Giving Meaning to Climate Change :

Exploring Framing in National Climate Citizens' Assemblies

Master's in Sustainable Development - Master's Thesis

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Foreword

The inspiration for my master's degree and thesis topic stemmed from a well-known adage attributed to Mahatma Gandhi: "Be the change you wish to see in the world." At the outset, my aims were overly ambitious—a citizens' assembly researcher told me my original research questions would be fitting for a PhD dissertation. My research aim (that was originally about the influence of scope) evolved slowly into something more tangible, until it eventually became evident that what I was researching was, in fact, framing, and that investigating influence was unattainable. This led to a thesis that was more theory-intensive than originally planned, representing a significant shift and a positive learning experience from my original background as an architect. Ultimately, I hope that my hard work and determination from the last 9 months has produced something that may have practical applications for climate assemblies.

I am deeply grateful to my supervisor Frank van Laerhoven for his unwavering patience with my numerous pages and questions, and for his support even when I felt lost. I was once told "I've learned that it is best to not try to tell Noemie what to do, and to just let her do her thing," hinting that I may not be the easiest thesis student to have under one's wing. I would also like to extend my gratitude to my second reader, Carole Anne-Sénit, for investing her limited time in reading my work. Furthermore, I would like to extend my heartfelt gratitude to the interviewees and researchers who took the time to respond to my emails or participate in interviews, most often during their free time. To my fellow students from group assignments, Gréta, Arne, Sofia, Yongxin, Marijn, Hiroka, Angelica, Arfan, Louis, Athina, Ellen, Ana, Loreto, Rikesh, Michele, and Lukas, thank you for teaching me the intricacies of social science. I am also thankful to all the Copernicus professors who taught me the invaluable skill of critical thinking, a skill I will be able to carry around in my toolbox from now on.

My family and friends deserve special thanks for their steadfast support, for listening to my, often incomprehensible, thesis-related talks, and for reminding me that life exists beyond the thesis bubble. My thanks also go to my niece Alice and my 2024 forthcoming niece/nephew, you are the reminder of a bright future worth working for. Thank you to my partner Henri for supporting my decision to reboot my career. Furthermore, my heartfelt thanks to Yavor, the best library buddy one could wish for. I couldn't have finished this without you! To Zach and the rest of the calisthenics crew, thank you for helping me maintain my physical and mental well-being through regular sports. Lastly, I am inspired and motivated by climate activists who are fighting for a better world. Their dedication fuels my own commitment to this cause and my studies.

Summary of thesis

Despite commitments to the Paris Agreement, no country currently has plans to meet its targets. This urgent issue requires political action, yet current democratic systems are struggling. Consequently, scholars are advocating for more deliberative democracy to give citizens' a voice at the table when making climate policy decisions. The most visible and promising development are climate assemblies. They consist of a large number of quasi-randomly selected lay citizens partaking in a lengthy deliberative process on expert-provided information to produce recommendations by and for citizens aimed at informing decision-making. National climate assemblies have developed more ambitious and comprehensive responses to the climate crisis than their respective governments, emphasizing their potential to substantially advance the national and transversal policies essential to spur climate action. However, there is no neutral way of communicating about climate change. All information will be framed, communicating perspectives and assumptions, thus shaping how participants understand and decide upon climate change. There is a research gap concerning how climate change in framed within national climate assemblies. This research aims to fill the gap by developing an analytical tool for researchers and practitioners to be aware of and to identify how framing occurs in climate assemblies and provide additional empirical data on the subject. The research first explored what framing means for deliberative democracy and posited that acknowledging framing is key to uphold deliberative democracy ideals—this can be achieved by acknowledging frames through deliberative framing. Then, the research employed an abductive approach to develop an analytical framework by exploring a case study. The case study provided in-depth information about the phenomenon, demonstrating how the framing of climate change occurs in practice, and enabled the creation of a robust analytical framework grounded in empirical evidence. The results demonstrated the viability of the framework, depict the pervasiveness of framing within climate assemblies, and furthered the claim that deliberative framing can pave the way towards alternative framings and novel ideas, indicating that deliberative framing should be a key component of climate assemblies. Lastly, this enabled the formulation of a tool and practical recommendations for practitioners, to be aware of and to understand how framing occurs in assemblies.

Key concepts: Deliberative democracy, climate crisis, climate citizens' assemblies, framing.

1 Introduction

1.1 Setting the stage

1.1.1 Societal background

Today, societies are faced with major crises; specifically the **climate crisis.** Yet, no country having pledged to the Paris Agreement has plans capable of meeting these targets—currently, we are on track for 2-3° degrees of warming. This requires urgent political action, however our current democratic systems are failing us (Willis et al., 2022). This may be linked to the significant challenges our representative democracies are facing today, such as increasing distrust in governments, decline in electoral turnouts, and polarization making it harder to create policies that everyone agrees on (Vrydagh, 2023). Allegedly, our 'democracy is in crisis' (Goldberg, 2023; Nielsen & Sørensen, 2023). This calls for a new democratic approach to address climate issues. Today, climate discussions are dominated by experts and politicians but rarely integrate ordinary citizens (Elstub, Carrick, et al., 2021). In response, academics, citizens, and, practitioners are advocating for more **deliberative democracy** (Bächtiger et al., 2018; Reuchamps et al., 2023)**.** Climate action requires more than just science, it must place citizens at the heart of decision-making for effective action (Willis et al., 2022).

In the past decade, there has been a so-called 'deliberative wave' of citizen involvement; the most visible and promising development is citizens' assemblies (Lacelle-Webster & Warren, 2021; OECD, 2020). **Climate citizens' assemblies**, or climate assemblies, are the approach of choice when engaging citizens with climate (Elstub, Carrick, et al., 2021). Worldwide, they are taking place at all levels of governance to achieve citizen-issued climate policy recommendations. Advocates argue that assemblies are a necessary and potentially transformative ingredient for combatting climate change (Willis et al., 2022).

This report uses the de Gruyter handbook of citizens' assemblies definition of citizens' assemblies, namely *"all **participatory institutions** which bring together an **inclusive** group of lay citizens who **deliberate** together on a public issue so as to exert a **public influence**"* (Vrydagh, 2023, p. 3). Citizens' assemblies consist of a large number of quasi-randomly selected lay citizens partaking in a lengthy deliberative process (over a few weekends). The citizens, hereafter participants, deliberate on expert-provided information to produce policy recommendations by and for citizens aimed at informing decision-making (Curato & Farrell, 2021; OECD, 2020; Vrydagh, 2023). Citizens' assemblies' *raison-d'êtr**e*** is to increase the **legitimacy** of decision-making processes (Setälä & Smith, 2018): they give citizens a voice at the table (Vrydagh, 2023).

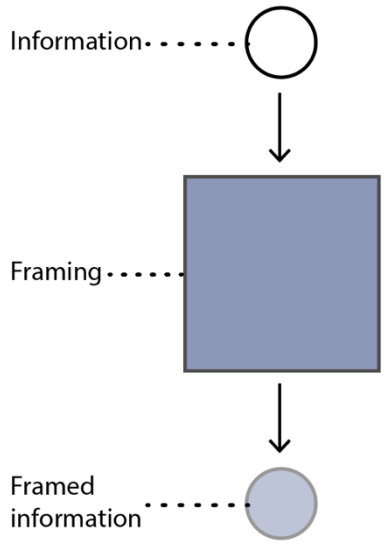
1.1.2 Problem setting

To spur climate action and reach Paris goals, **national and transversal policies are key**. As new climate policies are being implemented, such as the EU's green deal, policies will increasingly and unequally affect people. National policies must make crucial decisions to meet Paris targets while '*leaving no one behind*' (European Commission, 2023). Thus, the key question arises: can climate assemblies create the optimal context for climate deliberation (L. Knops & Vrydagh, 2023)? **National-level climate assemblies** can contribute to Paris goals, as highlighted by some assemblies developing more ambitious and comprehensive responses to the climate crisis than their respective governments (Willis et al., 2022).

Deliberation concerning climate, or **climate deliberation**, requires a fundamentally different approach because climate change touches upon all aspects of (non-)human life and relies on complex scientific information unknown to the lay citizen (Cherry et al., 2021). Furthermore, climate deliberation has the challenging task of tackling this large-scale problem affecting, and needing coordination from, all policy sectors and levels (Elstub, Carrick, et al., 2021). Due to the limited cognitive capacity of humans, duration of assemblies, and the complexity of climate, the scope of climate must be narrowed down. Thus, participants will experience climate change only partially, and certain aspects will inevitably be highlighted over others (de Boer et al., 2010). Hence, when attempting to form a collective opinion about climate change, the choice of information that is communicated is key.

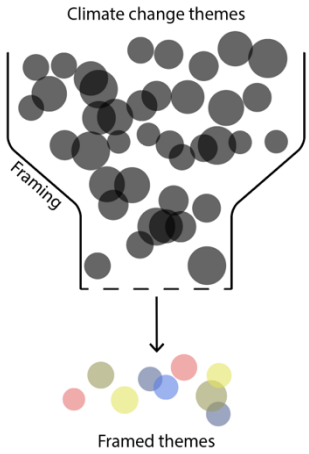
However, the literature shows there is no neutral way of communicating about climate change (Capstick et al., 2020; Hulme, 2009), and that **all information will be framed**. Framing involves presenting an idea in a specific manner or perspective (Nisbet, 2009), i.e., giving information a certain meaning, as conceptualized in **Figure *1***. This inevitably shapes how it is perceived, understood, and responded to (Shaw et al., 2021). Assuming participants have low prior understanding about climate (Cherry et al., 2021), any type of framing will communicate perspectives and assumptions, influencing what they deem as important and the deliberative process (Cherry et al., 2021; Shaw et al., 2021). For instance, prioritizing scientific information suggests climate should be interpreted based on expert knowledge, whereas emphasizing ethics makes choices seem to be a question of right or wrong (Cherry et al., 2021). As climate change relies on technical knowledge but is also value-laden, framing plays a key role in climate assemblies as it may steer the assembly in a certain direction (Shaw et al., 2021), threatening the legitimacy of the process (L. Knops & Vrydagh, 2023).

Figure 1
A conceptualization of framing.



In climate assemblies, **framing takes place in many shapes and forms and occurs continuously throughout the assembly** (Shaw et al., 2021), thus framing climate change and climate themes in a certain light, as shown in **Figure *2***. Framing if one of the salient critiques against climate assemblies, as it often dismisses deeper critiques and questions of social justice (Willis et al., 2022).

Figure 2
Key concept: the framing of climate change within climate assemblies.



1.1.3 Current research and research gap

Research about deliberative democracy is expansive, but citizens' assemblies are only a decade old (OECD, 2020). Significant research exists concerning aspects such as their internal dynamics (Lindell, 2023), how they influence participants, their consequences on policymaking (Minsart & Jacquet, 2023), and their influence on the public sphere (Rountree & Curato, 2023). Moreover, a large portion of studies explored if and how lay people can develop effective policies (Lacelle-Webster & Warren, 2021). Current research gives tools to evaluate citizens' assemblies (Caluwaerts & Reuchamps, 2023) and often proposes best-practice recommendations, but this is not exhaustive (Cherry et al., 2021; OECD, 2020; Smith, 2022).

However, there is a lack of detailed scholarly research on framing climate change within national climate assemblies. Much of the literature focuses on unidirectional communication and explores how framing affects the comprehension of information (Badullovich et al., 2020). Further publications include framing succinctly, namely 2 assembly evaluations (see Andrews et al., 2022; Cherry et al., 2021) and a master's thesis (Zeitfogel, 2023)—comparing frames in (inter)national climate assemblies but not investigating how it occurs. Romsdahl (2020) and Romsdahl et al. (2018) explore deliberation and framing, but at the local level. Lastly, Shaw et al. (2021) provide a brief overview of framing within climate assemblies, but it remains succinct and lacks clarity, depth, and practical applicability. Furthermore, there is a lack of understanding on how multiple frames within one assembly *work in practice* (Shaw et al., 2021). An additional research gap identified is that framing is researched in terms of framing climate change *as a whole*, without delving into the *information* being framed.

1.2 Research aims and questions

Any climate deliberation will frame climate change. For national climate assemblies, framing plays a crucial role as it will influence their resulting policy recommendations. Therefore, it is key to explore how climate change is framed, traversing the metaphorical tunnel that is the assembly. The research aim of this thesis is twofold: to deepen the understanding of framing and to establish a standardized framework for capturing the essence of framing within (national) climate assemblies. It will achieve this by an in-depth analysis of framing within a case. Hence, the resulting research questions are:

How does the framing of climate change occur within national climate assemblies?

First, I investigate framing's theoretical underpinning in relation to deliberative democracy.

Sub-question 1: *What are the implications of framing for deliberative democracy?*

Second, I develop an analytical framework that operationalizes framing.

Sub-question 2: *What are the key components of framing within climate assemblies?*

Third, I apply the framework to a case as a proof of concept to test its applicability and validity.

Sub-question 3: *How can the developed analytical framework be applied to a national climate assembly case study and what additional insights does this provide?*

Lastly, I make a practical tool and provide recommendations for practitioners.

Sub-question 4: *How can framing within climate assemblies be recognized and dealt with in practice?*

1.3 Scientific and societal relevance

This research aims to address the literature gap by providing empirical data and insights concerning framing within national climate assemblies. Given the limited number of empirical cases, there remains a clear need for empirical investigation to enhance scientific knowledge. Moreover, this research will result in a analytical tool, helping pave the way for further research, for example, for comparative case studies. Furthermore, citizens' assemblies are meant to convey people's voices and thus require comprehensive scrutiny to discern the origins behind assembly recommendations to ensure they are indeed legitimate (Cherry et al., 2021). This study will, in turn, make a valuable contribution to our broader understanding of climate assemblies and their role in sustainability pathways.

