



ACHIEVING HIGH-INTEGRITY VOLUNTARY CLIMATE ACTION

D2.4 - Assessment of voluntary climate initiative (VCI) integrity

WP2 Assessing integrity & impacts of
existing voluntary climate action



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Grant Agreement Number	101137625	Acronym	ACHIEVE
Full Title	Achieving High-Integrity Voluntary Climate Action		
Topic	HORIZON-CL5-2023-D1-01-05		
Funding scheme	HORIZON EUROPE, RIA – Research and Innovation Action		
Start Date	January 2024	Duration	48 months
Project URL	https://www.achieveproject.eu		
EU Project Advisor	Chara Sifaki		
Project Coordinator	Stichting Radboud Universiteit (RU)		
Deliverable	D2.4 - Assessment of VCI integrity		
Work Package	WP2 Assessing integrity & impacts of existing voluntary climate action		
Date of Delivery	Contractual	30/06/2026	Actual 26/06/2026
Type of Deliverable	Report	Dissemination Level	(Public)
Lead Beneficiary	NewClimate Institute		
Responsible Author	Silke Mooldijk		NCI
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Reviewer(s)	Sander Chan
Keywords	Cooperative Climate Initiatives (CCIs); Voluntary Climate Action; Carbon Market Integrity; Subnational Climate Commitments; Transparency and Accountability; High-integrity climate action





Summary Requirements

1. Changes with respect to the Description of Action (DoA)

No changes with respect to the work described in the DoA.

2. Dissemination and uptake

This deliverable is useful for all work packages and practitioners outside the project.

3. Short summary of results

This report presents the findings on the role and integrity of voluntary climate initiatives (VCIs) in advancing climate action among non-state actors within the ACHIEVE project Work Package 2. It provides an overview of eight studies that investigate both initiative-level governance and actor-level outcomes, including corporate targets, financial sector practices, and city-level policy changes.

The report analyses how these studies addressed three main objectives:

- 1) Assessing the integrity standards and enforcement practices of VCIs;
- 2) Analysing integrity trends across different non-state actor groups; and
- 3) Comparing the performance of VCI members with non-members.

Findings reveal significant heterogeneity in integrity standards, with harmonised definition and consistent methodology for assessing climate commitments only starting to emerge. Across different sectors, ambition and integrity gaps remain widespread: many actors lack robust targets, and even where targets exist, they often fall short in scope, transparency, or implementation. Sector-specific analyses, such as in the agrifood sector, show improvements in reporting but limited progress in emissions reductions and strategy specificity.

Several studies find that VCI membership can be associated with higher ambition and improved governance practices, including better reporting and accountability structures. However, these improvements are uneven and often insufficient to ensure meaningful emissions reductions, or other social and environmental impacts. The voluntary nature of VCIs, combined with weak enforcement mechanisms, limits their effectiveness.

Overall, the report concludes that while VCIs can support coordination and raise ambition, they are structurally inadequate on their own. Stronger regulatory frameworks and accountability mechanisms are necessary to ensure credible, high-integrity climate action aligned with global climate goals.

4. Evidence of accomplishment

This report provides the evidence for this accomplishment.



5. Disclosure statement on the use of generative artificial intelligence (AI)

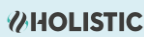
Microsoft Copilot and Claude Sonnet 4.6 were used to summarise and edit text. The authors critically reviewed the outputs of the tool by evaluating the relevance and validity of the outputs before integrating them with the authors' own work. The authors take full responsibility for the work. A sample of prompts to the AI tool are collected and listed in section 7.1 of this report.





Preface

In recent years an unprecedented number of voluntary climate commitments have been made by a wide array of non-state and subnational actors. These voluntary climate actions aim to reduce greenhouse gas emissions and build climate resilience and are crucial for lowering risks of exceeding warming limits. However, the full potential of voluntary climate action can only be realised when integrity-related concerns are overcome. ACHIEVE aims to identify opportunities to strengthen and scale up high-integrity voluntary climate action towards achieving net-zero emissions by mid-century. The project will generate transformative and timely scientific insights on the role, effectiveness and integrity of voluntary climate action including carbon credits; assess the integrity and impacts of such action; analyse how policies and regulations, and high-integrity voluntary climate action can strengthen each other; and use scientific findings to support the scaling up of high-integrity voluntary action. This will be achieved through a highly inter- and transdisciplinary consortium that, from the start, actively engages policymakers and other societal stakeholders in co-creating outcomes that respond to end users' needs. ACHIEVE is aligned with the Work Programme of Cluster 5, Destination 1 "Climate sciences and responses for the transformation towards climate neutrality" as the project directly contributes to advancing knowledge and providing solutions for climate change specifically on high integrity voluntary climate action. ACHIEVE will develop transition pathways to climate neutrality that integrate voluntary climate action by cities, regions and companies; it will develop novel social science insights for climate action; contribute to better understanding sustainability co-benefits and trade-offs; and increase transparency and trust in voluntary climate action by strengthening integrity and making scientific results easily accessible for different stakeholder groups.

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Executive Summary

This report presents a comprehensive assessment of the integrity of voluntary climate initiatives (VCIs), conducted under Task 2.2 of the ACHIEVE project. VCIs, such as corporate alliances, financial coalitions, and city networks, have emerged as key instruments for mobilising voluntary non-state and subnational actors in support of global climate goals. By encouraging target-setting, fostering collaboration, and promoting accountability, these initiatives are often positioned as critical complements to national climate policies. However, their rapid proliferation has also raised persistent concerns about credibility, transparency, and the risk of symbolic rather than substantive action.

This report builds on the standardised integrity framework developed in Work Package 1 (WP1) (Thapa & Chan, 2025). The frameworks outline integrity principles that span transparency, accountability, ambition, implementation, and verification, providing a useful heuristic for these studies to evaluating VCIs and their members. However, it is important to note that integrity is not a fixed or universal standard: it is inherently context-dependent. Different dimensions of integrity become salient at different moments and for different actor types: what matters most for a corporate net-zero alliance, differs from what is critical for a subnational government network. Integrity standards also evolve over time: expectations that were once considered ambitious may become baseline requirements as norms mature and evidence accumulates. This means that while the ACHIEVE integrity principles offer a useful analytical anchor, their application remains case specific.

This report synthesises evidence from eight major studies and related analyses to evaluate how integrity is defined, implemented, and realised across VCIs and their members. It addresses three interrelated objectives: (1) assessing the integrity standards and enforcement practices of VCIs; (2) analysing integrity trends across different non-state actor subgroups; and (3) benchmarking the climate performance of VCI members against comparable non-members. Together, these strands provide a multi-dimensional understanding of the current strengths and limitations of voluntary climate governance.

Key findings

1. Integrity standards and enforcement practices are highly heterogeneous

A central finding across the studies reviewed in this report is that VCIs lack a harmonised understanding of what constitutes “integrity” in voluntary climate action. The studies show that VCIs can vary significantly in their requirements for target-setting, transparency, and accountability. Some initiatives establish relatively rigorous frameworks, including target-setting, disclosure requirements, and periodic reporting, while others rely on broad commitments with limited operationalisation. Similarly, enforcement mechanisms are not uniform. Most initiatives depend on reputational incentives and peer pressure rather than binding obligations, allowing members considerable flexibility in how and whether they implement commitments.

In the financial sector, for example, many initiatives prioritise participation and coalition-building over strict accountability, resulting in diluted standards and inconsistent compliance. Larger alliances have, in some cases, softened requirements to retain members, highlighting the tension between inclusivity and ambition. In the corporate domain, a growing ecosystem of independent assessment initiatives has helped





define emerging integrity benchmarks, but methodological diversity across these frameworks limits comparability and clarity.

2. Evidence gaps and methodological challenges persist

The report also highlights limitations in the evidence base used to assess VCIs. Academic research tends to focus on a relatively small number of prominent initiatives, often emphasising governance structures, commitments, and outputs rather than long-term behavioural change and real-world impacts. This creates a “missing middle” in understanding how initiative-level rules translate into actor-level outcomes, such as emissions reductions or systemic transformation.

3. Integrity and ambition gaps remain widespread across actor groups

Across companies, financial institutions, cities, and regions, the findings reveal gaps in ambition and integrity. Many actors have yet to set credible emissions reduction targets, and among those that have, targets often lack comprehensiveness, specificity, or alignment with 1.5°C pathways. An assessment of net-zero targets globally show that while the fraction of cities, regions and companies meet established procedural and substantive integrity criteria is increasing, it remains marginal (Net Zero Tracker, 2025).

Sector-specific analyses reinforce this pattern. In the agrifood sector, for instance, emissions reporting has expanded substantially, but only a minority of companies have targets that are on track with 1.5°C emissions pathways (Wicke et al., forthcoming). Key elements of high-integrity transition strategies, such as clear plans for addressing deforestation, reducing value chain emissions, or limiting reliance on carbon offsetting, remain underdeveloped or poorly disclosed.

4. VCI membership is associated with improved ambition and governance, but not necessarily with stronger substantiveness

Despite these limitations, there is evidence that participation in VCIs is associated with higher levels of ambition and more developed governance frameworks compared to non-members. Corporate members of initiatives such as Race to Zero or The Climate Pledge tend to adopt more ambitious targets. However the substantiveness of their targets is not necessarily affected (van den Wall Bake et al., forthcoming). At the city level, membership in initiatives like the Global Covenant of Mayors is linked to the adoption of climate targets, action plans, reporting mechanisms, and accountability structures (Peterson & Chan, forthcoming).

Importantly, these findings suggest that VCIs can function as “institutional accelerators,” enabling actors to develop governance capacities and align with emerging best practices. Membership appears to support not only the formulation of commitments but also the establishment of administrative and reporting systems necessary for implementation. However, the strength of these effects varies across policy dimensions, with weaker impacts observed in technically complex areas which may require more regulatory intervention.

5. Structural limitations of voluntary climate governance

While VCIs contribute to coordination, capacity-building, and incremental improvements in ambition, the report concludes that voluntary approaches alone are insufficient to deliver the pace and scale of emissions reductions required under the Paris Agreement. The core limitation lies in their voluntary nature: without binding obligations, strong enforcement, or integration into regulatory frameworks, VCIs cannot ensure



consistent compliance or prevent free-riding and greenwashing.

This limitation is particularly evident in the financial sector, where voluntary commitments have not been sufficient to align investment flows with climate goals (Salsabila et al., 2025). Similarly, corporate and subnational actors often lack the incentives or regulatory pressure to translate commitments into transformative action. External factors, such as political shifts and regulatory uncertainty, can further undermine the stability and credibility of voluntary coalitions.

Implications for policy and practice

The findings underscore the need for voluntary initiatives to strengthen – and not replace – mandatory regulatory frameworks. While VCIs play an important bridging role in pilot-testing standards, building capacity, and mobilising early action they should not be seen as substitutes for formal regulation. Key avenues to strengthen voluntary climate initiative integrity include:

- **Harmonising integrity standards:** Continuing with the development of common definitions, metrics, and methodologies to improve comparability and consistency across initiatives and actor groups.
- **Strengthening accountability mechanisms:** Introducing clearer requirements for monitoring, reporting, and verification, as well as consequences for non-compliance.
- **Enhancing transparency:** Ensuring that data on targets, progress, and implementation strategies are publicly accessible and standardised.
- **Linking voluntary and regulatory approaches:** Fostering strong connections between voluntary standards and legal and policy frameworks, such as corporate disclosure requirements or financial regulations, to create stronger incentives for compliance.
- **Improving evidence on impacts:** Expanding research to better capture the causal pathways between VCI participation and real-world outcomes, including emissions reductions, resilience, and social impacts.

Conclusion

Overall, this report shows that VCIs continue to play an important role in the development of global climate governance by mobilising non-state actors and fostering the diffusion of standards and practices. However, significant integrity gaps remain, and voluntary mechanisms cannot ensure credible and effective climate action alone. Strengthening the integrity of VCIs will require both internal improvements and stronger integration with external support through regulatory frameworks and enhanced accountability systems.





