates and simplicity” towards “discretion and vagueness” (Jensen, 2022, Keohane and Oppenheimer, 2016, p. 146, cited in Röser et al., 2019). This “catalytic and facilitative” flexibility secured broad participation by accommodating deep national heterogeneity, including within the G20 (ibid.; Hale, 2016). The group spans high-income, upper-middle-income and large emerging economies; major fossil fuel producers and energy importers; consolidated democracies, hybrid regimes and authoritarian systems; and countries with divergent climate exposure and traditions of public consultation (Luckhurst, 2020; Tejado et al., 2020; Wang et al., 2020).

This flexibility has produced substantial variation in ambition, implementation credibility and content (Hsu et al., 2020; Jensen, 2022; Peterson et al., 2023; Röser et al., 2019; Tørstad et al., 2020). NDC content varies considerably despite a recognisable thematic core. Savin et al. (2025) identify seven thematic groups across NDCs: development, implementation and planning, mitigation targets, policies and technologies, climate impacts, agriculture and ecosystems, and stakeholders, with mitigation targets and emissions accounting consistently prominent. Similarly, Guan and Wang (2025) identify adaptation, mitigation and emissions accounting as dominant themes. Sectorally, energy appears in every NDC, while renewable energy is the most common mitigation measure, followed by agriculture, forestry and land use, transport and waste (UNDP, 2021). This variation is especially marked across country types. High-income Parties, given greater historical responsibility, tend to emphasise quantified mitigation targets while giving less detail on delivery policies (Hsu et al., 2020; Mills-Novoa and Liverman, 2019; Stephenson et al., 2019). Developing countries more often embed NDCs within broader sustainable-development visions that balance mitigation, adaptation and competing development goals, while framing commitments as conditional on international finance and technology transfer (ibid.; Savin et al., 2025).

Thereby, ambition and implementation of this NDC content also vary across countries and submission cycles. Although ambition has increased across successive NDC cycles,

current commitments remain insufficient to place the world on a Paris-compatible pathway, with an estimated warming of around 2.8°C under current policies, 2.5°C under unconditional NDCs and 2.3°C under conditional NDCs (UNEP, 2025¹). Nevertheless, by the September 2025 cut-off, only 7 G20 members had submitted new 2035 NDCs, and none had strengthened their 2030 target (ibid.). Collectively, these new G20 2035 pledges would reduce emissions by around 3.6 GtCO₂e below their 2030 NDC levels (ibid.). Moreover, G20 countries will collectively not meet their own NDC ambitions. For 2030 NDCs, only Russia, India, Indonesia, Turkey, and Australia are on track for their unconditional targets, while Brazil, Canada, the United Kingdom, South Korea, Argentina, Japan and the United States remain off track (Dafnomilis et al., 2025²). These shortfalls are shaped by domestic risks, including low ambition, inconsistent policy mixes, interest-group opposition, limited institutional capacity, and inadequate monitoring and enforcement (Peterson and van Asselt, 2026). The G20 picture is thus highly uneven: some countries are close to meeting self-defined targets, often because those targets remain modest, while several major high-income emitters continue to show clear implementation gaps (ibid.). Collectively, these differences provide the cross-national variation through which this study examines how NDC content is structured across diverse political, economic and institutional contexts.

2.2 The participation expectation in NDC processes

Beyond these substantive components, the Paris framework expects NDCs to be developed participatorily. Parties are encouraged to promote public participation and access to information (UNFCCC, 2015a, Art. 12) and to adopt a participatory approach in adaptation action (idem.: Art. 7(5)). This expectation is most forcefully articulated in the first Global Stocktake, the Paris Agreement's five-year review of collective progress, which frames participation not as procedural formality but as foundational to legitimate climate action, stating that "sustainable and just solutions to the climate crisis must be founded on meaningful and effective social dialogue and participation of all stakeholders, including Indigenous Peoples, local communities and governments,

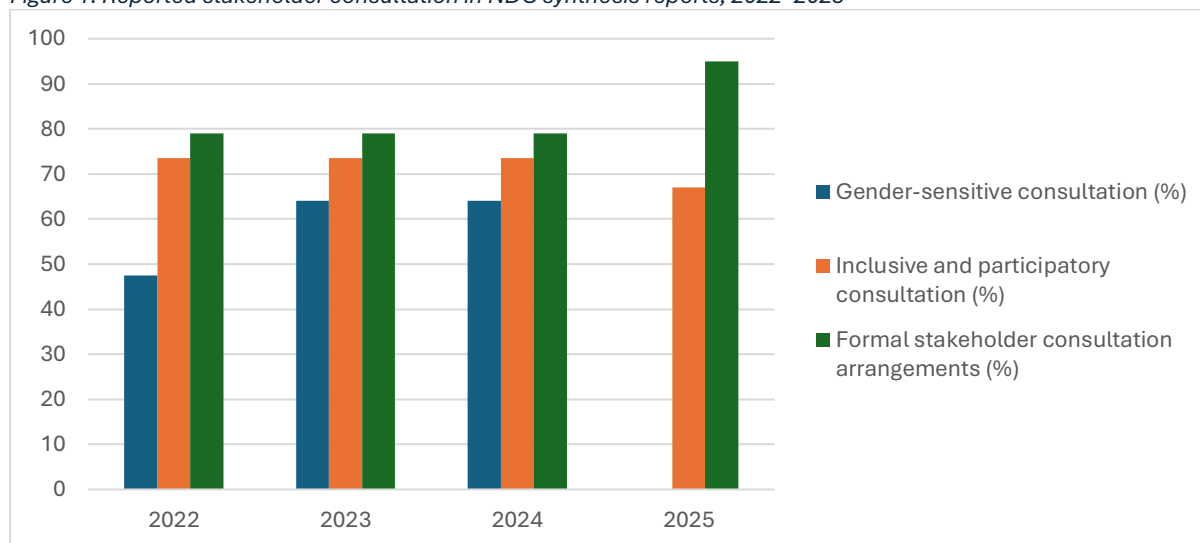
¹ This assessment was based on the 30.09.2025 cut-date, only considering 64 parties, covering 63% of global GHG emissions which had submitted to date.

² The assessment is based on policies as of July 2025 and NDC submissions as of mid-October 2025.

women, and youth and children” (UNFCCC, 2023a, para. 9). Because this assertion comes from the regime’s central accountability mechanism rather than external advocates, it signals participation’s status as a shared normative benchmark for climate governance³.

Subsequent guidance further invites Parties to report on planning processes, including public participation and engagement with local communities and Indigenous Peoples (UNFCCC, 2018a). Successive reporting cycles suggest that Parties increasingly present themselves as meeting this expectation: the share reporting formal stakeholder consultation in their NDCs rose steadily to 95% in the 2025 cycle, while 98% reported non-Party stakeholder engagement in NDC preparation or implementation (Figure 1; UNFCCC, 2025). This reflects a shift from participation mainly as consultation during NDC preparation towards a broader whole-of-society approach, in which civil society, academia, subnational entities and the private sector are presented as actors in planning, financing, monitoring and delivering climate action. However, these provisions and reports concern process; they neither require NDC content to reflect citizen priorities nor prescribe a uniform consultation model, leaving Parties considerable discretion over who is consulted, how, and whether public input shapes final commitments (Hill and Pruett, 2024; Khan, 2024).

³ Section 10.1 summarises the wider rights-based architecture underpinning this participation expectation. The instruments reviewed there address public participation, access to information, access to justice, representative decision-making, participation in public affairs, and the human right to a clean, healthy and sustainable environment.

Figure 1: Reported stakeholder consultation in NDC synthesis reports, 2022–2025⁴

Source: Author based on UNFCCC NDC Synthesis Reports 2022a, 2023b, 2024 and 2025.

Taken together, this context shows that NDCs are politically and socially embedded instruments, shaped by the discretion the Paris framework grants Parties and by the heterogeneous national circumstances that this design was intended to accommodate. This produces wide variation in NDC ambition and content, while the framework's encouragement of participation, though now reported almost universally, does not guarantee that public priorities are substantively reflected in commitments. This leaves open the central question this thesis pursues: whether NDC content, however structured across diverse national contexts, corresponds to what citizens prioritise, and why such correspondence emerges in some countries and policy domains more clearly than in others.

⁴ The figure is based on UNFCCC synthesis reports of information contained in Parties' NDCs recorded in the NDC Registry by each report's cut-off date. The 2022 report synthesises the 166 latest available NDCs representing 193 Parties, the 2023 and 2024 reports synthesise the 168 latest available NDCs representing 195 Parties, while the 2025 report is based only on 64 new NDCs submitted between 1 January 2024 and 30 September 2025. The figure shows the share of Parties reporting formal stakeholder consultation arrangements in their NDCs. Inclusive and participatory consultation and gender-sensitive consultation are converted into approximate shares of all Parties by multiplying the share of Parties reporting formal consultation arrangements by the share of those arrangements described as inclusive/participatory or gender-sensitive. The 2025 report does not provide a directly comparable gender-sensitive consultation indicator, so the missing value should be read as not applicable.

3 Literature Review

This section reviews scholarship on NDC determinants, stakeholder participation and congruence between climate policy and public priorities. It first introduces the understudied question of substantive alignment between citizen priorities and NDC content (Section 3.1). It then examines the dominant literature on NDC ambition and the marginal explanatory role of citizen opinion within it (Section 3.2). Next, it assesses stakeholder participation as the primary institutional channel through which citizen priorities might enter NDC formulation (Section 3.3), before reviewing direct evidence of gaps between public priorities and climate policy content (Section 3.4). It concludes by synthesising existing knowledge and identifying the gaps this study addresses (Section 3.5).

3.1 Introduction: The missing link between citizen priorities and NDC content

Scholarship on NDC ambition and determinants, NDC content, stakeholder participation, citizen climate opinion, and policy-public incongruence has grown substantially, yet these literatures rarely examine whether citizen climate policy priorities appear in the thematic and sectoral content of national climate commitments. Ambition studies treat citizen opinion mainly as a potential determinant of headline pledge ambition, often through large-scale cross-national analysis (Jensen, 2022; Tørstad et al., 2020; Welsch, 2025). Participation research instead examines NDC preparation, asking whether citizens and stakeholders are consulted and influence formulation, often through case studies (Briot and Leroy, 2024; Hill and Pruett, 2024; Khan, 2024). Other strands map thematic and sectoral priorities in NDC texts or analyse policy-public incongruence, showing that citizens, stakeholders, and policymakers may prioritise different climate themes, instruments, or sectors (Guan and Wang, 2025; Haque et al., 2019; Savin et al., 2025). Yet these strands have not systematically assessed whether citizens' preferred climate policy measures are reflected in NDC thematic and sectoral content. This review integrates them to address this missing link and identify where knowledge of NDC-citizen alignment remains incomplete.

3.2 NDC determinants and the limited role of citizen opinion

The dominant strand of NDC scholarship explains variation in NDC ambition and enhancement across countries and successive pledge cycles. Several structural and institutional factors shape this variation. Fossil fuel dependence is associated with lower mitigation ambition, as carbon-intensive energy systems increase transition costs and strengthen incumbent economic interests (Jensen, 2022; Tørstad et al., 2020; UNEP, 2025). Democratic institutions are positively associated with stronger NDC outcomes in several studies, as electoral accountability, civil society access and public scrutiny increase pressure for stronger targets (Peterson et al., 2023; Tørstad et al., 2020; UNEP, 2025). Higher income is linked to stronger unconditional targets in some specifications, reflecting an equity and capacity logic, though this relationship varies across ambition metrics and models (Drummond et al., 2018; Jensen, 2022; Welsch, 2025). Climate vulnerability also produces mixed evidence: direct exposure to climate harm is associated with stronger pledges in some studies, but not consistently across vulnerability measures or NDC dimensions (Jensen, 2022; Drummond et al., 2018; Tørstad et al., 2020).

Conversely, direct measures of domestic demand for climate action, including climate concern, threat perception and willingness to contribute financially to mitigation, consistently show weak or non-robust explanatory power once structural conditions are controlled for (ibid.; Welsch, 2025). Drummond et al. (2018) and Tørstad et al. (2020) find that public support for national mitigation under the Paris Agreement does not significantly explain NDC ambition, noting that limited cross-country variation in support may weaken the relationship. Jensen (2022) similarly finds that public threat perception predicts ambition in bivariate comparisons but loses significance in multivariate models including energy system characteristics and institutional factors. Welsch (2025) finds that neither citizens' willingness to contribute financially to mitigation nor their demand for stronger government action significantly predicts unconditional emission-reduction pledges. Only public awareness of climate change is positively associated with the stringency of countries' unconditional pledged percentage reductions (Drummond et al., 2018). Therefore, public concern may generate pressure for climate action, but it is often

mediated or overridden by fossil fuel dependence, energy transition costs, oil import dependence, climate vulnerability and institutional context. NDC ambition is thus best understood as a structural outcome shaped by institutional, economic and environmental conditions, not as a direct reflection of citizen priorities.

3.3 Stakeholder consultation and the problem of procedural inclusion

The weak or inconsistent relationship between citizen opinion and NDC ambition raises a further question about the channels through which public priorities might enter national climate commitments. Government narratives and official reports present inclusive stakeholder engagement as central to NDC preparation, while participation is often theorised as a potentially transformative process through which affected publics, civil society and other stakeholders shape climate governance and decision-making power (Section 2.2). Empirical evidence suggests that stakeholder consultation is positively associated with NDC ambition and enhancement. In writing their intended NDCs, 86% of countries engaged actors such as scientists, non-governmental organisations and the private sector, and this inclusion was associated with more ambitious mitigation by helping governments identify feasible options, build political support and formalise commitments beyond business-as-usual (Day et al., 2015). Moreover, many second-generation NDCs with targeted stakeholder engagement, societal ownership, gender-responsive approaches and attention to stakeholder needs show higher mitigation and adaptation enhancement than previous submissions (UNDP, 2021).

Using a civil society organisation (CSO) consultation index combining routine CSO consultation with references to stakeholder consultation in NDC planning, Peterson et al. (2023) provide the most direct inferential evidence: countries with the highest CSO consultation scores had a 71% probability of NDC enhancement in the second cycle, compared with 27% among those with the lowest scores, after controlling for income, fossil fuel rents, climate finance received and climate hazard exposure. Their case studies illustrate the mechanism: open consultation in South Africa enabled civil society, labour and scientific actors to support a stronger target, whereas Brazil's closed process under Bolsonaro produced a non-enhanced pledge (ibid.). Together, these studies

suggest that societal influence may be more visible when civil society actors are institutionally incorporated into NDC formulation and revision, rather than when public opinion is measured only as aggregate concern or support.

However, this picture changes when participation is examined as a mechanism for incorporating citizen priorities⁵. The wider NDC participation literature shows that consultation during drafting and revision often remains limited, symbolic, tokenistic or procedural across national contexts (Arnstein, 1969; Briot and Leroy, 2024; Hill and Pruett, 2024; Khan, 2024). Although many NDCs refer to stakeholder participation, such claims often mask a “box-checking” exercise based on one-way communication rather than genuine dialogue, with recommendations routinely excluded from final documents (Hill and Pruett, 2024, pp.12, 17). This exclusion has significant implications for substantive input and ownership, as citizens’ input “rarely makes it into the final policies”, leaving the NDC as a “closed-door document” (ibid.; Khan, 2024, pp. 29, 31). Therefore, although consultation may support NDC enhancement, institutional participation remains an insufficient proxy for substantive influence (Briot and Leroy, 2024).

The literature further shows that participation is shaped by unequal access to decision-making spaces. NDC processes often centre national ministries, UN agencies, international consultants and a small number of well-connected urban organisations, while rural and coastal communities, women, youth, Indigenous Peoples and grassroots actors remain less visible or excluded (Briot and Leroy, 2024; Hill and Pruett, 2024; Khan, 2024). Several barriers reinforce this pattern. Firstly, participation is often uneven among consulted actors, reproducing existing power imbalances: processes frequently privilege a limited number of flagship organisations, while capital-city concentration, technical

⁵ A related strand of NDC scholarship examines the mainstreaming of specific vulnerable or marginalised groups in national climate plans. Studies on Indigenous Peoples, gender, youth and persons with disabilities show that references to vulnerable groups have become more visible in climate policy documents, but that substantive inclusion often remains uneven, limited or weakly connected to rights-based participation (Carmona et al., 2024; Abidin, 2023; Remteng et al., 2022; Jodoin et al., 2025). This thesis does not assess the representation of specific groups directly. Instead, it adopts a broader whole-of-society perspective by asking whether citizen climate policy priorities are reflected in the thematic and sectoral content of NDCs. In this sense, the study complements vulnerable-group mainstreaming literature by shifting the focus from whether groups are named, consulted or protected, to whether society-wide citizen priorities are substantively reflected in national climate commitments.

jargon and official-language barriers crowd out grassroots and marginalised voices (ibid.). Secondly, stakeholders are often invited to “own” and implement targets as “contractors” that they did not help define as “architects” (ibid.; Ozor and Nyambane, 2024; Ozor et al., 2024a, 2024c). NDCs have often been developed hastily, with consultations occurring too late for meaningful feedback and serving instead to build ownership, mobilise support and deliver already-defined targets (ibid.). Thirdly, institutional fragmentation and ministries working in silos prevent cross-cutting stakeholder input from reaching decision-makers (Khan, 2024; Ozor et al., 2024a). Furthermore, international reporting deadlines and reliance on climate finance can produce accountability capture, whereby donor-driven technical agendas are prioritised over the needs of climate-vulnerable populations to secure funding (ibid.; Hill and Pruett, 2024).

3.4 Patterns of policy-public congruence in climate policy

Existing research has mapped governmental climate commitments and citizen climate priorities, but largely in separate literatures. On the policy side, studies assess the thematic and sectoral content of NDCs through natural language processing, topic modelling and content analysis (Hsu et al., 2020; Guan and Wang, 2025; Savin et al., 2025; Stephenson et al., 2019; Section 2.1). On the citizen side, surveys, choice and conjoint experiments, and deliberative panels examine support for climate measures across global and national samples (Abildtrup et al., 2024; Flynn et al. 2021; Drews and van den Bergh, 2016; Kinnunen, 2021; Rhodes et al., 2017; Chhetri et al., 2020). This work shows that citizens tend to favour concrete, co-benefit-oriented “pull” measures, including renewable energy, forest conservation, climate-friendly farming and clean transport, over cost-imposing “push” measures such as carbon and fuel taxes, with support shaped by perceived cost, local co-benefits and trust in governing actors (ibid.). However, these strands rarely meet: NDC-content studies map governmental attention without assessing correspondence with public priorities, while citizen-preference studies rarely trace whether those priorities enter national commitments.

Building on this, a smaller literature examines how such gaps appear in practice. In domestic climate policy, evidence remains inconclusive on whether public demand

shapes policy variation (Fankhauser et al., 2014; Schaffer et al., 2022), while congruence between citizen preferences and policy outputs is generally weak. Institutional actors may override public input in favour of technical assessments and lobbying priorities, while politicians may misread public opinion by projecting their own scepticism onto the electorate (Helliesen, 2023; Kinnunen, 2021; Walgrave and Soontjens, 2026). With respect to NDCs, the literature identifies policy-public incongruence across ambition, governmental pledge logics, preferred instruments and modalities, and sectoral priorities.

Firstly, citizen preferences and government mitigation pledges appear to follow different logics. Government pledges tend to be stronger in wealthier, colder and more carbon-intensive countries, while willingness to contribute is higher in warmer, less wealthy and less carbon-intensive countries (Welsch, 2025). This suggests that citizens respond more directly to vulnerability and cost-bearing, whereas governments are shaped by capability, emissions profiles and international expectations (*ibid.*).

Secondly, alignment on climate goals does not necessarily entail alignment on policy instruments. Haque et al. (2019) find that policymakers and non-governmental stakeholders favour different strategies for achieving NDC pledges. Policymakers tend to prefer investment-based approaches centred on state spending and donor priorities, while non-governmental stakeholders, including business organisations and CSOs, favour incentive-based mechanisms such as subsidies, green loans and market instruments (*ibid.*). Thus, misalignment can arise over support for climate action and how commitments should be implemented, potentially marginalising approaches that stakeholders deem feasible and effective and weakening domestic legitimacy and buy-in (*ibid.*).

Thirdly, Guan and Wang (2025) come closest to addressing this gap by comparing NDC content with public climate discourse. They find systematic policy-public incongruences: NDCs emphasise technical and regulatory themes, adaptation, sectoral mitigation strategies and emissions accounting, while public discourse foregrounds renewable energy, community resilience, social inclusion and climate finance (*ibid.*).

These incongruences vary across contexts: developing and climate-vulnerable country groupings display smaller gaps, while wealthier and more technocratic governance contexts exhibit larger ones, linked to political polarisation and the insulation of NDC formulation from public priorities (ibid.). However, their reliance on topic salience and public stance derived from social media limits representativeness, as such data overrepresent urban, digitally connected and politically expressive users while underrepresenting rural, marginalised and less vocal populations. Consequently, their approach captures perception gaps rather than substantive representation.

Thus, this literature shows that policy-public misalignment concerns whether citizens support climate action and how public priorities shape the substance of climate policy. Its significance is reinforced by evidence that greater policy-public incongruence is associated with higher CO₂ emissions, particularly in land-use sectors, suggesting links to weaker mitigation performance and legitimacy (ibid.). However, despite growing evidence of incongruence, it remains unclear whether NDCs reflect the concrete climate policy priorities expressed by citizens.

3.5 Conclusion: The understudied question of substantive alignment

Finally, the literature shows that citizen priorities enter NDC debates in fragmented and indirect ways. Studies of NDC ambition indicate that public opinion, climate concern, threat perception and willingness to pay do not robustly explain national pledge ambition, whereas structural and institutional factors appear more consistently relevant. Participation studies suggest that consultation can support NDC enhancement, particularly where civil society is institutionally included in formulation and revision. However, critical scholarship shows that these processes often remain procedural, uneven or weakly connected to final policy content. Emerging studies of policy-public incongruence further show that governments, stakeholders and citizens may prioritise different instruments, themes and sectors, with misalignment varying across country groupings.

However, because existing research treats NDC ambition, stakeholder participation and policy-public congruence as largely separate fields, a direct and systematic assessment

of substantive NDC-citizen alignment remains absent. This constitutes a clear empirical gap (Gap 2), as existing scholarship has not:

- a. used representative citizen climate policy priorities as an evaluative benchmark for assessing the substance of NDC content, rather than treating public opinion mainly as a possible explanatory variable for aggregate ambition;
- b. directly assessed whether NDCs substantively reflect citizen priorities at the thematic and sectoral level; and
- c. systematically mapped how substantive NDC-citizen alignment varies across countries and policy domains.

This study addresses this gap by shifting the analytical focus from ambition and procedural participation to substantive sectoral alignment, conceptualising NDC-citizen alignment as a form of policy congruence. The following chapter develops this conceptualisation into a theoretical framework for interpreting variation in NDC-citizen congruence across countries and policy domains.

4 Theoretical Framework

The literature review highlighted that the relationship between citizen climate priorities and NDC content has not been systematically conceptualised as substantive representation. Therefore, no consolidated framework has been developed to assess whether citizens' substantive priorities are reflected in the sectoral content of NDCs or explain variation across countries and policy domains (Gap 1). This chapter addresses that gap by asking: how can NDC-citizen alignment be conceptualised as substantive representation through sectoral priority congruence, and what theoretical expectations explain variation across countries and policy domains? (SQ1) It develops this framework by defining substantive representation as a normative benchmark (Section 4.1), examining policy congruence as measurable representation (Section 4.2), and adapting policy congruence to NDCs as hybrid policy outputs within international climate governance (Section 4.3). It then interprets cross-sectoral and cross-national variation in sectoral priority congruence (Section 4.4) and consolidates these elements into the study's conceptual scheme (Section 4.5).

4.1 Substantive representation as a normative benchmark

Political representation concerns the process of “making present in some sense of something which is nevertheless not present literally or in fact” (Pitkin, 1967, p.8). Pitkin distinguishes several dimensions of representation, including formalistic, descriptive, symbolic and substantive representation, each capturing a different aspect of the representative relationship (ibid.). This thesis focuses on substantive representation, which Pitkin (1967, p.209) defines as “acting in the interest of the represented, in a manner responsive to them”, requiring responsiveness to constituents' preferences and needs rather than mere demographic resemblance or formal authorisation. This thesis is situated within this dimension, examining whether governmental climate commitments reflect citizens' priorities. However, this focus also requires a scope condition: substantive representation captures one dimension of representation, while descriptive, symbolic and formalistic dimensions may shape how citizens are included, recognised or authorised in climate governance (Bird, 2012; Swindt-Bayer and Mishler, 2005).

A necessary caveat is that acting “for” citizens does not mean mechanically reproducing expressed preferences. How citizen interests should be identified, aggregated across diverse publics, and assessed against policy outputs remains contested and empirically challenging (Celis, 2009; Mansbridge, 2003; Pitkin, 1967). This creates a central tension between mandate or delegate models, in which representatives closely follow citizens’ expressed preferences, and trustee models, in which representatives exercise independent judgement in pursuit of the common good (ibid.; Improta and Mannoni, 2025; Kinnunen, 2021). Both have limitations: mandate or delegate models assume sufficiently stable and actionable citizen preferences, while trustee models risk leaving citizens with limited recourse when representative judgement diverges substantially from their expressed priorities (ibid.). Empirical political science addresses this tension by examining correspondence between citizens’ expressed policy priorities and governmental decisions as a tractable, though partial, operationalisation of substantive representation (Celis, 2009; Louwerse and Andeweg, 2020; Schaffer et al., 2022; Wlezien, 2017).

Since Pitkin, substantive representation has expanded in scope and conceptualisation. Whereas standard accounts centre on territorially-based, static, electoral mandates, later work has moved towards constructivist and systemic approaches. The constructivist turn challenges the view that representatives solely mirror pre-existing citizen interests, instead conceptualising representation as a dynamic, performative practice in which representative claims shape constituencies, identities, and agendas (Disch, 2015; Knappe, 2024; Saward, 2010). Systemic approaches further widen representation beyond the dyadic legislator–district link, allowing surrogate representation, where actors speak for groups without a formal electoral connection, including marginalised groups elsewhere or future generations (Gonzalez-Ricoy and Rey, 2019; Knappe, 2024; Mansbridge, 2003). Moreover, modern rubrics also evaluate the quality of representative claims, distinguishing between speaking on behalf of, about, or against a group through an intersectional lens (Siow, 2023). Thus, substantive representation is multi-dimensional, and its empirical assessment requires tools that capture its policy dimension within concrete governmental commitments.