With climate impacts on the rise, addressing it becomes a top priority, and strengthening democracy is crucial for addressing this challenge (Willis et al., 2022). Thanks to climate assemblies' high degree of representativeness and participants' capacity to learn and deliberate, scholars emphasize that they provide a practical approach to address the political path-dependencies that affect contemporary representative democracies when it comes to environmental issues for a plethora of reasons (Knops & Vrydagh, 2023). **First**, scholars argue they can address the complex and long-term nature of climate (Willis et al., 2022) by infusing long-term thinking into policymaking (L. Knops & Vrydagh, 2023; Lacelle-Webster & Warren, 2021). **Second**, climate assemblies are able to draw upon the scientific knowledge necessary for deciding about climate while also including ethical aspects that are often omitted but are key for public support (Demski et al., 2015; Willis et al., 2022). **Third**, they aim to balance out the disproportionate influence of powerful political interests by focusing on collective aims rather than individual ones (L. Knops & Vrydagh, 2023; Lacelle-Webster &

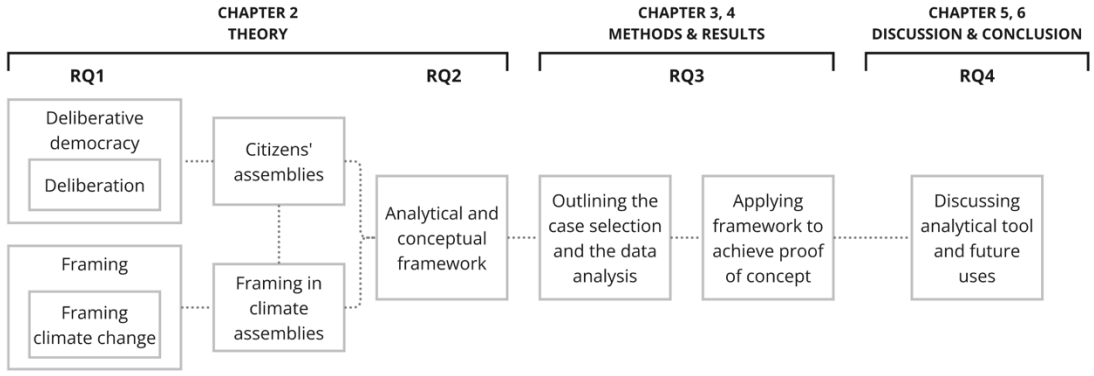
Warren, 2021; Willis et al., 2022). **Fourth**, climate assemblies aim to strengthen citizen-politician relationships by making politics an ongoing process through two-way discussions instead of through ballot boxes (Willis et al., 2022). Furthermore, climate assemblies can lead to policy implementations, foster deliberation within the wider political systems and the public (Kuntze & Fesenfeld, 2021; Minsart & Jacquet, 2023), and increase the legitimacy and public support of climate policies (L. Knops & Vrydagh, 2023). Likewise, climate assemblies have the potential to improve environmental literacy by widespread climate communication and discussion, empowering citizens to make more responsible decisions (Devaney, Brereton, et al., 2020). Overall, urgency is required for climate action and climate assemblies increase the chance of swift action.

2 Theory

2.1 Research framework

This research first explores deliberative democracy and framing theory to contextualize framing and climate assemblies conceptually. Then, it combines framing and climate assembly theory to develop an analytical framework. **Figure *3*** shows the research framework.

Figure 3
The research framework.



2.2 Theoretical background

2.2.1 Deliberative democracy

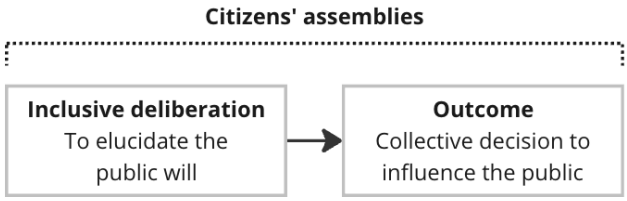
Fishkin (2018) describes today's democracy as one with politicians competing for votes rather than focusing on **what democracy *should* entail: implementing the collective public will.** The public is and will be affected by policies selected by policymakers who must choose among value-laden goals. But as current politics have no meaningful opportunities for public will formation, whose values and goals are they basing their choices on? Furthermore, the public will can be manipulated, misinformed, or pressured. Would it not, therefore, be key to determine *who* represents the public will, *how* it can be formed through transparent democratic processes, and the *reasons* for reaching those conclusions (Fishkin, 2018), such as one explains the steps between a mathematical problem and why the solution is the solution?

This is where deliberative democracy steps in. It puts citizens back in the center and looks are the public will: *under what conditions* it can be attained through evidence and structured argumentation, without external manipulation, and who can legitimately represent us (Fishkin, 2018). Deliberative democracy is based on Habermas' (1991) normative theory of how collective decisions *should* be made and how to approach this in practice (Curato et al., 2019). It contends that democracy extends beyond mere majority preferences, emphasizing instead the importance of talking to shape and reshape judgements and preferences before making decisions: talk-centric rather than vote-centric (Bächtiger et al., 2018; Dryzek, 2011). Its role is to allow citizens to understand public issues, competing interests, and to potentially form agreements (Bächtiger et al., 2018). In theory, deliberative democracy reflects *"what the public* would *think, if it had a more adequate chance to think about the questions at issue"* (Fishkin, 1991, p. 26) (i.e., the public will). **It is the political ideal where *deliberation*—equitable, informed, respectful, and reasoned dialogue between**

people about public issues—serves as the foundation for achieving collective decisions about our future (Dryzek, 2011; Ercan et al., 2022).

Citizens' assemblies are essentially pilots of the philosophical idea of deliberative democracy (Dryzek, 2015; Fishkin, 2018). They are the most sophisticated deliberative democracy institution, making them appropriate for addressing salient public issues (Vrydagh, 2023). Dryzek's (2011) normative criteria outline the conditions needed to achieve deliberative democracy, namely: authentic deliberation, inclusion, and consequentiality. Citizens' assemblies strive to uphold deliberative democracy ideals through their three core principles: **deliberation**, **inclusion,** and **public influence** (Vrydagh, 2023, p. 4). Citizens' assemblies fundamentally entail inclusive deliberation to elucidate the public will, aiming to achieve the outcome of a collective decision to influence the public, depicted in **Figure *4***.

Figure 4
A conceptualization of the core of citizens' assemblies.



2.2.2 Critiques of deliberative democracy and climate assemblies

Deliberative democracy is not without its critiques. I divide these into ones about deliberative democracy as a theory and about climate assemblies.

Deliberative democracy critiques and counter-critiques

The major critique against deliberative democracy comes from agonistic pluralists such as Chantel Mouffe. Their main critique is against the focus of deliberative democracy on achieving consensus. Instead, they argue democracy should seek 'agonistic confrontation' (Mouffe, 1999). Politics are unpredictable and disorderly, and they encompass conflict as much as agreement. By focusing on consensus, deliberative democracy fails to include, and actively works against, disagreement. They argue disagreement is essential for democratic, creative, and representative sustainability politics because disagreements invigorate, engage, and renew democracy and should not be eliminated. In their view, disagreement can take the form of both agony (invigorating from within) and rupture (disrupting from the outside) (Machin, 2023; Mouffe, 1999). Machin (2023) specifically critiques climate assemblies by saying disagreement can lead to alternative perspectives on climate change. By focusing on consensus, they treat disagreement as temporary and obstructive. This undermines sustainability transformations by limiting the possibility of challenging the status quo.

Deliberative democracy proponents offer a plethora of counter arguments. Dryzek (2005), Erman (2009), A. Knops (2007) namely wrote papers specifically targeting Mouffe's critiques. Their counterarguments include that deliberative democracy does not claim full *consensus*—it aims for citizens to see things from one another's perspective and get to the core of disagreements (Bächtiger et al., 2018). Deliberation is a way to *structure disagreements,* rather than to agree, in ways that make them understandable, allowing citizens to move past them in justifiable ways (Knight & Johnson, 2007). Furthermore, it is deliberation that allows us to become aware of, and address, different, conflicting meanings and assumptions to see whether a consensus *can* in fact be reached (Dryzek, 2005; A. Knops,

2007). Lastly, consensus is needed to make decisions (Dryzek, 2005). With the imminent threats of climate change, we cannot afford to delay; urgent political action is essential (Willis et al., 2022).

Citizens' assemblies critiques and counter-critiques

Citizens' assemblies and climate assemblies are also subject to critiques, described non-exhaustively as follows. **First**, critiques question the willingness of citizens to participate (Jacquet et al., 2023) and their capacity to deal with the complexity of climate, thus undermining the quality of their recommendations. **Second**, critiques question their representativeness in terms of quality, attitudes, and interests (Willis et al., 2022). **Third**, opponents point out assemblies' limited impacts on policymaking and the cherry-picking of recommendations (Cherry et al., 2021; Willis et al., 2022). **Fourth**, critiques question how well assemblies can address power asymmetries and other forms of manipulation (Machin, 2023; Mouffe, 2008). **Lastly**, assemblies face criticism regarding their transformative potential due to their weak recommendations (Willis et al., 2022) and passive roles. They are often seen as unable to deliver breakthrough ideas or fundamentally challenge the regimes and strategies that established them (Machin, 2023).

Citizens' assembly scholars refute many of these critiques with empirical research. **First**, research shows citizens want to participate politically *more* when it is done through meaningful deliberation (Dryzek et al., 2019). Studies show that citizens are capable of tackling and making decisions about complex and controversial issues, as evidenced by citizens making difficult decisions where politicians have not (Willis et al., 2022). **Second**, citizens' assemblies are more inclusive than most political processes, by giving a voice to a socially and cognitively diverse group (Willis et al., 2022). Moreover, many assemblies include climate attitude in their participant selection criteria (KNOCA, 2022). **Third**, influence on policymaking should be broadened to incorporate more than the uptake of recommendations, for example spreading knowledge into the public (Jacquet & van der Does, 2021). However, influence is linked to assemblies' roles. Scholars ask what decision-making power they should have and how their recommendations should be integrated into policymaking. At the heart of this is question of whether a group of randomly selected citizens has the legitimacy to make decisions; this is an ongoing debate (Minsart & Jacquet, 2023; Willis et al., 2022). **Fourth**, although assemblies generally fail to *fully* shift power imbalances—a tough feat for a single institution—they do question dynamics of power, challenge the status quo by asking 'tough' questions (Willis et al., 2022), and allow for a higher degree of political equality than other participatory institutions by 'artificially' making up for unequal power distributions (Vrydagh, 2023). **Lastly**, weak recommendations are a critique of the task, not of the process or the citizens themselves. Their recommendations are not insubstantial, as emphasized by citizens backing policy options generally deemed problematic by politicians such as frequent flyer levies (Willis et al., 2022).

Climate assemblies' potential

Climate assemblies are no silver bullet, but I argue that they provide a strong and viable approach to achieving better environmental outcomes. They create spaces where "*epistemological, moral, and political challenges of the climate crisis are given fair treatment and considered judgments and collective actions can emerge*" (Willis et al., 2022, p. 5), and their advocates call for their further institutionalization into our political systems (Fishkin, 2018; Niemeyer, 2015; Setälä, 2017a). Moreover, assemblies are constantly being improved, as illustrated by the Scottish assembly adapting their assembly design based on setbacks seen

in the UK (Andrews et al., 2022). There are still strong obstacles to overcome if they are to become a real starting point for societal and political transformation (Romsdahl, 2020; Willis et al., 2022). To start, the literature emphasizes the importance of high-quality design (Dryzek et al., 2019; Willis et al., 2022) because poor practice undermines their potential and may make them look like smokescreens for status-quo politics (Willis et al., 2022). This underlines the importance of further practice-oriented scholarly research.

2.2.3 Framing climate change

Framing can be traced back to Walter Lippman (1922) who posited that people see the world through images they paint inside their minds: we understand the world based on our own perceptions and the perceptions of those with whom we communicate. As a result, each of us has a different mental world, despite all being in the same physical world (Romsdahl, 2020). Framing involves selecting specific elements from these mental worlds and conveying them in a particular light. Entman (1991, p. 9) summarizes the essence of framing as the *"sizing—magnifying or shrinking elements of the depicted reality to make them more or less salient".* Entman (1993) defines framing as highlighting a specific interpretation of an issue and as fulfilling specific functions: identifying causes, defining problems, proposing solutions, and making moral judgements. Framing is *painting* a particular perspective.

In attempts to spur climate action in the late 1990s, experts started calling for broader perspectives on climate change, as something more than just reducing CO_2. This would facilitate the integration of climate concerns into everyday challenges experienced by everyday people. Climate perspectives can be understood in various ways, of which *interpretive framing* is a useful (Romsdahl, 2020), hereafter termed simply as *framing*.

The literature identifies framings used in climate change communication. One prominent example is Hulme et al.'s (2018) systematic analysis of nearly 500 climate editorials published in scientific journals, resulting in a comprehensive overview of climate change frames. They define most frames as 'problem-solution' formulations (e.g., technical) and some as 'attributes' (e.g., urgency). They show that many frames overlap, as primary or secondary. Following Vliegenthart and van Zoonen (2011), this thesis defines the *framing* of climate change as constructing *frames of thinking* about climate change. *Framing*, as a verb, refers to creating *frames*, as a noun, that portray a certain image, or aspects, of climate change.

Framing poses **challenges in climate policymaking** and because it influences discussions and is often exploited to influence public discussions and policy outcomes, leading to and reinforcing imbalanced power dynamics (Romsdahl, 2020). When forming opinions and judgements, participants are deeply influenced by how information is framed (Tversky & Kahneman, 1989) because it makes people see the problem differently. It is one of the reasons we disagree about climate change (Hulme, 2009). Framing impacts how we discuss problems (Hoffman, 2011) and who is viewed as a trustworthy source. Furthermore, framing takes many forms, for example slightly different wordings will frame climate differently, influencing people's attitudes or behavior (Chong & Druckman, 2007; Druckman & Nelson, 2003; Entman, 2004; Romsdahl, 2020). For example, Whitmarsh's (2008) empirical study shows how citizens have different reactions to and understandings of 'global warming' versus 'climate change'. Hence, I argue that framing can be seen as a form of manipulation, something that deliberative democracy strives to preclude. Recognizing and foregrounding framing when addressing policy decisions in deliberative settings is therefore key (Romsdahl et al., 2018).