Contents

Introduction	11
1.1 Background	11
1.2 Structure of the report	12
2 Objectives and summary	13
3 Related analysis within other ACHIEVE deliverables	16
4 Overarching findings and recommendations	17
5 Overview of studies	20
5.1 Cooperative climate initiatives: evidence gaps in progress and integrity assessment	20
5.2 Supporting the Paris Agreement through international cooperation: potential contributions, institutional robustness, and progress of Glasgow climate initiatives	23
5.3 Financial institutions: Comparison of voluntary initiatives.....	26
5.4 A comparison of corporate climate assessment initiatives	28
5.5 From Ambition to Integrity: Advancing comparability of indicators for corporate climate targets	31
5.6 Agrifood sector companies	35
5.7 Net Zero Tracker Stocktake Report.....	38
5.8 Membership vs. Non-membership in the Global Covenant of Mayors	43
6 Bibliography	48
7 Appendix	55
7.1 Sample AI prompts.....	55

Table of Figures

Figure 1: Overview of the ambition indicators for 3 sectors and the full sample: average for all indicators (left) and distributions of the indicators (right).	34
Figure 2: Distributions of the indicators for members and non-members of VCIs, as well as members of the SBTi, Race to Zero, The Climate Pledge and Climate Action 100+.	35
Figure 3: Comparison of Race to Zero Members performance on the procedural and substantive integrity criteria	41

Table of Tables

Table 1: Institutional robustness indicators	23
Table 2: Overview of target ambition and progress indicators included in the study.	32
Table 3: Sample AI Prompts	55





List of abbreviations

Abbreviation	Definition
COPs	Conferences of Parties
CCI	Cooperative Climate Initiative
CDP	Carbon Disclosure Project
CDR	Carbon Dioxide Removal
CoAct	CoAct Database (formerly C-CID, Climate Cooperative Initiatives Database)
CNZS	Corporate Net Zero Standard
CSDDD	Corporate Sustainability Due Diligence Directive
CRSD	Corporate Sustainability Reporting Directive
C40	C40 Cities Climate Leadership Group
DDEL	Data-Driven EnviroLab
ECIU	Energy and Climate Intelligence Unit
EFrag	European Financial Reporting Advisory Group
EU	European Union
FLAG	Food and Land Sector Guidance
GFANZ	Glasgow Financial Alliance for Net Zero
GCoM	Global Covenant of Mayors for Climate & Energy
GHG	Greenhouse gas
HLEG	High-Level Expert Group (UN)
ICLEI	Local Governments for Sustainability
ISSB	International Sustainability Standards Board
LCTS	Low-carbon transition strategies
NDC	Nationally Determined Contribution
NZT	Net Zero Tracker
OECD	Organisation for Economic Co-operation and Development
R2Z	Race to Zero
SBTi	Science Based Targets initiative
TCFD	Task Force on Climate-related Financial Disclosures
TPI	Transition Pathway Initiative
TWFE	Two-way fixed effects
UNFCCC	United Nations Framework Convention on Climate Change
VCI	Voluntary Climate Initiative
WP	Work Package





Introduction

1.1 Background

Voluntary climate initiatives (VCIs) have emerged as a prominent mechanism for coordinating and accelerating climate action among non-state actors, including companies, financial institutions, cities, and subnational authorities. These initiatives, such as the Science Based Targets initiative (SBTi), Race to Zero, the Global Covenant of Mayors and numerous sector-specific coalitions, claim to drive ambitious climate commitments and foster accountability among their members. However, the proliferation of VCIs has raised critical questions about the credibility and integrity of both the initiatives themselves and the climate pledges made by their members.

The integrity of voluntary climate action is fundamental to ensuring that non-state actor commitments translate into genuine emissions reductions and contribute meaningfully to global climate goals. Without robust assessment mechanisms, there is a risk that VCIs may facilitate greenwashing, allow for low-quality carbon offsetting, or permit targets that lack sufficient ambition or transparency. Furthermore, the heterogeneity of VCIs, which span different actor types, sectors, and geographies, necessitates systematic evaluation to understand where initiatives are driving genuine progress and where gaps in integrity persist. This task examines both what initiatives pledge as requirements from their members (organisational-level integrity standards) and how effectively these standards are enforced in practice (member-level compliance and performance). By conducting deep dives into sector- and geography-specific trends, this work aims to provide granular evidence on the current state of integrity within the voluntary climate action landscape.

A central output informing this task is the ACHIEVE integrity framework developed in Work Package 1 (WP1) (Thapa & Chan, 2025), which structures the assessment of voluntary climate action (VCA) around four core principles: integrated accountability, justice and equity, environmental protection, and low-carbon and resilient transformation. As the work packages were conducted in parallel, the order of steps was not strictly linear but rather iterative and mutually reinforcing. Insights from WP1 informed the design and analytical approaches of several studies under Task 2.2, while, at the same time, empirical findings from studies presented in this report helped refine and contextualise the integrity framework itself. Throughout this report, we explicitly highlight where key concepts, principles, and indicators from the ACHIEVE integrity framework shaped the assessment of VCIs and their members. Integrated accountability emerges as the most consistently operationalised principle, particularly in studies that examine target coherence, and verification. By contrast, the principles of justice and equity, environmental protection, and low-carbon and resilient transformation remain less explicitly embedded across the studies, reflecting persistent conceptual challenges, data limitations, and constraints in resources and capacity. As demonstrated by the breadth of approaches to studying integrity within the sample of studies, integrity remains highly contextualised and different aspects of integrity are salient for different actors at different time periods.





1.2 Structure of the report

Section 2 introduces the three objectives under Task 2.2 and describes how the studies conducted under this task address each objective. Section 5 presents the individual pieces of work related to this deliverable and their main findings. Section 3 situates these findings within the broader context of the ACHIEVE project, drawing connections to related research streams on non-state climate governance. Section 4 synthesises and discusses the implications of the findings, analysing what the observed integrity gaps reveal about the current state and future trajectory of voluntary climate through voluntary initiatives. Section **Error! Reference source not found.** concludes with policy recommendations aimed at strengthening accountability mechanisms for non-state climate action.





2 Objectives and summary

Task 2.2 pursues three interconnected objectives:

- assessing the integrity standards and enforcement practices of voluntary climate initiatives (VCIs)
- analysing integrity trends across non-state actor subgroups
- and benchmarking the integrity of VCI members against comparable non-members.

The sections below describe how the studies conducted under this task address each objective, forming a comprehensive evidence base on the integrity landscape of voluntary climate initiatives.

1) Objective: Assessing voluntary climate initiatives' integrity standards and enforcement practices

The first objective focused on evaluating the integrity standards and requirements that VCIs commit to applying to their member organisations. Beyond the formal pledges these initiatives make, the aim was to understand how VCIs apply integrity principles to individual members in practice. Four complementary studies focused on integrity standards and enforcement practices, together they fulfil this objective.

In the first study (Section 5.1), Reyes de la Lanza, Wicke and Chan (forthcoming) review existing academic literature to examine how research assesses progress in voluntary cooperative climate initiatives involving non-state and subnational actors. The study maps how scholars analyse the relationship between initiative-level governance and actor-level changes, including changes in commitments, capacities, practices, and environmental, social, and economic impacts. It identifies which dimensions of progress researchers currently assess, what types of evidence and indicators they use to support claims about initiatives' contributions to climate action, and where important evidence gaps remain. Covering initiatives involving companies, investors, cities, regions, civil society organisations, and other actors, the study provides an important foundation and contextualisation for ongoing and future work on VCIs.

In the second study (Section 5.3), Kuramochi et al., (2024) evaluates the prospects of the 14 Glasgow sector initiatives by investigating their aggregate mitigation ambition under current national signatories and the institutional robustness of each initiative. Alongside investigating the participation and the potential impact of national governments and their aggregate mitigation ambition, the authors investigate the institutional robustness of each initiative, with a framework and findings that have broader implications on how VCIs can be understood

In the third study (Section 5.3), Salsabila, Straub and Marquardt (2025) identify collective trends in integrity standards that voluntary climate initiatives set for their financial institution members. They evaluate 11 major initiatives to understand what integrity standards VCIs pledge to enforce (target-setting criteria, transparency requirements, and accountability mechanisms) and then examine how these principles are applied and enforced at the individual member level in practice.

In the fourth study (Section 5.4), Straub et al. (2026) examine integrity standards in voluntary corporate climate assessment initiatives, specifically target-setting and transition evaluation frameworks like the Science Based Targets initiative (SBTi) and the Transition Pathway Initiative (TPI). Unlike membership-based initiatives, these frameworks independently select which companies to assess. By analysing the



integrity criteria they establish, the authors provide insights into emerging standards for corporate climate strategies, which companies may face even without voluntarily joining these frameworks. Together, these three studies establish a baseline understanding of how VCIs position themselves in terms of target-setting criteria, transparency requirements, and accountability mechanisms. The detailed assessments of selected major VCIs in the corporate and financial institution sectors reveal differing levels of ambition and rigour, and shed light on the gap between stated standards and actual enforcement.

2) Objective: Analysis of integrity in voluntary climate action trends across non-state actor subgroups

The second objective involved disaggregating integrity assessments by relevant subgroups within each non-state actor category. Three studies contributed to this objective:

In the first study (Section 5.5), van den Wall Bake, Wicke and Chan (forthcoming) analyse integrity trends across non-state actor subgroups, with a focus on companies. The authors explore a range of target ambition indicators and examine which specific aspects of ambition each one captures. These indicators not only deepen the understanding of the target ambitions of individual companies but also support current and future ambition assessments of voluntary corporate climate action. The ambition and substantiveness of emission reduction targets is a key element of integrity as it signals non-state actors' commitment to actively strive for decarbonisation and captures best practices in target setting and progress towards targets. The indicators mainly cover aspects of the integrated accountability and low-carbon & resilient transformation principles of the integrity framework (Thapa & Chan, 2025).

In the second study (Section 5.6), Wicke et al. (forthcoming) focus on companies in the agrifood sector as a case study for assessing integrity trends within a specific non-state actor subgroup. Using the integrated accountability principle from the standardised assessment framework (Thapa & Chan, 2025) as its primary lens, the study assesses company emission reporting frequency and coverage, emission trends, target ambition and progress, and the role of offsetting, no-deforestation commitments, and regenerative agriculture in achieving target ambitions. The latter elements also connect to other principles of the integrity framework, namely low carbon & resilient transformation, and environmental protection.

The third study (Section 5.7), the Net Zero Tracker Stocktake Report (2025) assesses net zero target-setting across multiple non-state actor groups, including companies, cities, and regions, by evaluating more than 4,000 entities against key elements of integrity. The research examines whether targets and strategies contain the components necessary for deep decarbonisation over the coming decades, such as interim goals and implementation plans. It also explores how net-zero targets address the climate-nature nexus.

3) Objective: Integrity in climate strategies - comparison between VCIs and non-VCI actors

The third objective sought to benchmark the integrity of VCI member's climate pledges against comparable non-member actors where feasible. For example, comparing companies with SBTi-validated targets to other companies in the CDP database to ascertain whether VCI membership is associated with higher integrity standards and more credible climate commitments.





Since the launch of the ACHIEVE project in 2024, the voluntary climate accountability landscape has weakened relative to its 2021 peak, as evidenced by a wave of withdrawals from major VCIs, especially in the U.S. financial sector. The dynamic nature of participants' membership status, makes longitudinal and comparative studies more challenging. Nevertheless, several studies examined the relative performance of members versus non-members.

The key study addressing this objective directly compares the climate commitments and performance of member and non-member cities (Peterson & Chan, forthcoming) (Section 0). Specifically, it evaluates whether participation in a major transnational VCI, the Global Covenant of Mayors for Climate & Energy (GCoM), is associated with measurable changes in climate policy practices among cities, compared to non-member cities. By focusing on within-city changes over time, the analysis directly addresses whether VCI membership is associated with substantive institutional outcomes rather than symbolic commitments.

Two further studies integrate a membership comparison into their broader analyses. Van den Wall Bake, Wicke and Chan (forthcoming) (Section 5.5) assess how members and non-members of initiatives perform on the target ambition indicators observing various trends in target setting practices. They compare membership in four specific VCIs, namely the SBTi, the Race to Zero, The Climate Pledge and Climate Action 100+, and in any collaborative initiative with non-members of VCIs. The Net Zero Tracker Stocktake Report (Section 5.7) compares procedural and substantive integrity performance indicators for targets of companies, cities and regions.





3 Related analysis within other ACHIEVE deliverables

The work presented in this Deliverable connects to and complements broader research streams within the ACHIEVE project. This includes, most directly, findings on the integrity of carbon credit use by VCI members conducted under Task 2.1 and presented in Deliverable 2.2 (Schneider et al., forthcoming). That analysis investigated the role of carbon credits in relation to target-setting and progress reporting within cooperative climate initiatives, drawing on two complementary approaches. First, a document analysis of guidance materials published by major initiatives was conducted to assess the standards and requirements they set out for members. Second, the analysis zoomed in on members of four large-scale initiatives to examine trends in carbon credit use and target ambition and progress since joining the initiative. The findings show that corporate VCI members tend to set more ambitious targets, progress more quickly toward meeting them, and make greater use of carbon credits over time. However, the analysis also reveals that initiatives lack specific guidance to strengthen and safeguard the integrity of climate action. On this basis, the study recommends that initiatives to set more stringent integrity guidelines, including on carbon credit use, to achieve more effective and higher integrity climate action.