4.2 Measuring substantive representation: the policy congruence framework

Policy congruence emerged from empirical work on substantive representation, asking whether citizens' policy preferences are reflected in elected officials' actions. Miller and Stokes' (1963) pioneering study translated this concern into an empirical agenda, showing that representative-constituent alignment is meaningful but varies across policy domains within the same political system. Achen (1977, 1978) then provided the methodological basis for contemporary congruence research by defining policy congruence as proximity between citizens' policy preferences and the preferences, priorities, or actions of political representatives, commonly measured as the distance between them at a given point in time.

Policy congruence encompasses diverse approaches to comparing citizen preferences with governmental opinions, priorities, or outputs (Table 1). Early studies often compared median citizen positions with those of parties, governments, or legislators on a single left-right dimension (Louwerse and Andeweg, 2020; Miller and Stokes, 1963; Powell, 2000). While this enabled large-N comparison, it can overlook multidimensional preferences and variation across policy domains and social groups (Helliesen, 2023; Kübler and Schäfer, 2022; Louwerse and Andeweg, 2020; Wlezien, 2017). The field has thus moved towards more granular comparisons of citizen and government positions on discrete issues, distributional analyses of preference overlap, priority or issue-salience approaches, and textual analyses of policy outputs (Golder and Stramski, 2010; Helliesen, 2023; Klüver and Spoon, 2016; Louwerse and Andeweg, 2020; Lupu et al., 2017; Reher, 2015; Stephenson et al., 2019; Vrydagh, 2022). Beyond congruence type, studies face methodological choices about the object, relationship, and metric of comparison: whether broad policy domains, specific solution areas, or precise instruments are compared; whether the relationship is one-to-one, many-to-one, or many-to-many; and whether correspondence is measured through distance, rank-order similarity, distributional overlap, categorical typologies, or qualitative correspondence (Louwerse and Andeweg, 2020; Schaffer et al., 2022). These choices can yield different conclusions about the degree of congruence.

Table 1: Overview of approaches to measuring policy congruence

Type of congruence	Core question	How measured	Key advantage	Key limitation	Example scholars
<i>Ideological congruence</i>	Do citizens and representatives occupy similar broad political positions?	Left-right self-placement compared to party, legislator, or government position on the same scale.	Widely available data; enables large-N cross-national comparison.	Too aggregate; masks variation across specific issue domains; differential item functioning across contexts.	Miller and Stokes (1963); Powell (2000, 2009); Blais and Bodet (2006); Golder and Ferland (2018); Golder and Stramski (2010)
<i>Issue-congruence</i>	Do citizens and governments take the same position on specific policy issues, or want more or less of a specific policy?	(a) Binary match: share of respondents favouring a specific policy compared to its adoption or rejection; (b) Distributional distance: Earth Mover's Distance or CDF overlap between citizen and elite preference distributions on Likert scales; (c) Thermostatic/relative direction: citizen signals of 'too little / about right / too much' compared to subsequent policy change.	Highly granular; identifies specific sites of democratic deficit; enables cross-domain comparison; thermostatic variant captures dynamic adjustment not just static match.	Requires comparable citizen and policy data; susceptible to question wording; binary matching cannot capture preferred policy levels; thermostatic variant measures direction not magnitude of preference.	Lax and Phillips (2009, 2012); Gilens (2012); Matsusaka (2026); Helliesen (2023); De Bruycker and Colli (2023); Rasmussen et al. (2019); Wlezien (2016); Soroka and Wlezien (2010); Abildtrup et al. (2024)
<i>Priority / issue-attention / salience congruence</i>	Do citizens and governments prioritise the same issues or policy domains?	Issue salience rankings, most important problem questions, or agenda attention proportions compared across citizens and governmental outputs; media salience as proxy for public prioritisation.	Captures agenda alignment without requiring position data; independently predicts democratic satisfaction.	Measures attention not policy strength, binding commitments, or implementation; salience and position are conceptually distinct but often conflated in empirical measures.	Reher (2015); Klüver and Spoon (2016); Louwerse and Andeweg (2020); Bevan and Jennings (2014); Jones et al. (2009); Schaffer et al. (2022); Falk et al. (2021)
<i>Instrument / modal congruence</i>	Do citizens and governments prefer the same policy instruments or implementation mechanisms for achieving a shared goal?	Citizen preferences for specific instruments such as taxes, subsidies, bans, or regulations compared to governmental use or prioritisation of those instruments.	Captures the 'how' of policy beyond domain preferences; relevant where instrument choice is politically contested.	Requires highly specific preference data; instruments are often technically complex and citizen preferences may be weakly formed.	Louwerse and Andeweg (2020); Haque et al. (2019); Koliev and Bäckstrand (2024)
<i>Textual / document-based congruence</i>	Are citizen-prioritised themes reflected in the content of official policy documents?	Textual frequency of citizen-prioritised topics in official documents as a proxy for governmental attention; Sequential Impact Matrix used to account for pre-existing agenda.	Practical for large document sets and cross-national commitment frameworks such as NDCs.	Textual attention does not equal binding commitment; cherry-picking risk if pre-existing agenda not controlled for; measures salience not position.	Vrydagh (2022); Stephenson et al. (2019)

4.3 Adapting policy congruence to international climate governance

Conventional congruence research largely assumes territorially bounded electoral constituencies (Blais and Bodet, 2006; Helliesen, 2023; Kinnunen, 2021; Powell, 2000; Rasmussen et al., 2019; Schaffer et al., 2022). Applying this framework to international climate governance requires conceptual adaptation, as climate change is spatially and temporally expansive: it crosses borders, produces uneven harms beyond the jurisdictions responsible for emissions, and extends beyond electoral cycles (Urbinati and Warren, 2008; Marquardt et al., 2024). Although climate harms affect distant populations and future generations without direct electoral voice, accountability remains largely tied to present-day national electorates (Willis, 2018; Gonzalez-Ricoy and Rey, 2019). This study thus uses current national citizen priorities as a bounded democratic benchmark, while recognising that they do not exhaust the full constituency affected by climate policy.

Moreover, NDCs are hybrid policy outputs: neither ordinary domestic legislation produced through parliamentary processes with direct electoral accountability nor fully negotiated treaty obligations agreed line by line between states. Rather, they are government-authored national commitments submitted within an international climate governance framework that shapes their format, comparability, and review cycles (Stephenson et al., 2019; Tørstad et al., 2020). Whereas domestic congruence studies trace citizen preferences through elections, parties, and legislators to governmental outputs, NDCs processes mediate citizen priorities through domestic institutions, UNFCCC reporting expectations, international signalling, geopolitical considerations, and coalition dynamics (Louwerse and Andeweg, 2020; Powell, 2000). Congruence between citizen priorities and NDC content is thus assessable in principle, since NDCs are stated governmental policy commitments. However, such (in-)congruence should be interpreted as the outcome of multi-level political and institutional mediation rather than as a straightforward measure of governmental responsiveness.

This conceptual adaptation creates a methodological challenge. Matching citizen preferences to policy outputs is already difficult in domestic settings because

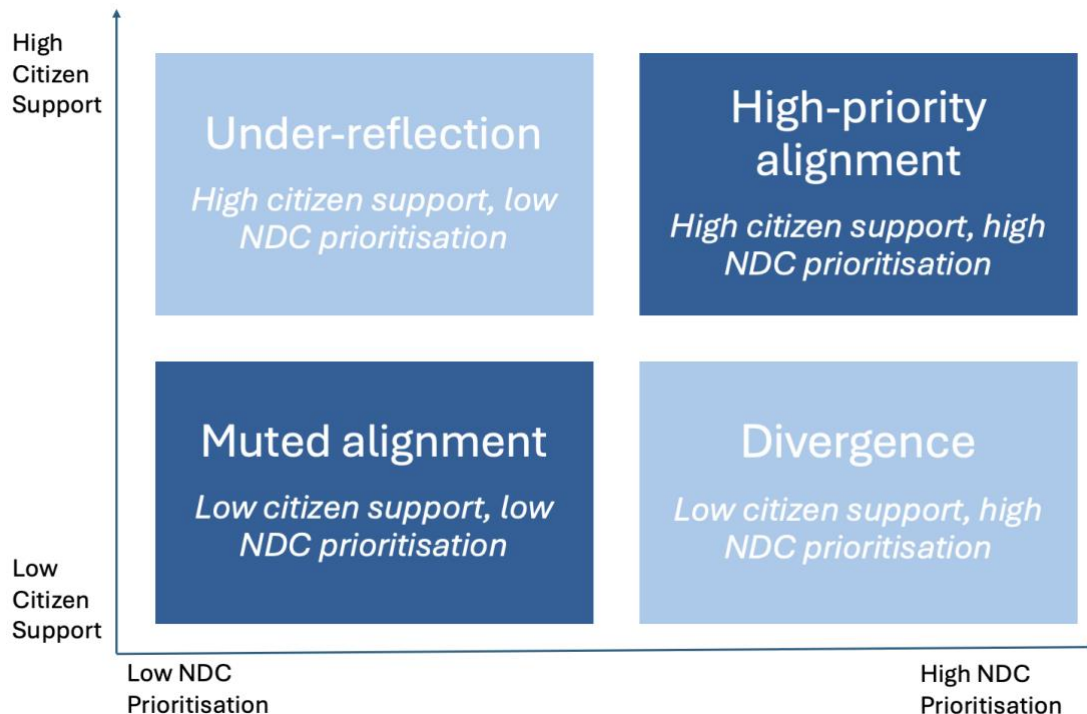
preferences and outputs must be made commensurable (Wlezien, 2017). The challenge is greater for NDCs, where citizen climate priorities are heterogeneous, issue-specific, and expressed through survey categories, while NDC documents vary in structure and specificity. Sectoral priority congruence thus requires an operationalisation specific enough to capture concrete citizen-supported policy domains, yet flexible enough to compare them with differently structured NDC texts.

This thesis addresses that challenge by operationalising priority congruence through a textual congruence approach at an intermediate level of policy specificity, mapping citizen support for 12 climate policy options onto NDC content in a many-to-one configuration. The design follows Schaffer et al.'s (2022) target-specific logic, which calls for disaggregated sectoral analysis and direct matches between citizens' domain-specific preferences and governmental commitments, avoiding aggregate climate performance indices that obscure how commitments are distributed across sectors. Although the citizen data capture endorsement of specific policy options, namely what citizens think their government should do rather than ranked priorities or trade-offs, this study uses support across domains as a proxy for relative citizen prioritisation, treating higher support as indicating stronger public priority within the survey's limits. Governmental attention is operationalised through the frequency and depth with which each domain appears in NDC documents, following Vrydagh's (2022) and Stephenson et al.'s (2019) quantitative content analysis framework, where levels of textual uptake proxy governmental salience. This enables a priority congruence comparison between relative citizen priority and relative NDC attention (Falk et al., 2021).

To measure sectoral priority congruence, this study combines gap analysis with a typology, as equal distances between citizen priorities and NDC attention can reflect substantively different relationships. Therefore, it introduces the Substantive Alignment Typology (Figure 2), which classifies policy-domain observations into four ideal-typical configurations. High-priority alignment occurs when high citizen support aligns with high NDC prioritisation. Under-reflection occurs when high citizen support coincides with weak NDC prioritisation. Divergence occurs when NDC prioritisation is high despite comparatively low citizen support. Finally, muted alignment occurs when both citizen

support and NDC prioritisation are low. The typology thus complements gap analysis by identifying where distinct forms of substantive (in-)congruence arise.

Figure 2: The Substantive Alignment Typology



4.4 The conceptual gap: Interpreting cross-national and cross-sectoral variation in congruence

While existing studies show that climate policy congruence varies across countries, sectors and institutional contexts, no consolidated framework explains variation in sectoral priority congruence at the level of NDCs (Gap 1). Insights into the conditions associated with such variation remain fragmented across scholarship and have not been integrated into an account suited to this study's G20 sample, where countries differ sharply in regime type, consultative institutions, economic structure, emissions responsibility, fossil fuel dependence and climate vulnerability. Therefore, this section develops an interpretive framework for assessing whether observed alignment patterns are consistent with theoretically plausible cross-sectoral and cross-national mechanisms. Cross-sectoral mechanisms explain why some domains may appear as high-priority alignment, under-reflection, divergence or muted alignment (Section 4.4.1), while cross-national mechanisms examine whether congruence varies with country-level conditions relevant to the G20 cases (Section 4.4.2).

4.4.1 Cross-sectoral variation in sectoral priority congruence

Sectoral priority congruence is expected to vary across policy domains because climate policies differ in framing, affected interests, and compatibility with the institutional language of NDC formulation. The first mechanism concerns perceived co-benefits and policy framing. Climate policies framed as positive-action, protective, or co-benefit-oriented measures are likely to attract more stable citizen support because their benefits appear concrete, including cleaner air, lower energy costs, improved mobility, food security, employment, ecosystem protection, or community resilience (Abildtrup et al., 2024; Flynn et al. 2021; Kinnunen, 2021; Schaffer et al., 2022). This is visible in the People's Climate Vote, where the highest-ranked G20 policies include forest and land conservation, renewable energy, climate-friendly farming, green businesses and jobs, clean personal transport, resilient infrastructure, and early-warning systems, with support ranging from 46 to 56% (Flynn et al. 2021). Moreover, energy, renewables, agriculture, land use, transport, and adaptation are established NDC areas. Therefore, Guan and Wang (2025) find stronger correspondence between governmental and public attention in sectoral mitigation and adaptation themes than in more technical or regulatory themes. These domains thus combine strong public support with clear correspondence to established NDC categories, making high-priority alignment likely.

H1: Policy domains framed as positive-action, protective or co-benefit-oriented measures are more likely to display high-priority alignment⁶.

A second mechanism concerns political cost and incumbent opposition. Some climate domains impose direct costs, restrictions, or accountability on carbon-intensive firms and industries, making them more contested than enabling or investment-oriented measures (Haque et al., 2019). Policies requiring firms to bear emissions costs, or explicitly reduce fossil fuel use, are more likely to activate organised opposition because affected industries often have the resources, political access, and institutional embeddedness to resist such commitments (De Bruycker and Colli, 2023; Peterson and van Asselt, 2026; Vesa et al., 2020). Where well-resourced actors whose preferences

⁶ As highlighted in the paragraph above, this hypothesis relates to the following the People's Climate Vote policy domains: renewable energy, forest and land conservation, climate-friendly farming, clean transport, resilient infrastructure, early warning systems and green jobs.

diverge from citizens' dominate formulation, NDC attention may shift away from publicly supported but politically costly measures (De Bruycker and Colli, 2023; Kinnunen, 2021; Peterson et al., 2023). The translation of citizen priorities into NDC content is thus mediated by the balance of organised interests in policy preparation. Simultaneously, citizen support is lower for cost-imposing measures, such as fossil fuel phase-out and polluter-pays measures (Flynn et al. 2021; Kinnunen, 2021; Rhodes et al., 2017; Walgrave and Soontjens, 2026). Therefore, these domains are more likely to appear as muted alignment where citizen support is also low, or as under-reflection where citizen priority exceeds NDC attention.

H2: Politically costly domains that impose direct costs or accountability on carbon-intensive firms, particularly fossil fuel phase-out and polluter-pays measures, are more likely to appear as muted alignment or under-reflection.

4.4.2 Cross-national variation in sectoral priority congruence

Cross-national variation in sectoral priority congruence is expected because G20 countries differ in channels through which citizen priorities enter policymaking and make governments responsive to them, as well as the pressures shaping NDC formulation. Therefore, this section examines political, institutional, economic and vulnerability-related conditions that may affect sectoral priority congruence.

Citizen inclusion and consultative institutions

Formal citizen inclusion is the most direct observable route through which public priorities may enter NDC content, as it occurs during policy formulation rather than through indirect electoral pressure. The Paris framework reflects this expectation by requiring Parties to report on planning processes involving public participation and domestic stakeholder engagement, indicating that NDCs are expected to be informed by nationally owned priorities alongside their technical reporting role (UNFCCC, 2015a, 2018). Inclusion can generate domestic ownership by embedding citizen and stakeholder concerns in formulation, increasing the likelihood of congruence (Ozor et al., 2024a, 2024b; OECD, 2025; Peterson et al., 2023;). Moreover, civil society can mediate between diffuse public preferences and policy formulation by producing evidence, mobilising

debate and elevating marginalised voices, widening the priorities reaching the drafting table (Gupta and Vegelin, 2016; Hill and Pruett, 2024; Khan, 2024). However, formal inclusion does not necessarily imply substantive influence; it is thus treated as a minimum observable condition for potential responsiveness, not as evidence of meaningful participation.

H3: Countries that formally include citizens in the NDC formulation process exhibit higher sectoral priority congruence.

Beyond formal inclusion, broader consultation practices condition whether citizen and civil society input can influence policy content. The key distinction is between a single participatory event and the standing institutional norm in which it occurs: an NDC consultation claim carries greater weight where civil society is habitually engaged than where engagement is otherwise absent (Peterson et al., 2023). Routine consultation institutionalises access, structures participation and shapes whose concerns are regularly represented (Biesbroek, 2021; Bunea and Nørbech, 2026; George, 2003). Through repeated interaction, it shapes information flows, policy learning and the definition of legitimate policy claims, influencing which preferences are prioritised and how policy alternatives are defined (Bunea et al., 2024; Fink and Ruffing, 2020; Jones and Einsiedel, 2011). Applied to NDC formulation, Peterson et al. (2023) find that routine CSO consultation increases the likelihood of NDC enhancement, strengthening domestic accountability. Conversely, weak or selective consultation can reproduce elite dominance, bureaucratic insulation and strategic non-responsiveness, limiting the translation of public priorities into NDC content (Bua, 2017; Choi and Wong, 2024; Lourenço, 2022). Thus, routine consultation increases the likelihood that the formal inclusion (H3) provides a substantive pathway into NDC content rather than remaining procedural.

H4: Countries with stronger routine consultation practices exhibit higher sectoral priority congruence.

Democratic accountability

Beyond formal inclusion and routine consultation, regime type may shape whether citizen priorities are reflected in NDC content. Substantive representation literature expects democratic institutions to strengthen congruence by subjecting governments to electoral accountability, public scrutiny and political competition, thereby linking policy outputs more closely to citizen preferences (Hobolt and Klemmensen, 2005; Powell, 2004; Rosema et al., 2011; Rosset and Stecker, 2019; Schaffer et al., 2022; Wlezien, 2017). Thus, higher levels of electoral democracy are associated with greater openness to stakeholder consultation, smaller policy–public gaps, higher NDC ambition and a greater likelihood of NDC enhancement (ibid.; Peterson et al., 2023; Guan and Wang, 2025). Conversely, authoritarian or weakly institutionalised regimes lack credible channels for citizen influence, making misalignment between public priorities and NDC content more likely (ibid.; UNEP, 2025). However, democratic short-termism, skewed representation favouring organised lobbies and politicians’ systematic underestimation of public support can detach policy content from citizen priorities even where formal accountability exists (Fesenfeld et al., 2025; Walgrave and Soontjens, 2026). Nevertheless, democracies are more likely than authoritarian or weakly democratic regimes to provide citizens, civil society, media and opposition actors with channels through which climate priorities can be articulated, contested and made politically visible.

H5: Countries with higher-quality democratic institutions and governance systems exhibit higher sectoral priority congruence.

Climate vulnerability

Climate vulnerability is generally expected to raise climate salience for citizens and governments, but its effect on policy congruence is ambiguous. Where vulnerability creates direct, visible exposure, it may align citizen and governmental priorities: countries with higher vulnerability scores and disaster exposure tend to submit more ambitious mitigation pledges (Drummond et al., 2018; Jensen, 2022; Tørstad et al., 2020), while shared survival concerns in highly exposed contexts can generate broad public

demand for adaptation measures and smaller policy-public gaps (Hsu et al., 2020; Guan and Wang, 2025). However, this relationship depends on measurement: direct exposure and disaster impact predict ambition, whereas sea-level rise and agricultural loss do not (Drummond et al., 2018). Vulnerability may also coincide with incongruence. Welsch (2025) finds that citizens in warmer, more vulnerable countries express greater willingness to contribute while their governments submit weaker pledges, and Jensen (2022) identifies a sizeable group in which high public threat perception coexists with low policy ambition because fossil fuel or energy-security interests override climate salience. Thus, climate vulnerability is expected to increase congruence by raising salience among citizens and governments simultaneously, while remaining vulnerable to countervailing political and economic pressures.

H6: Countries with higher climate vulnerability exhibit greater sectoral priority congruence, because vulnerability raises climate salience for citizens and governments simultaneously.

Fossil fuel dependence and incumbent interests

Fossil fuel dependence may reduce sectoral policy congruence by reshaping the political incentives through which climate priorities become policy. Where governments rely heavily on fossil fuel rents, citizen-supported decarbonisation measures can threaten fiscal income, employment, and incumbent interests, while their benefits remain diffuse and long-term (Tørstad et al., 2020; Vogt-Schilb and Hallegatte, 2017). This creates conditions for skewed representation, as organised fossil fuel and carbon-intensive interests are often better positioned than dispersed citizens to influence policy formulation (Fesenfeld et al., 2025; Peterson and van Asselt, 2026; De Bruycker and Colli, 2023). In such contexts, fossil fuel dependence may shape NDC content more strongly than public concern or demand, allowing governments to retain broad or technical climate commitments while avoiding concrete sectoral measures that threaten incumbent industries (Jensen, 2022; Tørstad et al., 2020; UNEP, 2025). Thus, fossil fuel dependence may constrain congruence by empowering concentrated interests over broader public preferences.

H7: Higher fossil fuel dependence is associated with lower sectoral priority congruence.

Economic capacity and emissions responsibility

Gross domestic product (GDP) per capita and per capita emissions are examined as exploratory structural conditions because their relationship with sectoral priority congruence is theoretically mixed. Unlike climate vulnerability, which operates mainly through exposure and issue salience, these variables shape NDC formulation through capacity, responsibility, and transition costs. GDP per capita captures state capacity and economic opportunity costs, while per capita emissions capture responsibility, mitigation burden, and transition-cost exposure. Both may increase pressure for ambitious pledges, but through distinct mechanisms.

Higher income does not automatically produce closer alignment with citizen priorities. Wealthier countries may have stronger financial and administrative capacity to formulate comprehensive NDCs and face stronger international expectations under capability and responsibility principles (Drummond et al., 2018; Welsch, 2025). However, Peterson et al. (2023) find that GDP per capita does not significantly predict NDC enhancement, while Jensen (2022) argues that wealthier countries may face higher opportunity costs due to sunk investments in carbon-intensive systems, established consumption patterns, and entrenched economic interests. Tørstad et al. (2020) further show that GDP per capita is negatively associated with NDC ambition when pledges are assessed against effort-sharing principles, suggesting that wealth can coexist with responsibility gaps. Because these pressures pull in opposing directions, the relationship between income and sectoral priority congruence remains an open empirical question.

Per capita emissions capture current mitigation responsibility and exposure to transition costs. High-emitting countries face greater pressure to submit mitigation-oriented pledges under responsibility and polluter-pays logics, but may also confront stronger incumbent interests and more politically sensitive decarbonisation choices. Welsch (2025) shows that national mitigation pledges and citizen willingness to contribute can

follow different logics, indicating that stated ambition should not be equated with citizen policy congruence. Stephenson et al. (2019) similarly show that NDC content reflects countries' positions within the international climate regime, including distinctions between industrialised, emerging, and highly vulnerable groupings whose submissions vary in emphasis on mitigation, development, vulnerability, and responsibility. Guan and Wang (2025) further find that policy-public incongruence can be pronounced in developed and technocratic governance contexts. Thus, per capita emissions may shape congruence in competing ways, increasing responsibility-based pledge-making while intensifying transition-cost politics and technocratic framing that can pull NDC content away from citizen-supported priorities.

Given these competing mechanisms, this study does not advance directional hypotheses for income and emissions. Instead, it poses two exploratory questions:

E1: How does GDP per capita relate to sectoral priority congruence between citizen priorities and NDC content?

E2: How do per capita emissions relate to sectoral priority congruence between citizen priorities and NDC content?