Persuasive framing and deliberative framing

In any climate change policy discussion, multiple and conflicting frames are always present. However, **dominant climate framings** typically emerge from political, economic, or scientific elites (Calvert & Warren, 2014). These frames often close-down discussions—severely limiting the scope of policy options—and 'frame out' non-dominant ideas in subtle or forceful ways (Romsdahl et al., 2018, p. 5). Today, dominant climate framings are pervasive, include economic growth, science, technology, and emissions; and are shaped by scientists, engineers, economics experts, and by people in power, while also being contested by fossil fuel lobbies (Romsdahl, 2020; Romsdahl et al., 2018). However, although scientific input is key for understanding climate, science cannot be translated into robust and relevant policies (Galende-Sánchez & Sorman, 2021; Willis et al., 2022). Research findings emphasize this by showing that values and worldviews are more fundamental to shaping people's opinions on climate change than technical knowledge or policy information (Bouman et al., 2021; Corner & Clarke, 2016; Hornsey, 2021). Thus, science can only *describe* problems and potential solutions but cannot make decisions on behalf of the public (Willis et al., 2022).

Despite its importance, framing in deliberative activities is often used unintentionally or strategically in the form of **persuasive framing** to showcase a *single* perspective on the matter at hand (Romsdahl, 2020). It is a sort of elite framing used to push preferred policy developments (Friedman, n.d.; Kadlec & Friedman, 2007; Lakoff, 2014). Persuasive framing is inherently linked to, and influential in maintaining, the dominant frames of thinking. Both contribute to political entrenchment; exclude differing values, policy ideas, and opinions; and omit questions of justice—adding further obstacles to climate change communication. When deliberation begins with *framing to persuade*, frames are pre-determined, and the deliberation aims to convince participants that a certain perspective is the correct one without acknowledging other frames. Persuasive framing has been the dominant strategy for framing climate change, but it has not been successful in achieving public support (Romsdahl, 2020) and may impede systemic change (Nightingale et al., 2020).

Instead, to enhance climate deliberation, scholars advocate to move beyond persuasive, one-way framing, towards **deliberative framing** to showcase *manifold* perspectives—to bridge political divides, identify both common and divergent interests and values, and develop collective responses to climate change. Using a single frame can induce passive acceptance (Kahneman, 2003), whereas multiple frames encourage participants to think outside the dominant-framed box, thus opening up the dialogue and decision-options (Friedman, n.d.; Kadlec & Friedman, 2007; Romsdahl, 2020). Romsdahl's (2020) systematic literature review outlines what deliberative framing can achieve, namely, it can help recognize influence and power in policy decisions, and voice silenced opinions. Additionally, it can stimulate active participation and make climate change more relevant to people (de Boer et al., 2010; Romsdahl, 2020). Finally, deliberative framing could help foster transformation by encouraging and giving participants the tools to become critically aware of their assumptions (O'Brien, 2011). This could lead to deeper reflections (Blue & Dale, 2016; Collins & Ison, 2009), to changes in attitudes or opinions (Romsdahl, 2020; Romsdahl et al., 2018), and result in innovative solutions (Calvert & Warren, 2014; Friedman, n.d.). Deliberative framing aims to acknowledge and work *with* framing to *enhance* deliberation rather than influence it.

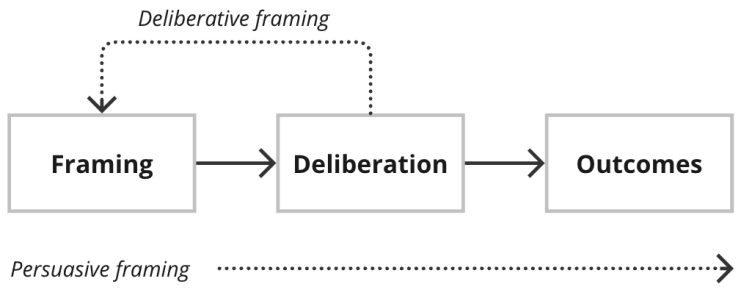
In practice, deliberative framing is not just a question of integrating framings and values into discussions. Simply reframing climate change will not persuade participants about certain policies. When *framing to deliberate*, participants must address the multiplicity of frames, and associated meanings. Participants must be made aware of the pervasiveness of dominant framings and how it impacts participants' understanding of environmental challenges (Blue & Dale, 2016; Collins & Ison, 2009; Romsdahl, 2020). Facilitators should clarify the range of

options and help participants understand their positionality and how this influences decisions (Romsdahl, 2020). Furthermore, the acceptance or opinion change happens through the discussion of values. Corner et al. (2014) define values as the guiding principles in the life of a person and write that people with 'transcendent values' are more likely to support environmental policies. Discussing values is crucial due to the *"emotional and cognitive dissonance between participants' world views and their actions"* (MacKinnon et al., 2018, p. 193). Specific strategies such as multi-criteria mapping and redefining the role of experts (Bellamy & Lezaun, 2017) as 'experts on tap' rather than 'experts on top' (KNOCA, 2024). Finally, deliberative framing requires the precondition of the *willingness* of the sponsoring institutions to reconsider and question their dominant framings (Barisione, 2012).

2.2.4 What does framing mean for deliberative democracy and climate assemblies?

Both persuasive and deliberative framing provide different opportunities. Persuasive framing may be easier to implement and arrives at more specific recommendations—which may be necessary regarding climate—whereas deliberative framing is more time-consuming but paves the way towards alternative framings and novel ideas (Romsdahl, 2020)—and are likely necessary for societal transformations. This is where the major difference lies between the two in climate assemblies: Persuasive framing is unidirectional framing, and deliberative framing adds frames, making it bi-directional, as shown in **Figure *5***.

Figure 5
A conceptualization of persuasive framing versus deliberative framing within climate assemblies.



However, one might wonder whether omitting minority frames of thinking truly aligns with deliberative democracy ideals, should they not inherently be part of the public will? Framing can lead to manipulation and imbalances of power, hindering the legitimacy of the process, aspects deliberative democracy strives against. I argue that deliberative democracy must *recognize* framing to fully uphold its ideals. Furthermore, to enhance climate assemblies in practice, Willis et al. (2022) argue that deliberative democracy should adopt a systemic approach and integrate assemblies into the political system. In doing so, the key question arises: can climate assemblies be framed in ways that address these fundamental questions such as the compatibility of capitalist growth with climate action? Deliberative framing could help reveal the neglected questions and perspectives (Romsdahl, 2020), increase epistemic conditions for deliberation (Calvert & Warren, 2014), and challenge status-quo framings. Moreover, adding nuanced framings effectively addresses some of the critiques against deliberative democracy by directly addressing conflicting meanings (see section 2.2.2). Hence, I argue that it may be more suited to help achieve the radical transformations climate scientists are calling for (Stoddard et al., 2021) and **should be a key component of deliberative democracy**, thus answering research question 1.

An analytical framework for framing within climate assemblies

Given the importance of framing and the plethora of benefits from *deliberative* framing in climate assemblies, it is key to gain an overview of **how framing takes place within climate assemblies.** To the best of this author's knowledge, such a tool does not exist. In addition to its analytical relevance for academia, such a tool could be used by organizers and facilitators—to be made aware of framing, know how to integrate it, and address it better—and by researchers evaluating climate assemblies or conducting comparative case studies.

Framing is ubiquitous in all climate assemblies. Deliberative framing is a communication technique (Romsdahl, 2020), meaning that likes frames, both deliberative and persuasive framing can co-occur in an assembly. Furthermore, in persuasive framing, framing happens unintentionally and influences deliberation, while in deliberative framing, frames are intentionally highlighted—hence, framing also occurs during the deliberation phase. Therefore, this report will primarily investigate deliberative framing to produce a tool capable of comprehensively analyzing *all framing types*. The following sections propose an analytical framework to analyze framing within climate assemblies.

2.3 Analytical framework

First, a brief note on terminology**.** A lot of different terms are used to describe and conceptualize citizens' assemblies. First, scholars predominantly use the term deliberative mini-publics. This thesis uses the term citizens' assemblies because it is more accessible and includes a broader, nonwestern-centric perspective (Vrydagh, 2023). Second, there seems to be no set standard among practitioners concerning terminology use and definitions. There is a divide between terminologies used in practice (Bureau Burger Beraad, n.d.), in academia (Caluwaerts & Reuchamps, 2023), and by organizations (e.g., KNOCA, 2022; OECD, 2020); this is perhaps linked to differences between *citizens'* and *climate* assemblies. For example, the terms remit, mandate, task, guiding question, and purpose are employed interchangeably for concepts that are synonymous or overlapping (see KNOCA, 2022; McBride, 2022; Smith, 2022). This report opted to use the terminology presented by KNOCA in Smith (2022) where he outlines the key characteristics of *climate* assemblies, largely based on national climate assemblies. Slight changes were made for clarity and are duly specified.

Building blocks for the analytical framework

To understand framing in climate assemblies, it is important to clearly determine what constitutes *climate assemblies* and framing *within* them. **First**, assemblies include many characteristics that take place over time, either prior to, during, or after the assembly (OECD, 2020; Smith, 2022). Characteristics that occur afterwards are irrelevant to the framing within assemblies and the research questions; they are therefore excluded. **Second**, framing takes many forms in climate assemblies. Shaw et al.'s (2021) briefing for KNOCA outlines the key characteristics pertaining to framing within climate assemblies (draft published in 2021, final version in 2024). To the best of this author's knowledge, this is the most comprehensive source available. I aimed to clarify, improve, and transform these into an analytical framework. Shaw et al. (2021) show that most assembly characteristics are relevant for framing, thus indicating that it is important to consider the entire assembly. The characteristics outlined by Smith (2022) (see above) and by Shaw et al. (2021) formed the basis of my analysis.

To analytically investigate citizens' assemblies, **evaluation frameworks** provide useful tools. These frameworks propose evaluative criteria that measure the *quality* of an assembly, thus indicating whether an assembly lives up to citizens' assemblies' core principles

(Caluwaerts & Reuchamps, 2023; OECD, 2021). Multiple frameworks exist but are used inconsistently when evaluating climate assemblies (Carrick, 2022). Furthermore, framing is currently excluded, beyond the OECD's (2021) criteria *'clear and unbiased framing of the task'* that remains minimal and will therefore not be used (see Caluwaerts & Reuchamps, 2023; OECD, 2021). As most assembly characteristics are relevant for framing, I argue that the evaluative criteria are also relevant for framing. They were therefore included as they allow for a richer understanding, giving a benchmark for the quality of the assembly. I used the criteria from Caluwaerts and Reuchamps' (2023) framework—as it is recent, very clear, and builds on the well-used *Evaluation Guidelines for Representative Deliberative Processes* from the OECD (2021)—with a few additions relevant for *climate* assemblies, sourced from Carrick's (2022) overview of climate assembly evaluations.

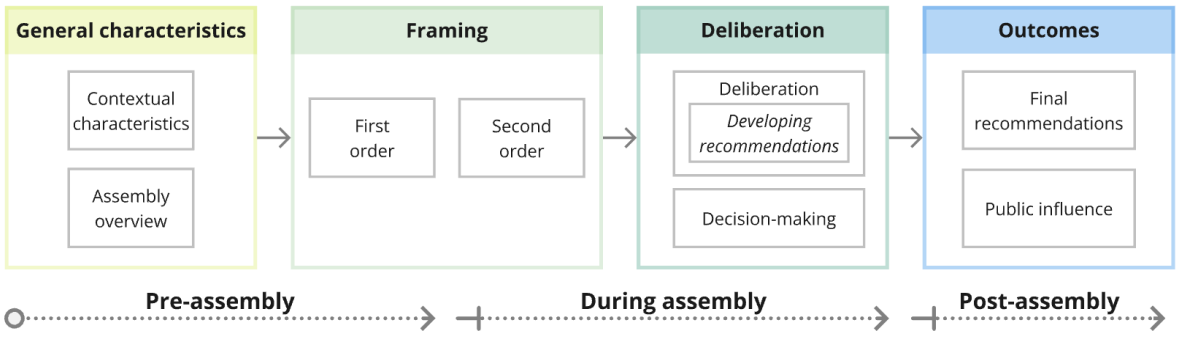
Building the analytical framework

To build the analytical framework, I followed the analytical division used by Caluwaerts and Reuchamps (2023) and OECD (2021), but that I adapted to framing for the purpose of this analysis. They define assemblies in terms of the input, throughput, and output of the deliberation. Input refers to elements that are 'put into' the deliberation, throughput is the deliberation itself, and output refers to the outcomes of the assembly.

Instead, this analytical framework first divided Smith's (2022) assembly characteristics following the analytical logic of input, throughput, and output, as depicted in **Figure *6***. Input was divided into *general characteristics* and *framing* based on their in/exclusion in Shaw et al.'s (2021) framing characteristics. Throughput was renamed *deliberation*, and output became *outcomes.* The general characteristics were divided into contextual characteristics and assembly overview. Furthermore, framing was divided into framing occurring prior to and during the assembly. To analytically isolate framing, I differentiate between the configuration and the execution of characteristics. Configuration refers to the setup that is *put into* implementation. For example, deliberation methods are the configuration of deliberation, while the act of deliberation itself is the implementation.

Figure 6

A conceptual division of how framing takes place within climate assemblies.



Second, this framework included by Caluwaerts and Reuchamps' (2023) evaluative criteria, divided following the same analytical logic. These criteria are not explicitly mentioned by Shaw

et al. (2021), I therefore divided them based on how closely linked they are to framing—e.g., *'epistemic completeness'* (evaluative) is logically relevant for *'information communication'* (framing)—the following sections elaborate on these links. Certain characteristics were merged or renamed for clarity. **Table *1*** shows the division of the assembly and evaluative characteristics and changes made. Third, all of Shaw et al.'s (2021) criteria were included as framing characteristics. All the characteristics are detailed in the following sections and form the basis of the analytical framework.

Table 1

The analytical division of, and any changes made to, the assembly characteristics and the evaluative criteria of climate assemblies to form the basis of the analytical framework.