A further related contribution is a study by Roelfsema et al., (2026), which examines the effectiveness of voluntary climate initiatives and their alignment with 1.5°C and 2°C warming trajectories. The researchers find that if signatory countries were to apply initiative targets at the national level, projected outcomes between 2030 and 2050 would generally be more ambitious than what current policies suggest, with the potential to reduce global emissions by around 11%. However, when full global implementation is measured against sub-2°C or 1.5°C pathways, the findings are inconsistent. Unlocking the full potential of these initiatives would require raising ambition for near-term 2030 goals, strengthening and clarifying longer-term targets, broadening thematic scope, and mandating concrete plans for climate action. The study also highlights that the processes governing the implementation of aspirational goals within voluntary climate initiatives tend to be less rigorous than those of national governments, which frequently enshrine such targets in legislation.

Beyond these studies, Deliverable 1.1 (Chan et al., 2024) provides a mapping of cooperative initiatives through the lens of the high-integrity principles and demonstrates uneven performance across different dimensions of integrity. Relatedly, Deliverable 1.3 (Thapa & Chan, 2025) elaborates on those high-integrity principles, noting that while they offer a useful heuristic, integrity is ultimately context-dependent with different aspects becoming salient over time and across different types of voluntary climate action.





4 Overarching findings and recommendations

The eight studies examined in this review collectively address how non-state actor commitments translate into genuine emissions reductions and contribute to global climate goals. Despite differences in focus and methodology, several overarching findings emerge.

1. Evidence on VCI progress remains uneven and biased toward visible initiatives

Reyes de la Lanza, Wicke and Chan (forthcoming) (Section 5.1) find that strengthening voluntary climate governance requires improving not only the design and enforcement of cooperative initiatives, but also the way their progress and integrity are studied. Current evidence risks overrepresenting initiatives that are older, more visible, better documented, and easier to measure, while underrepresenting newer, locally embedded, adaptation-oriented, justice-focused, or less formalised forms of cooperation. For future assessments of voluntary climate governance, the study highlights the need to move beyond evidence of target-setting, disclosure, membership growth, institutional design, or policy outputs.

2. Corporate integrity standards remain heterogenous

The meaning of integrity remains contested and there is no clear right or wrong answer. Straub et al. (2026) (Section 5.4), find this by document significant methodological diversity across ten corporate climate assessment initiatives, with varying coverage of criteria such as residual emissions, board oversight, and just transition considerations. The study suggests that the foci on key integrity criteria for corporate climate strategies are still diverse and there is not yet a harmonised approach to assessment.

Van den Wall Bake, Wicke and Chan (forthcoming) (Section 5.5) echo this, showing that different ambition indicators yield meaningfully different pictures of corporate performance, with no single metric capturing both quantitative reduction potential and target substantiveness.

3. Ambition and integrity gaps are widespread across non-state actors

Van den Wall Bake, Wicke and Chan (forthcoming) (Section 5.5) show that a significant share of companies does not set targets, and that among those that do, the one indicator capturing substantiveness of targets, rather than just quantitative reduction potential, returns near-zero scores across the board. Although this indicator is rather stringent by requiring good performance on various target characteristics, it does show that very few companies meet requirements for substantive target setting.

Wicke et al.'s study (forthcoming) (Section 5.6) on the agrifood sector reinforces this picture at a sectoral level: while emissions reporting transparency has improved, ambition and specificity on key transition measures remain poor.

4. VCI membership can correlate with higher ambition

Across the key studies reviewed, non-members of voluntary climate initiatives consistently perform worst





on ambition indicators.

Van den Wall Bake, Wicke and Chan (forthcoming) (Section 5.5) find that non-members of VCIs perform worse on all indicators and a larger share of non-members lack targets. The study also demonstrates differences between VCIs, showing that Race to Zero and The Climate Pledge show the highest ambition on all indicators. Likely, these VCIs' focus on long-term net zero targets throughout all scopes supports performance on ambition indicators. On the other hand, the SBTi shows a somewhat less ambitious picture, likely due to the minimum requirement of setting near-term targets only. This shows that many target ambition indicators are biased to capture long-term ambition better. One indicator focused specifically on target substantiveness shows low scores among all VCI and non-VCI members, although slightly more VCI members score non-zero values on this indicator. This comparison shows that the choice of ambition metric is important to consider when comparing member effects. Contextualising factors beyond emission reduction potential alone are important to have a full picture of integrity. The low scores among VCI and non-VCI members on the indicator capturing substantiveness indicate that more ambitious targets by VCI members do not guarantee faster decarbonisation and it is also important to include target substantiveness in measures of ambition, including while comparing VCI and non-VCI members.

At the city level, Peterson and Chan's study on the Global Covenant of Mayors (Section 3.7) makes a similar comparison finding meaningful differences between member and non-member performance. It provides evidence that participation in a voluntary climate initiative can be associated with concrete governance changes, including accountability and reporting structures that are central to policy integrity. The stronger effects on administrative capacity and reporting mechanisms suggest that VCI participation may support implementation readiness, not just ambition.

The Net Zero Tracker Stocktake Report (2025) (Section 5.7), extends this picture showing that key differences in integrity that an individual VCI can be correlated with on multiple different non-state actor groups

5. Voluntary climate governance is structurally insufficient on its own; regulatory intervention is necessary, though voluntary frameworks can serve an important bridging function

The collective picture across these studies is consistent: voluntary climate action by individual actors and through VCIs has generated useful infrastructure and some measurable uplift in ambition among participants, but it is structurally limited in delivering the pace and scale of action the Paris Agreement requires. Regulatory underpinning is therefore essential.

The studies reach this conclusion from different angles. Salsabila, Straub and Marquardt (2025) argue most directly that voluntary governance in the financial sector cannot succeed without legal mandates embedding climate considerations into fiduciary duties and prudential regulation. They provide evidence that most financial institution-focused coalitions lack binding obligations or meaningful enforcement, and that larger initiatives like GFANZ have visibly compromised ambition to maintain membership cohesion.

Straub et al. (2026) (Section 5.4) reinforce this with findings on the corporate climate integrity. They point to the EU's CSRD and CSDDD as early signals of the regulatory direction possible, while cautioning that regulatory rollback risks and uneven global development mean the governance gap currently filled by voluntary assessment initiatives is unlikely to close soon.



Wicke et al.'s (forthcoming) preliminary insights similarly suggest that new external stimuli and guidance beyond what voluntary frameworks currently provide, are necessary to shift the agrifood sector meaningfully.

Peterson and Chan (forthcoming) (Section 0), add the insight that there may be limits of what VCIs can currently deliver in technically complex or politically sensitive domains, based on weaker observed effects for carbon dioxide removal (CDR) policies. The study suggests that stronger initiative design features and complementary regulatory support may be required in precisely those areas where the need for action is greatest.



5 Overview of studies

5.1 Cooperative climate initiatives: evidence gaps in progress and integrity assessment

Authors: Sebastian Reyes de la Lanza, Birka Wicke, Sander Chan

Status: Manuscript in preparation

Working title: Biases and Blind Spots: Mapping the landscape of transnational climate governance research

Study aim and contribution to objectives

This work contributes to objective 1) by examining how academic literature assesses the progress (an element of integrity) of cooperative climate initiatives. The study maps the evidence base used to make claims about their effectiveness, progress, and contribution to climate action, rather than directly evaluating the performance of individual initiatives or their members. This is relevant to the ACHIEVE integrity assessment framework because it highlights which dimensions of progress and effectiveness are more commonly captured in existing research. The study focuses on cooperative climate initiatives involving non-state and subnational actors, including companies, investors, cities, regions, civil society organisations, and other actors participating in transnational climate governance. The specific integrity gap addressed is the limited understanding of whether existing research adequately captures the relationship between initiative-level governance features and actor-level outcomes and impacts.

The study identifies how scholarly attention is distributed across cooperative initiatives and how progress is conceptualised and assessed in the literature. It asks whether research is concentrated around a small number of highly visible initiatives and whether certain dimensions of progress are systematically privileged over others. In doing so, the study diagnoses what the existing evidence base allows researchers, policymakers, and practitioners to know about their potential effectiveness and integrity.

Methodology

The study is based on a structured review of peer-reviewed literature published between January 2020 and May 2025. It analyses research related to 401 cooperative initiatives associated with seven major global climate governance platforms and events, namely the UNFCCC Global Climate Action Portal, the Climate Initiatives Platform, the Lima-Paris Action Agenda, the 2014 and 2019 UN Climate Summits, the 2018 Global Climate Action Summit, and the One Planet Summit coalitions. The authors performed a literature search in Scopus and Web of Science using a two-stage search strategy. First, a search based on the names of the initiatives and their variations, and second, a complementary term-based search to capture studies that do not necessarily name specific initiatives. After deduplication, screening, and targeted full-text checks where necessary, 454 peer-reviewed studies were included in the final corpus.

The authors coded each study according to four main elements:

1. the initiatives analysed
2. whether and how initiative members were assessed



3. the thematic focus of the study
4. the dimensions of progress covered

The thematic coding distinguished between mitigation, adaptation, and integrated nature-climate action where explicitly addressed. The authors then identified which dimensions of progress each study assessed at both the initiative and actor levels, using a heuristic covering targets, inputs, outputs, outcomes, and impacts. This allowed the study to distinguish, for example, between research on initiative-level governance arrangements and research on actor-level behavioural change or impacts. The analysis combined descriptive mapping with quantitative analyses, such as inequality diagnostics, regression models, and crosstabulations to explore whether different types of studies systematically focus on different progress dimensions.

Findings

The findings show that the literature on cooperative initiatives is extensive but uneven. Scholarly attention is concentrated around a relatively small core of older, highly institutionalised, and internationally visible initiatives. These include prominent corporate disclosure and standard-setting schemes (e.g., TCFD and SBTi), large city networks (e.g., C40, ICLEI and the Global Covenant of Mayors), and other initiatives with strong links to international climate governance processes. By contrast, many newer, smaller, sector-specific, and adaptation-oriented initiatives remain less visible in the academic literature.

This concentration matters for integrity assessment because highly studied initiatives can become default reference points for understanding voluntary climate governance, even though they may not represent the full diversity of cooperative initiatives. The visibility of an initiative in academic research should not be equated with policy relevance, effectiveness, or integrity. Some initiatives may be less studied because they are newer, less formalised, or less connected to major orchestration platforms.

The study also finds that existing research tends to privilege upstream dimensions of progress. Inputs and outputs, such as governance arrangements, standards, reporting systems, institutional capacities, membership structures, and policy or project outputs, receive more attention than behavioural outcomes and longer-term impacts. This means that the literature is often better equipped to describe what initiatives are designed to do, what they produce, or how they organise cooperation than to assess whether participation leads to durable changes in member behaviour, implementation practices, emissions, resilience, biodiversity protection, or broader social and economic outcomes.

Important differences also appear across thematic areas. Mitigation-oriented studies are more likely to assess targets and environmental impacts, especially emissions-related outcomes. Adaptation-oriented studies more often engage with social impacts but remain less central in the overall evidence base. Studies linking nature and climate action are also relatively limited, but when present, they tend to focus more explicitly on ecological and socio-economic impacts. Hence, evidence gaps are also uneven across specific sectors and research fields.

A key finding is the existence of a “missing middle” in research design. Large-N studies provide valuable breadth and help map general patterns across many initiatives, but they often focus on upstream dimensions of progress. Single-case and small-N studies provide richer insights into processes, learning, collaboration, and behavioural change, but their findings are harder to generalise. What remains underdeveloped are mid-range comparative and longitudinal studies that connect initiative-level





characteristics with actor-level outcomes and impacts across comparable groups of initiatives.

Implications: These findings suggest that strengthening voluntary climate governance requires improving not only the design and enforcement of cooperative initiatives, but also the way their progress and integrity are studied. Current evidence risks overrepresenting initiatives that are older, more visible, and better documented, narrowing the understanding of what counts as credible progress.

For future assessments of voluntary climate governance, there is a need to move beyond evidence of target-setting, disclosure, membership growth, institutional design, or policy outputs. These dimensions remain important, but they should be complemented by stronger evidence on behavioural change and impacts. This is particularly important for integrity assessments as voluntary climate action requires more than visible commitments or formal governance arrangements.

The findings also imply that research and policy assessments should more explicitly connect initiative-level and actor-level progress. Cooperative initiatives can influence members through standards, guidance, monitoring, capacity-building, reputational incentives, learning, and coordination. However, the causal pathways through which these mechanisms lead to changes by non-state and subnational actors remain insufficiently understood. Future research should therefore pay closer attention to how initiative rules and governance arrangements interact with actor capacities, domestic policy contexts, market incentives, and power relations.

For the future of voluntary climate governance, this means that accountability systems should not only ask whether initiatives exist, whether members have targets, or whether reporting mechanisms are in place. They should also ask whether participation changes what actors do, whether those changes are sustained, whether they generate measurable climate and sustainability outcomes, and whether benefits and burdens are distributed fairly. A more balanced evidence base would help policymakers, researchers, and practitioners distinguish between initiatives that mainly increase visibility and those that contribute to credible, inclusive, and transformative climate action.