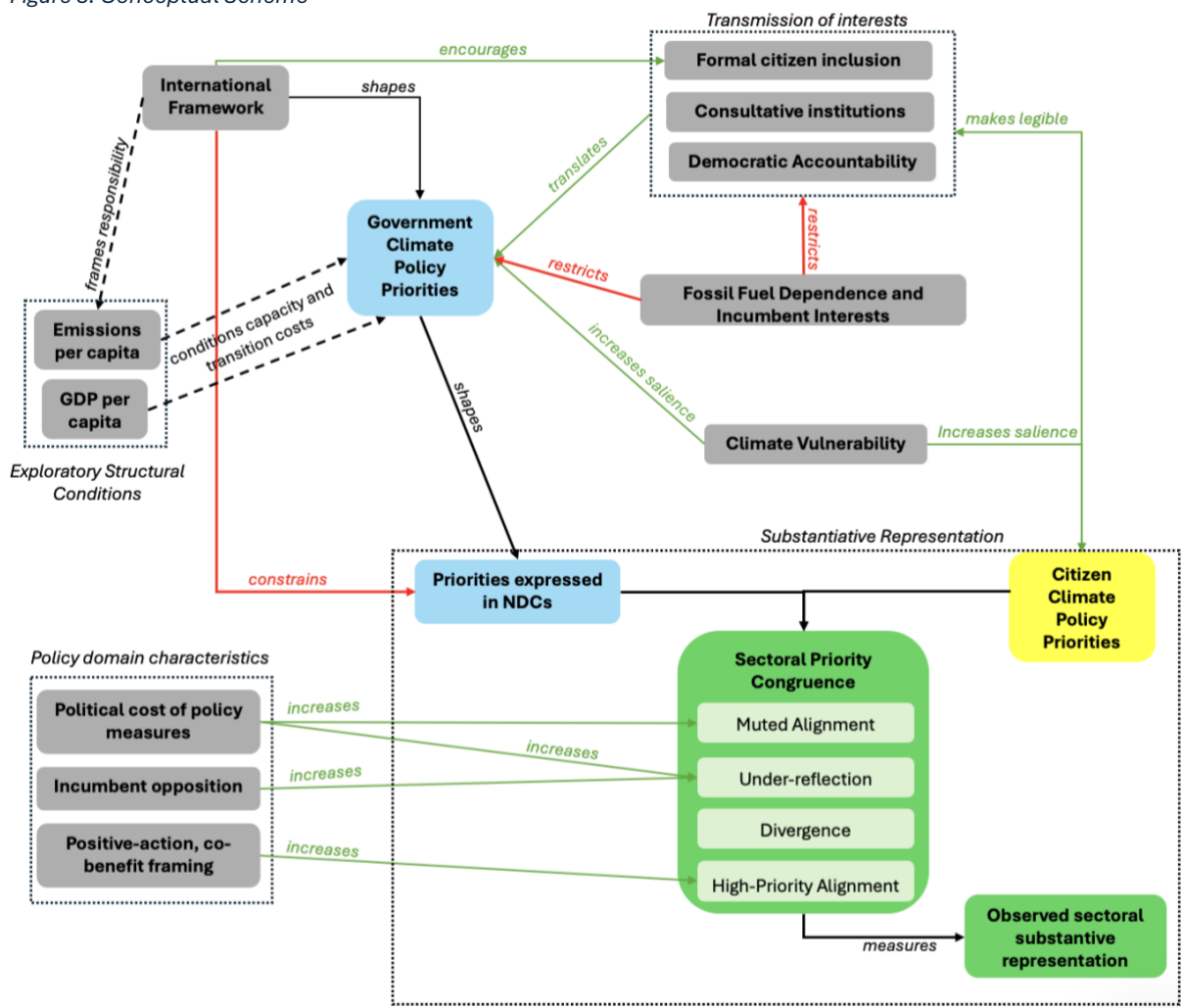
4.5 Conclusion and conceptual scheme

This chapter addressed the conceptual gap by situating policy congruence within substantive representation and using representative citizen climate policy priorities as a benchmark for assessing whether NDC content reflects public priorities across specific domains. Because NDCs are hybrid policy outputs, formulated domestically but submitted within an international regime, apparent misalignment is interpreted as the outcome of multi-level mediation rather than direct non-representation. The Substantive Alignment Typology provides the analytical basis for this assessment by distinguishing high-priority alignment, under-reflection, divergence, and muted alignment. The interpretive framework then explains expected variation across policy domains and countries through policy framing, citizen inclusion, governance style, economic structure, and exogenous pressures. Together, these elements form a systematic

exploratory approach to sectoral priority congruence, with implications for democratic legitimacy and climate policy effectiveness.

The conceptual scheme (Figure 3) synthesises the thesis's core theoretical logic. Building on the problem framing (Section 1.1), the literature on NDCs, citizen priorities, and climate policy congruence, and the theoretical framework developed in this chapter, it shows how congruence between citizen climate policy priorities and NDC priorities is measured through the Substantive Alignment Typology. It also shows how resulting patterns are interpreted through the cross-sectoral and cross-national mechanisms developed above (Section 4.4).

Figure 3: Conceptual Scheme



Source: Author

5 Methodology

This chapter delineates the methodological approach used to address the lack of systematic empirical assessment of substantive alignment between citizen climate policy priorities and NDC content across countries and policy domains (Gap 2). It explains how representative citizen priority data and NDC textual content were made comparable to measure sectoral priority congruence across 13 G20 countries. It first presents the comparative research design, unit of analysis and analytical strategy (Section 5.1), before explaining case selection and sample definition (Section 5.2). It then outlines the data sources and operationalisation of the study's core concepts: citizen climate policy priorities, NDC prioritisation, sectoral priority congruence and contextual country-level indicators (Section 5.3). Subsequently, it describes the data-processing procedure used to classify NDC content and construct the study's measures (Section 5.4). It closes by addressing ethics (Section 5.5), positionality (Section 5.6), research quality, reliability and validity (Section 5.7), and the main limitations of the research design (Section 5.8).

5.1 Research design and analytical strategy

This study used a comparative research design to examine sectoral priority congruence between citizen climate policy priorities and NDC content across multiple G20 countries and climate policy domains. The design is descriptive and exploratory. It did not seek to establish causal relationships between citizen priorities and NDC formulation but instead mapped patterns of correspondence and incongruence and assesses whether they vary across countries, policy domains and selected contextual conditions. This approach reflects both the empirical novelty of political congruence analysis in climate governance research and the constraints of cross-national comparison.

The main unit of analysis is the country-policy domain pair. This unit was selected because the research question concerns variation across both countries and policy domains. A purely country-level analysis would obscure which policy categories are aligned or misaligned, while a purely policy-level analysis would obscure how alignment

varies across national contexts. With 13 countries and 12 policy domains, the analysis produced 156 country-domain observations.

The analysis proceeded in two stages. First, citizen climate policy priorities and NDC sectoral prioritisation were analysed separately to establish the two distributions being compared (Section 6). These were then combined through sectoral congruence gaps and the Substantive Alignment Typology to identify high-priority alignment, under-reflection, divergence and muted alignment across country-domain observations. Second, variation in congruence was examined across policy domains and country-level conditions, including citizen inclusion, routine CSO consultation, democratic accountability, climate vulnerability, fossil fuel dependence, GDP per capita and emissions per capita (Section 7). Given the small sample, these relationships were interpreted as exploratory associations rather than causal effects.

Throughout the analysis, NDC specificity was treated as an important interpretive condition. NDCs differ in the breadth and detail with which policy commitments are articulated, affecting how much correspondence with citizen priorities can be observed in the text. Thus, the findings measure visible sectoral alignment within NDC documents, rather than governmental responsiveness more broadly or national climate policy implementation.

5.2 Case selection and sample definition

The study focussed on G20 countries because of their central role in global climate governance, substantial share of global emissions, and political and economic diversity. This heterogeneity provided a suitable comparative setting for examining whether citizen priorities are reflected in NDC content across diverse national contexts.

The initial population comprised individual G20 member states. Countries were included when country-level citizen priority data were available in the UNDP People's Climate Vote 2021 and the country had submitted an individual NDC, ensuring that citizen data and NDC content referred to the same national unit. The final sample comprised 13 G20 countries: Argentina, Australia, Brazil, Canada, India, Japan, Mexico, Russia, Saudi

Arabia, South Korea, Turkey, the United Kingdom and the United States. Exclusions were methodological rather than substantive, reflecting the need for comparable country-level citizen-priority and NDC data.

5.3 Data sources and operationalisation of key concepts

The analysis used publicly available, internationally comparable data to operationalise citizen climate policy priorities, NDC prioritisation, sectoral priority congruence and contextual country-level indicators (Table 2). The units of observation were country-level People's Climate Vote support scores, coded NDC sentence-level content aggregated into policy domains, and country-level contextual indicators. Together, this data was used to construct the country-policy domain pair as the main unit of analysis.

Citizen climate policy priorities were operationalised using the UNDP People's Climate Vote 2021, one of the few cross-nationally comparable sources reporting citizen support for specific climate policy measures across G20 countries (UNDP, 2021)⁷. This dataset is one of the few cross-nationally comparable sources on citizen preferences for specific climate policy measures. In turn, NDC prioritisation was operationalised using national NDC documents submitted closest to the end of the People's Climate Vote survey period, with the final sample covering submissions between November 2020 and April 2023. Where updates revised only specific elements, they were merged with the preceding full NDC; where necessary, documents were translated into English before analysis (Section 10.2). Combining both, sectoral priority congruence was operationalised as the correspondence between citizen climate policy priorities and NDC prioritisation across the same policy domains, while variation in congruence was descriptively explored using additional country-level indicators to examine contextual conditions associated with observed differences.

⁷ The study used the publicly available report data, which provide country-level support levels for concrete climate policy options for G20 countries only. Although access to the underlying dataset was requested, UNDP indicated that it was not being publicly released at the time of research. The analysis is therefore based on reported country-level figures rather than individual-level microdata. This limited disaggregated analysis by social group and prevented expansion beyond G20 countries and policy categories reported in usable form.

Table 2: Operationalisation and data sources of key concepts and variables

Concept	Variable	Indicator(s)	Measurement	Data source / method
<i>Citizen climate policy priority</i>	Citizen support for specific climate policy categories	Share of respondents supporting each UNDP People's Climate Vote policy option: - "Conserve forests and land" - "Use solar, wind and renewable power" - "Use climate-friendly farming techniques" - "Use more clean electric cars and buses, or bicycles" - "Invest more money in green businesses and jobs" - "Install more early warning systems for disasters" - "Build infrastructure and conserve nature to protect lives and livelihoods" - "Stop burning fuels that pollute" - "Waste less energy in homes, buildings, and factories" - "Transport goods on planes, ships, trains and trucks that run on clean energy"; - "Support local communities, indigenous peoples, and women that are environmental stewards" - "Make companies pay for their pollution" - Excluded: "provide good and affordable insurance" and "require more information on how products are made".	Percentage support per policy category, measured at country level. For the congruence calculation, these values were normalised within each country so that the 12 retained policy categories sum to 100 per cent.	UNDP People's Climate Vote 2021 (Flynn et al. 2021); author's normalisation for congruence analysis
<i>NDC policy prioritisation</i>	Presence and relative emphasis of UNDP-derived policy priority categories in NDC texts	Manually validated ClimateBERT-classified NDC sentences assigned to the 12 retained policy priority categories	NDC priority score per policy category and country, calculated as the number of validated policy words assigned to each category divided by the total number of validated policy words for that country. Scores sum to 100 per cent within each country.	NDC documents (Section 10.2), analysed through ClimateBERT-assisted classification and manual validation

<i>Sectoral priority congruence gap</i>	Degree and direction of correspondence between citizen priority and NDC policy prioritisation for each country-policy category pair	Difference between the normalised citizen priority value and the NDC priority score for the same policy category in the same country	NDC priority share minus relative citizen priority share, both expressed as percentages summing to 100 within each country. Positive values indicate greater NDC attention than citizen priority; negative values indicate under-reflection; values close to zero indicate stronger congruence. The absolute value captures the magnitude of incongruence regardless of direction.	Author's calculation based on UNDP People's Climate Vote and ClimateBERT-coded NDC data
<i>Country-level sectoral priority congruence score</i>	Overall degree to which a country's NDC priority distribution corresponds to its citizen climate policy priority distribution	Total absolute distance between normalised citizen priorities and NDC priority scores across the 12 retained policy categories	Country-level score calculated as: $100 - (\text{sum of absolute sectoral priority congruence gaps} / 2)$. Higher scores indicate stronger country-level distributional congruence between citizen priorities and NDC policy prioritisation.	Author's calculation
<i>Substantive Alignment type</i>	Qualitative classification of the relationship between citizen priority and NDC prioritisation	Combination of high/low citizen priority and high/low NDC prioritisation, using country-specific median thresholds	Classification into the Substantive Alignment Typology: high-priority alignment, under-reflection, divergence, or muted alignment. Values above the country median were classified as high priority; values equal to or below the median were classified as low priority.	Author's calculation based on country-specific median threshold rules
<i>Formal citizen inclusion</i>	Reported inclusion of citizens, civil society, local communities or stakeholders in NDC formulation	NDC references to public participation, stakeholder consultation, civil society involvement or local community engagement participation	Binary indicator: 0 = no reported citizen, CSO, stakeholder, local community or Indigenous Peoples' inclusion in NDC formulation; 1 = reported inclusion of at least one of these actors in the NDC formulation or planning process.	Author's manual coding of NDC planning-process and participation sections (Section 10.2)
<i>Consultative institutions</i>	Broader institutionalisation of civil society consultation	Extent to which CSOs are routinely consulted by policymakers (2021)	Continuous index score	V-Dem CSO consultation indicator (Coppedge et al., 2026)
<i>Democratic accountability</i>	Quality of democratic institutions	Electoral democracy score (2021)	Continuous index score	V-Dem Electoral Democracy Index (Coppedge et al., 2026)
<i>Climate vulnerability</i>	Exposure and sensitivity to climate-related risks	Climate vulnerability index (2021)	Continuous index score	ND-GAIN (2026)
<i>Fossil fuel dependence</i>	Economic dependence on fossil fuel production or rents	Fossil fuel rents as share of GDP (2021)	Continuous percentage of GDP, calculated as sum of oil, gas and coal rents	World Bank (2026) World Development Indicators
<i>GDP per capita</i>	Economic capacity / income level	GDP per capita (constant USD) (2021)	Continuous value, preferably logged for analysis	World Bank (2026) World Development Indicators
<i>Emissions per capita</i>	Current emissions responsibility and transition burden	GHG emissions per capita excl. LULUCF (2021) ⁸	Continuous value in tCO ₂ e per capita	Climate Watch (2026)

⁸ Emissions per capita are measured excluding LULUCF in the main analysis, because the variable is intended to capture current emissions responsibility and transition burden in the productive economy. LULUCF is excluded because land-use emissions and removals are highly volatile and can substantially alter country rankings, particularly in countries with large forest sinks or land-use change.

5.4 Data processing

This section explains how citizen priorities and NDC content were converted into comparable measures of sectoral priority congruence. It first outlines the ClimateBERT-assisted classification and manual validation of NDC content (Section 5.4.1), then explains the construction of NDC prioritisation scores, congruence gaps, country-level congruence scores and the Substantive Alignment Typology (Section 5.4.2). Further details on document preparation, category matching, classification and validation are provided in the appendix (Sections 10.2–10.8).

5.4.1 ClimateBERT-assisted classification of NDC content

NDC policy prioritisation was operationalised through ClimateBERT-assisted content analysis. ClimateBERT is a climate-specific language model trained on climate-relevant text and is thus better suited than general-purpose models to identifying the vocabulary, policy framings and sectoral references common in NDCs (Webersinke et al., 2022). This method was selected because NDCs are lengthy, heterogeneous documents that vary substantially in structure, terminology and detail, making full manual coding time-intensive and difficult to reproduce consistently. Moreover, it provides a replicable framework for analysing climate policy documents at scale and can be adapted for future research comparing public preferences with policy outputs across countries and over time.

To adapt the model to this study, the 12 retained People’s Climate Vote policy categories were used as NDC classification categories. NDC texts were segmented into sentences, enabling policy domains to be identified at a level specific enough for classification while retaining interpretive context. Each sentence received a provisional ClimateBERT label and was then manually validated. During validation, sentences were confirmed, reassigned or labelled “No category” when they lacked substantive policy content corresponding to one of the 12 domains. The final NDC coding sample comprised 657 manually validated, policy-relevant sentences⁹.

⁹ The manual validation process reviewed the 899 highest-confidence ClimateBERT predictions. The stopping point, confidence-score distribution and “No category” decisions are documented in the appendix (Sections 10.3–10.4).

For each country, NDC prioritisation was calculated as the share of validated policy words assigned to each domain relative to the country's total validated policy words. Word-count weighting was preferred to sentence counts because NDC sentences vary substantially in length. Thus, the score captures the share of each country's validated NDC policy content devoted to a given domain and, by extension, its relative emphasis within the document. The underlying assumption is that policy areas receiving greater textual space are generally accorded greater attention in the NDC.

5.4.2 Construction of sectoral priority congruence scores

Sectoral priority congruence was calculated by comparing the relative distribution of citizen priorities with NDC textual attention across the same 12 policy domains. Because the People's Climate Vote reports support percentages for each policy option, citizen scores were first normalised within countries so that the 12 retained domains summed to 100%. This converted support levels into relative priority distributions comparable to NDC prioritisation scores, which express each domain's share of total validated NDC policy content.

For each country-domain pair, the directional congruence gap was calculated as:

$$\begin{aligned} &\textit{Sectoral priority congruence gap} \\ &= \textit{NDC priority share} - \textit{relative citizen priority share} \end{aligned}$$

Thus, positive values indicate greater relative NDC attention than citizen priority; negative values indicate under-reflection, where relative citizen priority exceeds NDC attention; and values close to zero indicate stronger distributional correspondence. The absolute congruence gap captured the magnitude of incongruence regardless of direction.

Country-level sectoral priority congruence was then summarised through a 0–100 score based on the total absolute distance between the citizen priority and NDC prioritisation distributions:

$$\begin{aligned} & \textit{Country sectoral priority congruence score} \\ &= 100 - \left(\frac{\textit{sum of absolute congruence gaps}}{2} \right) \end{aligned}$$

Higher scores indicate stronger country-level distributional congruence between citizen priorities and NDC textual prioritisation.

Finally, the Substantive Alignment Typology classified each country-domain relationship. For each country, median relative citizen priority and median NDC priority shares were calculated separately across the 12 domains. Domains above the relevant median were classified as high priority, while those equal to or below it were classified as low priority. Combining these classifications produced four categories: high-priority alignment, under-reflection, divergence and muted alignment. The typology classifies country-domain observations, not countries as whole cases; country-level profiles were hence interpreted by counting how many domains fell into each category within each country. This median-based approach was selected because the analysis focuses on relative within-country priority distributions, rather than universal thresholds of public support or NDC attention.

5.5 Ethical considerations

Ethical considerations are limited but carefully addressed. All quantitative datasets used in this study are publicly available, anonymised and nationally aggregated, posing no risk to individual respondents. The main ethical responsibility thus concerns responsible secondary analysis: reporting the scope and limits of the data accurately, avoiding generalising claims, and interpreting automated text classification outputs cautiously. The research data management followed the principle of transparency by documenting the NDC corpus, preparation decisions, operationalisation table, classification procedure and scoring rules.

5.6 Positionality

The researcher approaches this study as an external analyst of global climate governance, with theoretical knowledge of climate policy processes but no direct

experience in NDC formulation. As a German researcher based in the Netherlands, both outside the final sample, the researcher has no direct national stake in the cases analysed. This position supports analytical distance and a comparative focus on cross-national patterns rather than single-country political narratives.

Simultaneously, the study is informed by a normative commitment to inclusive climate governance and substantive representation, which shaped the choice to use citizen climate policy priorities as a benchmark for assessing NDC content. This creates a risk of interpreting incongruence too readily as a deficit, while underemphasising alternative explanations such as technical feasibility, international signalling, sectoral constraints or long-term climate effectiveness. To mitigate this risk, the analysis applied explicit operationalisation, systematic comparison across countries and domains, transparent scoring rules and cautious interpretation. Alignment was thus treated as one dimension of climate governance legitimacy, not as evidence that citizen priorities caused NDC content or that aligned policies are necessarily environmentally optimal, legally enforceable or sufficient to meet the Paris Agreement's temperature goals.

5.7 Research quality, reliability and validity

In addition to transparency and cautious interpretation, the measurement strategy was assessed using Bryman's (2012) quantitative criteria of reliability and validity, focusing on procedural consistency, cross-country-domain measurement consistency, and alignment with sectoral priority congruence (Table 3). Overall, the measure is strongest for repeated cross-national and cross-domain patterns; individual country-domain cells require greater caution, especially in borderline classifications and sparse NDC profiles, where small coding changes can disproportionately affect scores.

Table 3: Reliability and validity of the research design and measurement strategy

Quality criterion	How it was addressed in this study	Remaining limitation or scope note
<i>Reliability: stability</i>	Stability was supported by using fixed public datasets and archived NDC documents. The NDC corpus followed a common temporal logic, and the People's Climate Vote figures and selected NDC versions remained stable during the research process.	The cross-sectional design precludes testing whether the measure remains stable across several NDC cycles. The findings therefore capture one period of NDC-citizen congruence, not change over time.
<i>Reliability: internal validity</i>	Internal validity, which Bryman situates under reliability as coherence among aggregated indicators, was supported by the structure of the measure. Each country-domain observation compares citizen support and NDC prioritisation for the same policy category. The country-level congruence score then summarises the total absolute distance between the two 12-domain distributions, rescaled to a 0–100 similarity measure.	Aggregation can conceal which domains drive congruence or incongruence. For this reason, country-level scores were interpreted alongside domain-level gaps and the Substantive Alignment Typology.
<i>Reliability: inter-observer consistency</i>	Inter-observer consistency was supported by applying identical text-processing procedures, ClimateBERT model, policy categories, manual validation rules and congruence formula across countries. ClimateBERT generated provisional NDC classifications systematically, while manual validation followed documented category definitions and boundary rules. The formal citizen inclusion variable was also manually coded, but it was binary and based on mention or no mention, reducing ambiguity.	No formal second-coder reliability test was conducted, so inter-observer consistency cannot be directly assessed. Remaining uncertainty is most relevant for borderline sentences and sparse or highly concentrated NDC profiles, where alternative coding choices could affect individual country-domain scores.
<i>Validity: face validity</i>	Face validity was strengthened by matching each core concept to an indicator that visibly reflected it. Citizen priorities were measured through country-level support for concrete climate policy options, while NDC prioritisation was measured through corresponding policy categories in NDC texts. Sectoral priority congruence was then calculated by comparing citizen priority scores with NDC prioritisation scores for each country-domain pair.	The indicators visibly reflect the concepts, but both remain proxies. Citizen support does not capture ranked priority, trade-offs, preference intensity under cost constraints or preferred instruments, while NDC textual attention does not capture ambition, implementation, expenditure or legal force.
<i>Validity: concurrent validity</i>	Concurrent validity was assessed by comparing congruence scores and domain-level patterns with theoretically relevant contextual indicators and existing research. These included literature on NDC ambition, stakeholder consultation and climate policy congruence, as well as indicators for formal citizen inclusion, routine CSO consultation, democratic accountability, climate vulnerability, fossil fuel dependence, GDP per capita and emissions per capita.	No external dataset directly measures NDC-citizen sectoral priority congruence, so the measure could not be validated against an equivalent independent criterion. The comparison therefore provides a cautious concurrent validity check by assessing whether observed patterns are plausible in relation to prior research, while also showing where contextual indicators do not closely track congruence scores.
<i>Validity: predictive validity</i>	Predictive validity was not central to the research design because the congruence score was not designed to predict future NDC ambition, implementation success, emissions reductions or public support.	Predictive validity was not assessed, so the measure cannot show whether sectoral priority congruence predicts later NDC revisions, implementation credibility or public support. This provides an avenue for future research.

5.8 Limitations of the research design

Several limitations follow from this study's data and design. Firstly, although NDCs follow broadly similar formats, they remain highly heterogeneous documents (Hsu et al., 2020). The textual analysis captures whether and how often policy categories appear, but not the ambition, direction, strength, instrument choice, legal enforceability, budgetary allocation or implementation credibility of commitments. Thus, vague references receive the same score as concrete, implemented measures. Moreover, countries with longer or more sectorally detailed NDCs may register more policy attention than countries with shorter, more target-oriented submissions, even where this reflects reporting style rather than substantive policy difference. NDCs may also omit domestic legislation, sectoral strategies, budgets, executive programmes or subnational measures through which governments address citizen-supported priorities outside the NDC text. Formal citizen inclusion in preparation processes can only be coded when reported. The analysis thus captures what is visible in formal NDC documents, not all climate action or participation practice. Finally, ClimateBERT-assisted classification introduces model-related uncertainty. Although outputs were manually reviewed and corrected, automated classification may still misread vague, technical, translated or context-specific language, especially where policy categories do not map neatly onto established NDC terminology.

Moreover, the citizen priority data are limited by the availability and structure of the People's Climate Vote. The dataset was used because no more suitable cross-national data on policy-specific citizen climate priorities could be identified, and the full underlying microdata were not publicly available. However, the survey was not designed to match NDC content, and its policy options are fixed, selective and not inductively derived from NDC texts. Some categories overlap or require interpretation, while other NDC-relevant issues, such as ocean conservation, are not fully captured. The survey also measures support for policy options rather than priority intensity. Respondents may support several policies simultaneously, and high support does not necessarily mean that a policy would remain central under trade-offs over cost, feasibility or distribution. Moreover, the survey does not show whether citizens want more or less government action relative to the status quo, nor does it identify preferred policy instruments,

although support for climate policy often differs between enabling measures and more coercive or cost-imposing instruments (Fairbrother, 2022; Haque et al., 2019; Rhodes et al., 2017; Walgrave and Soontjens, 2026). The study thus interprets support levels as indicators of relative sectoral citizen priority, not as complete preference or instrument-level measures.

Due to these data and design limitations, several dimensions of representation fall beyond the study's scope. Firstly, the research measures congruence as an outcome at one point in time, not the full representational cycle through which citizen priorities, consultations, policy outputs and issue salience may influence one another. It cannot show whether governments were aware of citizen priorities, whether consultations altered draft NDCs, or whether NDC content changed during formulation. Citizen priorities are thus treated as a normative benchmark for assessing substantive representation and exploring its variation, rather than as a causal driver of NDC content. Finally, the small country sample limits statistical inference and restricts the extent to which findings can be generalised beyond the cases analysed. Although the G20 focus is substantively justified by the group's emissions relevance and political influence, the final sample restricts multivariate analysis. Therefore, the contextual analysis is exploratory and should be read as identifying suggestive associations rather than causal effects.

6 Analysis: descriptive patterns of priorities and congruence

This chapter presents the descriptive empirical analysis of sectoral priority congruence across 13 G20 countries, addressing the second sub-question: *what are the descriptive patterns of citizen climate policy priorities, NDC sectoral prioritisation and their sectoral priority congruence across the 13 cases (SQ2)?*

To this aim, it first establishes the citizen-priority benchmark by examining cross-national and domain-level variation in climate policy priorities (Section 6). It then analyses policy outputs, showing how NDC attention is distributed across the same 12 domains and varies in breadth, specificity and concentration across countries (Section 6.2). The chapter subsequently compares both distributions through the sectoral priority congruence gap, identifying where NDC attention matches, falls below or exceeds relative citizen priority (Section 6.3). Lastly, it applies the Substantive Alignment Typology to classify these relationships as high-priority alignment, under-reflection, divergence or muted alignment (Section 6.4), before synthesising the descriptive findings (Section 6.5). Therefore, the chapter maps the descriptive structure of alignment and misalignment, providing the empirical basis for the explanatory analysis that follows.