Analytical division	Characteristic *(evaluative criteria are in italics)*	Changes made *(including justification)*	Source
General characteristics			
Contextual characteristics	- Purpose (link to policymaking) - Commissioning	/	(Smith, 2022)
Assembly overview	- Assembly team	- '*Governance'* and '*delivery bodies'* combined into '*assembly team'* for clarity.	
	- Public engagement	- '*Public engagement'* split into two: the first is one-way communication with the public.	
	- Scientific evaluation - Budget - Participant recruitment	/	
	- *Representativeness*	Addition of sub-characteristic: diversity of participants regarding attitude to climate.	(Caluwaerts & Reuchamps, 2023; Carrick, 2022)
Framing			
First order	- Task - Commitment to respond	/	(Smith, 2022)
Second order	- Duration - Structure	- Combined as *'assembly structure'* because they overlap.	
	- Evidence base	- Included in *'information communication.'*	
	- Public engagement	- '*Public engagement'* split into two: the second is two-way communication with the public (or consulting), included in *'information communication.'*	
	- Technology	- Included in *'information communication'* (sub-characteristic: format).	
	- *Openness of agenda*	- Renamed *'openness of scope.'*	(Caluwaerts & Reuchamps, 2023)
	- *Epistemic completeness*	- Included in *'information communication.'*	
	- *Contextual independence*	/	
	- Facilitation - Developing recommendations	- Included in *'methods for deliberation and developing recommendations'* and *'quality of participation.'*	(Smith, 2022)
Deliberation			
Deliberation	- *Quality of participation*	- Evaluative characteristic is based on data collections that occur during assemblies (e.g., non-participant observations). To achieve retrospective analysis, the characteristic is broadened into '*quality of deliberation*.' - The characteristics overlap and are combined into 'quality of deliberation.'	(Caluwaerts & Reuchamps, 2023; Smith, 2022)
Decision-making	- Decision-making - *Quality of decision-making*	- Characteristics overlap and are combined into *'quality of decision-making'*.	

Outcomes			
Final recommendations	- Final assembly report	/	(Smith, 2022)
Public influence	- Impact - Official response - Oversight of official response (by members)	*Outwith the scope of this research.*	
	- *Public endorsement* - *Political uptake* - *Policy implementation*	*Outwith the scope of this research.*	(Caluwaerts & Reuchamps, 2023)

Bottom-up versus top-down approach

When analyzing citizens' assemblies, scholars make an important distinction between a bottom-up or top-down design approach as this determines key design decisions and significantly shapes assemblies (Bussu & Fleuß, 2023; Cherry et al., 2021). Theoretically speaking, **bottom-up** assemblies involve citizens throughout the process and result in citizen-developed recommendations. They are more inclusive but hold the risk of being irrelevant to politicians. **Top-down** assemblies are initiated by a governing body, are fully predetermined and closely linked to the policy process, and entail pre-determined, expert-developed proposals for citizens to vote on. They are generally consultative, at risk of being politically manipulated, but will ideally lead to policy implementation. These approaches are summarized in **Table *2*** below. Today, there seem to be a mix of approaches that are becoming more complex and hybrid (Bussu & Fleuß, 2023). For instance, predetermined themes that are tweaked in a bottom-up setting (Caluwaerts & Reuchamps, 2023). Both approaches have their advantages: assemblies must retain a certain degree of deliberative autonomy so as not to be tokenized by politicians trying to legitimize their actions (Setälä, 2017b), but idealizing purely bottom-up assemblies ignores the potential benefits of including or working with top-down actors (Welp, 2023). The bottom-up/top-down distinction is a useful tool for conceptualizing aspects of assemblies and is relevant for framing (Cherry et al., 2021). It will therefore be used to *operationalize* characteristics in the following sections, e.g., the characteristic 'link to policymaking' can be bottom-up or top-down.

Table 2

Bottom-up versus top-down characteristics of citizens' assemblies.

Dimensions	Top-down assembly	Bottom-up assembly
Contextual		
Normative values informing CAs	Primarily epistemic: informing public decision-making based on 'enlightened' citizen deliberation.	Primarily democratic inclusion: bottom-up legitimacy of collectively binding laws/policies.
Core aim, relationship to institutions	Functionalistic: improving/ strengthening existing institutions.	Disrupting the status quo.
Actors		
Initiating actors	Public/state institutions.	Non-state/civil society.
Funding actors	Commissioning organization.	Crowdfunding, charity.
Policymaking		
Links to politics and policymaking process	Stronger links to policymaking, stronger alignment with existing policies.	Looser links to policymaking and political agenda.
Assembly design		
Openness of scope Process	Fully predetermined.	Co-production during the assembly process.

Note. Source: Based on Bussu & Fleuß (2023).

2.3.1 General characteristics

The general characteristics give an overview of the assembly and its contextual setting, as outlined in **Table 3**. The contextual characteristics show the context in which framing takes place. The assembly overview offers insights to understand its operations In addition to Smith's (2022) assembly characteristics, this framework included the deliberative context of the country, providing insight into its familiarity with deliberation. The literature suggests this familiarity influences the effectiveness and acceptance of deliberative practices (Stack & Griessler, 2022). A key characteristic is representativeness (Caluwaerts & Reuchamps, 2023). Deliberative democracy requires that all affected actors are given the opportunity to participate (Dryzek, 2011); citizens' assemblies achieve this through the quasi-random selection of participants, ensuring their diversity reflects that of the public. High representativeness is essential to fulfill the core value of inclusion and is crucial for quality deliberation (Caluwaerts & Reuchamps, 2023; Vrydagh, 2023).

Table 3

General characteristics of national climate assemblies.

Characteristics	Description	Measurement	Source
Contextual characteristics			
Purpose	Reason for assembly organization; what the assembly will be used for.	Document analysis	(Smith, 2022)
Commissioning	Commissioning body and reason for commission E.g., due to citizens' petition		
Deliberative context of country	The extent to which deliberation is present within the political sphere of the county.		(Stack & Griessler, 2022).
Assembly overview			
Assembly team	All non-participants members that helped prepare and carry out the assembly.	Document analysis	(Smith, 2022)
Communication	Communication with the public, most assemblies provide a range of information on a dedicated website, some produce summary videos and texts every weekend.		
Scientific evaluation	If any took place, by whom.		
Budget	Estimated budget.		
Overarching bottom-up/top-down approach	Whether the overarching design approach of the assembly was bottom-up or top-down, following Table X.		
Participant selection	Recruitment process, presence during final weekend, climate attitude included in selection criteria, honorarium.		(Bussu & Fleuß, 2023)
Representativeness	Discursive, epistemic, and socio-demographic representativeness of the public, including diversity of attitude to climate change.	Participant/population surveys, data from secondary sources.	(Caluwaerts & Reuchamps, 2023; Carrick, 2022)

2.3.2 Framing

Conceptualization

Shaw et al. (2021) describe framing in climate assemblies and national climate assemblies. They outline *what* information is framed, by *whom*, and *how*. The report mostly describes assembly characteristics that are 'doing' the framing, such as assembly structure (how) or experts (who). They also include *how* climate can be portrayed, such as by a technical frame, and the content being framed, such as themes.

In an attempt to clarify the concept of framing within climate assemblies, I make three analytical distinctions: elements that (1) **are *doing* the framing**, such as the format; (2) are ***frames***, such as technical frames; and (3) **are *framed***, such as information about a specific theme. All three form this report's definition of '*framing within climate assemblies.'* To illustrate, let us take the example of framing plant-based foods. Conceptually, it is a theme. This theme will be framed, for instance by showing a video of industrial chicken farming. Here, the video is the element doing the framing with an ethical frame. Plant-based foods have now been framed ethically. This analytical division makes framing more tangible in practice, making it relevant to a wider array of stakeholders.

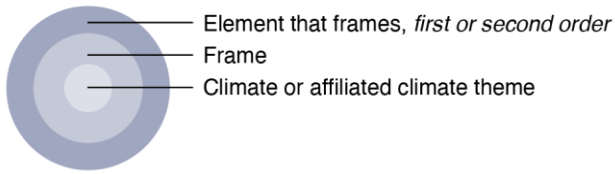
In practice

Information about themes is communicated, and thus framed, continually during assemblies (Shaw et al., 2021). I argue that information is the core of framing within climate assemblies: The key question is: *What* information is being framed? Information is operationalized by themes that include any *topic, subject or matter relating to climate change* that are addressed during the assembly. When framing occurs, all three components—the theme being framed, the element that frames, and the frame itself—are present as depicted in **Figure *7***.

To increase analytical clarity, I propose to divide framing into first and second order framing. I argue that framing in practice occurs in two ways: framing climate change as a whole (first order) and framing specific themes related to climate change (second order). **First order** sets the *framing tone* so to speak, i.e., by narrowing down the scope of climate. This occurs prior to the assembly (with some minor exceptions, for example if the scope is adapted by participants at the start of the assembly). **Second order** takes place during the assembly.

Figure 7

A conceptualization of an instance of framing occurring within a climate assembly.



Frames

Scholars mention the following frames as relevant for climate assemblies. All these frames can overlap, sometimes complementing each other—such as mitigation and adaption—or contrasting each other—such as technical or ethical. Shaw et al. (2021) show that the omission of certain frames in assemblies, e.g., fairness, is likely to lead to their omission in the assembly's resulting recommendations.

Mitigation and adaptation

To date, most national climate assemblies have focused on mitigation. Shaw et al. (2021) posit that communicating adaptation is more challenging and thus less likely to be present in recommendations (if mentioned). Romsdahl (2020) outlines that both are framed differently, and that they are contrasting but interrelated frames.

Temporality

Climate change can be given a temporality through terms like ‘urgency’ or with deadlines (Cherry et al., 2021), e.g. *‘achieve climate neutrality by 2040*.’ Framing climate targets within a 2050 timeframe versus a 2030 timeframe give two very different perspectives. Moreover, Cherry et al. (2021) question temporal framings in terms of scientific feasibility, outlining that specific assembly targets lack scientific support. For instance, the UK assembly framed their climate goal as 2050, whereas scientific evidence suggests it should be closer to 2030.

Technical

Technical frames convey the message that climate is to be understood in terms of expert knowledge or consensus and as a problem that needs solving (Cherry et al., 2021).Technical frames risk closing down the debate and omit areas that are inherent to addressing climate change—such as power, deeper reflections, links to everyday life, and emotional aspects (Blue, 2015). However, there is growing acknowledgement for local knowledge and a growing awareness that climate change holds diverse local meanings shaped by social and cultural contexts, specific to different communities, locations, and periods (Romsdahl, 2020).

Ethical

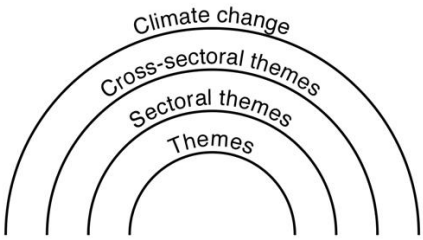
Ethical frames convey the message that climate change is a matter of right or wrong by opening up the discussion through questions about responsibility and values (Cherry et al., 2021). Notions of justice and fairness are important, notably because they are key for public support (Demski et al., 2015; Moberg et al., 2019; Sovacool et al., 2017). Adding personal or emotional stories gives participants a fuller, more relatable, picture of the scale of problems and impacts (Chapman et al., 2016; Shaw et al., 2021). Questions of ethics are inextricably linked to values and emotions, as they are unique to each person and determine how people perceive the environment (Corner et al., 2014; Mellier & Wilson, 2020). I therefore include these in my definition of ethical frames.

Additional climate frames

I add *thematic* frames, defined as narrowing the scope of climate change by framing it in terms of a specific theme(s). This influences the perceived importance of a theme (Shaw et al., 2021). Themes can be categorized as sectoral (e.g., housing) or cross-sectoral (e.g., social justice), with the latter being particularly significant as they can be relevant for all sectoral ones. **Figure *8*** illustrates these themes.

Figure 8

Hierarchy of themes in climate assemblies.



To develop the final list of frames for this analytical framework, I first incorporated the frames outlined by Hulme et al. (2018), as those mentioned by scholars for climate assemblies are sparse and vaguely defined. An exception is the 'global/collective scale' frame, which refers

to the global scale of responses and is of limited use in this context. The overlapping frames were combined. The developmental frame was defined more narrowly as 'global scale.' Finally, the frames were defined following Hulme et al. (2018), with slight additions.

Furthermore, frames can serve diverse purposes. Some highlight specific climate themes or emphasize priorities, but most frame climate change in terms of *'causes, impacts, and solutions.*' Indeed, most climate assemblies are solution oriented. Following Entman (1993), this report categorizes frames into those fulfilling **functions**, and following Hulme et al. (2018), those acting as **attributes**. I add **thematic** frames as a third category. The function frames define climate change in terms of causes, problems, solutions, or offer a moral view (Entman, 1993). The attribute frames act more like adjectives, for instance framing climate change in terms of '*urgency'*. I categorize *'mitigation/adaptation'* separately (rather than as a thematic frame), given their importance for climate change. The framings for the first two groups can be operationalized by the inclusion or exclusion of that specific frame. Thematic frames are operationalized by the inclusion of themes. Multiple frames can be present at a time. The frames are summarized in **Table *4***.

Table 4
Frames within climate assemblies and their functions.

Frame	Definition		Source
Function: define causes, problems, and solutions; offer a moral view Operationalization: in/exclusion.			
Technical	Causes	- (Fossil-fuel) technologies are a root cause of climate change.	(Hulme et al., 2018)
	Problems	- Climate change is a technical or expert-based problem.	(Blue, 2015)
	Solutions	- Technology and innovation are needed to address climate change.	(Hulme et al., 2018)
Scientific and factual[1]	Problems	- Scientific understanding of climate change is incomplete due to complexity and uncertainty.	
	Solutions	- Increasing scientific knowledge is necessary to address climate change adequately.	
Economic or financial[1]	Causes	- Climate change is an externality of economic growth and/or certain modes of production and consumption.	
	Solutions	- The quantification of costs/benefits of impacts and/or policies should be improved. - Economic and financial instruments can/should be used to address climate change.	
National or international security[1]	Problems	- Climate change is a geopolitical security risk.	
	Solutions	- Climate change requires new forms of state-level (or international) security responses.	
Institutional or governance[1]	Causes	- Structural and institutional inertia/problems are the root cause of climate change.	
	Problems	- Current regulations of climate policies are inadequate to address climate change.	
	Solutions	- Climate change requires new or improved forms of governance institutions.	
Communication[1]	Problems	- Climate science and risks are poorly communicated to the public. - Media representations of climate are problematic/biased. - Misinformation confused political/public opinion.	
Developmental[1] (global scale)	Causes	- Climate change is a byproduct of socio-economic development.	
	Problems	- Unequal development inhibits adequate climate responses.	
Ethical, values, and emotions (human scale)	Problems	- Climate change causes an unequal distribution of burdens (harming human health, well-being, and perceived human security).[2] - Climate change raises significant issues of procedural and/or distributive justice (e.g., burden-sharing).	