5.2 Supporting the Paris Agreement through international cooperation: potential contributions, institutional robustness, and progress of Glasgow climate initiatives

Citation: Kuramochi, T., Deneault, A., Chan, S., Smit, S., Pelekh, N., Supporting the Paris Agreement through international cooperation: potential contributions, institutional robustness, and progress of Glasgow climate initiatives. *npj Clim. Action* 3, 31 (2024). <https://doi.org/10.1038/s44168-024-00106-4>

Study aim and contribution to objectives

Many sector-level cooperative initiatives involving both national governments and non-state actors were launched around the 2021 Glasgow climate conference (COP26). However, there have been questions about whether and to what extent these initiatives could substantially contribute to achieving the Paris Agreement's goal to limit global warming to 1.5°C. To this end, this study evaluates the prospects of the 14 Glasgow sector initiatives by investigating their aggregate mitigation ambition under current national signatories and the institutional robustness of each initiative. Alongside investigating the participation and the potential impact of national governments and their aggregate mitigation ambition, it also investigates the institutional robustness of each initiative, with a framework and findings that have broader implications on how VCIs can be understood and contribute to objective 1) The insights from the assessment framework developed to examine the initiatives' institutional robustness are particularly useful to further work on VCIs (see Chapter 5.3).

Methodology

Information about the national government signatories of the 14 Glasgow initiatives was collected from the initiatives' respective websites using Internet Archive for periods end-November 2021 and end-January 2023. Then the researchers manually reviewed the Nationally Determined Commitments (NDCs) that contained any of the keywords above to identify specific mentions of the Glasgow sector initiatives and their targets. Raw data are available as an Online Data Set.

The institutional robustness assessment conducted in this study assumes that international cooperative initiatives require the capacity to steer, implement, and grow to deliver meaningful contributions to GHG emission reductions and examined the indicators in Table 1. The data required for the institutional robustness assessment were collected through the CoAct Database (formerly Climate Cooperative Initiatives Database) which collects data from publicly available sources (including reports, websites, and official documents) on various aspects related to the initiatives' goals, organisational characteristics, functions, and outputs (Chan et al., 2018, 2022; Chan & Hale, 2022). The cut-off date for data collection was the end of July 2023.

Table 1: Institutional robustness indicators

Indicator	Description
Governance structure	A secretariat and dedicated staff, along with clear delineations of roles and responsibilities, can help steer an initiative towards achieving its goals by



(Secretariat and roles)	convening members, resolving disputes, and facilitating collaboration and implementation of activities (Pattberg & Widerberg, 2016). Empirical studies suggest that initiatives with secretariats are more likely to be effective than those without (Chan et al., 2022; Pattberg et al., 2012)
Financial resources (Budget)	Dedicated budgets contribute to the long-term viability of an initiative ⁴⁶ . Securing funding can be particularly challenging for multistakeholder partnerships compared to government programmes with similar public-good aims (Pattberg & Widerberg, 2016).
Institutional openness	Initiatives can facilitate growth through institutional openness, or clear procedures for it to encourage wider participation and generate impacts at scale (T. N. Hale & Mauzerall, 2004).
Monitoring and transparency	Monitoring arrangements an important component in achieving progress among non-state initiatives (Horan, 2022). Such arrangements, at the very least, should demonstrate that initiatives follow up on their targets and commitments, providing accountability and transparency (Bernstein & Hoffmann, 2018; Pattberg & Widerberg, 2016). Regular monitoring and reporting allow for external parties to praise successes but also to critique failures, thus incentivising them to perform better over time (T. N. Hale & Mauzerall, 2004). However, scholars have also pointed out that transparency of actions is an important condition for learning by demonstrating what works and what does not, both for the initiative and initiatives' members themselves and for others (broader public or other stakeholders) (T. N. Hale et al., 2021). Transparency also helps to build trust, for instance among donors and investors, possibly helping to attract additional funding, and new partners (Andonova et al., 2022).

Findings

This study assessed the potential GHG emission impact of the Glasgow initiatives based on the participation of national governments and their potential impact on their respective territorial emissions. Climate action of major economies may have both political and economic impacts beyond their territorial borders.

The study focuses mainly on state actors, finding that the additional emission reduction ambition of the current national government signatories would, even if fully implemented, only fill about a quarter of the emissions gap in 2030 between the aggregate of existing national targets and the required emission levels consistent with keeping warming below 1.5°C. It also finds that most national government signatories did not mention Glasgow initiatives in their updated NDCs submitted after COP26. Expansion of the national government participation, national government signatories' incorporation of the initiatives' goals into their updated NDCs by setting quantifiable domestic targets, and enhanced institutional capacity are key to successful emission reduction outcomes.





However, the study also notes that while their participation to these initiatives seems to have been limited so far, an increasing number of subnational and corporate actors are expressing their intent to contribute to achieving global net zero emissions (de Villafranca Casas et al., 2024; Net Zero Tracker, 2022). The collective potential mitigation impact of the initiatives may extend beyond that estimated for national policies when their contributions are also considered (Kuramochi et al., 2020). It is important to note that these international initiatives and partnerships like the Glasgow initiatives may contribute to broader global climate governance.

The analysis of governance indicators provides an important complement to the analysis of climate mitigation impact of initiatives, as it informs on the likelihood of whether scenarios (global or current membership) may be achieved. Yet, even when initiatives demonstrate progress through the governance indicators, eventual impacts and outcomes cannot be guaranteed. The study finds that the institutional robustness varied considerably across the initiatives.

Implications

The findings from this study suggest that mobilisation and orchestration of initiatives need to be credible, demonstrating robust governance capacity and arrangements; and need to demand follow-up, especially among declarative initiatives. Initial declarations and pledges through the Glasgow initiatives need institutionally robust arrangements to subsequently direct efforts, capacities, and resources towards implementation. While declarations by VCIs have contributed to a “positive storyline” that showed broad (virtual) engagement by all stakeholders during COP26 (Aykut et al., 2022), too little action by important sectors has been observed. Demands for integrity and robustness need to keep up with the growing trend of climate action through cooperative climate initiatives, to prevent inflated and misleading expectations vis-à-vis their mitigation potential. The authors note the considerable variance in prospects for real impact among Glasgow initiatives. Considering their mitigation potential and relatively robust and transparent institutional arrangements, prospects for the delivery of actual mitigation of GHGs seem more promising for initiatives such as the Powering Past Coal Alliance, the Global Methane Pledge and the Glasgow Breakthroughs on Power, Road Transport, Steel, Hydrogen, and Agriculture. Yet, much will depend on these initiatives to widen participation and generate impacts at scale within their sectors

Similarly, the growth of net-zero commitments by both individual non-state actors and through initiatives such as the Accelerating to Zero Coalition and the UNFCCC Race to Zero campaign will need to be substantiated by efforts, capacities and resources. The study suggests that a hopeful development in this regard is the growing attention to accountability and integrity of climate initiatives. For instance, initial steps have been taken towards the development of integrity standards, including by the International Organization for Standardization (ISO, 2022) and the UN High-Level Expert Group Net Zero Emissions Commitments of Non State Entities (UN HLEG, 2022).





5.3 Financial institutions: Comparison of voluntary initiatives

Authors: Nabila Putri Salsabila, Saskia Straub, Mats Marquardt

Citation: NewClimate Institute (2025). Fixing the Broken Governance Chain: Aligning Private Finance with the Paris Agreement. Available at: <https://newclimate.org/resources/publications/fixing-the-broken-governance-chain-aligning-private-finance-with-the-paris>

Study aim and contribution to objectives

This study examines the numerous Climate Cooperative Initiatives (CCIs) that have been launched to address some of the key barriers that limit the impact potential of FIs' climate action (Stockholm Environment Institute, 2024). These initiatives work to align financial practices with climate goals by encouraging FIs to adopt goals and strategies that increase climate-related decision-making (Chan et al., 2022). The work examined the integrity requirements and enforcement mechanisms of 11 voluntary cooperative initiatives, alongside two other actor groups in the governance chain: individual financial institutions (FIs), and regulatory bodies. The section focusing on VCIs examined initiatives' pledges on how integrity principles are applied to individual members in practice and how integrity standards are enforced at the member level, directly contributes to objective 1). This provides a baseline understanding of how initiatives position themselves regarding target-setting criteria, transparency requirements, and accountability mechanisms.

Methodology

The sampling approach captures diverse initiatives across different impact logics, focal areas, and operational models. Given the significant variation in objectives, mandates, and theories of change across CCIs, we selected a sample designed to reveal these nuances rather than provide exhaustive coverage. This strategic approach enabled efficient screening, resulting in 11 case studies of impactful practices examined through detailed analysis.

We evaluated CCIs across three core levers and one supplementary dimension using the following analytical framework:

- Mobilising Decarbonisation Lever examines whether initiatives
 - (1a) mandate concrete action targets for real-economy decarbonisation
 - (1b) provide tools and knowledge-sharing mechanisms to enable implementation.
- Accountability Lever assesses how initiatives
 - (2a) leverage soft power to hold member institutions accountable,
 - (2b) promote third-party accountability mechanisms
 - (2c) maintain institutional frameworks that foster multi-stakeholder collaboration.





- Systemic Intervention Lever evaluates efforts to
 - (3a) lobby for climate-progressive regulation
 - (3b) require member institutions to advocate for policy reform
 - (3c) collaborate with other stakeholders on policy advocacy and engagement
 - (3d) establish pathways for legal adoption of voluntary measures.
- Additional Promising Lever captures emerging strategies and tools that enhance CCI effectiveness beyond the core framework.

The authors coded each sub-criterion using six categories: "Not applicable," "Not specified," "Not evident," "Limited scope/ambition," "Comprehensive with room for improvement," and "Promising." They systematically documented evidence from organisational resources, published frameworks, and independent analyses.

This multi-dimensional approach allowed a comprehensive evaluation of how CCIs translate commitments into actionable decarbonisation pathways, enforce accountability, and drive systemic change in financial markets.

Findings

By fostering collaboration, promoting shared standards, and facilitating learning, CCIs can help address structural challenges faced by FIs, such as limited leverage due to the lack of direct managerial control, the high transaction and engagement costs associated with meaningful climate action, and the absence of market signals or regulatory frameworks that reward Paris-aligned investment decisions (Chan et al., 2022).

The effectiveness of CCIs in achieving real-economy outcomes is currently constrained by several barriers. First, many CCIs focus on net-zero target-setting frameworks rather than supporting operational levers at the FI level that are more likely to produce measurable reductions in financed emissions. When these target frameworks are vague or lack credibility, the disconnect between ambition and action becomes pronounced, risking the diversion of resources from where they could be used more impactfully.

Second, the voluntary nature of CCIs means that most lack robust accountability mechanisms. Membership typically comes without binding obligations or meaningful enforcement. This opens the door to symbolic participation and weak compliance, and places pressure on coalitions to relax criteria in order to retain or grow their membership base. This dynamic has become particularly visible in larger initiatives such as GFANZ, where efforts to maintain cohesion have come at the expense of ambition and clarity (Reclaim Finance, 2023).

Third, the effectiveness of CCIs is heavily influenced by the broader political and regulatory context and external pressure. Recent developments in the United States show how quickly external pressures can erode coalition stability. In response to shifting political agendas and regulatory uncertainty, several major US-based banks and asset managers have withdrawn from initiatives like the Net Zero Banking Alliance and the Net Zero Asset Managers initiative, undermining coalition credibility and weakening momentum (Gandel, 2025; Kerber, 2025).



In response to these challenges, we introduce a set of impact levers designed to improve the governance and effectiveness of CCIs. These are aimed at identifying where and how CCIs can drive greater impact by providing more targeted support to FIs with a focus on achieving tangible results in the real economy

Implications

These findings reveal that voluntary climate governance in the financial sector is fundamentally insufficient without regulatory backing. The current governance chain across individual FIs, CCIs, and regulators is fragmented and incomplete. While CCIs have potential to address structural barriers through coordination and capacity-building, they have largely failed to translate commitments into credible action. Most have prioritised broad participation over rigorous standards, undermining effectiveness and inviting greenwashing accusations.

The root cause is the voluntary nature of both FIs' climate commitments and CCI participation, combined with non-binding standards. Without binding rules embedding climate considerations into fiduciary duties, prudential regulation, and financial disclosures, voluntary efforts - whether individual or CCI-facilitated - remain insufficient. For voluntary climate governance to succeed, it requires transformation from a voluntary framework to one supported by clear legal mandates and enabling market environments that create the conditions for FIs to act at the pace and scale required by the Paris Agreement.

5.4 A comparison of corporate climate assessment initiatives

Citation: Straub, S., Hans, F., Day, T., & Kuramochi, T. (2026). Assessing and validating corporate low-carbon transition strategies: a comparative analysis of approaches and methodologies. *Climate Policy*, 1–17. <https://doi.org/10.1080/14693062.2026.2637652>

Study aim and contribution to objectives

A growing number of voluntary initiatives have been set up in recent years to assess the accountability and credibility of corporate low-carbon transition strategies (LCTs) or to provide guidance and standards (Becker et al., 2024; Noels & Jachnik, 2022). These assessments enhance understanding of corporate climate performance for investors, policymakers, and other stakeholders, there is limited understanding of how individual methodologies cover key policy-relevant transition components and how methodological differences affect assessment outputs. This lack of clarity hinders both the integration of established methods into climate accountability policies and progress within the voluntary assessment field itself.