6.1 Variation in citizen climate policy priorities

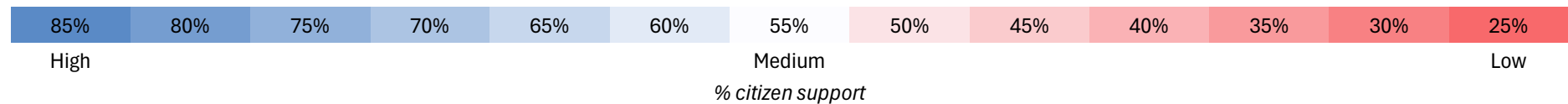
This section characterises citizen climate policy priorities across the 13 G20 countries, establishing the benchmark against which NDC content is later assessed. The People's Climate Vote data reveal three patterns: a shared high-support core centred on forests and renewables, substantial cross-national variation in support intensity and internal priority structure, and domain-level differences between broadly consensual and more contested policy areas.

Firstly, the most consistent feature is a shared priority core. Conserving forests and land (mean 64%) and expanding renewable energy (61%) attract the strongest support in nearly every country, with forest conservation ranked first in 12 of the 13 cases; climate-friendly farming, clean transport and green-jobs measures form a broad second tier in

the mid-fifties (Figure 4). Together, these domains suggest that citizens prioritise tangible, enabling and co-benefit-oriented policies linked to protection, investment, cleaner technologies, mobility, employment and resilience, rather than direct restriction or visible cost imposition. The high mean pairwise rank correlation across countries (Spearman's $\rho = 0.83$) indicates that, despite differences in absolute support, citizens rank policy domains in a broadly similar order, with conservation and renewables near the top and lower-salience domains consistently lower. Therefore, this shared core reflects a robust cross-national ordering of citizen priorities, not an average produced by heterogeneous national profiles.

Figure 4: Heatmap of Citizen Climate Policy Priorities across 13 G20 countries, percentage support

Country	Average	Conservation	Renewable Energy	Climate-friendly Farming	Clean Transport	Green Jobs	Resilient Infrastructure	Early Warning	Polluter Pays	Clean Freight	Fossil-Fuel Phase out	Energy Saving	Community Stewardship
Average		64%	61%	58%	55%	55%	54%	50%	49%	46%	46%	45%	43%
United Kingdom	71%	82%	82%	75%	73%	73%	77%	62%	72%	67%	66%	68%	60%
Canada	68%	79%	73%	73%	67%	68%	73%	59%	69%	63%	61%	66%	60%
Australia	67%	77%	76%	72%	66%	68%	72%	61%	65%	62%	61%	62%	60%
United States	58%	69%	65%	61%	56%	57%	61%	57%	57%	54%	50%	55%	51%
Japan	53%	71%	68%	50%	57%	59%	57%	55%	41%	50%	44%	51%	38%
Turkey	50%	63%	60%	60%	56%	46%	51%	49%	44%	43%	45%	39%	38%
Brazil	49%	60%	58%	55%	51%	51%	49%	47%	47%	42%	42%	39%	42%
South Korea	48%	63%	55%	59%	55%	56%	52%	43%	41%	40%	40%	39%	27%
Mexico	47%	57%	57%	57%	52%	52%	44%	47%	43%	35%	39%	38%	41%
Russia	46%	60%	51%	51%	51%	48%	51%	44%	45%	40%	43%	33%	39%
Argentina	46%	57%	57%	55%	52%	51%	46%	45%	44%	36%	39%	33%	38%
Saudi Arabia	38%	46%	46%	47%	42%	42%	38%	40%	32%	31%	31%	33%	32%
India	38%	44%	44%	44%	43%	43%	34%	40%	32%	33%	31%	33%	30%



Source: Author based on Flynn et al. (2021)

Beneath this consensus, countries vary in intensity and internal structure. Overall intensity, or general support for climate policy, ranges from 38% in India and Saudi Arabia to 71% in the United Kingdom, 68% in Canada and 67% in Australia, with other cases clustered between 46% and 58% (Figure 4). Meanwhile, internal structure, measured by the dispersion of support across the 12 measures within each country, ranges from comparatively flat profiles in India ($SD = 0.058$), where the most and least supported domains differ by only 14 percentage points (p.p.), to sharply structured profiles in South Korea and Japan ($SD \approx 0.10$), where the spread exceeds 30 p.p.. Notably, these dimensions appear largely independent ($r = -0.18$, n.s.): the overall strength of citizen support does not reliably predict how selectively citizens rank measures. These differences suggest that the citizen benchmark itself varies across national contexts. These two countries combine moderate intensity with the most selective profiles, high-income Anglophone cases combine high intensity with comparatively flat profiles, and emerging economies show lower intensity with mid-level differentiation. Furthermore, the two dimensions imply different benchmarks: a flat profile expresses weak relative preferences, whereas a sharply structured profile provides a clearer hierarchy against which NDC attention can be assessed.

Lastly, the domain-level results show that citizen priorities differ in how widely they are shared across countries. Conservation and renewable energy form a consensual core, combining high support with stable placement near the top of national rankings. A broadly supported but more nationally variable middle tier includes climate-friendly farming, clean transport, resilient infrastructure and green jobs. Resilient infrastructure sits between these patterns: it is strongly supported on average, but its salience varies substantially across countries ($SD \approx 0.133$, range 43 p.p.). Contrastingly, corporate accountability ($SD \approx 0.131$, range 40 p.p.) and energy conservation ($SD \approx 0.133$, range 35 p.p.) are more context-dependent, combining greater dispersion with lower average support. Early warning systems stand apart, combining moderate support, averaging 50%, with the lowest dispersion of any domain ($SD \approx 0.079$, range 22 p.p.). This distinction matters for the congruence analysis: limited NDC attention to a consensual domain would indicate under-reflection of a broadly shared citizen priority, whereas limited

attention to a more contested domain must be interpreted in relation to country-specific citizen demand.

Overall, the citizen data provide a differentiated benchmark for the congruence analysis, showing that aggregate climate concern alone is insufficient for assessing substantive alignment. A shared core of ecosystem protection and renewable energy is overlaid by largely independent cross-national variation in intensity and structure, and by domain-level variation separating consensual from contested measures.

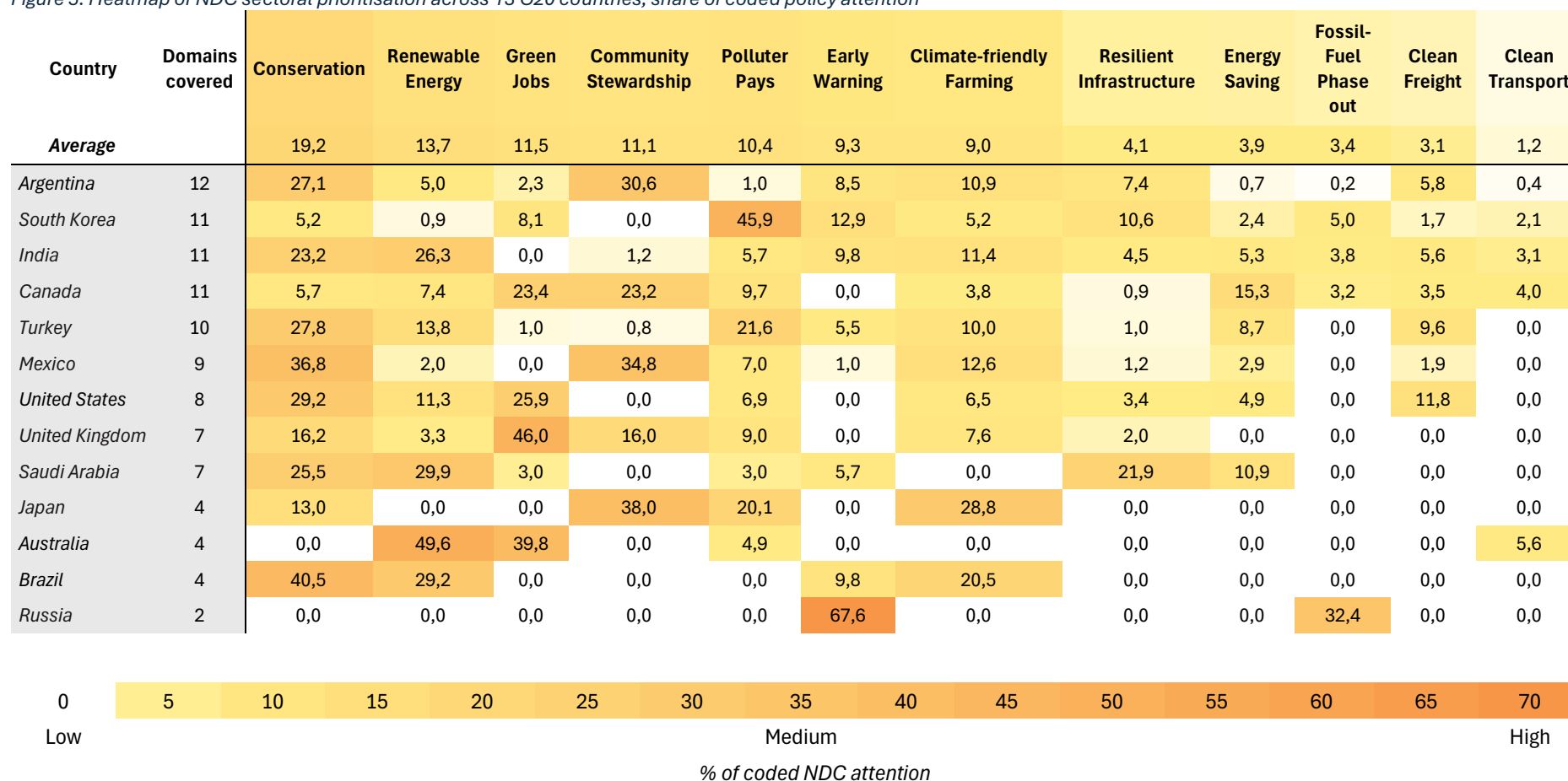
6.2 Variation in NDC sectoral prioritisation

Having established the citizen benchmark, this section turns to the policy-output side by examining how attention is distributed across the 12 policy domains in each country's NDC, measured as each domain's share of validated policy content. These scores capture the internal distribution of documented NDC attention, not policy ambition, implementation, expenditure or legal force. Low attention should thus be read as limited coded attention within the NDC, not evidence that the government does not act on the domain elsewhere. With this qualification, the NDC data reveal a profile more selective and concentrated than the citizen benchmark, as countries differ markedly in sectoral detail and concentration, and only a few domains attract consistent attention.

The most basic difference between NDCs lies in their sectoral specificity, understood here as the number of domains receiving any coded attention (Figure 5). The countries fall into three coverage profiles: Argentina, Canada, South Korea, India and Turkey form a broad-coverage group (10-12 domains); Mexico, the United States, the United Kingdom and Saudi Arabia an intermediate group (seven to nine); and Japan, Australia, Brazil and Russia a sparse group (two to four). Across the 156 country-domain observations, 56 receive no coded attention at all, meaning that more than one-third of possible sectoral correspondences are absent on the NDC side before the congruence calculation begins. These profiles shape how low scores should be interpreted. In broad NDCs, limited attention to one domain suggests little space relative to other articulated priorities; in documents with little sectoral detail overall, a low or zero score may reflect a general or target-oriented format rather than active exclusion. The relative-share measure sharpens

this because when coded content is confined to a few domains, their shares are mechanically inflated, as in Russia, where 68% of coded attention falls on early-warning systems and 32% on fossil-fuel phase-out. Thereby, sectoral breadth must be read alongside relative attention.

However, breadth can be misleading where nominal coverage includes token entries. Argentina, for example, is the only country with attention in all 12 domains, yet nearly a third of its attention (31%) is concentrated in community stewardship, while several domains receive only marginal shares. A clearer indicator of concentration is the share falling in each country's three most-emphasised domains. This ranges from 100% in Russia and over 90% in Australia and Brazil, where attention is packed into a few areas, to around 61% in Canada and India, where it is more evenly distributed. Sectoral breadth and concentration are hence related but distinct. Russia is both sparse and highly concentrated, whereas Argentina and Turkey combine broad coverage with relatively even distribution, and Brazil and Australia combine narrow coverage with strong concentration. Together, these patterns form a spectrum of NDC profiles, from broad and evenly weighted submissions, through broad but concentrated ones, to sparse documents necessarily focused on a handful of domains. These are document profiles, not measures of underlying policy effort, but they shape how far each NDC can register correspondence with a differentiated citizen benchmark.

Figure 5: Heatmap of NDC sectoral prioritisation across 13 G20 countries, share of coded policy attention¹⁰

Source: Author based on NDCs (Section 10.2)

¹⁰ Domain averages are unweighted country means of each domain's share of coded NDC attention. "Domains covered" refers to the number of domains with any coded attention.

Across countries, a clear hierarchy of NDC salience emerges by domain, combining average attention and frequency. Conservation has the highest average share (19%) and appears in 11 of 13 NDCs, making it the most consistently prioritised domain. Renewable energy (14%) and polluter-pays measures (10%) are similarly near-universal, each appearing in 11 countries, while climate-friendly farming appears in 10. Together these form a recognisable NDC core, consistent with cross-national content analyses identifying energy, renewables, agriculture and land use as the most frequently included sectors (Savin et al., 2025; UNDP, 2021). A second group of green jobs, community stewardship and early-warning systems receives moderate average attention but more selective coverage, depending more strongly on individual NDC structure. At the lower end, clean transport appears in only five NDCs and accounts for barely 1% of coded attention on average, while clean freight and fossil-fuel phase-out are similarly peripheral, appearing in five to seven countries with low average shares. This ranking is robust to sparse-NDC cases: excluding the four narrowest documents leaves the ordering essentially unchanged (Spearman's $\rho = 0.90$). The exception is early-warning systems, whose moderate average attention is driven almost entirely by Russia; without Russia, its average share falls from 9% to under 5%, placing it among the more peripheral domains. Three suggestive comparisons with the citizen benchmark thus emerge: Conservation, renewables and farming feature strongly on both sides; polluter-pays and community-stewardship measures are more prominent in NDCs than citizen support would suggest; whereas clean transport receives notably less NDC attention than its citizen support might imply.

Overall, the NDC data show a policy-output profile that is more uneven and selective than the citizen benchmark. Citizen priorities vary in intensity and structure, but most domains receive at least moderate support across countries; by contrast, NDC attention is often absent across several domains and concentrated in a small number of areas. Thus, NDCs should not be read as direct inventories of national climate policy, but as mediated documents whose sectoral content reflects both substantive priorities and documentary form. Therefore, sectoral specificity is central to interpreting sectoral priority congruence: broad NDCs can register correspondence with a differentiated citizen

agenda, whereas sparse or target-oriented NDCs narrow the range of visible correspondence.

6.3 Sectoral priority congruence gaps between citizen priorities and NDC attention

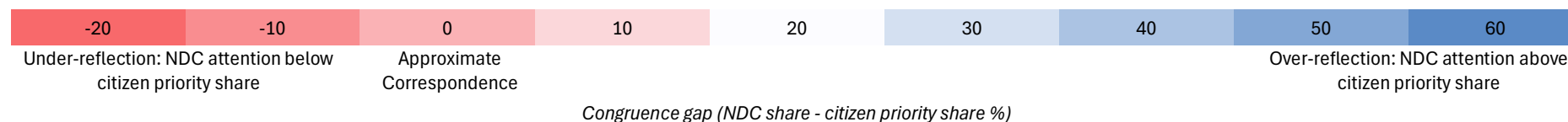
Having established the citizen benchmark and the NDC policy-output profile, this section compares the two distributions directly. It asks whether the share of the citizen priority agenda assigned to a policy domain corresponds to the share of NDC attention assigned to that domain¹¹. Treating both as comparable distributions of policy attention distinguishes the sectoral priority approach from the existing ambition literature. While aggregate climate concern can indicate overall public support for climate action, it cannot assess whether NDCs reflect the relative distribution of citizen priorities across policy domains.

The first pattern is that congruence is selective rather than uniform. The gap matrix (Figure 6) shows no simple match between citizen priorities and NDC attention across domains; instead, correspondence is concentrated in a few areas, while others show systematic under-reflection or selective over-representation. Thus, the main finding is not the absence of sectoral priority congruence, but its differentiation across domains. Certain citizen priorities are consistently reflected in NDCs, particularly within the ecological-energy core, whereas others receive substantially less attention than their salience in the citizen agenda would predict. Importantly, this confirms the value of a sectoral approach, since aggregate climate concern cannot assess the relative distribution of congruence across policy domains.

¹¹ The congruence gap is calculated as NDC attention share minus relative citizen priority share for each country-domain pair, with both distributions expressed as percentages summing to 100 within each country (see Section 5.4.1). Positive values indicate over-reflection, meaning that a domain receives a larger share of NDC attention than its citizen priority share. Negative values indicate under-reflection, meaning that a domain receives less NDC attention than its citizen priority share. Values close to zero indicate approximate correspondence. Because the shares are relational, greater attention to one domain necessarily reduces the share available to others. The measure thus captures the distribution of documented policy salience, not the volume, quality, ambition or implementation of climate action.

Figure 6: Heatmap of sectoral priority congruence gap across 13 G20 countries, p.p.¹²

Country	Mean absolute gap	Conservation	Community stewardship	Renewable Energy	Green Jobs	Polluter Pays	Early Warning	Climate-friendly Farming	Energy Saving	Fossil-Fuel Phase out	Clean Freight	Resilient Infrastructure	Clean Transport
Mean directional gap		9,0	4,3	4,0	2,7	2,7	1,2	-0,4	-3,2	-3,8	-4,2	-4,5	-7,8
India	5,4	13,4	-5,5	16,5	-9,5	-1,4	0,9	1,6	-2,0	-3,1	-1,7	-3,0	-6,4
Canada	6,5	-4,0	15,8	-1,6	15,0	1,2	-7,3	-5,2	7,2	-4,3	-4,3	-8,1	-4,3
Turkey	6,6	17,2	-5,6	3,7	-6,7	14,2	-2,7	-0,1	2,1	-7,6	2,4	-7,6	-9,4
Argentina	7,0	16,8	23,7	-5,3	-6,9	-7,0	0,4	1,0	-5,3	-6,9	-0,7	-0,9	-9,0
United States	7,1	19,2	-7,4	1,9	17,7	-1,3	-8,2	-2,3	-3,0	-7,2	4,0	-5,4	-8,1
South Korea	7,6	-5,9	-4,7	-8,7	-1,7	38,7	5,4	-5,2	-4,4	-2,0	-5,3	1,5	-7,5
Saudi Arabia	8,8	15,5	-7,0	19,9	-6,1	-4,0	-3,0	-10,2	3,7	-6,7	-6,7	13,6	-9,1
United Kingdom	8,9	6,6	9,0	-6,3	37,5	0,6	-7,2	-1,2	-7,9	-7,7	-7,8	-7,0	-8,5
Mexico	9,4	26,7	27,5	-8,1	-9,3	-0,7	-7,4	2,5	-3,9	-6,9	-4,3	-6,6	-9,3
Brazil	10,4	30,2	-7,2	19,3	-8,7	-8,1	1,7	11,1	-6,7	-7,2	-7,2	-8,4	-8,7
Japan	11,5	1,9	32,1	-10,6	-9,2	13,7	-8,6	21,0	-8,0	-6,9	-7,8	-8,9	-8,9
Australia	11,9	-9,6	-7,5	40,1	31,3	-3,2	-7,6	-9,0	-7,7	-7,6	-7,7	-9,0	-2,6
Russia	14,1	-10,8	-7,0	-9,2	-8,6	-8,1	59,7	-9,2	-5,9	24,7	-7,2	-9,2	-9,2



Source: Author based on Flynn et al. (2021) and NDCs (Section 10.2)

¹² The congruence gap is calculated as NDC attention share minus relative citizen priority share. Columns are ordered from domains with the highest average positive gap to those with the strongest average negative gap.

At the domain level, conservation and renewable energy show the clearest shared salience, although neither is uniformly aligned. Conservation has the largest positive average gap, around +9 p.p., and receives more NDC attention than citizen priority in 9 of 13 countries, reflecting its dual status as the highest citizen priority and the most consistently represented NDC domain. However, it is under-reflected in Australia, Canada, South Korea and Russia. Renewable energy also has a positive average gap of around +4 p.p., but is more divided, being over-represented in 6 countries and under-reflected in seven. Australia is the clearest positive case, with renewables receiving around 40 p.p. more NDC attention than citizen priority, while Japan and Russia give the domain no coded attention despite high relative citizen priority. Thus, the shared core remains visible without producing uniform country-level alignment. Similarly, climate-friendly farming has a near-zero mean directional gap, around -0.4 p.p., but this conceals sharp incongruence: Japan over-reflects farming by around 21 p.p. and Brazil by around 11, whereas Saudi Arabia under-reflects it by around 10 p.p. and Australia by around 9. Therefore, near-zero averages can reflect offsetting positive and negative country-level gaps. Domain averages should thus be read as broad directional indicators, while country-domain cells reveal substantial variation in congruence.

Contrastingly, the strongest systematic under-reflection appears in transport and infrastructure-related domains. Clean transport is under-reflected in all 13 countries by directional gap, with an average gap of approximately -7.8 p.p., making it the clearest directional finding in the matrix. Citizens place clean personal transport in the upper-middle priority tier, yet it appears in only five NDCs and accounts for around 1% of coded attention on average. Resilient infrastructure also has a negative average gap of around -4.5 p.p. and is under-reflected in 11 countries. Because resilient infrastructure attracts relatively high but nationally variable citizen support, its under-reflection suggests that concrete, socially legible priorities linked to everyday mobility, cleaner technologies, protection, adaptation and resilience receive less documented NDC attention than the citizen benchmark implies.

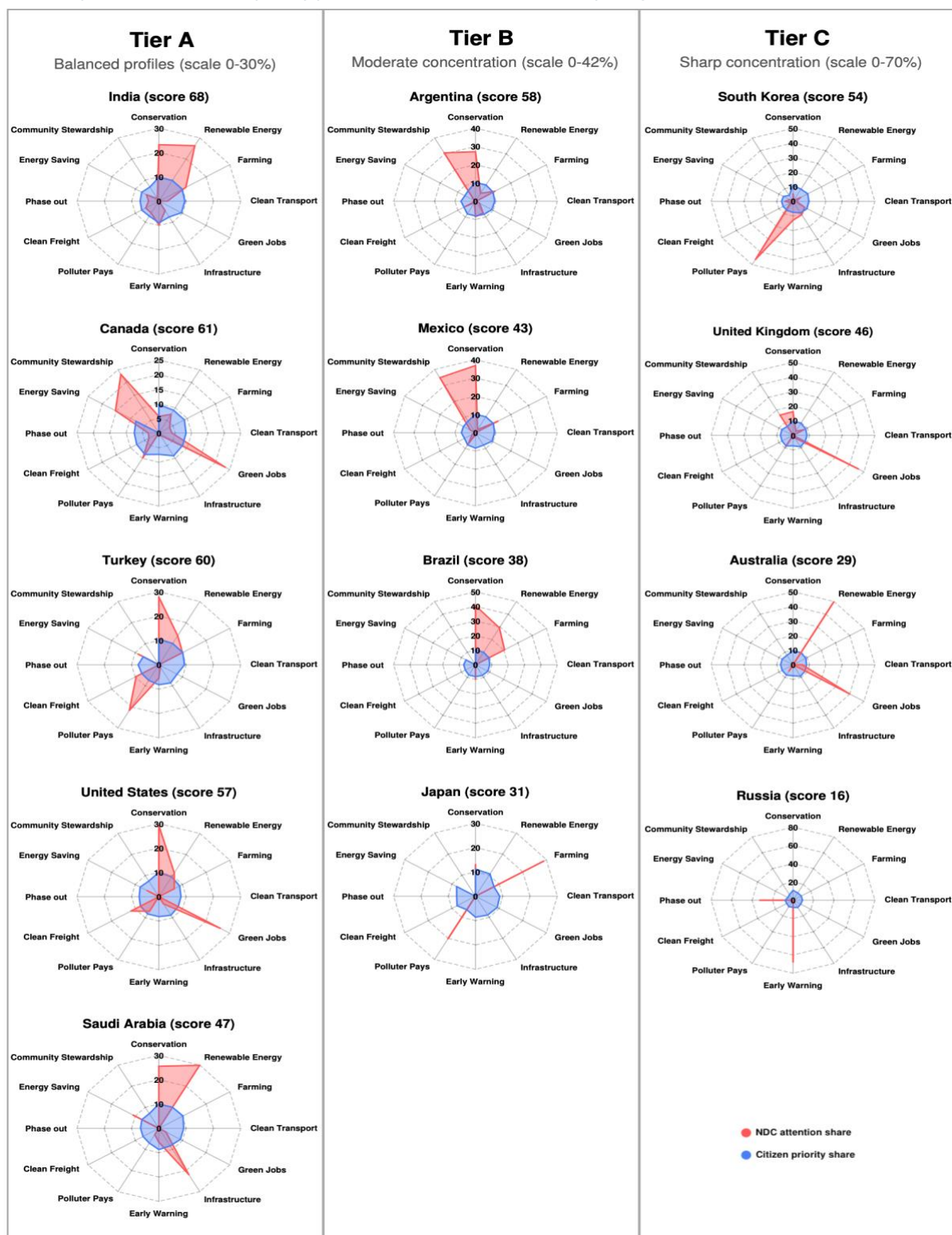
Several lower-salience domains are also under-reflected but carry less representational weight. Clean freight, fossil-fuel phase-out and energy saving have negative average gaps

of around -4.2, -3.8 and -3.2 p.p., respectively, and are under-reflected in 11, 12 and 10 countries. However, because these domains are less central in the citizen priority distribution, their under-reflection indicates weaker correspondence rather than the displacement of a strong cross-national priority to the same extent as clean transport. This distinction prevents the analysis from treating every negative gap as an equivalent representational shortfall.

A second group receives more coded NDC attention than citizen priority, with large positive gaps arising through two mechanisms. Polluter-pays measures have an average gap of approximately +2.7 p.p., driven overwhelmingly by South Korea, where they receive around 39 p.p. more coded NDC attention than citizen priority. Community stewardship shows an average positive gap of approximately +4.3 p.p., concentrated mainly in Japan, Mexico and Argentina. Some spikes occur in broad NDCs and others in sparse ones. South Korea's polluter-pays emphasis appears within a sectorally broad NDC covering 11 domains, so it is not merely an artefact of sparse coverage. As such, some NDCs give greater relative space to accountability, participation or governance-oriented language than the citizen priority structure would predict. Early-warning systems illustrate the second mechanism. Although the domain has a small positive average gap of approximately +1.2 p.p., this is largely produced by Russia, where early warning receives around 60 p.p. more coded NDC attention than citizen priority, a pattern not repeated at comparable scale elsewhere. This is thus not a broad NDC emphasis, but a concentration effect within a sparse profile. Such cases should be read as visible concentration within the NDC, not as evidence of broad sectoral prioritisation across a fully articulated climate agenda.