	Offer a moral view - People have a moral or ethical responsibility to future generations, nature, and/or the most vulnerable to mitigate climate change.	
Attribute Operationalization: in/exclusion.		
Mitigation or adaptation	- Defines climate change in terms of mitigation and/or adaptation.	(Shaw et al., 2021)
Temporal	- Defines climate change temporally as a short-, long-term, and/or urgent problem.	(Cherry et al., 2021)
Policy[1]	- Specific policy instruments and/or measures that are being/should be implemented to tackle climate change.	(Hulme et al., 2018)
Thematic Operationalization: in/exclusion of themes.		
Thematic frame	- Defines climate in terms of the themes that are in/excluded or prioritized over others.	(Hulme et al., 2018)

Note. (1) Frame proposed by Hulme et al. (2018); (2) this definition is originally part of Hulme et al.'s (2018) developmental frame.

Elements that frame

Elements that frame can do so in various ways. For instance, a broad versus narrow scope will frame climate change broadly or narrowly. The qualification of the elements that frame determines the ways in which framing occurs, enabling the identification of the frames and themes being framed. The elements that frame are described below and summarized in **Table *5*** and **Table *6***.

First order elements that frame

Link to policymaking process

Climate change can be framed based on its link to the policymaking process. A loose alignment with policymaking broadens the scope of the assembly but may reduce its relevance to policymakers (bottom-up assembly). In contrast, a tight alignment narrows the scope, enhancing the assembly's relevance to policymakers but making it more susceptible to political manipulation (top-down assembly) (Bussu & Fleuß, 2023; Cherry et al., 2021; Shaw et al., 2021). Additionally, engaging participants too late in the policy process, when meaningful changes can no longer be made, can negatively impact trust (Devaney, Brereton, et al., 2020). The type of commitment given to implementing recommendations also plays a role in framing the assembly's significance (Shaw et al., 2021). Scholars urge climate assemblies to have clear links to policymaking, specifically in terms of how policymakers intend to use and respond to the assembly recommendations (Cherry et al., 2021; Kuntze & Fesenfeld, 2021; Smith, 2022; Willis et al., 2022). Clear commitments from policymakers are important for participant recruitment and engagement, for generating public attention (Smith, 2022), and support for ambitious climate policies (Kuntze & Fesenfeld, 2021).

Task and scope

The assembly's **task** defines the public issue the assembly will work on. This generally takes the form of a guiding question such as *'How can we tackle climate change effectively?'* (Smith, 2022). It can frame climate in multiple ways, namely in terms of specificity or inclusion of specific elements. Research shows that having specific policy questions and objectives leads to more successful deliberative processes, enabling in-depth conversations about tangible measures and fostering practical and actionable responses (Devaney, Brereton, et al., 2020; Shaw et al., 2021). Citizens' assemblies are generally designed to result in specific, actionable proposals (Capstick et al., 2020) because vague recommendations are not easily verifiable.

Indeed, most climate assemblies are solution-oriented, as this fosters consensus (Bain et al., 2015; Kahan & Carpenter, 2017; Myers et al., 2012), helps participants work towards positive and concrete goals (Roser-Renouf et al., 2014), and receives more public interest (Devaney, Brereton, et al., 2020). Moreover, including or omitting specific elements in the task is likely to their inclusion or omission in the recommendations (Shaw et al., 2021). The task sets the foundation for the assembly's scope.

Setting the scope is not always explicitly specified in the literature. However, it is relevant for climate assemblies due to the broad nature of climate change and the fact that assemblies investigate a wide array of climate-related themes. The term 'task' used by Smith (2022) does not incorporate this fully. I borrow 'scope' from the literature about climate assemblies (notably Cherry et al., 2021; Elstub, Carrick, et al., 2021). However, they do not clearly define it and use it interchangeably with similar terms (e.g., issue scope, assembly scope, or agenda scope). It appears both papers refer to 'the breadth of the public issue the assembly is trying to tackle'. For clarity, I opted to define **scope as the range of themes the assembly deals with,** as this definition includes the breadth but also operationalizes it.

The scope can be further operationalized in terms of openness, i.e., breadth. To date, most national climate assemblies have framed climate change broadly (KNOCA, 2022). A bottom-up assembly will have a broader scope; a top-down will have a narrow scope. A broader scope opens up the discussion by including more diverse perspectives (Bryant & Stone, 2020). However, too broad a framing means dealings with large amounts of information and may complexify the task of coming up with distinct recommendations. Moreover, it will likely lead to a high number of recommendations, increasing the chances of selective uptake by policymakers (Shaw et al., 2021). Conversely, a narrower scope closes down the discussion and excludes related themes but will likely lead to more tangible results (Bryant & Stone, 2020). Additionally, narrow scopes do not question normative assumptions or political interests—this can be balanced out through diversified sources of knowledge (Blue, 2015; Cherry et al., 2021). The scope frames climate thematically, by in/excluding and prioritizing themes.

Table 5

First order elements that frame within climate assemblies including their operationalization and measurement.

Element that frames	Operationalization	Measurement	Source
Link to policymaking	Bottom-up or top-down: - Alignment to policymaking process (link to and relevance of existing policies etc.). - Commitment given to implement recommendations. - Timing of assembly vs. policymaking process.	- Externally: document analysis.	(Bussu & Fleuß, 2023; Cherry et al., 2021; Devaney, Brereton, et al., 2020; Shaw et al., 2021)
Task	- Specificity (e.g., goal, deadline, or policy objective). - Inclusion of a specific element.		(Capstick et al., 2020; Cherry et al., 2021)
Scope	- Openness of scope (bottom-up/top-down: extent of inclusion of participants and/or public in the setting of the scope). - Breadth. - Task (guiding question). - Themes.	- Externally: document analysis. - Internally: participant perception.	(Bussu & Fleuß, 2023; Caluwaerts & Reuchamps, 2023; Cherry et al., 2021; Shaw et al., 2021)

Second order elements that frame

Second order framing happens during the assembly itself and can be roughly divided into two phases. First, participants **learn** about climate change through the provision of balanced,

understandable, and evidence-based information given by scientists. Second, participants **consult** external stakeholders, such as civil society (OECD, 2020; Vrydagh, 2023).

Assembly structure

The assembly structure refers to the *configuration* of the assembly itself, meaning how participants address climate change, including participant configuration, duration, and location. The assembly structure is significant for multiple reasons. **First**, it will determine which themes are prioritized of the assembly (thematic framing). In climate assemblies, it is common practice to first address climate science before breaking down climate into around 3 to 6 themes, such as *mobility*, to guide the process (KNOCA, 2022). **Second**, it will strongly influence the framing of information by indirectly determining the amount of time, format and amount of information participants will engage with. Mismatches between duration, amount, and complexity of information lead to participants needing to 'rely' more on experts because they are unable to grasp everything fully by themselves (Shaw et al., 2021). **Third**, to make the most of the time available, assemblies often divide participants into smaller groups—or workstreams—that deal with separate climate themes: essentially creating mini assemblies (Smith, 2022) and likely presenting differing frames to each mini assembly. Dividing participants into workstreams can hinder the learning, deliberation, coordination of recommendations and their endorsement by assembly members, and the political uptake of their recommendations (Elstub, Carrick, et al., 2021). Overall, the assembly structure leads to multiple forms of framing.

Information communication

Information refers to the *content* that is communicated. Information is communicated by multiple *sources* using varying *formats*. The content itself can be qualified by the amount and its quality (epistemic completeness).

Participants engage with a variety of actors, such as scientists, who communicate information. The credibility of these **sources** influences how participants trust them (Markowitz & Guckian, 2018; Muradova et al., 2020), and levels of trust attributed to certain types of actors can vary by country. Trust is also driven by the source's level of authenticity; allowing participants to have a say in the selection of experts increases legitimacy and trust. (Shaw et al., 2021). Importantly, scientists are often perceived as the only legitimate source of knowledge about climate change (Kuntze & Fesenfeld, 2021). Scientists are involved in the assemblies in multiple ways, including as co-designers or as speakers and respondents to participant questions (Shaw et al., 2021). Sources frame information as credible thus shaping which information participants engage with.

Information is conveyed multi-modally, through **formats** such as presentations or flipcharts. Importantly, information communication mostly takes place in two-way or multi-dimension formats, such as through discussions with stakeholders (Shaw et al., 2021). Multi-modal communication can foster higher inclusiveness, accessibility, and convey multi-dimensional messages (DiFrancesco & Young, 2011; Hannigan, 2022; Mendonça et al., 2020; Pajnik, 2006). Certain formats are more suited to different types of information, for instance, science animations can effectively convey complexity, and narrative explanatory films (short videos explaining scientific facts through images/storytelling) hold viewers' attention and help them integrate knowledge (Boy et al., 2020). Emotions also play a role—Mellier & Wilson (2020) argue that assemblies should foster emotionally intelligent participation by engaging participants with their hopes and fears. Formats frame information by engaging participants differently, conveying different messages, and making information more accessible.

Epistemic completeness complements these characteristics and refers to the quality and extent of information participants receive to inform their deliberation (Vrydagh, 2023). It is key for high-quality climate deliberation and for national-level assemblies (Caluwaerts & Reuchamps, 2023; Lacelle-Webster & Warren, 2021), as having access to all the relevant information ensures participants achieve similar knowledge levels (Caluwaerts & Reuchamps, 2023) to be able to make informed and well-considered judgements (Lindell, 2023).

Contextual independence

Contextual independence evaluates whether the assembly was subject to any external framing, such as politicians pushing for a specific agenda. A high-quality assembly should, in theory, be void of any external influence (Caluwaerts & Reuchamps, 2023).

Methods for deliberation and developing recommendations

Climate can be framed by the methods used to deliberate and develop recommendations. For example, using fairness principles to guide the deliberation will likely lead to its inclusion in the recommendations. Furthermore, a (purely) top-down approach to deliberation will simply consult participants on predefined policy questions, whereas a bottom-up approach may lead to radical reform projects (Bussu & Fleuß, 2023). The multi-dimensional aspects of deliberation are key for enabling justifications, inclusion, and reflection (Shaw et al., 2021), for example varying group sizes fosters openness towards the arguments and views of others (Caluwaerts & Reuchamps, 2023). The methods will nudge participants in a certain direction.

Table 6

Second order elements that frame within climate assemblies including their operationalization and measurement.

Element that frames	Operationalization	Measurement	Source
Assembly structure	Configuration of participants, duration, location.	- Externally: document analysis.	(Shaw et al., 2021)
Information communication	Source - Sources communicating information (e.g., scientists, activists, advocates, and other stakeholders). - Bottom-up or top-down: choice of experts. Amount of information Format - Formats used for communicating information, including technology.	- Externally: document analysis.	
	Epistemic completeness - The extent to which participants have access to the relevant information, its quality and having access to experts and policymakers.	- Externally: document analysis. - Internally: participant perception.	(Caluwaerts & Reuchamps, 2023)
Contextual independence	- The process of deliberation and decision-making is free from outside pressures.	- Externally: document analysis. - Internally: participant perception.	
Methods for deliberation and developing recommendations	- Methods used. - Group sizes. - Bottom-up or top-down: extent of coproduction of the recommendations, from predetermined policy questions to	- Externally: document analysis.	(Bussu & Fleuß, 2023; Caluwaerts & Reuchamps, 2023; Shaw et al., 2021)

	fully citizen-developed recommendations.	

2.3.3 Deliberation

Deliberation entails participants engaging in lengthy deliberations to discuss policy measures, developing policy recommendations, and decision-making about final recommendations to transmit to politicians (OECD, 2020; Vrydagh, 2023).

Framing can occur during deliberation, referred to as deliberative framing. Therefore, it is crucial to define deliberation to accurately understand deliberative framing and their interconnection. For instance, deliberation entails considering everyone's arguments, but how does this dynamic shift with deliberative framing? By examining these factors, we can gain deeper insights into the interaction between framing and deliberation, and how they occur. Furthermore, as decision-making is intertwined with—and can significantly influence—deliberation, it serves as an important indicator of the quality of deliberation. These characteristics are shown in **Table *7***.

Deliberation

Deliberative democracy strives for authentic deliberations that should lead participants to, non-coercively, reflect on their preferences by engaging in communication that is acceptable to those with differing viewpoints (Dryzek, 2011). Deliberation entails mutual communication involving "*weighing and reflecting on preferences, values, and interests regarding matters of common concern"* (Bächtiger et al., 2018, p. 2) and refers to the process and outcome of conducting fair and reasoned discussions among participants (Bächtiger et al., 2018; Dryzek, 2002; Fishkin, 1991; Habermas, 1981; Mansbridge, 1983). Research shows that high-quality deliberation is crucial for the legitimacy of decision-making (Lindell, 2023). It fulfills the core value of deliberation and is also important for achieving that of inclusion (Vrydagh, 2023).

There is no Platonic ideal of good deliberation, and it evolves continuously. This report follows Dryzek (2015) Dryzek et al.'s (2019) criteria for deliberation, elaborated with further literature. First, deliberation should entail **participatory equality**: including everyone's arguments, perspectives, and interests (Bächtiger et al., 2018; Caluwaerts & Reuchamps, 2023; Dryzek et al., 2019). It can be enhanced by participants interacting with the public (increases the public's trust) and by ensuring participants have similar knowledge levels (Lindell, 2023). Second, **meaningful communication**—through mutual reciprocity and reflection of and between participants—must be present. Reciprocity means the mutual respect of participants in that they must be open-minded and respect other's views (Vrydagh, 2023), i.e., that participants *can* reach and be reached by those with differing viewpoints. This is achieved through mutual and active listening (Dryzek, 2015; Dryzek et al., 2019). This is the precondition for mutual reflection that encourages participants to look at things from various perspectives and necessitates understanding others' worldviews, perspectives, and values (Muradova, 2021). Mutual reciprocity and reflection allow participants to gain an understanding of contrasting arguments, meaning that if they do not agree, they will have a better understanding of the essence of their disagreement (Fishkin, 2018; Gutmann & Thompson, 2018). Third, deliberation should include **mutual justifications, clarification of opinions,** and **critical thinking**. Participants should justify their positions using arguments, seek for clarifications of opinions (rather than opinion change), and learn to critically assess information) (Lindell, 2023). Lastly, scholars advocate for a wider definition of deliberation that entails the use of personal stories, humor, storytelling, and rhetoric (Bächtiger et al., 2010; Dryzek, 2002). High-quality deliberation is hard to carry out in practice, underlining the

importance of facilitators whose role it is to enact these criteria (Caluwaerts & Reuchamps, 2023; Lindell, 2023).