This study addresses this gap, by examining ten corporate low-carbon transition strategy assessments with publicly available methodologies and results, including major initiatives like the Science Based Targets initiative (SBTi) and the Transition Pathway Initiative (TPI), to understand what they assess, how they assess it, and where critical gaps exist. These initiatives, with the exception of SBTi, independently select the companies they assess and are in that sense different from membership-based voluntary initiatives. Analysing the integrity criteria that corporate climate assessment initiatives establish and apply in practice contributes to objective 1) and provides valuable insights into emerging integrity standards for corporate



climate strategies, particularly since companies may be held to these standards even without actively opting into the frameworks. The analysis identifies collective patterns across initiatives, revealing varying levels of ambition and rigour that these initiatives apply to companies through their assessment.

Methodology

The authors developed a two-part framework to compare the assessment setup and the coverage of key transition strategy components and illustrated the differences, using the assessment outcomes for a major global company.

Findings

Assessment initiatives have shaped corporate climate governance by (i) innovating and experimenting with standards, guidelines and assessment methods, (ii) introducing validation mechanisms such as the CNZS for GHG mitigation targets and (iii) delivering analyses for litigation and other uses (T. Hale, 2024). These initiatives currently fill a critical governance gap in corporate climate accountability, which is rapidly evolving and likely to remain relevant amidst political uncertainty.

This study advances the understanding of methodological diversity in voluntary corporate LCTS assessments for users and policymakers seeking to design effective accountability regulations. The findings of varying coverage, weighting, and assessment approaches across ten different initiatives offer valuable insights for policymakers and assessment initiatives. For example, criteria such as the companies' approach to residual emissions, board oversight and consideration of just transition were found to be covered by considerably fewer assessments.

The findings help navigate the heterogeneity in key methodological parameters, notably in component coverage, the assessment approach per strategy component and weighting. We show that no single assessment initiative provides fully up-to-date, contextualised evaluations of all transition strategy components for more than 1000 companies, noting this as a key limitation. However, composite assessments, which integrate multiple assessments as sources, are emerging to address gaps in criteria coverage while maintaining contextualised assessment for each criterion.

Implications

Despite the contributions of the assessment initiatives, we emphasise the need to improve transparency, consistency, and comparability. In the interim, composite assessments that integrate multiple data sources can enhance collaboration within the governance ecosystem and help fill assessment coverage gaps while preserving the strengths of individual methodologies. In the longer term, regulators should adopt measures that strengthen the scale and quality of data on corporate climate strategies, leveraging methodological advancements developed by independent assessment initiatives.

Looking ahead, emerging regulatory frameworks may begin to address the governance of corporate climate knowledge currently managed by independent initiatives. Discussions around the European Union's Corporate Sustainability Reporting Directive (CSRD) and Corporate Sustainability Due Diligence





Directive (CSDDD) have initiated requirements for mandatory transparency in corporate transition planning (European Commission, 2024). However, regulatory rollback risks and uneven global regulatory development mean that assessment initiatives will continue playing essential roles in informing a wide range of users on the state of corporate climate action in the near term.

Beyond understanding methodological diversity, policymakers require clear access to assessment methodologies to effectively integrate them into regulatory frameworks. The research process revealed significant transparency challenges: direct communication with the initiatives was often necessary to clarify aspects such as under which methodological section or indicator-specific transition components were covered. To ease user understanding, initiatives could provide clearer public documentation, including data sources and specifying assessed targets. Voluntary assessment initiatives could play a larger role in informing regulatory processes by contributing methodologies and expertise, including guidance for auditors interpreting alignment with 1.5°C-pathways in jurisdictions with emerging audited transition plan requirements.

To support regulators and other users, the authors propose a centralised repository of corporate LCTS assessment methodologies, established and administered by an independent governance body. This repository could track and facilitate the harmonisation of methods, promoting transparent and robust assessments aligned with policy developments (NewClimate Institute, 2024a, 2024c, 2024b). Its reporting and comparison framework could draw on the analytical framework presented in this paper, as well as ongoing efforts in global LCTS governance guidance (ISO, 2022; UN HLEG, 2022). Additionally, the repository could help users understand how specific LCTS initiatives align with and are interoperable with global or regional climate disclosure frameworks such as the International Sustainability Standards Board (ISSB) or the European Financial Reporting Advisory Group (EFRAG). Finally, the repository could serve as a platform for assessment initiatives to connect, share approaches, recognise their unique strengths, reduce duplicated efforts and converge towards emerging good practices.

Researchers also have an important role to play. Beyond continuing to examine the rigour and quality of LCTS assessment methods (Berg et al., 2022), they can also engage proactively with assessment initiatives and regulators to refine methodologies and develop ways to scale assessments of high rigour to large sets of companies. Besides the initiatives (partly) operated by academic institutions (e.g. TPI, NZT), there are currently not many initiatives other than SBTi that specifically invite scientists to guide methodology and assessment development processes (SBTi, 2025).





5.5 From Ambition to Integrity: Advancing comparability of indicators for corporate climate targets

Authors: Kiri van den Wall Bake, Birka Wicke, Sander Chan

Status: Forthcoming

Study aim and contribution to objectives

Non-state actors, such companies, cities and civil society, are increasingly setting emission reduction and net-zero targets to show their commitment to climate action (NewClimate Institute & Data-Driven EnviroLab, 2020). The ambition of these targets is a key element of integrity as it signals non-state actors' commitment to actively strive for decarbonisation. In this research the authors explore various target ambition indicators and conceptualise which aspects of ambition they cover, addressing all three objectives of Task 2.2. The indicators not only provide a better understanding of the target ambitions of companies, but by comparing them, the authors are also able to support current and future ambition assessments of actors. The indicators mainly cover aspects of the integrated accountability and low-carbon & resilient transformation principles of the integrity framework.

The literature often distinguishes between substantive and symbolic targets. Substantive targets are set as genuine commitments, while symbolic targets are set to enhance legitimacy (Dahlmann et al., 2019; Privato et al., 2024). Although ambition is a crucial aspect of integrity, the concept of target ambition is unclear and is interpreted differently across various studies. There is a lack of standardised metrics for assessing target ambition which leads to low comparability of targets. For instance, target ambition can be interpreted as the amount of annual emissions to be reduced (e.g., Aldy et al., 2023; Bolay et al., 2024; Gouldson & Sullivan, 2013), the cumulative emissions in a specific timeframe (Deng et al., 2025; Stolz & Probst, 2025), or it can include quality aspects of targets as well (Dahlmann et al., 2019; Privato et al., 2024). Although one ambition indicator specifically aims to capture whether a target is substantive or not by including target credibility characteristics into the indicator (Privato et al., 2024), for most indicators it remains unclear whether substantiveness is included. These various interpretations of target ambition result in multiple indicators and lead to low comparability of targets. Yet, comparability is necessary to determine best practices in target setting, distinguish between substantive and symbolic targets, and gain insights into the integrity of targets.

In this study, the authors aim to advance the comparability of targets by identifying, evaluating, and comparing ambition indicators used in the literature. The following research questions are asked: i) what ambition and progress indicators are used in the academic literature and which aspects of ambition do they capture? ii) To what extent capture ambition indicators nuances in corporate target setting? And iii) how do ambition indicators compare to each other? To answer these questions, the authors first identify key indicators of corporate climate ambition and target progress and define which aspects of ambition they capture. They then quantify the indicators for a global sample of companies operating in various sectors based on data from CDP in order to assess how they relate to each other.

Indicators





Based on the literature, 5 target ambition indicators are identified. See Table 2 for an overview of the ambition indicators, including their strengths and weaknesses. The first two indicators, targeted emission reduction percentage and annualised emission reduction percentage are calculated using a single target, which is often translated to actor-level by choosing the longest-term scope 1 target. The latter three indicators take multiple targets into account and provide insight into the ambition of the full set of targets of an actor.

Table 2: Overview of target ambition and progress indicators included in the study.

Indicator	Aspects of ambition	Strengths and weaknesses	Missing aspects of ambition	Literature
Targeted emission reduction percentage	The share of annual emissions that are targeted to be reduced	<u>Strength</u> : simple indicator <u>Weakness</u> : difficult to compare due to different target and base years; target-level indicator rather than actor-level.	Timing of emission reductions, cumulative emissions, capacity, sectoral differences, quality aspects of targets (including type, scope, and long- vs short-term targets), historical responsibility, difficulty of reducing emissions	Bolay et al. (2024); Dahlmann et al. (2019); Hsu et al. (2020)
Annualised emission reduction percentage	The share of annual emissions to be reduced per year (i.e. the reduction percentage divided by the number of years)	<u>Strength</u> : simple indicator, more comparable than reduction percentage <u>Weakness</u> : target-level indicator rather than actor-level	Cumulative emission reductions, capacity, sectoral differences, quality aspects of targets (including type, scope, and long- vs short-term targets), historical responsibility, difficulty of reducing emissions	Aldy et al. (2023); Bolay et al. (2024); Yeo et al. (2022); Gouldson & Sullivan (2013)
Emissions pathway – Stolz & Probst (2025)	Cumulative, percentual emissions that are targeted to be reduced over all scopes compared to 1.5°C pathway (i.e. how close an actor is to a global pathway)	<u>Strength</u> : combines multiple targets into one indicator; assesses cumulative emissions <u>Weakness</u> : complicated to calculate; based on many assumptions	Capacity, sectoral differences, types of targets, historical responsibility, difficulty of reducing emissions	Stolz & Probst (2025); Deng et al. (2025)
Emission pathway – Deng et al. (2025)				
Categories of substantive and ambitious targets – Privato et al. (2024)	Quality aspects of targets, including the type, scope, and timeframes, and 1.5°C pathway alignment of targets	<u>Strength</u> : assesses substantiveness of targets; combines multiple targets into one indicator. <u>Weakness</u> : limited number of categories lack nuances in target setting	Less focus on amount of emission reductions, sectoral differences, capacity, historical responsibility, difficulty of reducing emissions	Dahlmann et al. (2019); Privato et al. (2024)

Most indicators capture mainly the expected amount of emissions reductions, with the exception of the categorical indicator by Privato et al. (2024). This indicator aims to capture quality aspects of the targets as well, including the type of target (i.e. absolute or intensity targets), the combination of short- and long-term targets, and the number of scopes covered by the target. The indicator is designed to capture substantive targets, but it is also a strict indicator as companies need to meet all quality criteria to score higher on the indicator. Further, the emissions pathway indicators by Stolz & Probst (2025) and Deng et al. (2025) are calculated using similar steps. Hence, results of these two indicators are expected to provide similar insights.



Methodology

The study calculates each target ambition indicator for a sample of companies using CDP data (CDP, 2025). CDP is a non-profit organisation that annually collects self-reported, environmental data from companies and organisations. Their annual databases contain extensive environmental data, including emission reduction targets, emissions in scope 1, 2 and 3, and environmental governance and strategies. The indicators are calculated for all companies that filled in the 2025 questionnaire. In the cases of the two target-level indicators (i.e. reduction percentage and annualised reduction percentage), the authors selected only the longest-term, scope 1 targets, in line with the literature (e.g., Bolay et al., 2024).

Then, the authors perform descriptive statistics of the indicators, differentiating between sectors and members of VCIs, including the Science-Based Targets initiative (SBTi), Race to Zero (R2Z), the Climate Pledge, and Climate Action 100+. Based on the descriptive statistics, they performed an evaluation of which aspects of ambition are captured by the indicators and which aspects are not covered.

Preliminary findings

The results show that all ambition indicators give a slightly different perception on how well companies are performing on their climate target ambition. A commonality across all indicators is that many companies score zero across all indicators, representing the companies that do not set targets. Additionally, the study finds that the first indicator of emission reduction percentage shows clear peaks just above 0% and at the 50% and 100%, representing commonly set interim and long-term (net-zero) targets. However, the related indicator of annualised emission reduction percentage shows more clustering around the 3-4%, suggesting that companies do not aim to reduce emissions more quickly for interim targets when 'low-hanging fruit' reductions are still available. The indicators based on the emissions pathways show a similar picture to each other, with a cluster of companies just above zero and gradually less companies for higher ambition levels.

One indicator that shows a very different picture is the categorical ambition levels developed by Privato et al. (2024). This indicator shows a bleak picture with almost all companies scoring 0. This indicator aims to capture the substantiveness of targets through quality aspects. These low scores could either suggest that most corporate targets lack substantiveness, or that the indicator is too stringent.