At the country level, congruence-gap magnitude is closely linked to NDC sectoral specificity and concentration. India and Canada record the lowest mean absolute gaps, at around 5.4 and 6.5 p.p., consistent with their broad and comparatively distributed NDC profiles. Turkey, Argentina and the United States follow, with gaps of around 6.6, 7.0 and 7.1. Contrastingly, Russia has the largest mean absolute gap, around 14.1 points, followed by Australia, Japan and Brazil, at 11.9, 11.5 and 10.4. Figure 7 illustrates these profile differences. Citizen priority shares form comparatively rounded blue profiles,

reflecting relatively even support across domains, whereas NDC attention often appears as a more peaked red profile, with 1-2 domains receiving disproportionate attention. In broader NDCs, such as India, Canada and Turkey, attention is distributed across several domains and thus has more points of overlap with the citizen priority profile. In concentrated cases, the NDC profile collapses onto fewer axes while the citizen profile remains comparatively even, most clearly in Russia, where attention centres on early warning, and Australia, where it centres on renewable energy and green jobs. The number of domains articulated in an NDC is strongly associated with the country congruence score ($r = 0.92$). Thereby, NDC structure conditions the visibility of congruence: broader NDCs create more opportunities for correspondence, while narrow or highly concentrated NDCs produce sharper gaps because many citizen-prioritised domains receive little or no coded attention.

Figure 7: Comparative NDC-citizen priority profiles across 13 G20 countries by congruence tier¹³

Source: Author based on Flynn et al. (2021) and NDCs (Section 10.2)

¹³ Radar plots compare the distribution of relative citizen priority shares and NDC attention shares across 12 policy domains. The blue area represents citizen priority shares, while the red line represents corresponding NDC attention shares. Countries are grouped by overall congruence score, with Tier A indicating more balanced profiles, Tier B moderate concentration, and Tier C sharper concentration of NDC attention. The score reported in each country title refers to its overall congruence score, by which countries are ordered within tiers. Domains are ordered by mean citizen priority.

Collectively, the gap analysis has implications beyond individual domains. The strongest correspondence appears where citizen and NDC priorities converge around conservation, renewable energy and, more unevenly, climate-friendly farming. The strongest under-reflection appears where citizens prioritise tangible transition and protection domains, especially clean transport and resilient infrastructure, which receive limited NDC attention. Selective relative elevation appears where NDCs foreground accountability, governance or participation-oriented domains, especially polluter-pays measures and community stewardship, more prominently than citizen priority rankings would suggest. These patterns align with wider evidence that citizens tend to favour concrete, co-benefit-oriented and socially tangible climate measures, while official climate planning often follows institutional, technical and governance-oriented logics that only partly overlap with public priorities (Drews and van den Bergh, 2016; Flynn et al. 2021; Guan and Wang, 2025; Rhodes et al., 2017). Thereby, a climate agenda broadly shared by citizens does not necessarily translate into equivalent attention across their prioritised domains. As such, substantive representation in climate policy is not captured by national greenhouse gas (GHG) reduction commitments alone, but by whether the structure of those commitments corresponds to the structure of citizen priorities.

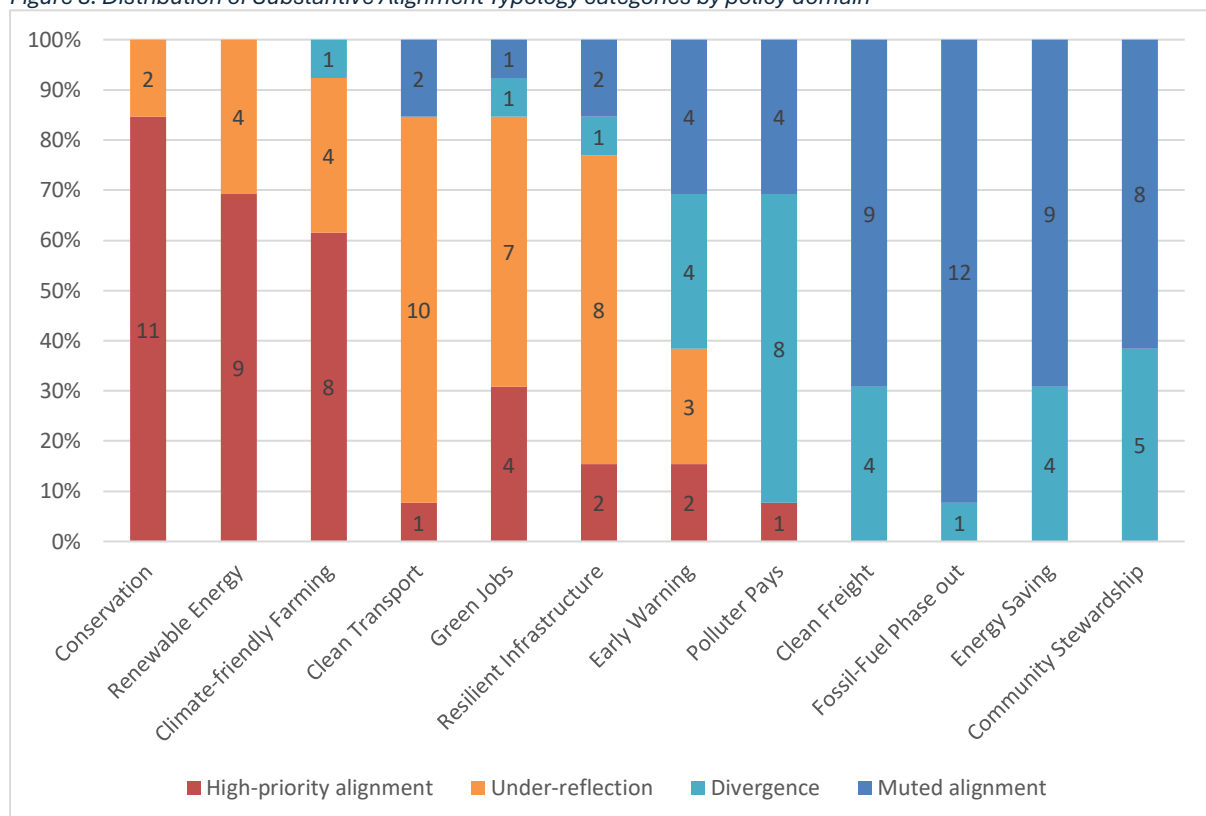
6.4 From distance to form: applying the Substantive Alignment Typology

The gap analysis measured how far NDC attention departs from citizen priority in each domain, but distance alone does not show the forms congruence and divergence take. Therefore, this section applies the Substantive Alignment Typology to distinguish four relationships across the 156 country-domain observations: high-priority alignment, where citizens and NDCs both assign a domain relatively high priority; under-reflection, where a citizen priority receives limited NDC attention; divergence, where the NDC elevates a domain less central to citizens; and muted alignment, where both assign lower priority. The typology uses each country's own distribution of citizen priority and NDC attention shares, with the within-country median separating relatively high from relatively low priority on each axis. Therefore, a domain may count as high-priority alignment while still carrying a directional gap. Because several NDCs contain many zero-attention domains, the typology is interpreted as a relative profile measure, not a precise measure of substantive representation. In sparse NDCs, even limited coded attention can make a

domain relatively salient within that country's NDC profile. The section first visualises the typology at the domain level, then examines how the four categories vary across domains and countries.

The typology shows that classification is shaped by the contrast between a relatively even citizen agenda and a more selective NDC agenda. Citizen priority shares are compressed, ranging from around 7%-10% across the 12 domains, whereas mean NDC attention ranges from around 1%-19%. Thus, sectoral congruence is driven less by sharp variation in citizen priorities than by how NDCs concentrate or omit attention. Across the 156 observations, 38 are classified as high-priority alignment, 38 as under-reflection, 29 as divergence and 51 as muted alignment (Figure 8). Therefore, the typology maps where selective NDC attention corresponds to, departs from or jointly de-emphasises a broad citizen priority agenda.

Figure 8: Distribution of Substantive Alignment Typology categories by policy domain



Source: Author based on Flynn et al. (2021) and NDCs (Section 10.2)

The strongest alignment appears at the upper and lower ends of the priority structure. At the high-priority end, conservation and renewable energy are most consistently aligned: conservation is classified as high-priority alignment in 11 of 13 countries, and renewable

energy in nine, while neither is ever muted. At the low-priority end, fossil-fuel phase-out is muted in 12 countries, and clean freight and energy saving in nine each; none is ever classified as high-priority alignment. Moreover, muted alignment is the largest category, with 51 observations, indicating that much non-high-priority alignment reflects shared low salience rather than direct contestation. Citizen priorities and NDC attention thus partly share a salience structure, broadly converging on central and peripheral domains. Consequently, the main observed tension is not the absence of congruence, but the uneven translation of citizen priorities across the middle of the agenda.

The clearest misalignment lies in this middle range. Under-reflection and divergence together account for 43% of observations but capture different substantive patterns. Under-reflection is concentrated in tangible, delivery-oriented domains: clean transport is under-reflected in 10 countries, resilient infrastructure in eight and green jobs in seven. Citizens place these domains in the upper half of their priority distribution, whereas NDCs place them in the lower half. Divergence appears in a different set of domains: polluter-pays measures are divergent in eight countries and community stewardship in five, while neither is ever under-reflected. Here, divergence denotes relative elevation within the NDC profile rather than absolute over-reflection. Polluter-pays is over-reflected in percentage-point terms in South Korea, Turkey and Japan, and marginally in the United Kingdom; in several other cases, it ranks relatively high within the NDC despite a small or negative directional gap. Thus, NDCs tend to under-articulate concrete transition and protection measures while relatively elevating accountability, governance and participation-oriented domains.

At the country level, the typology shows how documentary breadth shapes visible alignment. Countries with broader NDC profiles display a more varied mix of high-priority alignment, muted alignment, under-reflection and divergence because their documents articulate enough domains for multiple citizen-NDC relationships to appear. India, Canada and South Korea, for instance, combine several high-priority alignments with muted, under-reflected and divergent domains. This indicates not uniform substantive representation, but a wider range of observable correspondence within the NDC text. Contrastingly, concentrated NDCs produce narrower profiles. Russia records no high-

priority alignment and six under-reflections, the highest number in the sample, because coded NDC attention is concentrated in two domains outside the citizen priority core, while several citizen-supported domains receive no coded attention. Japan similarly records five under-reflections and only one high-priority alignment. These patterns should thus be read as evidence that NDC scope conditions visible congruence.

Overall, the typology turns continuous gaps into a structured account of how citizen priorities and NDC attention relate across the sample. NDCs are neither disconnected from citizen priorities nor even reflections of them. Rather, they reflect a shared ecological-energy core, especially conservation and renewable energy, and jointly assign lower priority to a periphery of clean freight, fossil-fuel phase-out and energy-saving measures. The main disagreement is directional and lies in the middle of the priority range: citizens give greater relative priority to tangible transition and protection measures, especially clean transport, resilient infrastructure and green jobs, while NDCs more often elevate accountability, governance and participation-oriented domains that citizens rank lower. Thus, misalignment is best understood as a structured difference in emphasis. One plausible interpretation is that governance-oriented domains fit more readily within conventional NDC formats, while everyday transition and protection priorities may be addressed elsewhere in domestic policy, although this analysis establishes the pattern rather than its cause. At the domain level, this selective mediation echoes the wider incongruence between official and public climate agendas identified by Guan and Wang (2025).

6.5 Descriptive synthesis

Overall, this chapter shows that sectoral priority congruence between citizen priorities and coded NDC attention is partial, structured and closely linked to NDC specificity. Citizen priorities provide a broad and comparatively even benchmark, while NDC profiles are more selective and document-dependent. Some NDCs distribute coded attention across many domains, whereas others concentrate attention in one or two areas, leaving several citizen-supported domains with little or no visible attention. Broader and more sectorally articulated NDCs thus create more opportunities for observable correspondence, while narrower NDCs restrict the range of visible alignment.

When both distributions are compared directly, the strongest correspondence appears in the ecological-energy core, especially conservation and renewable energy, with climate-friendly farming aligned more unevenly. The clearest under-reflection concerns tangible transition and protection domains, particularly clean transport, resilient infrastructure and green jobs. The typology sharpens this finding by showing that misalignment is not simply widespread non-representation. Many domains are muted on both sides; the main disagreement lies in the middle of the priority structure, where citizens give higher relative priority to concrete delivery-oriented measures while coded NDC attention more often elevates accountability, governance and participation-oriented domains. Thus, citizen priorities are most visible where they overlap with established climate-planning sectors and where NDCs are specific enough to articulate them.

7 Explaining variation in congruence

Building on this insight that congruence is partial, structured and strongly conditioned by NDC specificity, this chapter assesses *which country-level and policy-domain conditions are associated with higher or lower sectoral priority congruence* (SQ3), by examining whether this variation corresponds to the mechanisms developed in the theoretical framework (Section 4.4). It first examines cross-sectoral variation, assessing whether positive-action, protective and co-benefit-oriented domains are more likely to show high-priority alignment, and whether politically costly domains are more likely to appear as muted alignment or under-reflection (Section 7.1). It then explores cross-national variation by comparing country-level congruence with formal citizen inclusion, routine CSO consultation, democratic accountability, climate vulnerability, fossil fuel dependence, GDP per capita and emissions per capita (Section 7.2), before synthesising the findings (Section 7.3).

7.1 Cross-sectoral variation in congruence

Cross-sectoral variation is expected because climate policy domains differ in the benefits, costs and political conflicts they make visible. Positive-action and protective domains were expected to appear more often as high-priority alignment (H1), while politically costly domains were expected to appear more often as muted alignment or under-reflection (H2). The section assesses these expectations through typology distributions and directional gap values by first examining co-benefit and protective domains (Section 7.1.1), then politically costly and accountability-oriented domains (Section 7.1.2), before synthesising whether these expectations hold as broad sectoral patterns or require qualification (Section 7.1.3).

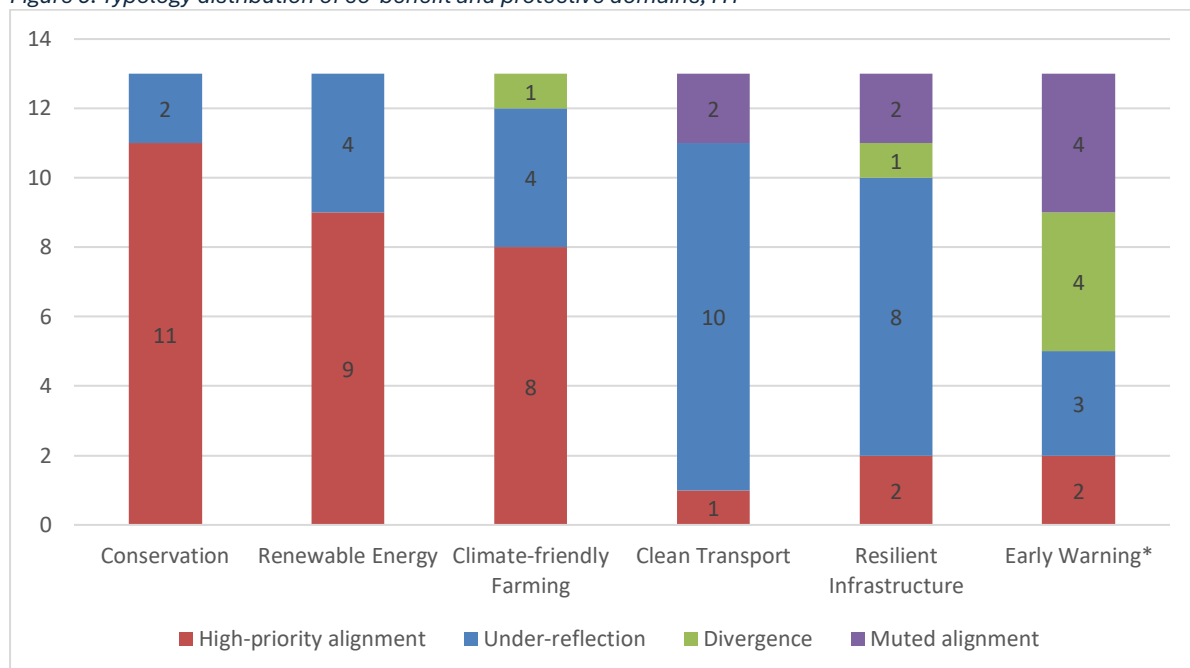
Domain-level findings are also read through NDC specificity, understood as the breadth and concentration of coded attention within country NDC profiles, because sparse or highly concentrated profiles can distort full-sample averages. The analysis thus distinguishes stable sectoral patterns from concentration-sensitive findings. In this section, concentration-sensitivity is especially relevant for early-warning systems,

whose apparent prominence is strongly affected by Russia’s concentrated NDC profile, and polluter-pays measures, whose positive average gap reflects several strong country cases rather than uniform cross-national over-reflection. Fossil fuel phase-out is also treated cautiously in relation to mean attention, although its typological classification as muted alignment remains stable. This distinction clarifies whether the hypotheses hold as broad sectoral patterns or require more cautious interpretation as profile-specific concentration effects.

7.1.1 Co-benefit and protective domains (H1)

Domains linking climate action to visible public goods were expected to align most consistently, because ecosystem conservation, clean energy expansion, adaptive farming, improved mobility, life protection and disaster-risk reduction all imply enabling or protective state action (H1). Therefore, they were expected to appear more often as high-priority alignment, where relatively high citizen priority is matched by relatively high NDC attention.

Figure 9: Typology distribution of co-benefit and protective domains, H1¹⁴



Source: Author based on Flynn et al. (2021) and NDCs (Section 10.2)

¹⁴ Bars show counts of country-domain observations, with each domain summing to 13 countries. Domains are ordered by the number of high-priority alignment observations, from highest to lowest; where domains have the same number of high-priority alignment observations, they are ordered by fewer under-reflection observations. The asterisk marks early-warning systems because its full-sample pattern is strongly shaped by Russia’s concentrated NDC profile, where 67.6% of coded NDC attention falls on this domain.

The strongest support for this expectation appears in the ecological-energy core, where conservation, renewable energy and climate-friendly farming are the only co-benefit-oriented and protective domains aligned in most countries (Figure 9). Conservation is classified as high-priority alignment in 11 of 13 countries, renewable energy in nine and climate-friendly farming in eight. This pattern remains visible when sparse NDCs are treated cautiously: conservation is aligned in all nine core cases, while renewable energy and climate-friendly farming are each aligned in seven. However, climate-friendly farming corresponds more conditionally. Although its average directional gap is close to zero across countries (~ -0.4 p.p.), this conceals considerable variation: coded attention exceeds citizen priority by around 21 p.p. in Japan and 11 in Brazil but falls short by around 10 in Saudi Arabia and nine in Australia. Farming thus belongs to the aligned core, though less uniformly than conservation or renewable energy, consistent with agriculture being a recognised NDC sector whose relative weight depends strongly on national land-use, food-system and adaptation contexts (UNDP, 2021). Therefore, the ecological-energy core provides sectoral evidence for H1, as these domains combine strong citizen priority with repeated articulation in NDC content.

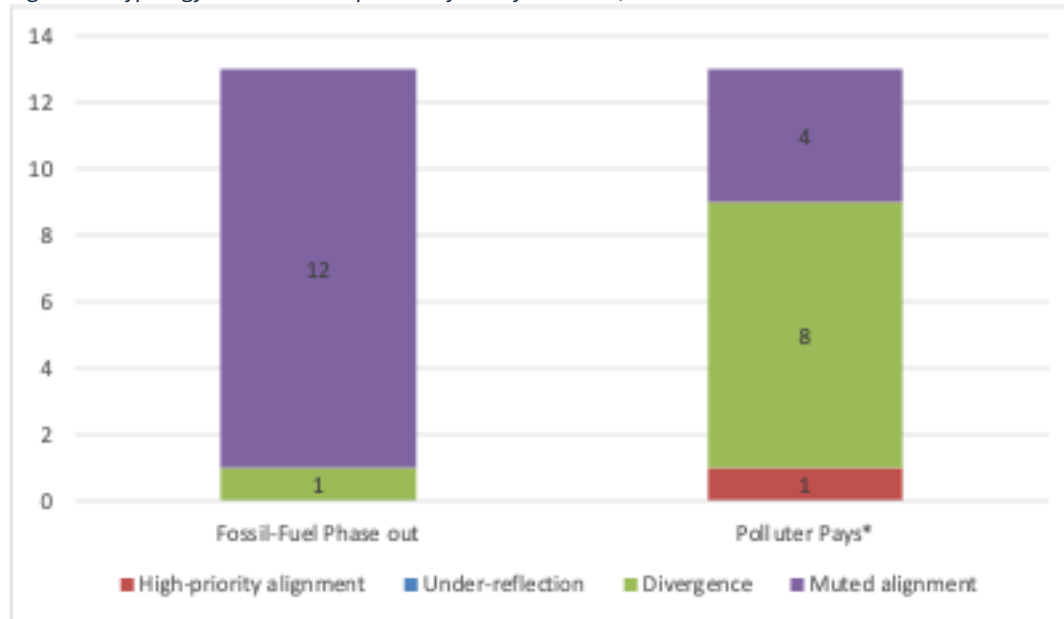
However, the expectation does not hold when the analysis turns from the ecological-energy core to delivery-oriented domains. Citizen priorities in clean transport, resilient infrastructure and green jobs are not matched by corresponding coded NDC attention. Clean transport is under-reflected in 10 countries by the typology and in all 13 by directional gap, with an average gap of around -7.8 p.p., the clearest directional shortfall in the matrix. It remains under-reflected in seven of the nine core cases, and its mean NDC attention is almost unchanged when sparse cases are excluded, from 1.2% to 1.1%. Similarly, resilient infrastructure is under-reflected in eight countries, while green jobs show a mixed profile of four high-priority alignments and seven under-reflections. These domains carry the co-benefit framing invoked by H1, and citizen support for them is comparatively high, so their under-reflection indicates that public salience alone does not secure correspondence. The expectation weakens where domains require concrete delivery, mobility, employment or protection, suggesting that correspondence depends on whether a domain maps onto established sectoral NDC categories, not only on public attractiveness (*ibid.*).

Similarly, although protective and adaptation-oriented, early-warning systems do not correspond consistently with citizen priorities. The domain encompasses two high-priority alignments, three under-reflections, four divergences and four muted alignments. Its average NDC attention is also strongly concentration-sensitive: mean NDC attention falls from 9.3% in the full sample to 4.8% in the core group, while the mean gap shifts from +1.2 to -3.2 p.p., largely because Russia assigns 67.6% of its coded NDC attention to early warning. Thereby, its observed prominence depends heavily on one concentrated NDC profile rather than consistent cross-national alignment.

Overall, positive-action and protective framing favour alignment only under more specific conditions. Across the six domains, the co-benefit expectation is supported for the ecological-energy core but not for delivery-oriented and adaptation domains (H1). The dividing line is consistent with the NDC category structure: citizen priorities correspond most closely to coded attention where the domain is an established planning category, and are more often under-reflected where they concern everyday mobility, infrastructure, implementation or concentration-sensitive adaptation priorities.

7.1.2 Politically costly and accountability-oriented domains (H2)

Domains that impose constraints, liability or accountability on carbon-intensive activity were expected to follow a different pattern, appearing more often as muted alignment or under-reflection because they shift climate action from enabling change to confronting existing practices and actors (H2). However, the two domains diverge sharply, suggesting that political cost does not operate uniformly.

Figure 10: Typology distribution of politically costly domains, H2¹⁵

Source: Author based on Flynn et al. (2021) and NDCs (Section 10.2).

Fossil-fuel phase-out corresponds closely to this expectation: it is muted in 12 of 13 countries, muted in all nine core cases and never classified as high-priority alignment (Figure 10). Its average directional gap is negative, around -3.8 p.p., although average coded attention is inflated by Russia's sparse profile. Hence, the typological result is more stable than the mean attention value. This muted status reflects joint peripherality, since citizens generally rank explicit phase-out below enabling measures such as conservation and renewable energy. Nevertheless, the pattern is consistent with the political-cost mechanism: explicit phase-out confronts fossil fuel production, employment and price-sensitive transition politics more directly than domains framed around expansion or investment, showing how politically costly measures can remain marginal in both public priorities and official climate commitments.

Contrastingly, polluter-pays measures complicate this finding. Although they impose accountability on firms, they appear relatively elevated within several NDC profiles. The domain is classified as divergence in eight countries and muted alignment in four, with no cases of under-reflection, contradicting the expectation that politically costly domains should be muted or under-reflected. Gap values clarify this divergence.

¹⁵ Bars show counts of country-domain observations, with each domain summing to 13 countries. The asterisk marks polluter-pays measures because divergence reflects relative elevation within country-specific NDC profiles, not necessarily large positive percentage-point gaps in every case.

Polluter-pays has a positive mean directional gap of around +2.7 p.p., but this is driven by a small number of strong cases, especially South Korea, where the gap is around +38.7 p.p.. In percentage-point terms, the domain is over-reflected mainly in South Korea, Turkey and Japan, and only marginally in the United Kingdom. In several other cases, it is classified as divergence because it ranks relatively high within the NDC profile, not because its absolute NDC share greatly exceeds citizen priority.

Thereby, the contrast between fossil-fuel phase-out and polluter-pays measures refines the political-cost expectation by showing that cost imposition depends on how a domain enters NDC language. Fossil-fuel phase-out names a material activity to be reduced, whereas polluter-pays measures can be expressed through regulation, carbon pricing, emissions trading, liability, finance or corporate responsibility. Both domains involve cost or accountability, but the latter translates more readily into governance-oriented language than direct fossil fuel constraint. Therefore, political cost operates not uniformly, but according to whether a costly domain can be framed as governance or must be stated as a direct material commitment, supporting H2 for fossil-fuel phase-out but not for polluter-pays measures.