Deliberative framing
Deliberative framing is operationalization following section 2.2.3.

Decision-making
In general, citizens' assemblies entail some sort of formal decision-making, most often through voting. Voting is not, in essence, a negative aspect. However, it is crucial that the deliberation phases outweigh the decision-making phases, and that minority views or arguments are/can be present in the final recommendations (Caluwaerts & Reuchamps, 2023). Giving space to a plurality of views is important because recent literature shows that seeking consensus risks resulting in recommendations that favor the status quo (Curato & Farrell, 2021, pp. 93–94). In practice, decision-making occurs throughout the deliberation, and in various forms, for example draft recommendations made in smaller groups requires some sort of consensus before being shared with the other participants (Caluwaerts & Reuchamps, 2023; KNOCA, 2022). Moreover, decision-making can influence deliberation and outcomes. For instance, starting off an assembly with a vote may lead to lock participants into their first opinions or using super-majority instead of majority voting has shown to lead to higher quality deliberations (Caluwaerts & Deschouwer, 2014). The quality of decision-making depends on the rule-type, frequency, occurrence, and bindingness of decision-making, as well as the presence of minority views in recommendations. Furthermore, the participant perception of recommendations can internally evaluate decision-making (Caluwaerts & Reuchamps, 2023).

Table 7
Operationalization of deliberation, deliberative framing, and decision-making within climate assemblies.

Characteristic	Operationalization	Measurement	Source
Quality of deliberation			
Role of facilitators	- Description of role of facilitators - Quality of facilitation	- Externally: document analysis, non-participant observation. - Internally: participant perception.	(Caluwaerts & Reuchamps, 2023)
Participatory equality	- Inclusion of everyone's arguments, perspectives, values, and interests. - Interaction with broader public. - Participants on similar knowledge levels.		(Bächtiger et al., 2018; Caluwaerts & Reuchamps, 2023; Lindell, 2023)
Meaningful communication: reciprocity and reflection	Participants: - Mutual respect of views. - Active listening of all participants - Open-mindedness towards differing views and to seeing things from others' perspectives. - Presence of internal reflection.		(Dryzek, 2015; Dryzek et al., 2019)
Mutual justifications, critical thinking, and clarification of opinion	Participants: - Presence of critical thinking, e.g., questioning evidence rather than accepting it. - Use and improvement of justifications for arguments and opinions.		(Bächtiger et al., 2018; Dryzek, 2015; Dryzek et al., 2019; Vrydagh, 2023)
Non-rational deliberative elements	Inclusion of: - E.g., presence of personal experiences, humor, storytelling and rhetoric.		(Bächtiger et al., 2010; Dryzek, 2002)
Presence of deliberative framing			
Perspectives, meanings, values, and emotions	- Presence of manifold perspectives, meanings, values, and emotions.	- Externally: document analysis, non-	(Romsdahl, 2020; Corner et al. 2014)

	- Consideration of manifold perspectives, meanings, values, and emotions. - Extent to which participants grasp and reflect on diverse perspectives, meanings, values and emotions.	participant observation, script analysis. - Internally: participant perception.	
Awareness of dominant frames	Extent to which participants are: - made aware of dominant frames. - comprehend and reflect on the influence of dominant frames on their understanding of environmental challenges.		(Blue & Dale, 2016; Collins & Ison, 2009; Romsdahl, 2020)
Consideration of participants' positionalities	Extent to which participants are: - made aware of their positionalities. - comprehend and reflect on the influence of their positionality on decision-making.		(Romsdahl, 2020)
Role of experts	Extent to which experts: - engage in listening to participants. - include the context of information.		(Bellamy & Lezaun, 2017; KNOCA, 2024)
Role of facilitators	Extent to which facilitators: - are aware of dominant frames and comprehend their influence on their roles.		(Romsdahl, 2020)
Quality of decision-making			
Decision-making	Deliberation outweighs decision-making - Frequency - Occurrence - Rule type - Bindingness	- Externally: document analysis, non-participant observation. - Internally: participant perception.	(Caluwaerts & Reuchamps, 2023)
Minority views	- Presence minority views and/or dissenting opinions in recommendations.		
Participant perception of recommendations	- Participants' ownership and/or agreement with the recommendations.		

2.3.4 Outcomes

The outcomes of the assembly refer to what comes out of the assembly, meaning the assembly report and how the assembly influences the public (OECD, 2020; Vrydagh, 2023). This report will limit its analysis to the assembly report and its policy recommendations.

Public influence

Citizens' assemblies must result in some sort of public influence, their third core value, to be perceived as legitimate if they are to be sustainable and improve democracy. Without meaningful public influence, assemblies can devolve into tokenism, leading to frustration among participants and the broader public (Setälä & Smith, 2018). To achieve public influence, citizens' assemblies are designed to produce a tangible result for the public: The participants are supposed to formulate a collective decision concerning a public issue (Vrydagh, 2023). For national citizens' assemblies, this takes the form of a list of detailed policy recommendations that include abstract or concrete proposals and ideas for policymaking, including a justification or short explanation (KNOCA, 2022; Vrydagh, 2023). The recommendations are published in an official public report that is delivered to policymakers and published online, available to all. This assembly report is the vessel through which citizens' assemblies influence the public and represents the 'public will' (Vrydagh, 2023).

Although to date most assemblies have resulted in little influence, assemblies have the potential for many types of influence. Vrydagh (2023) proposes a broad definition for public influence: any effect the assembly has on the public. This means it can include more abstract types of influence, such as distilling reasoned and informed arguments from citizens deliberation, or more concrete, such as political uptake, policy implementation, and public

endorsement (Vrydagh, 2023). As the recommendations in the assembly report are the point of departure for public influence, this emphasizes the importance of their content. I propose to conceptualize the assembly report, the so-called public will, as how the participants frame climate change. It is this *framing of climate change* that paves the way for public influence.

The assembly report

Caluwaerts and Reuchamps' (2023) evaluative criteria implicitly include the recommendations, but do not provide further analytical tools for gaining insights into the recommendations. I therefore turn to the evaluation reports of national climate assemblies. Most look at participants' perceptions of the recommendations, such as their agreement with the final recommendations—e.g., the evaluations of the UK (Elstub, Farrell, et al., 2021), Scottish (Andrews et al., 2022), Austrian (Buzogány et al., 2022), and Luxembourgish assemblies (Paulis et al., 2024). Others looked at the relevance of the recommendations to policymaking or to the public—e.g., evaluations of the Irish (Devaney, Torney, et al., 2020) and French assemblies (Fabre et al., 2021)—which coincides with public influence (outwith the scope of this research). However, the Austrian report goes further and analyzes the recommendations in terms of policy instruments and evaluates them against an external anchor (Buzogány et al., 2022). Due to the explorative nature of this research, I opted to analyze the recommendations twofold to ensure a comprehensive dataset: 1) in terms of content, and 2) as a qualitative assessment. The content analysis investigates topics, themes, and frames. The qualitative assessment first combines the evaluation criteria for recommendations mentioned above. Second, it incorporates two additional criteria: abstract/concrete (evaluating whether the recommendations are actionable) and incremental/transformational (assessing the degree of change proposed). These characteristics enhance the depth and comprehensiveness of the assessment and qualify how the assembly report framed climate change, as outline in **Table *8***.

Table 8

Operationalization of the outcomes of a climate assembly.

Characteristic	Operationalization	Measurement	Source
Qualitative assessment	- Outline of the report. - Participant perception of recommendations. - Objections (inclusion and justification). - Abstract/concrete (clarity, inclusion of steps, deadlines, or measurable goals). - Incremental/transformational. - Policy instruments (regulatory, subsidy-based, tax-based, informational policy instruments*, other/several). - In comparison to status quo (in terms of novelty or improvement) or external anchor (e.g., compared to scientific policy proposals).	- Externally: document analysis. - Internally: participant perception.	(Buzogány et al., 2022; Kirchengast et al., 2020)
Content	- In/exclusion of topics and frames.	- Externally: document analysis.	/

**Policies attempting to influence behavior through information provision* (Kirchengast et al., 2020)

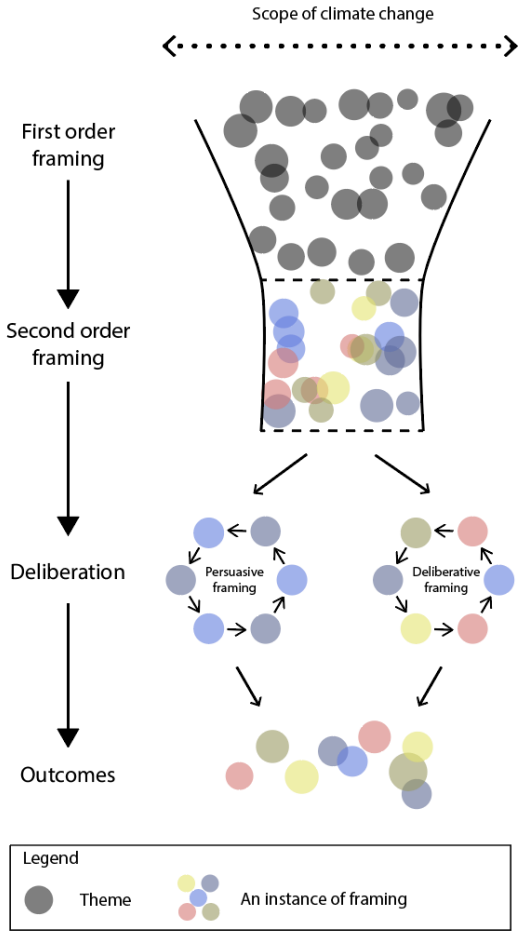
2.4 Conceptual framework

In climate assemblies, framing occurs continuously through a multitude of elements that frame themes using a certain frame. Thereby, climate change—and the themes that constitute it—are continuously framed throughout the assembly, shaping how the assembly narrows down the scope of climate change into specific recommendations. The key components of framing

within climate assemblies are outlined in the analytical framework in the previous section and depicted in **Figure *9*** below, thus answering research question 2.

Figure 9

Conceptual framework: How framing occurs within climate assemblies—the color represents various ways of framing climate change.



3 Methodology

3.1 Research design

This research is an **explorative case study** investigating how framing occurs in climate assemblies, employing a pragmatist approach to create credible, reliable, and relevant data that becomes 'usable knowledge' (Clark et al., 2016; Saunders & Tosey, 2013). The research data were mainly qualitative, as this is better adapted of the explorative and descriptive nature of the research questions (Saunders & Tosey, 2013). It allowed for an in-depth understanding of the subject through detailed data gathering (Wells et al., 2021).

To answer the research questions, I first explored a single case study. The case provided the opportunity to develop a nuanced understanding of how framing occurs in practice—for instance, it became evident that the communication of information happens continuously and that framing variables overlap. The case was analyzed using an abductive approach as it allows for iteration between observations and theory, to slowly build theory based on observations (Timmermans & Tavory, 2012). This enabled the creation of a robust analytical framework grounded in empirical evidence—increasing validity—and equipped to address the complexities of the subject matter, answering the second research question. The exploration and the application of the framework to the case demonstrated the viability and effectiveness of the developed framework, provided additional insights and empirical evidence, and enabled the formulation of practical recommendations for practitioners. These elements addressed the third and fourth research questions.

3.2 Case selection

KNOCA (2022) provides a generic database for national climate assemblies and includes 13 potential cases. KNOCA also provides succinct descriptions of each assembly that were used for the case selection. 7 cases were excluded: 3 due to their narrow scope (specific aspects of climate, e.g., biodiversity and not climate change), 2 due to languages I cannot speak, 1 due to the low number of participants (45)[1], and 1 because it is assumed to be a case of persuasive framing (the UK assembly participants voted on predefined policy options). The remaining cases are depicted in **Table 9**.

To select a case suitable for analysis, it must meet the following criteria: it must provide accessible data to enable thorough analysis, and it should not be overly particular, ensuring the research's reliability, validity, and the potential for developing a tool applicable to other cases. Data availability is key for case selection for several reasons. **First**, once assemblies are concluded, accessing data becomes challenging because there is no longer active oversight. For instance, as of the date of this writing, the Scottish assembly website is archived, and their email address is inactive (info@climateassembly.scot) (see National Records of Scotland, n.d.). **Second**, data availability about the process varies. Many have websites including extensive information and some have next to none, e.g., the Luxembourgish assembly (see Klima-Biergerrot, n.d.). Importantly, there is no publicly available data concerning deliberation, excluding snippets of information–for instance, the French assembly provided small videos of deliberation (see Convention Citoyenne pour le Climat, n.d.-a). A few private communications confirmed that I would gaining access to data such as meeting minutes from the facilitators would be highly improbable (A. Buzogány,

[1] Citizens' assemblies are defined as including 100 people or more to ensure sufficient participant diversity (Vrydagh, 2023).

personal communication, February 21, 2024; N. Andrews, personal communication, February 26, 2024; E. Paulis, personal communication, February 27, 2024). This meant I would have to rely on secondary data. An important secondary source for climate assemblies lies with their evaluation reports. Again, assembly evaluations vary in their approaches and content (see Buzogány et al., 2022; Carrick, 2022; Paulis et al., 2024). For example, the French assembly did not commission an official evaluation, but led to several papers, resulting in multiple, but incomplete, evaluations (Carrick, 2022). The case selection table therefore includes data availability, main characteristics, and the main criteria relevant for framing that are readily available (using KNOCA's database). The latter include the overarching design approach (as this influences most assembly characteristics), the task, scope, and the framing of these two.