The authors also assessed sectoral differences between performance on the indicators. In Figure 1, three sectors are highlighted: services, power generation, and fossil fuels. Notably, the power sector scores comparatively high on the emission pathway indicators and shows a more equal distribution across these indicators than companies in other sectors. Nevertheless, they score low on the categorical indicator from Privato et al. (2024) and the two indicators based on the emission reduction percentage. When assessing the targets set in the sector, the authors find that power generation companies set the most targets on average, but also tend to focus on the medium-term (around 2030), lacking both short- and long-term targets. The emission reduction indicator might benefit from long-term targets with high reduction rates, while the annualised emission reduction indicator might benefit short-term targets that mainly address low-hanging fruit. The indicator from Privato et al. (2024) requires a combination of short- and long-term targets, explaining the sector's low scores on this indicator as well.

In contrast, the fossil fuel and services sectors score more poorly on the emissions pathway indicators. Nevertheless, both sectors show a different picture in terms of target years. The fossil fuel sector has a





wide range of target years, while the services sector focuses more on medium-term targets. This distinction is clearest on the emission reduction percentage indicator that shows a more equal distribution for the fossil fuel sector, while the services sector has a more defined peak around the 50% mark.

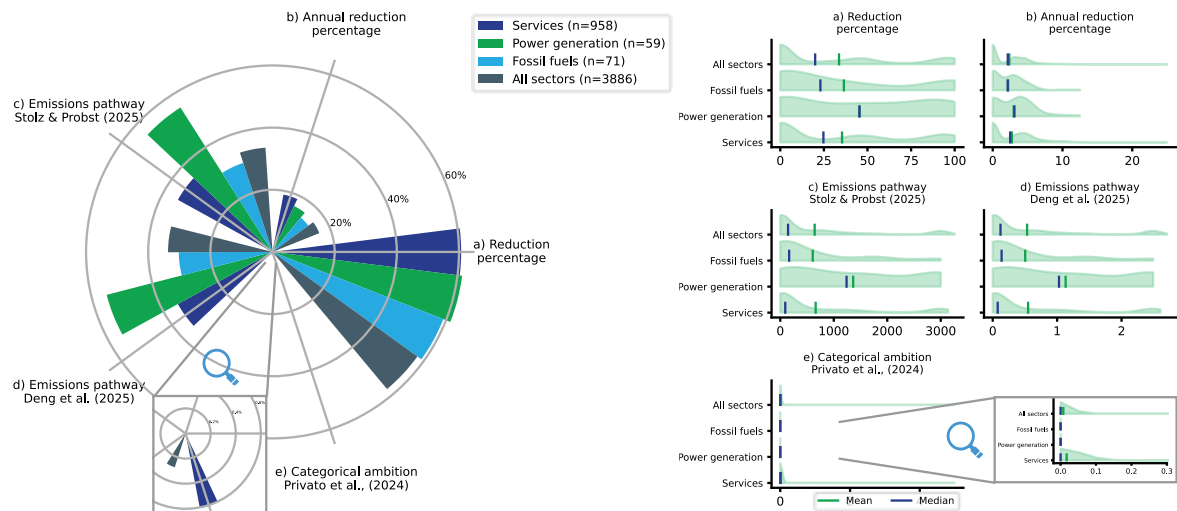


Figure 1: Overview of the ambition indicators for 3 sectors and the full sample: average for all indicators (left) and distributions of the indicators (right).

Next, the authors also assess how members and non-members of initiatives perform on the target ambition indicators, see Figure 2. Various trends can be observed across the initiatives. For instance, members of the Race to Zero and The Climate Pledge show the highest ambition on all indicators. Likely, their focus on long-term net zero targets throughout all scopes support performance on the indicators. On the other hand, the SBTi shows a somewhat less ambitious picture, likely due to the possibility of setting near-term targets only. Notably, their performance on the annualised emission reduction percentage is similar across all SBTi companies, suggesting that this indicator captures near- and long-term targets equally. Across all indicators, it becomes clear that non-members of VCIs perform worse on all indicators and a larger share of non-members lack targets. Yet, members and non-members of VCIs alike perform poorly on the indicator from Privato et al. (2024), suggesting that substantive targets are rarely set.

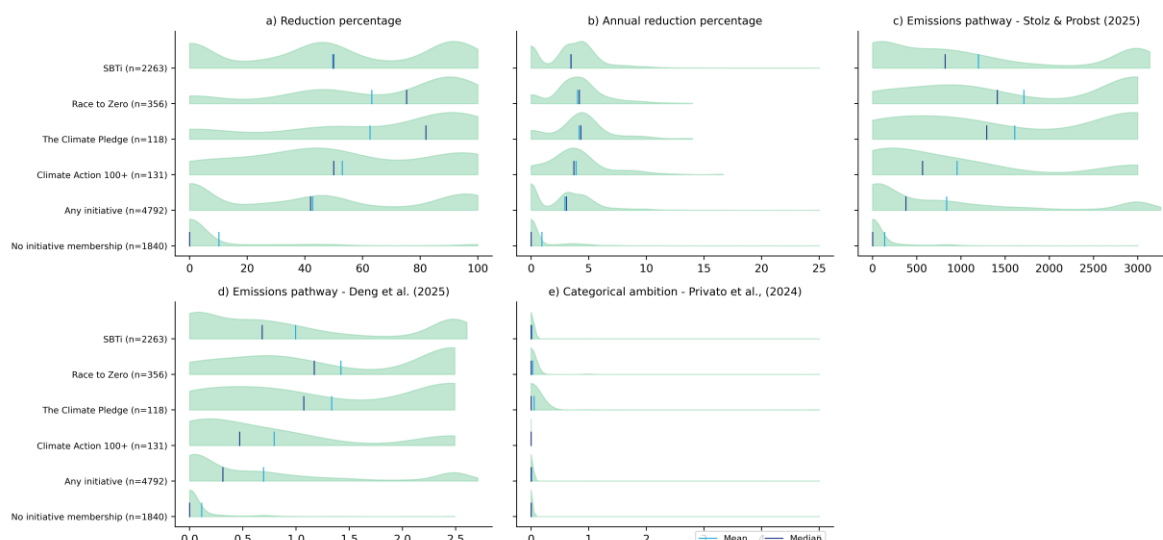


Figure 2: Distributions of the indicators for members and non-members of VCIs, as well as members of the SBTi, Race to Zero, The Climate Pledge and Climate Action 100+.

Implications

The indicators that are often used to measure ambition generally show different insights into corporate ambition. They capture different aspects of ambition, although most are based on the potential emission reductions set by the targets. Some indicators capture short-term ambition better, while other emphasise the need for longer-term emission reduction targets. The study identified only one indicator that assessed quality aspects of the targets as well to capture the substantiveness of the targets. Yet, most companies score zero on this indicator, raising questions about the how substantive corporate targets actually are and the applicability of the indicator to showcase nuances in corporate target setting. Based on these results, the study emphasises the need for more standardised ambition indicators that capture both the potential emission reductions and the substantiveness of the targets. Additionally, a standardised ambition metric should reflect best practices in target setting and account for sectoral differences.

5.6 Agrifood sector companies

Authors: Birka Wicke, Kiri van den Wall Bake, Ellen Chappell, Takeshi Kuramochi, Sander Chan

Status: Manuscript to be submitted to peer-reviewed journal in summer 2026.

Study aim and contribution to objectives

Agrifood companies play a critical role in climate change mitigation – they are directly or indirectly associated with a third of global anthropogenic greenhouse gas emissions caused by the agrifood sector (Tubiello et al., 2021). Existing studies on the corporate agrifood sector examine a limited number of companies, specific subsectors and/or a specific year, and pay limited attention to climate targets and how companies aim to achieve them. The authors address this by comprehensively assessing corporate emission reporting, emission trends, target ambition and progress, as well as the role of offsetting, no



deforestation commitments and regenerative agriculture to achieve the targets. This research relates directly to objective 0. It focusses on the integrated accountability principle of integrity, using companies in the agrifood sector as a case study.

The analysis focusses on diverse companies in the agrifood sector ranging from those providing agricultural inputs, farming, processing, and retailing to transporting food products. The analysis is conducted at subsector level to evaluate whether there are differences across subsectors.

The work contributes to the literature by providing comprehensive insights into the status and plans for climate action of the agrifood sector, a sector which is critical for future emission mitigation and even sequestration. Further, the research represents novel perspectives on studying climate target ambition and progress, exploring also the role of no-deforestation commitments, regenerative agriculture and carbon credit use as additional characteristics relevant for understanding the status and ambition of climate action in the agrifood sector.

Methodology

The research approach is based on quantitative and qualitative assessments of company self-reported data on emissions, emission reduction targets and their strategies to achieve these targets. Data used in this analysis primarily draws from CDP. CDP is global non-profit organisation that collects self-reported data from companies and other non-state or subnational actors on their environmental impacts. It is a key database for corporate climate action due to its comprehensive coverage of companies and detailed emission and climate target data (Bendig et al., 2025). Self-disclosure always comes with some risk of companies not disclosing full or accurate information. CDP mitigates against this as much as possible. For example, a series of checks are conducted to flag potential issues with disclosed figures. While submission of some incomplete or inaccurate information by companies can still occur, CDP represents the most comprehensive and detailed climate disclosure system available and provides insights into the current state and recent trends in emission reporting.

The study used emissions data from reporting year 2018 and 2023 (mainly 2019 and 2024 CDP climate questionnaire), data on targets from the 2024 CDP climate questionnaire, data on offsetting and insetting from the 2023 CDP climate questionnaire, and no-deforestation/no-conversion commitment data from the 2024 CPD forest questionnaire.

The study quantifies how many companies report emissions and which scopes and categories they report. The study then determines overall reported emissions and emission intensity (revenue) by scope and category, and how this changed over time (2018 and 2023) for those companies that report in both reporting years. For evaluating emission reduction targets, the study quantifies target ambition by calculating annual emission reduction percentages and target progress by calculating the pro-rated emission target achieved (Song et al., 2024).

The study also conducts a text analysis to assess company strategies to achieve the emission reduction targets, focusing specifically on the role of carbon offsetting and the strategies for insetting. The latter particularly looks at the level of specification of regenerative agriculture.

Preliminary findings

The results indicate increased reporting of emissions by the sector over time, both in terms of more



companies reporting (from 301 companies in 2018 to 555 in 2023) and more scopes and scope 3 categories being covered. While average reporting scores of the sector increase over time, this is due to improvements in only two subsectors, i.e. food & beverage processing and retail and hospitality. Given increased company reporting, total reported emissions also increased from 2 to 5.5 Gt CO₂eq per year (including some overlap between scope 3 emissions that cannot be removed). The results illustrate a lack of emission reductions as only 50% of companies that reported emissions in both 2018 and 2023 actually reduced their emissions over time.

Regarding targets, 376 companies reported a total of 845 emission reduction targets in 2024. Of these, 655 targets entailed enough information to be further analysed. The findings show that only 150 targets are both ambitious enough to be considered in line with a 1.5°C temperature target and on track to achieve these ambitions. Less than a third of companies reporting emissions and setting targets make no-deforestation or no-conversion commitments (109). This is a key indicator for the (lack of) ambition of the agrifood sector's state of climate action for two reasons: 1) agriculture is the main driver of deforestation (Pendrill et al., n.d.) and 2) land use change, particularly deforestation, dominating companies' scope 3 emissions (Hansen et al., 2022).

8% of agrifood companies reported that they cancelled carbon credits in the 2024 CDP questionnaire. The overall size of cancelled credits (4.2 Mt CO₂) is miniscule compared to total reported emissions (5.5 Gt CO₂eq in 2024). Furthermore, the text analysis on how companies aim to achieve their emission reduction targets highlights a high prevalence of non-disclosure of potential future offsetting. 165 out of 224 companies studied in the text analysis make no mention of offsetting. This may mean that they do not intend to use offsetting, they do not want to disclose their strategy or that they lack a strategy on offsetting. Addressing this lack of transparency on offsetting is important not only for being able to assess the effectiveness and integrity of corporate climate action but also for a company to make their climate mitigation plan more concrete and actionable.

Implications

Taken together, the preliminary findings illustrate that the agrifood sector shows improvements in emission reporting transparency but a lack of progress and ambition to reduce emissions. At the same time, companies provide limited or vague description of key transition measures such as no deforestation, offsetting and regenerative agriculture. As a result, climate action by the agrifood sector lacks specificity that is needed for high integrity climate action. The findings suggest that new stimuli and guidance are needed to steer the agrifood sector towards the climate mitigation efforts expected from this sector. More detailed suggestions and recommendations for stimuli and guidance, including relevant actors, timing and types, will be developed during the finalisation of this study.