7.1.3 Synthesis: co-benefit framing explains alignment only partially

The cross-sectoral findings show that co-benefit framing and political cost explain part of the pattern, but neither mechanism cleanly separates congruent from incongruent domains (H1; H2). Conservation, renewable energy and climate-friendly farming show the strongest correspondence between citizen priorities and coded NDC attention, forming the clearest high-priority alignment cluster. Contrastingly, citizen priorities are under-reflected where they concern tangible transition and protection, particularly clean transport, resilient infrastructure and green jobs. Fossil-fuel phase-out fits the expectation for a politically costly domain through joint peripherality, with both citizen priorities and coded NDC attention assigning it relatively low priority. However, polluter-pays measures complicate this expectation because they are relatively elevated in several NDC profiles, suggesting that accountability-oriented language can become more visible in NDCs than the citizen priority distribution would imply. This aligns with evidence that citizens tend to favour tangible, co-benefit-oriented and socially resonant

measures, while official climate planning often gives more space to institutional, technical and governance-oriented categories (Drews and van den Bergh, 2016; Guan and Wang, 2025; Rhodes et al., 2017). Thereby, the cross-sectoral evidence suggests that correspondence is strongest where citizen priorities overlap with established NDC planning categories, especially ecological-energy and land-use sectors, and weaker where they concern delivery-oriented measures or direct fossil fuel transformation.

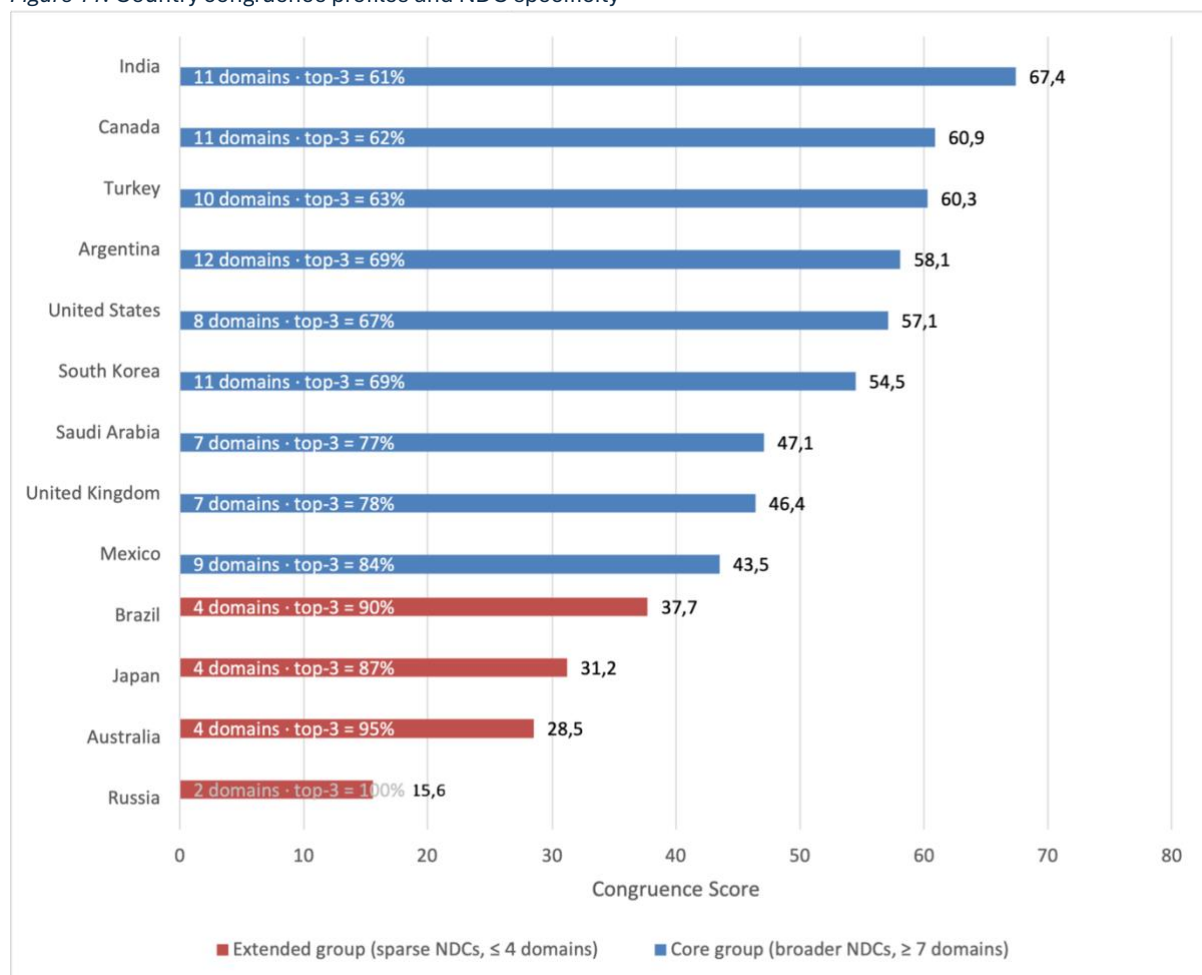
7.2 Cross-national variation in congruence

After the domain-level analysis, the focus turns to whether national contexts associated with NDC ambition, stakeholder participation and policy-public incongruence also explain variation in sectoral priority congruence between citizen priorities and NDC attention (Guan and Wang, 2025; Jensen, 2022; Peterson et al., 2023; Tørstad et al., 2020). The analysis proceeds through four routes: participatory consultation and democratic institutions were expected to provide channels through which citizen priorities may enter NDC formulation (Section 7.2.1); climate vulnerability was expected to raise climate salience for citizens and governments simultaneously (Section 7.2.2); fossil fuel dependence was expected to constrain congruence by empowering incumbent interests (Section 7.2.3); and income and emissions were treated as open questions because expected pressures run in competing directions (Section 7.2.4). Lastly, the findings are synthesised (Section 7.2.5). For each condition, the analysis compares the expected mechanism with the country evidence, asking whether the observed pattern supports, qualifies or weakens the expectation. Given the 13-case sample, it relies on country profiles, congruence-score ordering, visual inspection and correlation coefficients.

Country-level variation is also read alongside NDC specificity, because congruence can only be observed in domains that receive coded NDC attention. The analysis thus distinguishes a core group of 9 broader or intermediate NDCs, covering 7–12 domains, from 4 sparse extended cases, Australia, Brazil, Japan and Russia, covering 2–4 domains. This distinction is visible in the country ordering and concentration of coded attention: higher-congruence cases such as India, Canada, Turkey and Argentina locate 61–69% of coded attention in their 3 largest domains, while the sparse cases locate 87–100% in their

3 largest domains (Figure 11). The stronger full-sample association between NDC breadth and congruence ($r = 0.92$) suggests that the country ordering is partly structured by the contrast between broad and sparse NDC profiles, while the weaker but still positive core-group association ($r = 0.68$) indicates that breadth remains relevant among broader and intermediate documents. Thereby, NDC breadth is treated as an interpretive condition for observable correspondence, not as evidence of substantive responsiveness. Country-level associations are read as more persuasive when they remain visible among the core group, and more cautiously when they depend mainly on sparse NDC profiles.

Figure 11: Country congruence profiles and NDC specificity¹⁶



Source: Author based on Flynn et al. (2021) and NDCs (Section 10.2).

¹⁶ Countries ordered by congruence score; each bar labelled with domains covered and the share of coded attention in the three largest domains. Core, broader, and extended, sparse, NDCs distinguished by colour.

7.2.1 Participatory and democratic channels (H3-5)

The first country-level expectations concern institutional routes through which citizen priorities might enter NDC formulation. Formal inclusion captures reported participation in NDC preparation, routine consultation captures institutionalised civil society engagement, and democratic accountability captures broader electoral and public-scrutiny channels for articulating climate priorities. Together, these conditions represent increasingly indirect forms of potential responsiveness: from reported inclusion in the NDC process, to standing consultative practice, to the wider democratic environment in which climate commitments are formulated.

Formal citizen inclusion provides the most direct participatory measure. If participation in NDC preparation brings citizen concerns into national commitments and strengthens domestic ownership, countries reporting formal inclusion should show higher sectoral priority congruence (H3). Across the full sample, this expectation receives initial support: inclusive cases average higher congruence than non-inclusive cases (51.5 compared with 39.3). Yet the pattern weakens within the core group, where non-inclusive cases average slightly higher than inclusive ones (57.3 compared with 54.4). Country profiles also challenge the expectation. India and Saudi Arabia do not report formal citizen inclusion in the drafts used here, yet both belong to the broader core group, while India records the sample's highest congruence score (67). Conversely, Japan reports inclusion but records one of the lowest scores (31) on a 4-domain NDC. Reported citizen inclusion therefore does not necessarily translate into greater sectoral priority congruence. This aligns with critiques of participatory governance that distinguish meaningful substantive influence from symbolic participation, where engagement may enhance procedural legitimacy without substantially shaping whose priorities inform final policy content (Arnstein, 1969; Briot and Leroy, 2024; Hill and Pruett, 2024; Khan, 2024).

Routine consultation sharpens the participatory expectation by distinguishing single consultative events from the wider institutional environment of civil society engagement (Peterson et al., 2023). If repeated consultation institutionalises access, improves information flows, and shapes whose concerns are routinely represented, stronger

routine consultation should be associated with higher congruence (H4). The results provide more support for this expectation than for formal inclusion, although the pattern remains inconsistent. The United States and Canada combine routine consultation with relatively high congruence, consistent with the mechanism. However, Australia and Japan also record high consultation scores while sitting near the bottom of the congruence ranking (28 and 31), whereas Turkey reaches high congruence despite one of the weakest consultation environments in the sample (60). The full-sample correlation is the strongest among the institutional indicators ($r = 0.42$), but weakens within the core group ($r = 0.30$) and does not indicate a consistent positive association across countries. Routine consultation therefore provides only limited support for the expectation that sustained citizen and civil society engagement aligns climate policy priorities with public preferences. While regular consultation may improve information exchange, policy learning, or perceived legitimacy, these effects are not consistently reflected in the sectoral distribution of attention across the coded NDCs.

A broader institutional expectation concerns democratic governance. If electoral accountability, public scrutiny, and political competition connect policy outputs more closely to citizen preferences, higher democratic quality should be associated with higher sectoral priority congruence (H5) (Powell, 2004; Schaffer et al., 2022; Tørstad et al., 2020). This pattern is not visible in this sample. Electoral democracy is almost unrelated to congruence in the full sample ($r = 0.05$) and turns mildly negative within the core group ($r = -0.24$). The 5 most democratic countries, the United Kingdom, South Korea, Canada, Australia, and the United States, occupy very different positions in the congruence ranking, from Australia near the bottom (28) to Canada near the top (61). By contrast, India and Turkey reach high congruence scores despite substantially lower democracy scores (67 and 60). Democratic quality therefore shows no consistent positive association with sectoral priority congruence across the 13 countries. This may reflect democratic short-termism, representation skewed towards organised lobbies, and politicians' systematic underestimation of public climate support, all of which can detach policy content from citizen priorities even where formal accountability is strong (Fesenfeld et al., 2025; Walgrave and Soontjens, 2026). Australia illustrates this counter-mechanism: it combines strong democratic and consultative indicators with low

congruence and narrow coded sectoral coverage, suggesting that organised energy interests, transition-cost politics, or NDC specificity may weigh more heavily on the recorded sectoral profile than electoral accountability to a broadly concerned public. Democratic institutions may still shape climate policy through elections, legislation, litigation, party competition, or implementation, but these mechanisms do not produce sectoral priority congruence between citizen priorities and NDC attention here.

Overall, the participatory-democratic route receives limited support. Formal inclusion shows a full-sample difference, but this is not stable once sparse NDC profiles are considered. Routine consultation produces the strongest institutional association, but country profiles include important counterexamples. Democratic accountability shows no clear relationship with congruence. Participation and democracy may therefore matter for ambition, legitimacy, policy learning, or implementation, but they do not necessarily translate into sectoral priority congruence. In this sample, NDC specificity explains more country-level variation in congruence than the institutional indicators do.

7.2.2 Climate vulnerability (H6)

A further country-level expectation concerns whether climate vulnerability aligns citizen and governmental climate priorities. The theoretical argument proposed that countries facing greater climate risk would show higher sectoral priority congruence because climate impacts raise adaptation salience for citizens and policymakers alike (H6). However, the framework also treated this relationship as ambiguous. Vulnerability may generate shared adaptation priorities, but it may also coincide with divergence where state capacity constraints, fossil fuel interests or energy-security concerns weaken the translation of climate salience into NDC content. This ambiguity is consistent with Welsch's (2025) finding that citizens in warmer and more vulnerable countries may express stronger willingness to contribute to mitigation, while governmental pledges follow different logics shaped by income, emissions responsibility and national policy constraints. Thus, vulnerability may heighten citizen concern without necessarily strengthening alignment between citizen priorities and governmental climate commitments.

The results do not show a consistent positive association between climate vulnerability and congruence. India records the highest congruence score in the sample (67), broadly consistent with the expectation. However, other relatively vulnerable cases, including Mexico and Brazil, sit well below the median, while several less vulnerable countries occupy middle positions. The correlation is weak in both the full sample and the core group ($r = -0.21$; $r = -0.19$), and its direction should be interpreted cautiously given the coding of the vulnerability indicator. Overall, the evidence does not support the expectation that higher climate vulnerability is associated with greater sectoral priority congruence.

The adaptation-domain evidence likewise provides little indication that vulnerability systematically strengthens alignment. If vulnerability translated into higher congruence, more vulnerable countries would be expected to show stronger correspondence in adaptation-related domains such as early warning and resilient infrastructure. However, the domain-level results show no clear link. India, despite high vulnerability and the highest overall congruence score, under-reflects resilient infrastructure, while Brazil and Mexico do not show consistently strong adaptation-domain correspondence. Therefore, vulnerability alone is insufficient to explain whether citizen adaptation priorities are reflected in NDC content. These findings provide little support for H6: while some vulnerable countries display relatively strong alignment, this pattern is inconsistent, and adaptation-domain correspondence does not vary systematically with vulnerability.

7.2.3 Fossil fuel dependence (H7)

The limited support for the vulnerability expectation points to political-economic constraints in shaping whether climate salience is reflected in NDC content. Fossil fuel dependence captures one such constraint directly. If fossil fuel dependence empowers incumbent interests that are better positioned than dispersed citizens to shape climate policy, countries with higher fossil fuel rents should show lower sectoral priority congruence (H7) (De Bruycker and Colli, 2023; Peterson and van Asselt, 2026; Tørstad et al., 2020). This expectation follows from the argument that fossil-dependent economies may maintain broad or technical climate commitments while giving limited attention to measures that threaten incumbent industries, especially explicit fossil fuel phase-out.

The aggregate association provides only weak support for this expectation, although its direction is consistent with the mechanism. Fossil fuel rents are negatively associated with overall congruence in both the full sample and core group ($r = -0.22$; $r = -0.33$). However, these coefficients do not indicate a strong or consistent relationship across countries. Saudi Arabia has the highest fossil fuel rents in the sample (23.7% of GDP), but does not record low overall congruence, sitting mid-table with a 7-domain NDC profile. Russia also has high fossil fuel rents (10.9% of GDP) and the lowest congruence score, but this case is difficult to interpret because it also has the narrowest NDC profile. Therefore, the overall congruence score alone provides only limited evidence for H7.

The domain-level evidence gives a more differentiated picture. Higher fossil fuel rents are not consistently associated with lower attention across all fuel- or transition-related domains. Fossil fuel phase-out does not show a stable negative pattern, with a positive association in the full sample ($r = 0.30$) and a weak negative association in the core group ($r = -0.12$), partly because Russia records a large positive phase-out gap within a highly sparse NDC profile. Polluter-pays measures provide the clearest support for the expected mechanism, with fossil fuel rents negatively associated with the congruence gap in both the full sample and core group ($r = -0.35$; $r = -0.31$). Clean freight follows the same direction, though less strongly ($r = -0.28$; $r = -0.38$). Conversely, renewable energy and energy saving do not support an avoidance interpretation, since their congruence gaps are positively associated with fossil fuel rents, especially within the core group (renewable energy: $r = 0.70$; energy saving: $r = 0.46$). Saudi Arabia illustrates this composition effect: despite the highest fossil fuel rents in the sample, its coded NDC attention includes renewable energy (29.9%) and energy saving (10.9%), but 0% fossil-fuel phase-out and only 3% polluter-pays attention.

Taken together, the findings provide only weak support for H7 when assessed through overall sectoral priority congruence. Instead, they indicate a selective pattern in which fossil fuel dependence is more consistently associated with weaker congruence in accountability-oriented or directly cost-imposing domains, while broader transition

domains such as renewable energy and energy saving show comparatively stronger congruence.

7.2.4 Income and emissions (E1 and E2)

Lastly, income and emissions were included as exploratory conditions because the framework identified competing pressures rather than clear directional expectations (E1, E2). Higher income may increase administrative capacity and international expectations, but may also coincide with higher opportunity costs and entrenched carbon-intensive interests (Jensen, 2022; Tørstad et al., 2020). Higher GHG per capita may generate responsibility-based pressure for stronger mitigation pledges, but may also make decarbonisation more politically sensitive and encourage more technocratic climate planning (Guan and Wang, 2025; Welsch, 2025). Therefore, neither condition was expected to produce a straightforward positive or negative relationship with sectoral priority congruence.

The results show no consistent association between GDP per capita and congruence. GDP per capita is almost unrelated to overall congruence in the full sample ($r = -0.05$) and remains weak within the core group ($r = -0.16$). High-income countries are distributed across the congruence ranking: Canada records relatively high congruence (60.9), the United States and South Korea sit in the mid-to-high range (57.1 and 54.5), while Australia and Japan sit near the lower end (28.5 and 31.3). The median split produces almost identical group averages, with higher-income countries averaging 46.5 and lower-income countries 47.1. Therefore, income shows no consistent positive or negative association with sectoral priority congruence.

GHG per capita also shows no stable relationship with congruence. In the full sample, the association is weakly negative ($r = -0.25$), with higher-emission countries averaging lower congruence than lower-emission countries (42.1 compared with 52.2). However, this pattern is strongly affected by NDC specificity, since the higher-emission group includes several sparse low-congruence cases, including Australia (28.5), Japan (31.3) and Russia (15.6). Within the core group, the association almost disappears ($r = -0.04$), and higher- and lower-emission countries have very similar average congruence scores

(55.5 compared with 54.4). Therefore, GHG per capita does not provide a stable explanation of sectoral priority congruence once sparse NDC profiles are considered. The typology distribution reinforces this cautious interpretation. Higher-emission countries have 18 high-priority alignment, 22 under-reflection, 15 divergence and 29 muted alignment cells, compared with 20, 16, 14 and 22 respectively among lower-emission countries. This suggests more under-reflection and muted alignment among higher-emission cases in the full sample, but this difference overlaps with NDC specificity and should not be treated as a separate emissions effect.

Therefore, E1 and E2 remain unresolved. Economic capacity and emissions responsibility may shape NDC ambition, pledge strength or international climate expectations, but this sample shows no consistent country-level patterns in sectoral priority congruence between citizen priorities and coded NDC attention.

7.2.5 Synthesis: the limited reach of country-level conditions

The cross-national analysis shows that broad country-level conditions provide limited explanatory leverage for sectoral priority congruence. The clearest regularity is NDC specificity: broader, less concentrated NDC profiles register more visible correspondence, while sparse profiles restrict the range of citizen-supported domains appearing in the measured NDC profile. Therefore, observable congruence partly depends on how many policy domains receive coded attention.

Beyond this, the country-level indicators do not produce a stable ordering of more and less congruent countries (Table 4). Formal inclusion shows an initial association that does not hold once sparse NDC profiles are separated out, while routine consultation remains the most suggestive institutional channel but is weakened by important counterexamples. Democratic accountability shows no consistent relationship, and climate vulnerability, GDP per capita and GHG per capita do not provide stable explanations once sparse NDC profiles are considered. Fossil fuel dependence offers a more selective mechanism-level refinement, since its relevance appears more clearly in accountability-oriented or directly cost-imposing domains than in overall country-level

scores. Therefore, country-level conditions appear contingent on both NDC specificity and policy domain.

Table 4: Cross-national conditions and sectoral priority congruence: expected patterns, findings and mechanism-level interpretation

Condition	Expected pattern	Finding	Mechanism-level interpretation
<i>NDC specificity</i>	Conditioning factor	Strong association with congruence ($r = 0.92$ full sample; $r = 0.68$ core group)	Congruence is strongly conditioned by the breadth and concentration of coded NDC attention.
<i>Formal citizen inclusion (H3)</i>	Higher inclusion, higher congruence	Initial full-sample support, but not stable in the core group	Reported inclusion does not reliably correspond to sectoral priority congruence.
<i>Routine consultation (H4)</i>	Stronger consultation, higher congruence	Weak to moderate association ($r = 0.42$; $r = 0.30$), with important counterexamples	Routine consultation provides limited support for the participatory channel.
<i>Democratic accountability (H5)</i>	Higher democracy, higher congruence	No consistent positive association ($r = 0.05$; $r = -0.24$)	Democratic quality does not distinguish high- and low-congruence countries in this sample.
<i>Climate vulnerability (H6)</i>	Higher vulnerability, higher congruence	Weak negative association ($r = -0.21$; $r = -0.19$)	Climate vulnerability does not systematically correspond to higher sectoral priority congruence.
<i>Fossil fuel dependence (H7)</i>	Higher dependence, lower congruence	Weak aggregate support ($r = -0.22$; $r = -0.33$), with clearer domain-level evidence for polluter-pays	Fossil fuel dependence is more relevant to selective domain-level congruence than to overall congruence.
<i>GDP per capita (E1)</i>	Open	No consistent association ($r = -0.05$; $r = -0.16$)	Income does not clearly enable or obstruct sectoral priority congruence.
<i>GHG per capita (E2)</i>	Open	Weak full-sample association disappears in the core group ($r = -0.25$; $r = -0.04$)	GHG per capita does not provide a stable explanation once NDC specificity is considered.

7.3 Conclusion: congruence as selective correspondence

Overall, the cross-sectoral and cross-national findings suggest that sectoral priority congruence is best explained by domain type and NDC specificity, while broad country-level indicators offer weaker, uneven leverage. Congruence is strongest where citizen priorities align with sectors already embedded in climate-planning frameworks, especially conservation, renewable energy and climate-friendly farming. It is less consistent for tangible delivery, mobility, infrastructure or direct fossil fuel transformation, even when publicly salient. Thus, public salience and policy attractiveness matter most when they overlap with established NDC categories, whereas politically costly domains vary depending on whether they explicitly name fossil fuel reduction or are framed through governance, regulation, finance or responsibility. Contrastingly, measured country-level conditions do not consistently separate more from less congruent countries. Fossil fuel dependence provides only selective refinement, mainly in accountability-oriented or directly cost-imposing domains.

Therefore, the central pattern is one of selective correspondence: congruence is strongest where citizen priorities match established climate-planning sectors, weaker where they require concrete delivery or direct fossil fuel transformation, and only unevenly associated with the country-level conditions examined here.

8 Conclusion and Discussion

This concluding chapter synthesises *how citizen climate policy priorities correspond to the priorities expressed in the NDCs of 13 G20 countries, and how sectoral priority congruence varies across countries and policy domains* (RQ). It first synthesises the findings and answers the research question (Section 8.1). It then reflects on the study's empirical, theoretical and methodological contributions (Section 8.2), before outlining broader implications for NDC research and climate governance (Section 8.3). Finally, it discusses the main limitations and directions for future research (Section 8.4), presents recommendations and implications for NDC practice (Section 8.5).

8.1 Synthesis of the findings and answer to the research question

The research question is answered through three sub-questions. First, the thesis conceptualised NDC–citizen alignment as policy congruence within the substantive representation tradition, adapted to international climate governance (Sections 4.1-4.2). Conceptually, it treats NDCs as hybrid policy outputs: government-authored national commitments formulated through domestic assessments of feasibility, priority and political choice, yet submitted within an international framework that shapes their format, comparability and review. This was operationalised as sectoral priority congruence, comparing the relative priority citizens assign to climate policy domains with the relative coded NDC attention those same domains receive (Section 4.3). This allowed the thesis to assess alignment beyond aggregate ambition, general climate concern or reported consultation. The Substantive Alignment Typology then classified each country-domain relationship as high-priority alignment, under-reflection, divergence or muted alignment, distinguishing forms of (in-)congruence (Figure 2). Finally, the framework developed expectations for variation across domains and countries, focusing on policy framing, political cost and country-level conditions such as inclusion, consultation, democracy, vulnerability and fossil fuel dependence to shape congruence (Section 4.4). Together, these choices produced a framework for measuring, classifying and interpreting NDC–citizen alignment.

The second sub-question examined descriptive patterns of citizen climate policy priorities, NDC sectoral prioritisation and sectoral priority congruence across the 13 cases. Citizen priorities form a broad and comparatively even benchmark, with conservation and renewable energy constituting a shared cross-national core, while most other domains retain moderate support and vary mainly in intensity, internal ranking and domain-level consensus (Section 6.1; Figure 4). Contrastingly, coded NDC attention is more selective and document-dependent: some NDC profiles articulate attention across many domains, whereas others concentrate coded attention in one or two areas, leaving several citizen-supported domains with little or no visible attention (Section 6.2; Figure 5). When both distributions are compared directly, sectoral priority congruence appears partial and structured, with the strongest correspondence in the ecological-energy core, including conservation, renewable energy and, more unevenly, climate-friendly farming, and the clearest under-reflection in tangible delivery and protection domains, especially clean transport, resilient infrastructure and green jobs (Section 6.3; Figure 6). A separate group of accountability and governance-oriented domains, particularly polluter-pays measures and community stewardship, has a higher priority in NDCs than among citizens. The typology sharpens this finding: misalignment is not general inattention to citizen priorities, but a structured difference of emphasis concentrated in the middle of the priority range, where citizens give greater relative priority to concrete delivery while coded NDC attention more often falls on governance-oriented language.

The third sub-question asked which country-level and policy-domain conditions are associated with higher or lower sectoral priority congruence. At the domain level, the findings refine rather than simply confirm or reject the original expectations (Section 7.1). Citizen priorities are reflected most consistently within sectors already established in climate-planning frameworks, especially energy, land use and agriculture, and less consistently in delivery-oriented domains, as clean transport, resilient infrastructure and green jobs remain under-reflected despite comparatively high citizen support (Figure 9; H1). Contrastingly, fossil-fuel phase-out exhibits weak alignment and low salience, while polluter-pays measures show stronger alignment when accountability concerns are expressed through governance, regulation, finance or responsibility-oriented policy

language (Figure 10; H2). Therefore, cross-sectoral variation is best understood as domain-specific mediation: positive-action and protective framing and political cost shape congruence, but their effects depend on whether citizen-supported priorities can be translated into institutionally recognised NDC categories and planning logics.