The final case selection was made as follows. The Irish and German cases were excluded due to their particularities. The Irish assembly lasted 4 days, i.e., less than half that of the average duration. The German assembly is the only bottom-up assembly (and has low data availability). France was excluded because its evaluation reports lack adequate standardization (see Fabre et al., 2021; Giraudet et al., 2021; Saujot et al., 2020), it underwent significant organizational changes due to COVID, and did not include cross-sectoral themes[2] (KNOCA, 2022). The Austrian assembly was ultimately selected as it was the sole assembly for which I gained access to non-participant observation data (P. Scherhaufer, personal communication, February 22, 2024).

[2] The assembly originally has a workstream considering cross-sectoral themes (finance and governance), but this was suspended due to tensions between participants (KNOCA, 2022).

Table 9

Selection criteria for selecting a case study to analyze framing within a national climate assembly.

Case and main characteristics Design approach, year, duration	**Task and scope**	**Framing of the task and scope**	**Data availability**	**Source**
Ireland Mainly top-down 2017, 4 days, in-person	- *How the State can make Ireland a leader in tackling climate change.* - 3 sectoral themes: energy sector; agriculture; transport.	- None.	- Process: medium - Research report: medium	(Carrick, 2022; KNOCA, 2022; The Citizens' assembly, n.d.)
Luxembourg Mainly top-down 2021-2022, 10 days, in-person	- *To review Luxembourg's current climate commitments and develop possible additional proposals.* - 5 sectoral themes: agriculture and forestry; renewable energies/decarbonization; sustainable construction; waste management; mobility/transport) - Inclusion of certain cross-sectoral themes.	- Inclusion of cross-cutting themes (scope).	- Process: medium - Research report: high	(Klima-Biergerrot, n.d.; KNOCA, 2022; Paulis et al., 2024)
Austria Mainly top-down 2021, 12 days, in-person	- *To propose measures to reach climate neutrality in Austria by 2040.* - 5 sectoral themes: mobility; housing; energy; production/ consumption; food/land-use. - Inclusion of some cross-sectoral themes.	- Inclusion of cross-cutting themes (scope).	- Process: medium - Research report: high	(Buzogány et al., 2022; Carrick, 2022; Der Klimarat, n.d.; KNOCA, 2022; Praprotnik et al., 2022)
Germany Fully bottom-up 2021, 6 days, fully online.	- *Making recommendations for how Germany can fulfill its contribution to the goals of the Paris Climate Agreement.* - 4 sectoral themes: mobility; buildings & heating; energy production; food production. - Consideration of cross-sectoral themes.	- Inclusion of social, economic, and environmental factors (task).	- Process: low - Research report: very low	(Bürgerrat Klima, n.d.; Carrick, 2022; KNOCA, 2022)
Scotland Mainly top-down 2019, 14 days, fully online.	- *How should Scotland change to tackle the climate emergency in an effective and fair way?* - 3 sectoral themes: diet/lifestyle; homes/communities; work/travel.	- Fairness (task).	- Process: medium - Research report: high	(Carrick, 2022; KNOCA, 2022; National Records of Scotland, n.d.)
France Mainly top-down 2019-2021, 15 days, mix of in-person and online	- *To define measures for France to achieve a cut in greenhouse gas (GHG) emissions by at least 40% by 2030 compared to 1990, in a spirit of social justice.* - 5 sectoral themes: housing; labor/production; transport; food; consumption.	- Social justice (task).	- Process: medium - Research report: medium	(Carrick, 2022; Convention Citoyenne pour le Climat, n.d.-b; KNOCA, 2022)

3.3 Operationalization

The operationalizations for the concepts are outlined in the analytical framework. However, as this is a proof of concept, and due to data and time limitations, certain elements were operationalized more succinctly for this research. First, the specific functions of frames were not investigated. Second, the framed information was operationalized as high-level themes rather than topics. When applying the framework, framing was operationalized following **Table *10*** below.

Table 10

The operationalization of framing within climate assemblies.

Element that frames *(first or second order)*	**Qualification of framing**	**Frame**	**Framed theme**
E.g., scope	*E.g., themes included in the scope.*	*Any frame, e.g., technical frame.*	*Climate or affiliated climate theme, e.g., plant-based foods.*

3.4 Data collection and data sources

Researching climate assemblies calls for a wide variety of data sources to give extra depth and enable data triangulation (Pickering, 2022). All types of data sources mainly provided qualitative data and were primarily accessed via desk research. Where possible, data from primary sources were used, but, due to low data availability, data from secondary sources provided an important complement. **Table *11*** shows the data sources.

When collecting data, the reliability of sources was carefully considered. Less reliable sources were acknowledged and treated accordingly. For example, during the interviews, normative questions were asked to both interviewees, whereas factual questions were asked only to one. Furthermore, due to low data availability, this report relied on secondary data. They stem from academic (BOKU and UWK) or academic-adjacent settings (KNOCA) and were therefore considered trustworthy. The evaluation reports provide both an external (researchers' evaluation) and internal (participant perceptions) assessment and, combined, give a good overview of the assembly. The non-participant observation data include 34 observational units (all loosely following the same observation guideline) and cover all weekends, but do not cover all sessions and sometimes include vague observations. This dataset therefore only gives insights into part of the process and includes, by default, the bias of the researcher. This limitation was addressed by excluding information that was misrepresentative of the entire assembly to prevent misleading results. Reliability and potential biases of sources are mentioned in the table.

The data collected from these sources were merged to obtain the results and cannot be separated succinctly. Consequently, the table specifies which sections of the results each source contributed to. The data collection process happened in the following order. **First**, I went through the primary and secondary sources thoroughly. These sources were selected as they contained the largest amount of information concerning the assembly (e.g., the assembly website). The relevant information for the research was collected as chunks of data (as quotes or paraphrased bullet-points) and stored in tables. **Second**, (interview) questions were formulated to address specific gaps or further explore themes identified in the initial data. Two members of the assembly team with different roles and expertise were interviewed. Both

interviews followed the same interview protocol (see Appendix A), with slight adaptations during the interview based on the expertise of the interviewee. The interviews were semi-structured to be able to also gather additional insights on unforeseen themes, enabling a more comprehensive analysis. The interviews were auto transcribed (with the interviewees' consent). Additionally, questions were emailed to the researchers that collected the non-participant observation data (see Appendix B). This elucidated confusions and added insights concerning the data. The data from the interviews and questionnaires were collected following the same procedure detailed above. **Third**, a few supplementary sources were used to fill in further gaps and triangulate the data (sourced directly in the results). This comprehensive approach to data collection, which involved thoroughly exploring the case to gather extensive information, enabled accurate identification and extraction of the necessary data. This method largely mitigated the risk of cherry-picking, except for deliberation data, where limited data availability necessitated selective use. The use of multiple sources, consistent data collection, and highly detailed data contribute to both the reliability and validity of the research.

Table 11

Data sources used for the collection of data concerning the Austrian climate assembly.

Data *Title and main content*	**Format** **Date** **Source**	**Reliability and potential bias**	**Source abbreviation**	**Used for results sections[1]**	**See appendix**
Primary sources					
Austrian climate assembly final report Includes: general description of the assembly, and list of recommendations.	Report June 2022 Der Klimarat	Potential bias in normative assessments, possible positive bias.	(ARGE Klimarat, 2022)	1-4	
Assembly website Includes: videos, texts, and PDF documents about the assembly.	Webpage n.d. Der Klimarat		(Der Klimarat, n.d.)	1-3	Full list of website sources used are in Appendix C.
Secondary sources					
Evaluation Report of the Austrian Climate Citizens' Assembly Assessment of input, process, and output Includes: descriptive and evaluative data concerning the assembly.	Report November 2022 Institute of Forest, Environmental, and Natural Resource Policy (BOKU)	Bias of researchers.	(Buzogány et al., 2022)	1-4	
Non-participant observation data Includes: Notes (following an observation guide) for each observation unit, total of 34 observation units for the whole assembly.	34 word documents January – June 2022 BOKU researchers		Omitted for privacy reasons	2-3	
Evaluation Report of the Austrian 'Klimarat', Assessment of the Perspectives of the Members and the Public Includes: report concerning the participant perceptions of the assembly.	Report August 2022 University for Continuing Education Krems (UWK)		(Praprotnik et al., 2022)	1-4	
KNOCA Austria climate assembly	**Website** n.d. KNOCA	Grey literature.	(KNOCA, n.d.-b)	1-2	

Includes: general data about the assembly.					
Interviews and questionnaires					
2 Expert interviews with assembly organizers Includes: specific details about the assembly.	2 interviews and transcripts 08.04.24, 16.04.24	Personal bias, challenges to recall information 2 years later.	Omitted for privacy reasons	1-3	Guideline in appendix A.
Q&A with BOKU researcher Includes: specific details about the non-participant observation data.	2 email Q&A exchanges 03.4.24, 22.04.24	Personal bias.		2-3	Questions in appendix B.

Note. (1) Section 1 = general characteristics, 2 = framing, 3= deliberation, 4 = outcomes.

3.5 Data analysis

General characteristics and framing

The initial stage of data analysis involved analyzing the chunks of data from the data collection using content analysis to extract relevant information following the analytical framework. Concurrently, a timeline of the assembly was constructed to understand the sequence of events (not included in this report). To ensure the reliability and validity of the data, triangulation was employed to identify and address inconsistencies and mitigate potential biases. As previously outlined, several iterations of analysis were performed during this phase to refine and enhance the analytical framework as well as the results.

I identified framing following **Table *10*** in the operationalization section, i.e., identifying the three elements of framing in parallel. In general, framing was identified by qualifying the 'elements that frame' and identifying the related frames and framed themes, but it was also identified through frames. The elements that frame could be linked to multiple frames and themes. The themes were first identified using the themes the assembly considered (the scope), as outlined by the assembly report, with additional themes incorporated as they emerged.

Recommendations

Each recommendation was analyzed using content analysis and transferring the data into Microsoft excel. **First**, they were assessed according to the qualitative assessment criteria outlined by the analytical framework. **Second**, the topics, themes, and framings were identified. Themes were coded based on the themes identified during the first part of the analysis for coherence. Themes were subdivided as main, secondary, and inclusion themes, the latter meaning the theme was only briefly mentioned. Topics were coded by summarizing the main topic of the recommendations. The topic codes were adjusted following a first round of coding to merge similar codes. Frames were coded following the analytical framework. **Third**, I used the software R to summarize the results. General results, namely for the qualitative assessment, were achieved using frequency counts for each criterion. Data concerning the content were first explored using frequency counts to gain an overview of the results and then plotted as graphs. The co-occurrence of frames in recommendations were explored by using the heatmap function of R.

Determining additional insights

The exploratory nature of the research necessitated casting a wide net for data collection. Consequently, the comprehensive data collection and analysis led to additional insights into framing. These include specific observations that allow for a more in-depth understanding of the framing; they were incorporated into the results.

3.6 Ethical considerations

All data collection and data management practices were in line with GDPR regulations. This report used two sources of data that were subject to privacy concerns. First, the data collection through interviews followed Utrecht University's guidelines on informed consent (see Appendix D). Second, the use of data collected by a third party (non-participant observation notes concerning the Austrian climate assembly) followed the conditions outlined by Utrecht University's data transfer agreement (see Appendix E). The data were handled and stored securely, following Utrecht University's data management guidelines.

4 Results

4.1 General characteristics

The general characteristics of the Austrian national climate assembly, hereafter the assembly, are described below and summarized in **Table *12***. The results answer research question 3.

Contextual characteristics

The government organized the assembly in response to a citizens' initiative[3] to consult the Austrian population about climate protection, a decision ratified by parliament. The assembly only garnered partial support within the government, leading to a relatively weak mandate and no clear definition of the assembly's purpose. This was the first national citizens' assembly in Austria (Clar et al., n.d.), meaning its novelty introduced significant uncertainties, particularly regarding its effectiveness and implementation, despite it being formally integrated into the political framework. The *Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation, and Technology* (Bundesministerium für Klimaschutz (BMK)) took the helm in organizing the assembly, thus becoming the de facto link to the government. The BMK led the process without inter-ministerial coordination—partially due to time constraints—meaning that the assembly was, from its inception, predominantly influenced by the BMK, its minister, and their affiliated party, the Greens. In Austria, the political environment at the national level is not participatory. An interviewee said that politicians often misuse participatory events, such as the assembly, in cross-party disputes. However, at the regional levels, there are more participatory processes, especially in Austria's westernmost state, Vorarlberg (BMK, n.d.-a).

Assembly overview

The Austrian climate assembly took place in 2022 over the course of 6 weekends. The organization of the assembly took place under time constraints, and organizers complained of too little time for the organization and implementation. The organizing committee oversaw the whole process and coordinated the rest of the assembly team. Coordination between the facilitators and scientists was necessary, as they did not speak the same language. The assembly itself took place during the COVID-19 pandemic, leading to stricter participant selection and absences, but there were no severe impacts on the overall dynamics of the assembly. Two scientific evaluation reports analyzed the assembly process and paint a positive picture of the assembly. The assembly was mainly top-down: launched, fully funded, and organized by the government. This included the design of the assembly and the selection of the scientific advisory board. However, it also included certain bottom-up aspects, namely a public consultation. Overall, the assembly showed low representativeness as the participants were not fully representative of the Austrian population, specifically in terms of attitude to climate, showing higher levels of climate pre-occupation than the average Austrian.

Table 12

General characteristics of the Austrian national climate assembly.

Characteristic	Description
Contextual characteristics	
Purpose	- Organized in response to demands from a citizens' initiative (2018-2020). - No further clear aim for the outcome of the climate assembly.