5.7 Net Zero Tracker Stocktake Report

Authors: Saskia Straub, Sybrig Smit, Louise Bammel, John Lang, Takeshi Kuramochi, Helen Tatlow, Diego Cristobal Manya-Gutierrez, Frances Green, Thomas Hale, Angel Hsu, Denise Siu and Steve Smith

Citation: Net Zero Tracker (2025) Net Zero Stocktake 2025: NewClimate Institute, Oxford Net Zero, Energy and Climate Intelligence Unit, and Data-Driven EnviroLab. Available at: <https://zerotracker.net/analysis/net-zero-stocktake-2025>

Study aim and contribution to objectives

This research contributes to objective 2), to assess the integrity of pledges by voluntary climate initiative members across subgroups within non-state actor groups among companies, cities and regions and objective 3) regarding the effectiveness of voluntary climate initiatives on improving integrity and reducing GHG emissions.

The 2025 Net Zero Stocktake report assesses net-zero target-setting across multiple non-state actor groups by evaluating more than 4,000 entities on key elements of integrity. The research focuses on whether targets and strategies contain key components, such as plans and interim goals, needed for deep decarbonisation over the next few decades. It also examines how net-zero targets address the climate-nature nexus.

This report is the fifth annual 'Stocktake' analysis which evaluates the global scale of net zero target-setting, focusing on large emitters to assess the credibility of their commitments. This report tracks the commitment of 198 countries, 712 regions, 1,186 cities and 1,987 publicly listed companies. It also benchmarks progress over time, both in terms of setting net-zero targets (intent) and implementing credible measures to help achieve them (integrity). Key procedural and substantive integrity measures include, for example, the establishment of near-term interim targets to spur immediate emission cuts, transparency on the use of carbon credits, coverage of all emissions, and regular progress reporting

Methodology

This analysis is conducted through a systematic and standardised coding process implemented by a team of trained volunteer data coders. All coders participate in a structured training session and apply a detailed codebook to ensure consistency, transparency, and replicability of assessments across entities.

Data Collection

The study relies exclusively on publicly available information. Sources include, but are not limited to, official entity websites, published reports and documentation, press releases, and reputable news articles. These materials provide the evidentiary basis for coding decisions. All Tier 1 entities are subject to regular manual review. In parallel, an automated web-scraping process continuously collects relevant information, which is then screened and validated through manual coding. This combined approach ensures both comprehensive coverage and data accuracy.

Coding Procedure

1. Entities are assessed based on the policies and targets that are in effect at the time of analysis. When a policy or target has been announced but is scheduled to take effect at a later date, the effective date is recorded. This ensures that evaluations reflect the actual implementation status of



commitments.

Assessment Framework

Since 2022, the Net Zero Tracker has evaluated subnational and corporate net zero targets against a set of procedural and substantive integrity criteria. These criteria are informed by leading international frameworks and recommendations, including those from the United Nations High-Level Expert Group (UN HLEG), the International Organization for Standardisation (ISO), and the Race to Zero campaign (ISO, 2022; Race to Zero, 2022; UN HLEG, 2022). The assessment considers whether entities meet the following eight criteria:

1. Formal adoption: The net zero target has been formally adopted, rather than merely proposed or announced.
2. Target year: The net zero target year is set for 2050 or earlier.
3. Interim targets: The entity has established interim emissions reduction targets.
4. Implementation plan: A publicly available plan outlines how both interim and long-term targets will be achieved.
5. Transparency and reporting: Annual progress reports are published, detailing actions taken and outcomes achieved.
6. Carbon credit use: The role and conditions of carbon credit usage are clearly defined.
7. Greenhouse gas coverage: The target encompasses all greenhouse gases (GHGs).
8. Scope coverage: The target includes emissions across the full value chain, covering Scope 1, Scope 2, and Scope 3 emissions.

Together, these criteria provide a structured framework to evaluate the credibility, completeness, and transparency of net zero commitments.

Findings

1) Shifting target-setting in the food and agriculture sector

Across the 30 largest companies in the food and agriculture sector, the total number of climate-related targets remained largely unchanged in the first half of 2025 (104 in January compared to 106 in July). While the number of targets appears stable, their nature is shifting. Companies are adjusting timelines, refining the scope of commitments, and in some cases removing previously announced pledges entirely.

In parallel, companies are expanding their long-term target-setting frameworks. A growing number of net zero targets are being paired with (interim) emission reduction commitments and Food and Land Sector Guidance (FLAG) specific targets. The study identified eight new targets with end dates between 2040 and 2044, while two targets were removed. For 2050, 15 new targets were added, while three were removed. Alignment with the Science Based Targets initiative's FLAG guidance is becoming more evident, suggesting an emerging norm across the sector. Companies such as Heineken, Kraft Heinz and PepsiCo stand for strengthening the detail and credibility of their long-term reduction strategies.



2) Net-zero targets' robustness and implementation remain a challenge across cities, regions and large public companies

Since 2022, the Net Zero Tracker has assessed subnational and corporate net-zero targets against selected procedural and substantive integrity criteria recommended by the UN Expert Group, International Organization for Standardisation (ISO), and the Race to Zero (ISO, 2022; Race to Zero, 2022; UN HLEG, 2022). As of July 2025, the percentage of net-zero pledges by non-state entities that meet the procedural and substantive integrity criteria has not changed substantially.

Regional net zero targets saw an improvement in meeting integrity criteria, from 3% in 2024 to 6.5% in 2025. State and regional governments setting net zero targets perform well on several integrity criteria, including: formalising their net zero targets (1); setting interim targets (3); and publishing implementation plans (4). However, performance on other criteria remains inadequate. Nearly one-third of subnational net-zero targets focus exclusively on CO₂ emissions, omitting other significant GHGs such as methane and nitrous oxide. Nearly 60% of targets are not supported by annual progress reporting. This gap may be attributed to various factors, including limited capacity or resources or deliberate non-reporting. Subnational governments rarely provide clear, transparent conditions regarding their intended use of carbon credits (offsets).

Across cities' net-zero targets no substantial changes in integrity were observed. Cities with net-zero targets perform slightly worse across most criteria, except implementation plans (4): more than 70% of targets are published with one. This suggests that, in most cases, target-setting is at least matched by some degree of action planning.

Company net zero targets meeting the procedural and substantive integrity criteria increased by two percentage points from 5% to 7%, although in absolute terms it remains low, with only 90 of 1245 companies with targets meeting the criteria. Publicly listed companies setting net zero targets perform relatively well on procedural criteria. These include: formalising net zero targets (1); setting interim targets (3); developing implementation plans (4); and publishing annual progress reports (5). Of the companies with an OECD headquarters, nearly all have a 2050 or earlier target year. Notably, companies perform well on publishing annual progress reports. This is likely due to a combination of factors: Forbes 2000 companies typically have pre-existing reporting frameworks, such as annual corporate sustainability reports, in place and respond to reputational and market pressure to provide this data. Standardised reporting frameworks and the resources to carry out comprehensive reporting may not be accessible to other entity groups, such as subnational governments and cities, which perform lower on these criteria. However, publicly listed companies continue to underperform on most substantive criteria. Many, for instance, limit their net-zero commitments to CO₂ emissions or focus only on selected segments of their value chain (e.g. scopes 1 and 2, while neglecting scope 3), which may overlook a large share of their emissions. Transparency also remains a weakness. Companies frequently fail to clarify how, and to what extent and under what circumstances, they plan to use voluntary carbon credits. This lack of clarity makes it difficult for analysts to evaluate the credibility and integrity of their net zero strategies, as offsetting is a common loophole that lowers the ambition of a company's strategy (NewClimate Institute, 2022).





3) Comparison of VCI and non VCI members – Focus on Race to Zero

A comparison of procedural and substantive target integrity performance indicates that Race to Zero members generally perform better than their non-member counterparts, although the magnitude of this difference varies across actor groups (see Figure 3). A slightly higher share of states and regions that are Race to Zero members meet established integrity criteria compared to non-members, while the difference is more pronounced for cities, at approximately three percentage points and particularly for publicly listed companies, where the gap increases to around nine percentage points. These patterns suggest that the influence of Race to Zero as a VCI is differentiated across non-state actor groups rather than uniform.

Several factors may help explain this variation. For public companies, stronger reputational incentives, investor expectations, and market pressures may create greater motivation to demonstrate credible and transparent climate strategies when associating with high-profile initiatives such as Race to Zero. Additionally, the design of Race to Zero requirements, such as criteria for target-setting, reporting, and validation, may be more closely aligned with corporate governance and disclosure frameworks than with those applicable to cities or regions. Overall, these findings highlight the importance of considering actor-specific dynamics when evaluating the effectiveness of voluntary climate initiatives.

Members of the Race to Zero have work to do, but the bigger challenge lies with non-members.

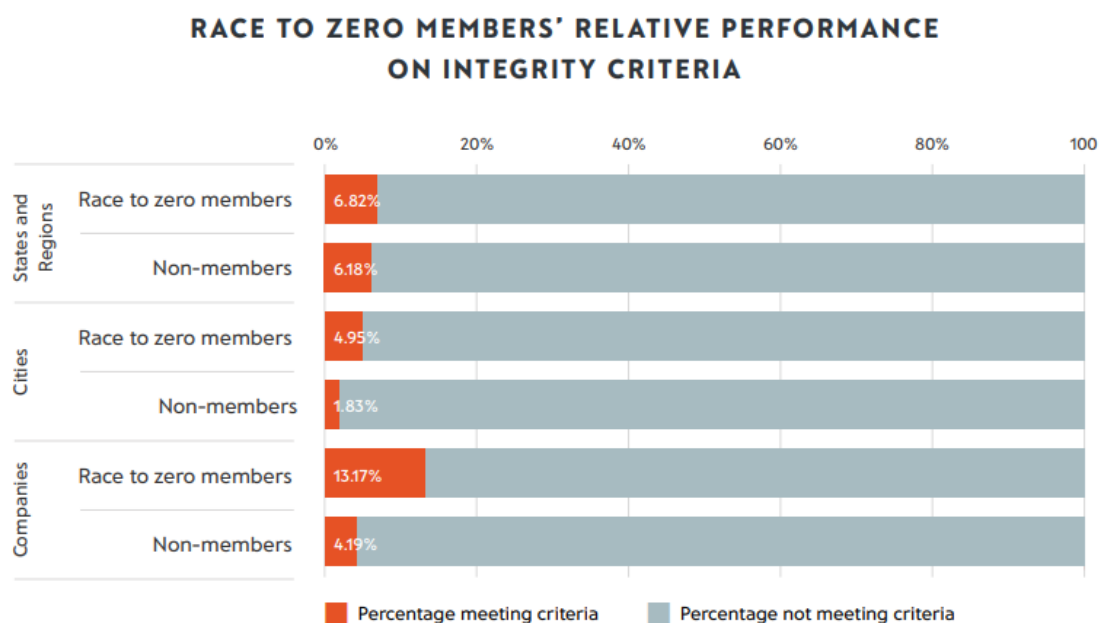


Figure 3: The share of net zero targets meeting all integrity criteria by the Race to Zero and UN Expert Group, by entity group and by their membership to Race to Zero partner initiatives.



Implications

The 2025 Net Zero Stocktake findings reveal a landscape where ambition is outpacing accountability, and where the gap between pledging and doing remains wide. Across more than 4,000 entities assessed, only a small fraction meet even basic procedural and substantive integrity criteria for targets, meaning that the proliferation of net-zero commitments can give a misleading impression of progress. The most persistent weaknesses are not procedural formalities, since many entities do formalise targets and publish plans, but the harder substantive commitments: covering all greenhouse gases rather than CO₂ alone, extending scope across the full value chain including scope 3 emissions, and being transparent about carbon credit use. Membership in voluntary climate initiatives such as Race to Zero does appear to add some value, particularly for companies where reputational and investor pressures amplify the effect, but the effect is less pronounced for cities and regions, pointing to structural differences in governance capacity and incentive environments that a uniform voluntary framework cannot easily address. The food and agriculture sector illustrates a further concern: companies are quietly adjusting timelines, refining scope, and in some cases removing pledges altogether, a reminder that voluntary targets carry no penalty for withdrawal and therefore remain inherently fragile. Taken together, these findings suggest that voluntary climate action, on its own, is not reliably self-correcting — the integrity gap has barely shifted since 2022 despite growing public and regulatory scrutiny — and that closing it will require mandatory disclosure requirements, independent verification, and binding interim accountability mechanisms rather than continued reliance on good intentions alone.





5.8 Membership vs. Non-membership in the Global Covenant of Mayors

Authors: Lauri Peterson and Sander Chan

Status: Forthcoming

Study aim and contribution to objectives

This analysis contributes to objective 3), which examines the integrity, effectiveness, and governance implications of VCIs. Specifically, it evaluates whether participation in a major transnational VCI, the Global Covenant of Mayors for Climate & Energy (GCoM), is associated with measurable changes in climate policy practices among cities, compared to non-member cities. By focusing on within-city changes over time, the analysis directly addresses whether VCI membership is associated with substantive institutional outcomes rather than symbolic commitments. The focus is on the subnational actor group of cities which play a core role in contemporary voluntary climate governance, but whose actions are often highlighted in aggregate VCI reporting but less frequently evaluated using causal or quasi-causal designs. Using GCoM as a representative and influential VCI, the analysis assesses whether members differ systematically from non-members in the adoption of key elements of climate policy architecture, including governance, accountability, equity, and monitoring mechanisms.