At the country level, the findings provide limited and uneven support for the original expectations (Section 7.2). Formal inclusion shows an initial full-sample difference, routine consultation produces the strongest institutional association, and fossil fuel dependence offers a mechanism-level refinement, particularly for accountability-oriented and cost-imposing domains (H3, H4, H7). However, no country-level condition provides a stable ordering of more and less congruent countries across the full sample and core group, and several country profiles cut across the expected relationships, especially for democratic accountability, climate vulnerability, income and emissions per capita (H5, H6, E1, E2). The clearest country-level regularity is NDC specificity, which shapes which public priorities can be observed, compared and scrutinised within the NDC framework: broader, less concentrated NDC profiles register a wider range of citizen-supported domains, while sparse profiles concentrate coded attention in fewer categories and restrict visible correspondence. Therefore, variation in sectoral priority congruence is more consistently associated with NDC specificity and policy-domain characteristics, while the tested country-level conditions provide only limited explanatory leverage.

Taken together, these findings answer the main research question by showing that NDC–citizen correspondence across the 13 G20 countries is neither absent nor comprehensive, but selective, structured and mediated. Citizen priorities are reflected in coded NDC attention where they intersect with established climate-planning sectors, and less consistently where they concern delivery-oriented domains less easily absorbed into conventional NDC categories, largely independently of the tested country-level conditions. As such, the priorities expressed in NDC content appear to follow the organising logic of NDC documents more consistently than the sectoral structure of citizen priorities, with the strongest correspondence in the ecological-energy core and weaker visibility in the delivery-oriented middle of the citizen agenda. Thereby, the

analysis separates sectoral priority congruence from aggregate ambition, reported consultation and general climate concern by showing that an NDC can be nationally determined, formally consultative or ambitious without necessarily reflecting the sectoral structure of citizen priorities.

8.2 Contributions of the study

Given the limited and unstable country-level associations, the thesis's main contribution lies less in explanatory correlations than in its empirical mapping and its conceptual and methodological framework for identifying, measuring and interpreting sectoral priority congruence.

Empirically, the thesis systematically maps where citizen-supported climate priorities are reflected, under-reflected, muted or relatively elevated in G20 NDC content, addressing a crucial gap in the literature. Rather than treating public opinion as a possible driver of aggregate ambition, it benchmarks the sectoral content of national commitments against representative citizen priorities. The resulting pattern is organised rather than random: a stable ecological-energy core of correspondence, recurring under-reflection of delivery-oriented domains, and relative elevation of governance-oriented language.

Moreover, the thesis contributes theoretically by developing a framework for conceptualising, measuring, and interpreting public alignment in NDCs as sectoral priority congruence, addressing a conceptual gap in climate governance scholarship. By integrating several literatures, it shifts NDC research from procedural participation to substantive alignment, and from aggregate ambition to sectoral priority congruence. The country-level findings further demonstrate the analytical distinctiveness of this dimension: mechanisms associated with NDC ambition or participation, including democratic quality, consultation, vulnerability, and fossil fuel dependence, do not produce a consistent pattern of sectoral priority congruence in this sample. Moreover, the findings refine the framework by showing that NDC content itself requires closer attention. NDC specificity shapes how clearly policy priorities are articulated and how readily they can be observed, measured, and compared, while institutional legibility

shapes whether citizen-supported priorities correspond to the categories through which NDCs organise climate action. Hence, future studies should examine how NDC's sectoral and documentary form filters which public priorities become visible, scrutinised, and linked to formal commitments. Thereby, the thesis identifies public alignment as a distinct dimension of climate governance requiring its own conceptual and empirical framework, attentive to both country-level conditions and the sectoral and documentary form of NDCs.

The framework also adapts policy congruence analysis to a policy output for which it was not originally designed. Existing congruence research mainly examines electoral representation within territorially bounded political systems, whereas NDCs are government-authored commitments shaped by domestic institutions, political choices, and sectoral priorities, as well as by international reporting requirements, technical planning practices, and UNFCCC review. Treating NDCs as hybrid policy outputs thus extends policy congruence analysis to a central instrument of global climate governance. However, this requires cautious interpretation: incongruence may be defensible where NDC content reflects scientific evidence, technical feasibility, international obligations, intergenerational responsibilities, or minority interests that aggregate survey responses cannot fully capture. Hence, the framework treats citizen priorities as a relevant benchmark for assessing one dimension of substantive representation, without equating incongruence with failure or assuming that NDCs should reproduce majority preferences.

The methodological contribution lies in developing a replicable, adaptable workflow for comparing representative citizen priority data with NDCs. Its innovation lies in combining cross-national citizen preference data with model-assisted document analysis, creating a transparent bridge between two forms of evidence rarely analysed together. The workflow ensures reproducibility through explicit domain mapping, a consistent country-domain unit of analysis, normalised citizen priority and coded NDC attention shares, documented congruence-gap calculations, manual validation, and the Substantive Alignment Typology. By converting heterogeneous NDC texts into comparable sectoral priority distributions, the method enables congruence to be analysed across countries

and policy domains without reducing it to a single aggregate ambition score. The approach is thus adaptable to future research: with larger annotated training sets, improved classification models, and more systematic or disaggregated citizen-priority data, it could be applied to wider country samples, successive NDC cycles, non-G20 cases, or other climate policy documents, reducing reliance on manual coding while preserving transparency through validation and explicit scoring rules.

8.3 Broader implications for NDC research and climate governance

The broader implication of the findings is that NDC specificity is central to how NDCs function as national implementation roadmaps and objects of public accountability. Existing research argues that NDCs become more meaningful implementation tools when headline or economy-wide emissions targets are linked to sectoral pathways, targets and indicators, enabling near-term commitments to be monitored against longer-term transformation in areas such as energy, transport, buildings, land use and forest restoration (Vogt-Schilb and Hallegatte, 2017). This thesis builds on that literature by showing that sectoral specificity is also crucial for contestation, scrutiny and representation. More specific NDC content makes visible which citizen-supported priorities are reflected in internationally communicated commitments, which are under-reflected, and where public alignment can be assessed at all. Thus, the thesis supports calls for more sectorally specific and transparent NDCs, while adding that specificity also enables assessment of representation, accountability and stakeholder buy-in.

The second implication concerns national ownership. In the Paris framework, national determination gives governments flexibility to formulate climate commitments according to domestic circumstances, capacities and political priorities. By comparing the sectoral content of those commitments with representative citizen priorities and finding congruence to be partial and conditioned by institutional legibility, this thesis shows that national ownership should not be equated with public alignment. NDCs are owned by governments, and the findings indicate that this is not the same as ownership by the country as a whole, including its citizens. Rather, national ownership appears primarily as governmental ownership, which may reflect state planning priorities without reflecting the sectoral structure of public priorities.

The same ownership that allows governments to determine their commitments also allows them to define, through document specificity, which sectors the agenda covers. The categories through which NDCs organise climate action are not neutral containers for public priorities, but are shaped by expert practices, reporting templates, sectoral bureaucracies and the technical language through which commitments are made comparable. Thereby, public priorities may be voiced or acknowledged, as UNFCCC guidance and NDC support programmes increasingly emphasise, yet remain weakly visible once translated into the institutional categories through which NDCs are formulated and reviewed. If successive NDC cycles continue to organise climate action around the same highly legible sectors, under-reflected domains may remain persistently marginal across revisions. Conversely, greater sectoral specificity could expand institutional legibility by bringing delivery-oriented domains into the roadmap. Therefore, national ownership should be understood as agenda-setting authority as well as domestic flexibility and relevance, but it cannot be equated with public alignment or the substantive representation of citizen-supported priorities.

8.4 Limitations and suggestions for future research

The main limitation of this thesis lies in the availability and structure of citizen climate priority data. The study shows that sectoral priority congruence can be conceptualised and measured, but its empirical scope is constrained by the limited availability of cross-national, policy-specific and comparable data on citizen climate priorities. The People's Climate Vote provides a rare and valuable benchmark because it offers country-level climate policy preference data from a large respondent pool. However, its publicly available country coverage, policy categories and aggregation level shape what can be studied. The country sample and aggregate citizen priorities analysed here thus follow from this data constraint.

If richer citizen-priority data become available, the theoretical and methodological framework developed here could be extended in several directions. First, larger and more systematic country coverage would allow stronger comparative inference and a more globally representative assessment of NDC–citizen alignment beyond the G20. Second,

disaggregated citizen data would enable analysis of intersectional representation, assessing whether aggregate congruence hides unequal reflection across social groups and whether marginalised or climate-vulnerable publics are less visible in NDC content than national averages suggest (Louwerse and Andeweg, 2020; Rhodes et al., 2017; Wlezien, 2017). Third, repeated survey waves could support longitudinal research on responsiveness, examining whether NDC updates become more or less aligned with citizen priorities across cycles. Such research could also move beyond one-way congruence by analysing feedback dynamics between NDC processes and citizen priorities. This is especially relevant because NDC revision processes are increasingly framed as sites of awareness-raising, ownership, inclusion and stakeholder engagement (UNDP, 2021), while representation research shows that public preferences and policy outputs can influence one another over time (Biesbroek, 2021; Buhre and Josefsson, 2025; Kinnunen, 2021; Saward, 2010). In this sense, the key data limitation is also the main future ambition: policy-specific, repeated and disaggregated citizen climate priority data would allow the framework to move from diagnostic mapping towards richer analysis of representation, responsiveness and agenda formation in climate governance.

A second limitation concerns the dimension of congruence measured on the policy-output side. Although priority congruence is widely used to assess substantive representation, issue salience provides limited evidence of whether policy outputs match what citizens substantively prefer (Kinnunen, 2021; Wlezien, 2017). Salience can create scope for political action, but it does not reveal directional support, instrument preferences or policy design (Schaffer et al., 2022). Citizen priorities and NDC content may thus diverge in instruments, target stringency, timelines, funding, legal enforceability, distributive design, accountability mechanisms or implementation pathways, even when they appear aligned at the domain level. For example, citizen support for clean transport may correspond to coded NDC attention to transport while still diverging over whether the commitment concerns public transport, electric vehicles, fuel standards, infrastructure investment or behavioural change. Similarly, coded NDC attention does not indicate whether commitments are funded, measurable, socially inclusive or institutionally enforceable, nor does it capture a country's full climate policy architecture. A domain receiving little coded NDC attention may still be addressed

through domestic laws, sectoral strategies, investment plans or subnational programmes, while extensive textual attention may remain weak in implementation terms. Therefore, future research should extend the framework beyond priority congruence towards multidimensional policy congruence, connecting NDC content with national climate laws, sectoral plans, budget data, policy instruments, implementation reports and stakeholder accounts of the drafting process. Existing comparative climate policy datasets already make parts of this agenda feasible, particularly for analysing policy activity, instrument choice, stringency and policy performance across countries (Bernauer and Böhmelt, 2013; Steinebach et al., 2024). Linking such datasets with citizen-priority data would help distinguish textual visibility from substantive commitment and assess whether citizen-supported priorities are reflected in how internationally communicated climate action is designed, financed and delivered, beyond what NDCs emphasise.

Therefore, future research can build on this study's diagnostic framework by identifying where citizen priorities are visible in NDC content and where they are not, scaling the model to larger NDC samples, using improved classification models and larger annotated training sets, and reducing reliance on fully manual validation while retaining transparent coding rules. It can also deepen the analysis through qualitative case studies of NDC drafting, especially where reported consultation and sectoral congruence diverge. Such studies could examine how ministries, experts, consultants, organised interests and international reporting norms shape which citizen-supported priorities become document-legible, and why some policy details are located outside the NDC itself during agenda-setting, consultation, inter-ministerial coordination, expert drafting and translation into the UNFCCC reporting format. Thereby, future work could move from measuring selective correspondence to explaining how it is produced.

8.5 Policy recommendations

The findings suggest three practical recommendations. First, the UNFCCC should encourage greater sectoral specificity in NDC guidance, not only to improve comparability and implementation planning, but also to make public scrutiny and accountability more meaningful. If NDCs are to function as both implementation

roadmaps and public commitments, they should show more clearly how headline targets translate into sectoral pathways, indicators and responsibilities, especially in domains such as transport, buildings, land use and forest restoration.

Second, governments should treat sectoral specificity as relevant to democratic scrutiny as well as technical planning. More detailed NDCs can make visible which citizen-supported priorities are reflected in climate commitments, which are under-reflected, and where alignment cannot yet be assessed. This does not mean that consultation should determine NDC content, but that governments should document how public input is translated into, incorporated within or excluded from the categories and sectors through which NDCs are written. In this sense, national ownership should be understood as domestic flexibility and agenda-setting authority over which priorities become visible, translated or omitted in NDC content.

Third, citizens and CSOs should use NDC cycles as moments for accountability and strategic engagement. Public actors can ask whether NDCs visibly reflect priorities expressed through participation, especially in under-reflected domains such as transport, infrastructure and green jobs. They can also track which priorities appear in NDC text, which disappear in translation, and which remain too vague to scrutinise. At the same time, civil society may strengthen its influence by framing demands in ways that resonate with NDC categories, targets and sectoral language. This does not mean adapting demands to narrow governmental agendas, but using the institutional vocabulary of NDCs strategically so that citizen-supported priorities become more legible, contestable and actionable within formal climate planning.

Taken together, these recommendations do not imply that NDCs should reproduce citizen priorities mechanically. Rather, they suggest that more sectorally specific and transparent NDCs can make the relationship between public priorities, governmental commitments and implementation pathways easier to identify, justify and contest. Sectoral specificity is thus important not only for implementation effectiveness, but also for visibility, contestation and democratic accountability.

9 References

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10 Appendix

10.1 Rights-Based Foundations for Participation in NDC and Climate Governance

This appendix provides supporting context for the participation expectation discussed in Section 2.2. It summarises selected international and regional frameworks that connect climate governance with public participation, access to information, access to justice, representative decision-making and environmental rights.

As Table 5 shows, participation in climate governance is embedded across several overlapping legal and normative frameworks. Within the climate regime, the UNFCCC and the Paris Agreement establish public participation, public awareness and access to information as relevant components of climate action. Subsequent COP and CMA decisions further invite Parties to provide information on planning processes, including public participation and engagement with local communities and Indigenous Peoples in the preparation and communication of NDCs, NAPs and related climate policies.

Environmental governance frameworks address participation through a broader procedural rights lens. Rio Principle 10, the Aarhus Convention and the Escazú Agreement link environmental decision-making to access to information, public participation and access to justice. These instruments emphasise that affected publics should be able to receive relevant information, participate in decision-making processes and access review or remedy mechanisms where environmental rights or procedures are at stake.

Human rights and sustainable development frameworks extend these principles beyond environmental decision-making. SDG 16.7 refers to responsive, inclusive, participatory and representative decision-making, while SDG 16.10 emphasises public access to information and the protection of fundamental freedoms. The UDHR and ICCPR protect participation in public affairs, freedom of expression and access to information. UNGA Resolution 76/300 further links these procedural principles to the recognised human right to a clean, healthy and sustainable environment.

Taken together, these instruments show that participation is addressed through multiple connected dimensions: access to information, public involvement in decision-making, representative governance, access to justice and environmental rights. For NDC governance, this creates a broad procedural expectation around how national climate commitments are prepared, communicated and implemented, while leaving countries considerable discretion over the design and influence of participation processes.

Table 5: Rights-Based Foundations for Participation in NDC and Climate Governance

<i>Instrument / provision</i>	<i>Participation principle</i>	<i>Key wording</i>
<i>UNFCCC Article 4(1)(i)</i>	Widest participation in climate education and public awareness	“Promote and cooperate in education, training and public awareness related to climate change and encourage the widest participation in this process, including that of non-governmental organizations” (UNFCCC, 1992, Art. 4(1)(i))
<i>UNFCCC Article 6(a)(ii)–(iii)</i>	Public access to information and public participation	“In carrying out their commitments under Article 4, paragraph 1(i), the Parties shall:... (ii). Public access to information on climate change and its effects; (iii). Public participation in addressing climate change and its effects and developing adequate responses;” (UNFCCC, 1992, Art. 6(a)(ii)–(iii))
<i>Paris Agreement Preamble</i>	Public participation and multi-actor engagement	“Affirming the importance of education, training, public awareness, public participation, public access to information and cooperation at all levels on the matters addressed in this Agreement. Recognizing the importance of the engagements of all levels of government and various actors, in accordance with respective national legislations of Parties, in addressing climate change” (UNFCCC, 2015a, Preamble)
<i>Paris Agreement Article 12</i>	Public participation under the Paris Agreement	“Parties shall cooperate in taking measures, as appropriate, to enhance climate change education, training, public awareness, public participation and public access to information, recognizing the importance of these steps with respect to enhancing actions under this Agreement” (UNFCCC, 2015a, Art. 12)
<i>Paris Agreement Article 7(5)</i>	Participatory and transparent adaptation action	“Parties acknowledge that adaptation action should follow a country-driven, genderresponsive, participatory and fully transparent approach, taking into consideration vulnerable groups, communities and ecosystems, and should be based on and guided by the best available science and, as appropriate, traditional knowledge, knowledge of indigenous peoples and local knowledge systems, with a view to integrating adaptation into relevant socioeconomic and environmental policies and actions, where appropriate.” (UNFCCC, 2015a, Art. 7(5))
<i>Decision 1/CP.21, para. 27</i>	NDC transparency and planning-process reporting	Information provided by Parties communicating NDCs may include “planning processes”, alongside scope, coverage, assumptions and methodological approaches (UNFCCC, 2015b, Decision 1/CP.21, para. 27)
<i>Decision 4/CMA.1, para. 7 and Annex I, para. 4(a)(i)</i>	Public participation in NDC planning-process reporting	“Decides that, in communicating their second and subsequent nationally determined contributions, Parties shall provide the information necessary for clarity, transparency and understanding contained in annex I as applicable to their nationally determined contributions...” ((UNFCCC, 2018, Decision 4/CMA.1, para. 7) Annex I further specifies that information on planning processes includes, “Domestic institutional arrangements, public participation and engagement with local communities and indigenous peoples, in a gender-responsive manner.” (UNFCCC, 2018a, Decision 4/CMA.1 Annex I, para. 4(a)(i))
<i>Decision 17/CMA.1, preamble</i>	Broad stakeholder role in Action for Climate Empowerment	“Reaffirming the key role that a broad range of stakeholders, inter alia national governments, regions as applicable, cities, education and cultural institutions, museums, the private sector, intergovernmental organizations, non-governmental organizations, international organizations, decision makers, scientists, the media, teachers, youth, women and indigenous peoples, play in ensuring Action for Climate Empowerment,” (UNFCCC, 2018b, Decision 17/CMA.1, preamble)
<i>Decision 17/CMA.1, para. 5</i>	Integration of participation into NDCs, NAPs and climate policies	“Also encourages Parties to continue to promote the systematic integration of gendersensitive and participatory education, training, public awareness, public participation, public access to information, and regional and international cooperation into all mitigation and adaptation activities implemented under the Convention, as well as under the Paris Agreement, as appropriate, including into the processes of designing and implementing their nationally determined contributions, national adaptation plans, long-term low greenhouse gas emission development strategies and climate policies” (UNFCCC, 2018a, Decision 17/CMA.1, para. 5)

<i>Decision 17/CMA.1, paras. 8 and 10</i>	Reporting and fostering public participation in Paris Agreement implementation	“Encourages Parties to include, as appropriate, information on how education, training, public awareness, public participation, public access to information, and regional and international cooperation are considered in the preparation and implementation of the actions under the Paris Agreement... Encourages Parties to foster public participation and collaborate with, inter alia, regional as applicable and local authorities, the scientific community, universities, the private sector, civil society organizations and youth to scale up the implementation of Action for Climate Empowerment;” (UNFCCC, 2018b, Decision 17/CMA.1, paras. 8 and 10)
<i>Decisions 18/CP.26 and 22/CMA.3</i>	Public input and inclusive consultation in climate decision-making	“Parties are encouraged to: (a) Seek public participation and input, including from youth, women, civil society organizations and other groups, in formulating and implementing efforts to address climate change and in relation to preparing national communications, and encourage the involvement and participation of representatives of all stakeholders and major groups in the climate change negotiation process; Foster the participation of all stakeholders in ACE implementation and invite them to report thereon. In particular, enhance the active participation of youth, women, civil society organizations and the media;Hold frequent, inclusive civil society consultations on climate decisionmaking, including follow-up processes with specific outcomes such as feedback surveys that enable participants to express how they feel their input was used” (UNFCCC, 2022b9, Decision 18/CP.26 and Decision 22/CMA.3, annex, chap. IV.B, para. 29(a), (b) and (d))
<i>Aarhus Convention Article 1</i>	Environmental participation, information and access to justice	“Each Party shall guarantee the rights of access to information, public participation in decision-making, and access to justice in environmental matters” (UNECE, 1998, Art. 1).
<i>Aarhus Convention Article 3(7)</i>	Participation in ienvironmental decision-making	“Each Party shall promote the application of the principles of this Convention in international environmental decision-making processes and within the framework of international organizations in matters relating to the environment” (UNECE, 1998, Art. 3(7)).
<i>Aarhus Convention Article 6(4)</i>	Early participation while options remain open	“Each Party shall provide for early public participation, when all options are open and effective public participation can take place” (UNECE, 1998, Art. 6(4)).
<i>Escazú Agreement Article 1</i>	Regional environmental access rights: information, participation and justice	“The objective of the present Agreement is to guarantee the full and effective implementation in Latin America and the Caribbean of the rights of access to environmental information, public participation in the environmental decision-making process and access to justice in environmental matters” (ECLAC, 2018, Art. 1)
<i>Escazú Agreement Article 7(1) and 7(4)</i>	Open, inclusive and early environmental participation	“Each Party shall ensure the public’s right to participation and, for that purpose, commits to implement open and inclusive participation in environmental decision-making processes” (ECLAC, 2018, Art. 7(1)). “Each Party shall adopt measures to ensure that the public can participate in the decision-making process from the early stages, so that due consideration can be given to the observations of the public, thus contributing to the process. To that effect, each Party shall provide the public with the necessary information in a clear, timely and comprehensive manner, to give effect to its right to participate in the decision-making process.” (ECLAC, 2018, Art. 7(4))
<i>Rio Declaration Principle 10</i>	Environmental participation, information and justice	Environmental issues are best handled with the participation of all concerned citizens... [with] access to information... and the opportunity to participate in decision-making processes “(United Nations, 1992, Principle 10)
<i>SDG Target 16.7</i>	Inclusive and participatory decision-making	“Ensure responsive, inclusive, participatory and representative decision-making at all levels.” (United Nations, 2015, Target 16.7)
<i>UNGA Resolution 76/300</i>	Participation as part of the human right to a clean, healthy and sustainable environment	The resolution also recognises that “the exercise of human rights, including the rights to seek, receive and impart information, to participate effectively in the conduct of government and public affairs and to an effective remedy, is vital to the protection of a clean, healthy and sustainable environment” (United Nations, 2022, preamble).

<i>SDG Target 16.10</i>	Public access to information and fundamental freedoms	“Ensure public access to information and protect fundamental freedoms, in accordance with national legislation and international agreements.” (UN, 2015, Target 16.10)
<i>SDG Target 13.3</i>	Climate education and awareness	“Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning.” (UN, 2015, Target 13.3)
<i>UDHR Article 21(1)</i>	Right to participate in government	“Everyone has the right to take part in the government of his country, directly or through freely chosen representatives.” (UN, 1948, Art. 21)
<i>ICCPR Article 25(a)</i>	Right to take part in public affairs	“Every citizen shall have the right and the opportunity... to take part in the conduct of public affairs, directly or through freely chosen representatives.” (UN, 1966, Art. 25(a))
<i>ICCPR Article 19(2)</i>	Right to seek, receive and impart information	“Everyone shall have the right to freedom of expression; this right shall include freedom to seek, receive and impart information and ideas of all kinds...” (UN, 1966, Art. 19(2))

10.2 Analysis of NDC documents

Table 6 provides an overview of the NDC documents included in the ClimateBERT-assisted content analysis, including their submission dates and any preparation steps taken before classification. Merged” indicates that an update was integrated into the preceding full NDC document because the updated submission only referred to specific revised elements. “Translated” indicates that the document was translated into English using Google Translate before ClimateBERT classification.

Table 6: NDC documents included in the ClimateBERT-assisted content analysis

Country Name	Type of NDC	Date submitted
Argentina (merged and translated)	Updated 2ndNDC	02.11.2021
Australia	Updated 1stNDC	28.10.2021
Brazil	1st NDC 2nd update	21.03.2022
Canada	Updated 1stNDC	12.07.2021
India (merged)	Updated 1stNDC	August 2022
Japan	Updated 1stNDC	22.10.2021
South Korea	Updated 1stNDC	23.12.2021
Mexico (translated)	Updated 1stNDC	30.12.2020
Russia	1st NDC	25.11.2020
Saudi Arabia	Updated 1stNDC	23.10.2021
Turkey	Updated 1stNDC	13.04.2023
United Kingdom	Updated 1stNDC	September 2022
United States	1st NDC (after rejoining)	21.04.2021

10.3 Sample construction and ClimateBERT classification

To adapt ClimateBERT to the purposes of this thesis, the classification framework was defined deductively around 12 climate policy categories derived from the People’s Climate Vote policy options, ensuring that NDC content could be compared with citizen priorities at the same level of policy specificity. ClimateBERT was selected because it is a domain-specific language model trained on climate-related text and is therefore better suited to recognising climate policy language than a general-purpose classifier (Webersinke et al., 2022).

Training sentences were identified through a keyword-assisted search of the NDCs included in the study. For each retained policy category, five NDC-based quotes were assigned as training examples. Relevant search terms were used to locate candidate sentences, which were then manually screened for conceptual fit. The final examples

were selected because they most clearly reflected the meaning of the corresponding citizen climate priority. Special attention was given to distributing examples as evenly as possible across countries and policy domains, so that the training material was not dominated by a small number of NDCs. The resulting training set is therefore a manually curated set of high-clarity examples, reported in Table 7.

Two People's Climate Vote categories, "provide good and affordable insurance" and "require more information on how products are made", were excluded from the final classification framework because five sufficiently clear and comparable NDC-based quotes could not be identified for each category. The final framework is therefore narrower than the full PCV but more defensible for comparing citizen priorities with policy content that can be identified in NDC language.

ClimateBERT, specifically the climatebert/distilroberta-base-climate-f model, was then used as the backbone for a supervised text classifier. The training sentences were tokenised using the ClimateBERT tokenizer, with a maximum sequence length of 512 tokens and uniform padding and truncation. The classifier was trained using cross-entropy loss and AdamW optimisation, with a learning rate of 2×10^{-5} and weight decay of 0.01, over 50 epochs. A linear learning-rate scheduler with 100 warm-up steps was applied, and gradient clipping with a maximum norm of 1.0 was used to reduce training instability. The best-performing model checkpoint was selected on the basis of validation accuracy and saved for inference. These model-training details are included for transparency and reproducibility; the resulting predictions were subsequently treated as provisional classifications and manually validated before being used in the final analysis.

Table 7: ClimateBERT Classification Framework: Training Sample Quotes, Category Definitions and Boundary Rules

Category	Quote 1	Quote 2	Quote 3	Quote 4	Quote 5	Definition of in-and exclusion criteria
<i>Conserving forests and land</i>	US: In addition, federal and state governments will invest in forest protection and forest management, and engage in intensive efforts to reduce the scope and intensity of catastrophic wildfires, and to restore fire-damaged forest lands	Mexico: Our country aims to establish more than 2 million hectares (ha) of new PNAs [Protected Natural Areas], 1 million ha in Areas Voluntarily Designated for Conservation, and 40,785 ha for restoration."	Brazil: The Brazilian government has chosen to go even beyond already existing laws and policies and commit to eliminating illegal deforestation by 2028.	Russia: This indicator is determined based on the need to ensure the economic development of the Russian Federation on a sustainable basis, as well as to protect and improve the quality of sinks and storage facilities of greenhouse gases and is aimed at achieving the goals of the Paris Agreement.	Argentina: Argentina recognizes Ecosystem-based Adaptation (EbA) as a cornerstone for climate planning, focusing on the conservation, restoration, and sustainable management of high-carbon ecosystems like wetlands and peatlands	Actions, policies, and commitments to protect, restore, and sustainably manage terrestrial and coastal ecosystems that store carbon and support biodiversity. This includes reducing deforestation and forest degradation through legislation, REDD+ mechanisms, and enforcement; expanding and strengthening protected areas and nature reserves; restoring degraded forests, wetlands, peatlands, grasslands, and blue carbon ecosystems such as mangroves, seagrass beds, and salt marshes; sustainable forest management to maintain and improve carbon sinks; conserving biodiversity and land resources through ecosystem-based approaches; and managing land degradation and desertification. Also included are descriptions of ecosystem extent, biodiversity richness, forest cover trends, vulnerability to climate pressures, and contextual statements about the importance of ecosystems where these clearly underpin or motivate conservation commitments. Sentences that are purely unintelligible fragments with no recoverable conservation content, and nature-based solutions where the primary purpose is disaster risk reduction, are excluded.
<i>Use solar, wind and renewable power</i>	India: To achieve about 50 percent cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030, with the help of transfer of technology and low-cost international finance	Saudi Arabia: Renewable energy projects will contribute to the diversification of the energy mix used in electricity production... the renewable energy ambition aims to reach around 50% of the energy mix by 2030	Turkey: To reach approximately 33 GW of solar-installed power capacity, 18 GW of wind-installed power capacity, and 35 GW of hydroelectric-installed power capacity by 2030	Australia: Australia is transforming its electricity market to a 21st century grid with increasing penetration of renewables, storage and demand management technologies	Japan: In order to create a virtuous cycle of the economy and the environment and to realize robust growth toward its ambitious goal for fiscal year 2030, Japan will put forward all possible efforts in all areas including by thorough energy efficiency	Actions, targets, and investments to expand the generation of electricity and energy from renewable sources, replacing fossil fuel-based generation. This includes solar, wind, hydropower, geothermal, biomass, and green hydrogen produced from renewable electricity; capacity expansion targets and installed capacity statistics; grid transformation toward higher shares of renewables; energy storage that enables renewable integration; and contextual statements about current renewable energy shares that motivate further expansion. Sentences focused solely on nuclear power, natural gas, or energy efficiency without a renewable energy component are excluded.

					measures, maximum introduction of renewable energy, as well as decarbonization of public sectors and local communities	
<i>Use climate-friendly farming techniques</i>	Canada: Further reduce emissions in the agricultural sector by supporting on-farm climate action (e.g., improve nitrogen management, increase adoption of cover cropping).	Turkey: To reduce the use of nitrogen fertilizers alternately with legumes in crop production and improve practices in cattle breeding, rational feeding, and regulation of the number of animals.	Brazil: The Low Carbon Agriculture Plan (ABC Plan) implements mitigation measures which include recovering degraded lands, nitrogen fixation, increased accumulation of organic matter in the soil, no-till farming, and the integration of forest, crops and cattle breeding	India: The National Mission on Sustainable Agriculture (NMSA) focuses on new technologies and practices in cultivation, including genotypes of crops that are less water consuming and more climate resilient	Japan: In food, agriculture, forestry, and fisheries industries, based on the “Strategy for Sustainable Food Systems, MeaDRI (Measures for achievement of Decarbonization and Resilience with Innovation) (decided by Ministry of Agriculture, Forestry and Fisheries on May 12th, 2021),” Japan aims to enhance productivity potentials and ensure sustainability in a compatible manner through innovation	Practices, technologies, and policies that reduce greenhouse gas emissions from agriculture and livestock while maintaining or improving productivity. This includes low-emission crop management such as cover cropping, rotational grazing, reduced tillage, and nitrogen and fertilizer management; livestock emission reduction through improved manure management, feed composition, and herd efficiency; agroecological and organic farming approaches; climate-smart irrigation; and national programs and investment that support farmers in adopting these practices. Contextual statements about agricultural output, food security challenges, or crop losses without a linked mitigation action are excluded
<i>Use more clean</i>	United Kingdom: Committed to ending the sale of	Mexico: Mexico is working on consolidating a	Australia: These technologies will also underpin	South Korea: The Republic of Korea has markedly	United States: Policies that can contribute to	Policies and investments that accelerate the shift away from fossil-fuel-powered personal and public transport toward zero- and low-emission alternatives. This includes mandates and targets for zero-emission vehicle

<i>electric cars and buses, or bicycles</i>	new petrol and diesel vehicles by 2030, and for all new cars and vans to be fully zero emission at the tailpipe by 2035	National Electric Mobility Strategy primarily promoting the transformation of public transportation, since it is the sector with the greatest social impact	further emissions reductions in Australia resulting from global low emissions technology trends, like electric vehicles powered by zero emissions electricity.	raised its 2030 target on the deployment of zero-emission vehicles such as the ones powered by electricity and hydrogen	emissions reduction pathways include: incentives for zero emission personal vehicles and funding for charging infrastructure to support multi-unit dwellings, public charging, and long-distance travel	sales, bans on new petrol and diesel vehicles, financial incentives and rebates for electric vehicle purchases, support for the domestic manufacturing of electric vehicles and components, and expansion of charging infrastructure. The focus is on passenger and urban transport, cars, buses, and light vehicles, rather than freight or heavy transport
<i>Invest more money in green businesses and jobs</i>	United States: The United States reaffirms its commitment to the creation of decent work and quality jobs as an integral part of its efforts to combat climate change.	Canada: This includes through the new Sectoral Workforce Solutions Program, which will help connect Canadians with the training they need to access good jobs in sectors, such as clean energy where employers are looking for skilled workers.	United Kingdom: The Net Zero Strategy sets out HM Government's plans to work with industry to create the skilled workforce to deliver net zero, including green apprenticeships and retraining bootcamps	Japan: The government aims to create new industries and jobs through nature-based solutions (NbS) necessary for both decarbonization and resilience	Australia: This investment will support 160,000 new jobs across Australia	Public and private investment, programs, and policies that grow the green economy and support workers through the transition to net zero. This includes funding for clean technology, green industries, and low-carbon innovation; workforce development initiatives such as skills training, retraining, green apprenticeships, and job placement programs for workers in high-carbon sectors; just transition measures that ensure workers are not left behind; and government commitments to create decent, well-paid employment in the low-carbon economy.
<i>Install more early warning systems for disasters</i>	Argentina: By 2030, the integration of Early Warning Systems (EWS) will provide information on the potential impact of meteorological phenomena	Saudi Arabia: Develop and operationalize EWS that would reduce vulnerability due to extreme weather events such as rainstorms, floods and dust	India: India has developed 580 district level contingency plans based on early warning systems and other weather forecasting systems	Turkey: A drought forecasting and early warning system will be established for 25 river basins in Türkiye by 2030.	Korea: Second, to strengthen monitoring, forecasting and assessment, the Korean government will build infrastructure for science-based forecasting and	Actions and investments to develop, strengthen, or expand systems that monitor climate hazards, forecast extreme events, and alert populations and governments in time to respond. This includes meteorological and hydrological monitoring networks, drought and flood early warning systems, disaster risk assessments, climate information services, and the data infrastructure and institutional capacity needed to make these systems functional and accessible.

	within the context of climate change	storms by increasing resilience of infrastructure			assessment , and improve climate vulnerability and risk assessment tools	
<i>Build infrastructure and conserve nature to protect lives and livelihoods</i>	Argentina: Implement a coastal management program aimed at protecting ecosystems and populations located in the most vulnerable areas	India: Disaster management strategies include the construction and sustainable maintenance of multi-purpose cyclone shelters to reduce existing levels of vulnerability	Brazil: Brazil's adaptation measures aim at plans for the urban landscape to ensure the resilience of the population and social and environmental infrastructure	Russia: preventive (proactive) adaptation aimed at reducing the risk of climate change (for example, the construction of dams against floods, forest protection belts, expansion of drought-resistant crops, etc	Saudi Arabia: Saudi Arabia is increasing the storage of surface water runoff by constructing new dams across the country to improve water security	Actions and investments to strengthen the resilience of communities, ecosystems, and infrastructure against climate impacts. This includes coastal zone management and protection of coastal infrastructure; flood and drought management through water storage, river ecosystem management, and drainage systems; climate-proofing of urban, industrial, and social infrastructure including buildings, roads, and utilities; nature-based solutions such as bioshields, mangroves, and blue carbon ecosystems that protect communities; pre-disaster planning and disaster risk reduction; and measures that protect vulnerable populations from extreme weather events such as heatwaves and flooding. Descriptions of climate risks and infrastructure vulnerabilities are included where they clearly frame or motivate protective action.
<i>Stop burning fuels that pollute</i>	United Kingdom: Committed to phase out unabated coal power by 2024 and to fully decarbonise the power system by 2035	Australia: Australia is transforming its electricity market, from a 20th century electricity grid dominated by large scale, fossil fuel-fired generators to a 21st century grid with increasing penetration of renewables	Turkey: In addition, schedules for phasing down hydrofluorocarbons (HFCs) production and consumption for the next decades have been established.	India: Policies to promote actions that address climate concerns include fiscal instruments like coal cess, cuts in subsidies, and increase in taxes on petrol and diesel	Russia: Russia is increasing the peaceful use of nuclear energy in developing countries, which helps to reduce fossil fuel consumption and reduce greenhouse gas emissions	Actions and policies to reduce or eliminate the burning of fossil fuels, particularly coal, oil, and gas, in energy generation and industry. This includes retiring or phasing down coal-fired power plants; transitioning from higher-emission to lower-emission fuels; improving the efficiency of existing fossil fuel infrastructure to reduce its carbon footprint; and promoting cleaner alternatives such as nuclear energy where the explicit purpose is to displace fossil fuel consumption. Also included are contextual statements about current fossil fuel dominance or use patterns where these clearly motivate or frame the need for transition. Excluded are statements that affirm the continuation of fossil fuel use, expansion of fossil fuels such as increased natural gas utilisation, generic net-zero or carbon neutrality goals with no specific fuel content, and factual statements about a country's fossil fuel production or export status with no linked mitigation action.
<i>Waste less energy in homes, buildings, and factories</i>	Korea: The Republic of Korea is stepping up efforts to promote zero-energy building solutions for newly	Canada: advance additional actions including continuing to develop the first model 'retrofit' code for existing	Russia: In addition, international scientific and technical cooperation is developing on	Saudi Arabia: It plans to retrofit the entire pool of public and governmental assets and facilities which	US: The emissions reduction pathways for buildings consider ongoing government	Measures to reduce energy consumption and improve energy performance across residential, commercial, and industrial buildings and facilities. This includes building codes and performance standards for new and existing construction; retrofit and renovation programs that upgrade insulation, heating systems, and appliances; energy efficiency labelling, audits, and certification schemes; and financing mechanisms that support households, businesses, and governments in reducing their energy use and emissions.

	constructed buildings and encourage the widespread implementation of green remodeling projects	buildings by 2025 and a net-zero energy ready building code for new buildings	improving the energy efficiency of buildings and structures, resource conservation and the use of renewable energy sources in construction in developing countries.	include 2 million street lights, 110,000 government buildings, 35,000 public schools, 100,000 mosques, 2,500 hospitals and clinics.	support for energy efficiency and efficient electric heating and cooking in buildings via funding for retrofit programs, wider use of heat pumps and induction stoves, and adoption of modern energy codes for new buildings	The focus is on consuming less energy and using it more efficiently, rather than switching to clean energy sources.
<i>Transport goods on planes, ships, trains and trucks that run on clean energy</i>	Canada: Work with partners, domestically and internationally, to reduce emissions from other modes of transportation including heavy-duty vehicles, rail, marine, and aviation operations	Mexico: Promoting rail transport allows for a reduction in GHG emissions, due to its greater energy efficiency in transporting goods and/or people.	Argentina: Reduction of emissions from freight transport through the design of a Rail Freight Investment Plan and sustainable rail transport	US: The United States recognizes the role of the broader suite of ocean-based climate solutions, including scaling-up offshore renewable energy and reducing emissions from shipping and ports	Korea: In the shipping and aviation sectors, emission reduction efforts will be focused on distributing eco-friendly ships and enhancing the operational efficiency of aircraft.	Actions and policies to decarbonise freight and passenger transport across all modes, rail, road freight, maritime, and aviation. This includes shifting freight from high-emission road transport to lower-emission alternatives such as rail and inland waterways; deploying cleaner fuels and technologies in heavy-duty vehicles, ships, and aircraft; improving the energy efficiency of transport operations; and investing in sustainable transport infrastructure. The focus is on commercial and freight transport rather than personal passenger vehicles.
<i>Support local communities, indigenous peoples, and women that are environmental</i>	Japan: Towards the achievement of a sustainable society, Japan is proactively working to incorporate gender perspectives, including gender equal participation, into concrete actions,	United Kingdom: The UK recognises that women and girls alongside other marginalised people are disproportionately impacted by climate change and are also critical leaders	Brazil: The adaptation process is, in a way, one of resistance and struggle, in which we must empower those who defend their spaces and territories, their ways of life	Mexico: Among the latter group, the participation of young people stands out, demonstrating leadership and a growing commitment to addressing climate change	Argentina: This principle implies the recognition and integration of local knowledge, ancestral wisdom and practices, cultural values and patterns, systems, habits, and communities into climate action	Actions, commitments, and approaches that recognise the stewardship role of local communities, indigenous peoples, and women in climate action, and that promote equity and inclusion across climate policy. This includes incorporating indigenous, traditional, and local knowledge into climate adaptation and mitigation; supporting indigenous peoples as rights-holders and active leaders in environmental governance; empowering women and marginalised groups including youth, LGBTI+ people, and people with disabilities to participate in climate decision-making; adopting gender-responsive and intersectional approaches that acknowledge the disproportionate climate impacts on vulnerable groups; mainstreaming gender and diversity perspectives across mitigation and adaptation policies; community-led climate planning and empowerment; and environmental education and public participation framed around equity and inclusion.

<i>stewards</i>	while aiming at enhanced participation of women in policy decision-making processes for responding to environmental problems including climate change, in line with ongoing international trends.	and agents of change				Contextual statements describing how climate change differentially affects communities, or how structural inequalities shape climate vulnerability, are included where they motivate or frame these commitments. Generic human rights statements, constitutional protections, and legal frameworks that apply broadly to all citizens without a specific link to these groups in a climate context are excluded, as are unintelligible fragments and reference tag artifacts.
<i>Make companies pay for their pollution</i>	Canada: Finalizing Ontario's emissions performance standards for large, industrial emitters to ensure polluters are accountable for their GHG emissions	Mexico: Mexico's Emissions Trading System (ETS), the first of its kind in Latin America, will regulate emissions from major industrial sources in the country. Through innovative instruments, the aim is to establish a carbon price that provides the necessary incentives for innovation	UK: Such use could occur through the linking of the UK emissions trading scheme to another emissions trading system or through the use of emissions reductions or removals units.	Korea: The 3rd Basic Plan for the K-ETS specifies that the updated 2030 target should be considered when setting the emissions cap and allocating tradable permits on a 5-year basis, underlining the role of the ETS for the achievement of the NDC	Turkey: Based on the existing Turkish MRV System, Emission Trading System will be one of the primary mitigation instruments in the industry and energy sector	Policies and instruments that put a price on greenhouse gas emissions or require emitters to bear the financial cost of their pollution. This includes emissions trading systems and cap-and-trade schemes that set a ceiling on total emissions and allow companies to buy and sell allowances; carbon taxes and levies applied to fossil fuels or industrial emissions; performance-based market mechanisms such as crediting systems that create financial incentives for emission reductions; and the design, implementation, and expansion of these instruments, including allocation methods, sectoral coverage, and linkage with international carbon markets under the Paris Agreement.

Source: Author based on NDC documents

10.4 Text processing and unit of classification

The NDC documents were converted into text and segmented into sentences. In total, 5,468 sentences were extracted from the 13 NDC documents and passed through the trained classifier. The sentence was selected as the unit of classification because it offered sufficient specificity to identify policy categories while preserving enough context for the classifier to interpret the meaning of each statement. Paragraph-level coding would have risked combining multiple policy domains in a single unit, while word-level coding would have removed too much contextual information.

For each sentence, the model generated the three most likely policy categories and corresponding confidence scores. The analysis used only the top-ranked category. The second and third predictions were excluded because the aim was to assign each sentence to a single dominant policy category before manual validation.

10.5 Manual validation

The model output was treated as a provisional classification rather than as final coded data. Because the aim was to maximise the number of correctly classified policy sentences for the sectoral priority congruence analysis, predictions were ordered by confidence score and the 899 highest-confidence cases were reviewed manually, since these represent the portion of the sample where the model is most likely to be correct and where manual validation yields the largest number of reliable policy labels. Each sentence was checked against the category definitions and either confirmed, reassigned to a more appropriate category, or labelled as “No category” where the sentence did not contain substantive policy content. This included procedural text, general framing unrelated to any specific policy domain, methodological descriptions, and fragmentary sentences with no recoverable policy content.

Throughout the review, category definitions were refined as classification criteria became clearer. After the review, each category was checked for internal consistency to ensure that sentences grouped under the same label reflected a coherent interpretation. The final category definitions, including examples and boundary rules, are reported in Table 7.

The review stopped after 899 sentences because this was the largest manually validated high-confidence sample available. The cutoff also coincided with a visible decline in model reliability: around the final reviewed observations, confidence scores fell to approximately 0.307 and the first sequence of 11 consecutive “No category” cases appeared, a substantial increase compared with the maximum run of four to six consecutive no-category cases observed earlier in the reviewed set. At this point, the model increasingly assigned policy labels to sentences without classifiable policy content. The cutoff was therefore treated as a practical reliability boundary.

For the sectoral priority congruence score, sentences labelled “No category” were excluded before any counting was conducted. These sentences did not correspond to any of the 12 policy domains and were unevenly distributed across predicted categories, which would have distorted the category-level comparison by penalising some categories more than others for non-policy text. The analysis was consequently calculated only on manually validated sentences with a confirmed substantive policy category, producing a final NDC coding sample of 657 policy-relevant sentences.

10.6 Coding uncertainty and borderline classifications

Although final labels were manually validated, some NDC sentences could plausibly fall into more than one policy category. This was most likely where sentences combined several domains, for example adaptation with infrastructure, land use with conservation or farming, or governance and accountability language with concrete delivery measures. In these cases, the sentence was assigned to the category that represented its dominant substantive policy emphasis, using the category definitions and boundary rules above. Where no clear substantive policy domain was identifiable, the sentence was labelled “No category” and excluded from the scoring procedure.

This uncertainty affects how the results should be interpreted. Plausible alternative classifications of borderline sentences could affect individual country-domain scores, particularly in countries with shorter validated samples or highly concentrated NDC profiles, where a small number of sentences can carry greater weight. However, the main findings are interpreted primarily through repeated patterns across countries and

domains, not isolated sentence-level classifications. They are also supported by a standardised coding procedure, documented category rules and the aggregation of validated sentences into country-domain scores. Findings such as the consistent salience of conservation and renewable energy, the under-reflection of clean transport and the importance of NDC specificity are therefore read with greater confidence than more case-specific spikes in domains such as early warning, polluter-pays measures or community stewardship. A formal sensitivity test using alternative classifications was beyond the scope of the thesis, so individual country-domain cells should be interpreted more cautiously than broader patterns repeated across the sample.

10.7 Calculation of NDC priority scores

NDC prioritisation was calculated at the country-category level. Before counting, non-substantive extraction artefacts embedded in sentence text, including translation markers such as “translated by Google”, were removed to prevent them inflating category word counts. This cleaning did not affect the manual category assigned to the sentence.

For each validated policy sentence, words were counted. The total words in each policy category were then divided by the total validated policy words for that country. The resulting score represents the share of a country’s NDC policy content devoted to a given domain; category shares sum to 100 per cent within each country.

Word counts were used rather than sentence counts because NDC sentences vary considerably in length and density. A sentence-count approach would give equal weight to brief statements and longer substantive sentences containing detailed policy commitments, targets or implementation measures. Word-count weighting therefore provides a more proportionate measure of textual attention. A robustness check recalculated category shares using sentence counts; the two approaches produced nearly identical results, with a mean absolute difference of 1.2 percentage points across all country-category pairs.

10.8 Calculation of sectoral priority congruence

Sectoral priority congruence was calculated by comparing the relative distribution of citizen climate policy priorities with the relative distribution of NDC textual attention across the 12 comparable policy domains. Because the People's Climate Vote reports support for each policy option separately, citizen values do not sum to 100 per cent within each country. Respondents could support several options simultaneously, so the survey percentages measure levels of support rather than the allocation of priority across policy domains. Contrastingly, the NDC scores developed in the previous step represent shares of total validated NDC policy words and therefore sum to 100 per cent within each country. Directly subtracting raw citizen support from NDC priority shares would compare two different types of measure: absolute public support and relative textual attention.

To make the two measures comparable, raw citizen support was transformed into a relative citizen priority distribution by dividing each domain's support value by the total support across the 12 comparable domains. This produced a relative citizen priority share for each domain, with values summing to 100 per cent within each country. The raw PCV values were retained for descriptive interpretation, as they indicate the overall popularity of specific policy options; the normalised values were used for the congruence analysis because they provide a distributional measure comparable with NDC textual prioritisation. This transformation improves comparability but does not remove the difference between survey support and governmental prioritisation: citizens were not asked to rank measures or make trade-offs, whereas NDC content reflects political, technical, fiscal and documentary choices about which domains receive attention.

The sectoral priority congruence gap was then calculated for each country and policy domain by subtracting the relative citizen priority share from the NDC priority share:

$$\begin{aligned} & \textit{Sectoral priority congruence gap} \\ &= \textit{NDC priority share} - \textit{relative citizen priority share} \end{aligned}$$

Positive values indicate greater relative NDC attention than citizen priority; negative values indicate that relative citizen priority exceeds NDC attention, suggesting under-reflection. Values close to zero indicate stronger distributional correspondence. The absolute congruence gap captures the magnitude of incongruence regardless of direction.

Country-level sectoral priority congruence was calculated by summing the absolute congruence gaps across the 12 policy domains, dividing this value by two, and subtracting it from 100:

Country sectoral priority congruence score

$$= 100 - \left(\frac{\text{sum of absolute sectoral priority congruence gaps}}{2} \right)$$

This produces a score between 0 and 100, where 100 represents perfect distributional congruence. The division by two is necessary because the maximum total absolute distance between two percentage distributions is 200 percentage points. A higher score indicates stronger country-level congruence, while a lower score indicates greater distributional incongruence. The mean absolute gap was also calculated for each country to show the average Incongruence across policy domains in percentage points.

To classify forms of congruence and misalignment, the study applied the Substantive Alignment Typology at the country and policy domain level. For each country, the median relative citizen priority share and median NDC priority share were calculated across the 12 domains. Each observation was then classified according to whether citizen priority and NDC priority fell above or below their respective country-specific medians, with values equal to or below the median treated as low priority.

This produced four configurations: high-priority alignment (both above the country median), under-reflection (citizen priority above the median, NDC priority equal to or below), divergence (NDC priority above the median, citizen priority equal to or below), and muted alignment (both equal to or below their respective medians). This median-

based approach was selected because the analysis focuses on relative sectoral priority congruence within countries rather than on universal thresholds.

Country-level results were summarised through the country sectoral priority congruence score, the mean absolute gap across policy domains, and the number of domains in each typology category. Policy domain-level results were summarised differently: because a policy domain across countries does not form a single distribution summing to 100 per cent, no equivalent domain congruence score was calculated. Domain-level patterns were instead assessed through the mean directional gap, the mean absolute gap across countries, and the number of countries in which each domain fell into each typology category. This distinction allows the analysis to identify both which countries exhibit stronger overall congruence and which policy domains are more consistently reflected, under-reflected, divergent or muted across the sample.

Finally, centred values were calculated for visualising the typology in a quadrant plot. For each country and policy domain, the relative citizen priority share was centred by subtracting the country median citizen priority share, and the NDC priority share was centred by subtracting the country median NDC priority share. Positive centred values indicate above-median priority; negative values indicate below-median priority. Plotting citizen-centred values on the x-axis and NDC-centred values on the y-axis makes the four typology categories visible as quadrants.