Methodology

The analysis uses monthly city-level data derived from the Net Zero Tracker (NZZ) and GCoM membership data, covering both GCoM members and non-member cities.

The methodological objective is to estimate whether membership in a voluntary climate initiative (VCI), operationalised through participation in the Global Covenant of Mayors for Climate & Energy (GCoM), is associated with changes in city-level climate policy architecture, relative to non-member cities. Because cities self-select into VCIs, the analysis adopts a quasi-experimental panel design that exploits within-city variation over time, rather than cross-sectional comparisons between members and non-members.

The core empirical strategy is a set of two-way fixed effects (TWFE) difference-in-differences models, estimated separately for multiple policy outcomes. This approach is well suited to evaluating voluntary governance initiatives where randomised assignment is not feasible and where treatment adoption is staggered across units.

- Climate change mitigation targets – Does the city have a public climate change mitigation target? (Yes/No)
- Climate Action Plan - Does the city have a publicly available climate action plan that lays out steps toward its target? (Yes/No)
- Accountability mechanisms - Is the leadership of the city formally accountable for delivery on the target? (Yes/No)
- Equity provisions – Does climate action plan refer to equity (or fairness)? (Yes/No)





- Reporting mechanisms - Does the city have a public reporting mechanism? (Yes/No)
- Policy on credits from carbon dioxide removal (CDR) - Does the city-level mitigation target allow for traded credits (offsets) from outside the entity's territory / value chain to meet the target? Yes/No

GCoM membership is coded as a binary, absorbing treatment indicating whether a city is a member in a given month. Six dichotomous outcome variables are examined, each capturing the existence of a specific component of city-level climate policy architecture: mitigation targets, administrative capacity mechanisms, accountability mechanisms, equity provisions, reporting mechanisms, and carbon dioxide removal policies.

Model Specification

For each policy outcome, the following model is estimated using linear probability models, where the outcome variable is the policy outcome for each city for each month. The treatment is membership status in GCoM. The model also includes city fixed effects and month fixed effects. Coefficients can be interpreted as percentage-point changes associated with GCoM membership.

Linear probability models are used to ensure comparability across outcomes, facilitate interpretation, and allow the inclusion of high-dimensional fixed effects. Standard errors are clustered at the city level to account for serial correlation within cities over time.

Interpretation and Limitations

Estimated effects should be interpreted as average within-city changes associated with GCoM membership. While the design substantially limits confounding from selection on time-invariant characteristics and common shocks, selection on time-varying unobservables cannot be entirely excluded. In addition, outcomes capture the existence rather than the quality or enforcement of policies. These limitations are inherent to observational evaluations of voluntary governance initiatives.



Findings

Figure 4: Effect of GCoM Membership on Cities' Climate Governance

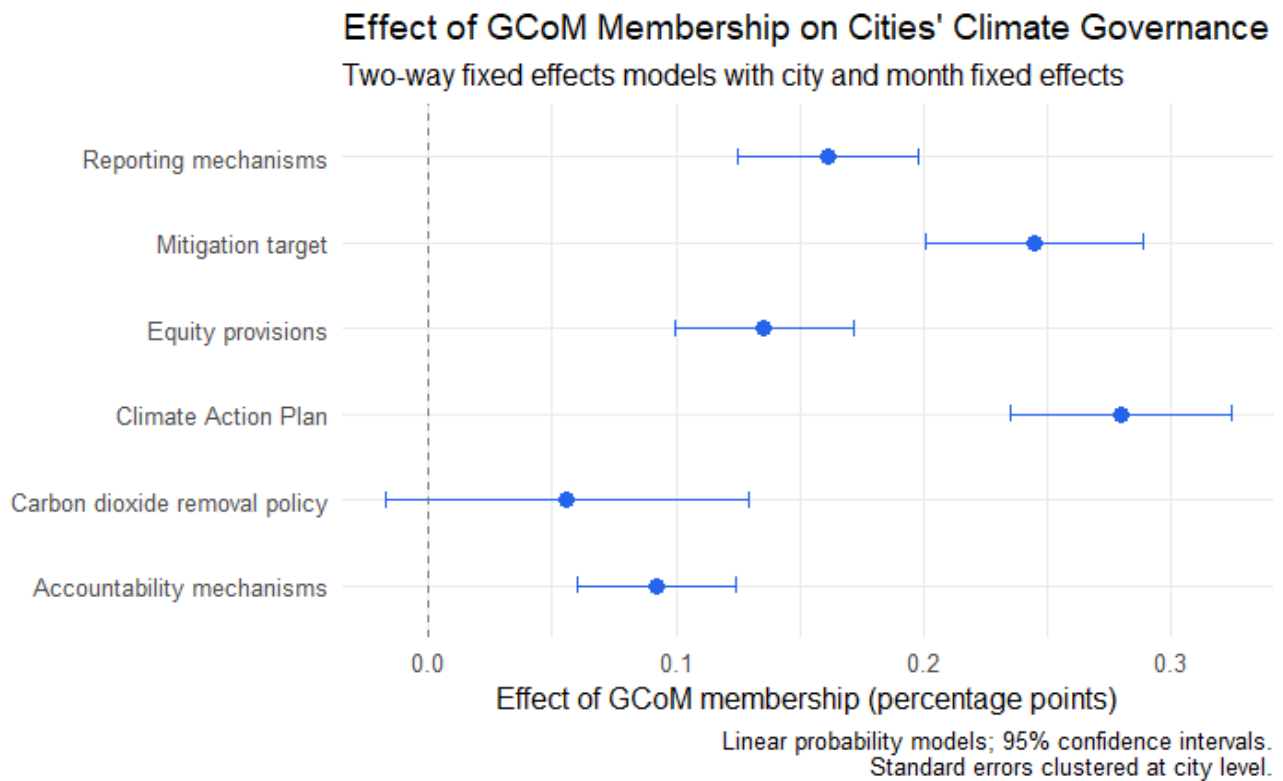


Figure 5: Effect of GCoM Membership on Cities' Climate Governance

The results indicate that GCoM membership is associated with statistically significant increases across multiple dimensions of city-level climate policy architecture, and not only with mitigation target adoption.

Key findings visible in the figure include:

- Strong positive associations between GCoM membership and:
 - Mitigation target adoption
 - Climate action plan adoption
- Moderate but robust effects for:
 - Equity provision adoption
 - Accountability mechanism adoption
 - Reporting mechanism adoption
- Weaker and less precisely estimated effects for:



- Adoption of carbon dioxide removal (CDR) policies

Importantly, all estimates are identified from within-city changes over time, after becoming a member of GCoM, rather than cross-sectional differences. This indicates that cities tend to adopt additional institutional features after joining the voluntary initiative, rather than simply selecting into membership because they already possess more advanced policy frameworks.

Taken together, the pattern suggests that GCoM membership is associated with more progressive institutionalisation of climate governance, rather than only headline commitments.

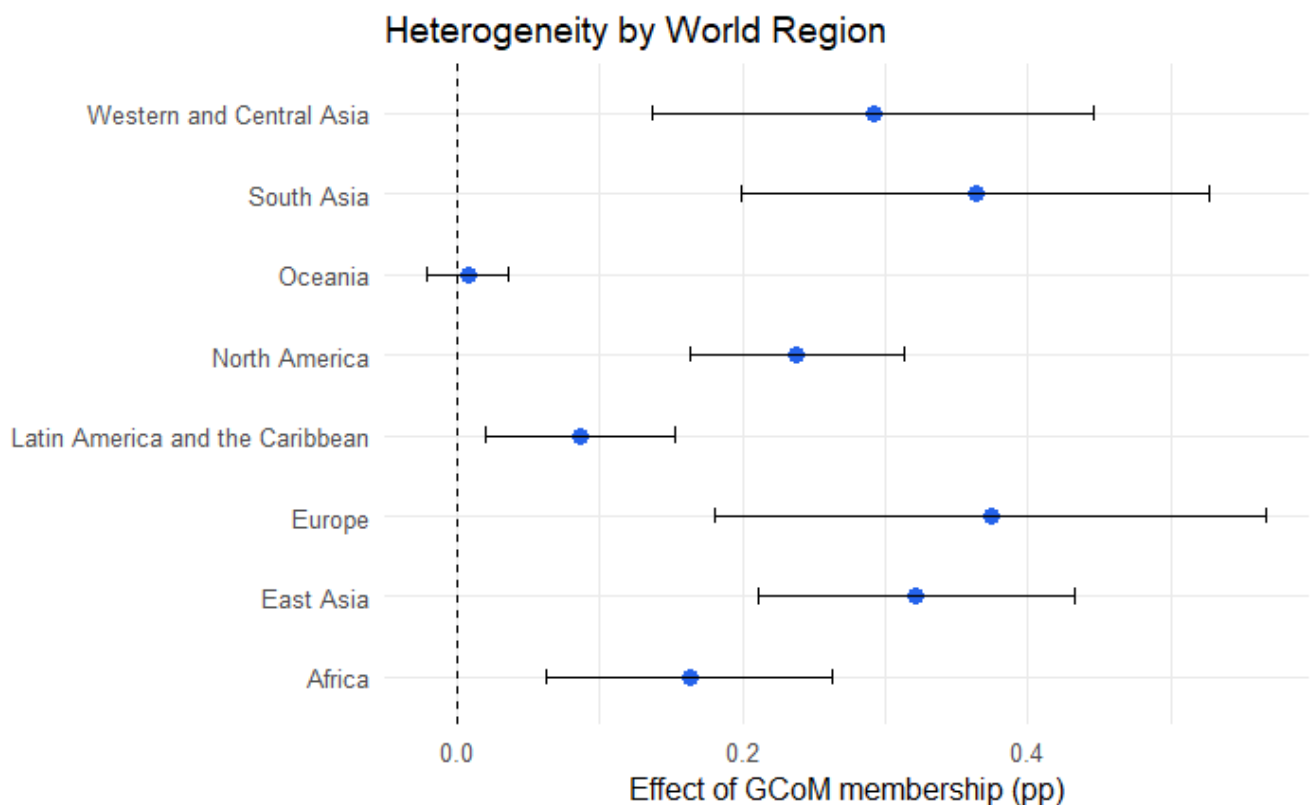


Figure 6: Heterogeneity by World Region

Nevertheless, the association between GCoM membership and climate target adoption varies across world regions, which may represent variation in political will, institutional capacity and equity. By looking at the adoption of city-level mitigation targets across all regions, the effect of GCoM membership is associated with a higher likelihood of adopting a climate mitigation target, except Oceania (incl. Australia and New Zealand) where the sample is likely too small, and estimates are not statistically distinguishable from zero. The strongest average effects are in Europe, South Asia, Western and Central Asia, and East Asia. Some of the weakest effects were identified in Africa and Latin America, which may be attributable to differences in capacities.



Implications

Based on the example of the Global Covenant of Mayors, these findings have several implications for the future of VCIs:

1. **VCI membership appears to matter beyond symbolism.** The results provide evidence that participation in a voluntary climate initiative can be associated with concrete governance changes, including accountability and reporting structures that are central to policy integrity.
2. **Governance mechanisms diffuse alongside targets.** The stronger effects on administrative capacity and reporting mechanisms suggest that VCI participation may support implementation readiness, not just ambition.
3. **Integrity gains are uneven across policy dimensions.** The weaker effects for CDR policies highlight limits to what VCIs currently deliver, especially in technically complex or politically sensitive policy areas.
4. **VCIs may function as institutional accelerators.** Rather than merely aggregating already ambitious cities, initiatives like GCoM appear to play a role in accelerating the diffusion of standardised policy architectures among members.

Overall, the analysis suggests that voluntary climate initiatives can contribute meaningfully to governance integrity, particularly when membership is tied to reporting, peer learning, and procedural requirements. However, the uneven strength of effects across policy dimensions also points to areas where VCIs may need stronger design features or complementary regulatory support.





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7 Appendix

7.1 Sample AI prompts

Microsoft Copilot and Claude Sonnet 4.6 were used to summarise and edit text. The authors critically reviewed the outputs of the tool by evaluating the relevance and validity of the outputs before integrating them with the authors' own work. The authors take full responsibility for the work.

Table 3: Sample AI Prompts

Category	Purpose	Example Prompt
Refinement and clarity	Improve readability, clarity, and overall quality of text	"Rewrite this paragraph to improve clarity and conciseness for Deliverable 2.4."
Condensing text	Reduce length while preserving key meaning	"Condense this paragraph into 2-3 sentences without losing key arguments."
Integration	Merge and harmonise multiple text elements	"Suggest changes to this paragraph to align with the existing Deliverable 2.4 structure and to ensure consistency."
Spelling and grammar check	Check correctness	"Proofread the following text to identify and correct any spelling or grammatical errors, ensuring consistent use of British English spelling and conventions throughout."