[3] Citizens' initiative to launch the climate assembly: https://klimavolksbegehren.at/

Commissioning	- Federal Ministry for Climate Action (BMK), on behalf of the Austrian Parliament.
Deliberative context of country	- Political environment at the national level is not very participatory.
Assembly overview	
Assembly team	- Organizing committee - Facilitation consortium - Scientific advisory board - Stakeholder advisory board - Public relations agency - 2 Civil society engagement officers - 1 Public official from the Ministry
Communication	- A public relations team contracted for length of assembly to organize press-conferences, connect media and journalists, and update the website regularly. - Two civil society engagement officers communicated with various stakeholders (regional governments, NGOs etc.) through meetings and a newsletter.
Scientific evaluation	- 2 reports by independent academic institutions, co-funded by the European Climate Foundation (ECF) and the Austrian Government
Budget	- € 2 million
Overarching bottom-up/top-down approach	- Mainly top-down approach with a few bottom-up aspects.
Participant selection	- Recruitment process: Random stratified sampling through 2-stage civic lottery - Present during final weekend: 88 - Climate attitude included in selection criteria: No - Received honorarium: 100 € per weekend
Representativeness	- Broadly representative concerning: gender, level of education, income, and (to some extent) place of residence. - Not fully representative concerning: age, covid-vaccination, migration background, attitude to climate and politics (participants showed higher interest)

4.2 Framing

First order framing

First order framing framed climate change broadly, namely with a broad scope, task, and no specify policy frame. **Table 13** summarizes first order framing.

In terms of **links to policymaking**, the assembly presented no specific framing. One important law is the 2011 Climate Change Act (Klimaschutzgesetz) that was updated in 2017 and defines maximum emissions levels until 2020 (2 years prior to the assembly). The BMK states that that this law is not formally expired, and that the law's general coordination and reporting obligations continue to apply (BMK, n.d.-b). However, in essence, Austria has no legally binding climate targets at the time of this writing (Parlament Österreich, 2024) (which led to the citizens' initiative for a climate assembly). During the set-up of the assembly, this Climate Change Act was supposed to be updated, and with it, the establishment of a climate cabinet. This cabinet would have been the point of contact for the assembly, facilitating inter-ministerial coordination (rather than the BMK). Had this been the case, the assembly would have likely included policy frames in alignment with this law, but this was not the case. The government committed to replying to the assembly recommendations (later replying to each recommendation (see BMK, 2022)), but had no legal obligation to implement them.

The **task** asked the participants to propose measures to reach climate neutrality in Austria by 2040. It captures the BMK's original task; they had asked the organizing committee to base the task on 1) the citizens' initiative and 2) the government program's climate protection measures and goals included. The **scope** consisted of general, sectoral, and cross-sectoral themes. It was predetermined by the organizing committee who set the scope based on previous national assemblies, Austria's high-emitting sectors, and themes with strong connections to the everyday lives of citizens. Participants were able adjust—and broaden—the scope by adding themes during weekend, 1 doubling the number of cross-sectoral themes. The interviews showed that the broad scope made climate relevant to everyone—every

participant was able to connect to certain parts of climate. Furthermore, participants were particularly interested in themes they had a personal link to. The task and scope framed climate change in terms of 'climate neutrality', thematically (broad framing but limited to specific themes), temporally, at the individual and national level, and mainly as mitigation.

The results show two additional instances of framing. During the first weekend, participants decided on a 1) **collaboration agreement** (Vereinbarung für's Miteinander) to determine rules for working together (1), and 2) an **impact manifesto** (Wirkungsmanifest) to guide their work. Both included new frames that were different from the task and scope.

Table 13

First order framing of climate change within the Austrian climate assembly.

Elements that frame	Qualification of framing	Frames present
Link to policymaking	Mostly bottom-up: - Informal link to the outdated, thus irrelevant, Climate Change Act. - No formal commitment given to implement the recommendations beyond replying.	- No specific policy frame or other frame.
Task	Task: - "What do we need to do today to live in a climate-neutral future tomorrow? Proposing measures to reach climate neutrality in Austria by 2040." (1, p. 11, author's translation) Specificity: - Specific goal: climate neutrality - Deadline: 2040 - Inclusion of additional elements: none.	- Thematic (broadens) - Mitigation - Temporal (short- and long-term) - Climate neutrality - National level
Scope	Bottom-up/top-down: - Scope predetermined by the organizing committee in coordination with the scientific advisory board (top-down). - Participants able to add themes or topics to the scope during weekend 1, slightly adjusting the scope (bottom-up).	- Thematic - Individual level
	General - Climate science - Mitigation - Environmental psychology - Systems thinking Sectoral - Energy - Production/ consumption - Food/land-use - Mobility - Housing Cross-sectoral - Social justice - Global responsibility - Circular economy - Climate damaging subsidies - Education[1] - Health[1] - Sufficiency[1] - Acceleration of implementation[1] - Fundamental Right to Climate Protection[1]	
Collaboration agreement[2]	Principles for cooperation - *Respect, openness, tolerance for different perspectives, humor as an ingredient for successful cooperation, a focus on the big picture, intergenerational thinking, results-oriented work, and encouraging themselves and others to take action.*	- Intergenerational - Individual level - Thematic (broad)
Impact manifesto[2, 3]	Goals - We want to make feasible, effective, and socially just content proposals to politics." - We want to generate attention. - We want to promote a change in public awareness. - We want to increase the willingness in politics for rapid, effective climate protection measures.	- Feasibility - Effectiveness - Social justice - Communication - Temporal

Note. (1) Themes added by participants during weekend 1, (2) characteristic not included in the original framework, (3) (ARGE Klimarat, 2022, p. 7 author's translation)

Second order framing

The second order elements that frame are detailed below and in **Table *14*** and **Table *15***.

Assembly structure

The assembly was structured as follows. Participants first learned about general climate science and the sectoral themes all together. Then they were split up into 5 workstreams for the main deliberations and the developing of recommendations, each workstream tackling one sectoral theme. Participants were divided into workstreams due to the complexity of climate change, allowing each group to dive deeper into their theme within the timeframe. Informal learning, consultations, and deliberation happened in various participant configurations, including plenaries, workstream groups, and self-selected subgroups. These phases took place iteratively, with the assembly ending with deliberations and final decision-making. The structure framed climate change thematically by prioritizing the workstream (sectoral) themes and overshadowing cross-sectoral themes, for instance by allowing more time to learn about the sectoral themes. The structure also made participants see climate from the perspective of their workstream, rendering each workstream the unofficial experts for their sectoral theme.

Table 14

The assembly structure of the Austrian climate assembly.

Activity	Weekend						Thematic frames	Configuration of participants	Location
	1	2	3	4	5	6			
Formal learning 8 formal lectures of 16-50 minutes and Q&As							General & sectoral themes	In plenary	In person, alternating weekends between Vienna and Salzburg.
Informal learning Exchanges between experts, facilitators, and participants							All themes	In plenary and in workstream divisions	
Stakeholder and politician consultations Multimodal exchanges								Self-selected division	
Public consultation Engaging with the public opinion through an online public poll								Workstream division	
Deliberation Includes developing recommendations, started w/e 3								Mainly workstream division and cross-stream meetings	
Final decision-making For the final recommendations							All themes	In plenary	

Information communication

The communication of information took place during the learning and consultation phases. These were predetermined (top-down) but included a public consultation that opened up the scope (bottom-up). This is outlined below, categorized by the type of source.

Participants learned about climate from **scientists** from a wide range of backgrounds[4]. They were present during a large part of the assembly, most spending more time than originally agreed upon. The scientists conveyed information in multiple formats, both formally, e.g., lectures, and informally, e.g., informal discussions (see Appendix F). The formal communication mainly concerned climate science and sectoral themes, whereas informal communication concerned all themes. Additionally, scientists presented environmental psychology, and systems thinking—explaining the existence of multiple levels and the need for systems thinking. Importantly, facilitators underlined the importance of scientific information to participants. Scientists conveyed a large amount of information.

[4] The list of scientists that gave formal presentations: see Appendix C, and the full list of scientists at the assembly: https://klimarat.org/menschen/#teams

Scientists primarily framed information scientifically and technically through content centered around solutions and potential (technical) measures and the use of technical terms, but other frames were also present. Scientists introduced both mitigation and adaptation but focused on the former. They focused more on the Austrian level rather than the EU or global level and emphasized urgency in their lectures. The environmental psychology lecture framed climate at the individual level (leading to differing reactions from participants, many disagreed). Scientists gave *examples* of measures and policy instruments without discussing *specific* ones. Lastly, ethical frames were present via informally discussing cross-sectoral themes.

Overall, the information communicated by scientists contained a wide array of relevant information concerning climate. The information was complex for participants to grasp, but the multimodal formats increased accessibility, further helped by the fact that they could ask scientists questions continuously and multimodally. However, there were clear differences in framings: Scientific and technical frames dominated formal communications, whereas a higher number of frames were present during informal communications.

Information was also communicated via consultations. This communication took place with three different types of sources and concerned all the themes. First, participants exchanged with **diverse societal stakeholders** to discuss achieving climate neutrality 'together' with mixed results. Certain discussions went well (mostly with the social interest groups), while others were unproductive or resembled one-sided monologues (notably with the chamber of commerce, the industry association, and the chamber of agriculture). Second, participants engaged in discussions with **politicians** from the Austrian parliament. Participants were asked to tell them how they think citizens, politicians, and stakeholders should work together and were disappointed, and sometimes angry, by their exchanges. Third, participants engaged in a **public** consultation to receive feedback on the assembly's draft recommendations and the public's climate ideas. The results were messy and confusing for the participants, and the members of the public were self-selected (thus not a representative sample). For these reasons, this report omitted frames from the public consultation in the results.

Lack of data for these consultations made it difficult to identify framing correctly. However, the data confirm that the consultations brought ethical frames to the fore, notably by the societal stakeholders. These stakeholders also underscored policy frames by emphasizing the critical need for the upcoming Climate Change Act to guarantee that the assembly's decisions would be considered within the political process. Overall, the participants had access to a wide array of stakeholders, bringing a wider range of perspectives. However, the primary drawbacks were the lack of access to policymakers and the low quality of the consultations. The consultations were all short, communicating relatively little information.

Contextual independence

Participant perceptions suggest that the assembly exhibited high contextual independence, but some participants still felt pressured to think in a certain way. During the deliberations, moderators and scientists remained neutral. However, there is insufficient data concerning external influence, meaning that contextual independence cannot be fully confirmed.

Methods for deliberation and developing of recommendations

Both the deliberation and developing of recommendations methods were predetermined. **Deliberations** mainly took place in workstreams that were focused on a specific sectoral theme but also addressed cross-sectoral themes. Workstreams shared their work with the other participants during cross-stream meetings every weekend, notably during

‘marketplaces’. This consisted of flipcharts with informational posters of work-in-progress, including draft recommendations, open questions, and dilemmas. Participants could add information, to ask questions or for objections. Participants (and some facilitators and scientists) would walk around to discover, review, discuss, and comment on the work. Deliberations also took part with all assembly participants, for example in plenary.

The **developing of recommendations** was guided by ‘levers for action’ (predefined by the scientific advisory board (see Appendix F), per sectoral theme, and unconstrained by specific policy questions. If recommendations achieved consensus within workstreams, they were shared and reviewed via the marketplaces. One interviewee noted that the *organizer’s* goal was not to prompt participants to develop recommendations at a certain level of specificity, but that the *scientific advisory board* aimed to equip participants with policy instruments to increase the specificity of recommendations. Scientists were not allowed to influence participants’ choices, but participants could ask technical questions such *as ‘how much CO2 would be saved?*’ or, if they disagreed, they could seek assistance to find a comparable CO2 reduction elsewhere. The scientists reviewed all the recommendations using a framework made by the scientific advisory board (based on IPCC frameworks) to assess their strength, based on effectiveness, feasibility, and impact period. Participants then decided if and how to incorporate feedback.

Lack of data renders the correct assessment of framing complicated. However, the data highlight the major role of the scientists framing sectoral themes with levers for action and framing the (draft) recommendations with their framework. The former indicates technical and scientific frames, and the latter includes more diverse frames.

Additional results

The data show additional results relevant for framing. **First**, the data show that participants learned more during informal exchanges with scientists than during lectures, and that they also learned during deliberations from participants. **Second**, some themes were harder for participants to understand, namely global responsibility and systems thinking, despite their introduction by scientists. One interviewee mentioned the latter was especially abstract for participants. **Third**, the non-participant observation noted the lack of coherence between lectures. **Fourth**, the stakeholders and politicians were surprised by the participants’ level of knowledge—they were confronted with a ‘new’ type of citizen: the informed citizen. **Lastly**, there was a lack of policy frames (environmental policy, policymaking levels and instruments, and political processes), social science frames, and ethical frames.

Table 15

Second order framing of climate change and climate themes within the Austrian climate assembly.

Elements that frame	Qualification of framing	Frames present	Framed theme
Information communication			
Information from scientific experts			
Source	- Scientists: expert choice predetermined (top-down).		
Epistemic completeness	- Good overall overview of climate science information (external and internal evaluation). - Access to wide range of scientists from various disciplines; multimodal formats increased accessibility of information. - Lectures were complex to grasp and lacked time (university-style lectures, replete with facts, figures, and technical terms, posed challenges in finding common threads); quality of lectures improved over time.		
Amount	- Information communicated each weekend.		
Format of formal communications	- Lecture & informational brochures - Online repository with summaries & materials of ongoing work (including graphic recordings of the lectures, videos, a glossary, and protocols of the weekends - Formal Q&A sessions. - Frequent use of technical terms.	- Mainly scientific and technical - Temporality (urgency) - Primarily mitigation - Primarily national level - Systems thinking - Urgency	- Climate science - Sectoral themes
		- Individual-level	- Environmental psychology
Format of informal communications	- Q&A (multimodal) - Informal learning (e.g., discussions or chatting with scientists during coffee breaks)	- Scientific - Technical	- Sectoral themes
		- Ethical	- Cross-sectoral themes
Information from external stakeholders			
Source	- Diverse societal stakeholders (civil society, interest groups, unions, and associations).	*Lack of data* Inclusion of: - Ethical - Policy	*Insufficient data* All sectoral themes and 3 cross-sectoral addressed directly, all themes could be addressed.
Format	- Opinion papers (large text, bullet points etc.), some included diagrams or images, of varying lengths). - Stakeholder introductory presentations. - Stakeholder small-group dialogues (with self-selected participants) to discuss achieving climate neutrality 'together.'		
Amount	- Information communicated during 2 short rounds of consultations.		
Epistemic completeness	- Access to a wide variety of stakeholders.		
Information from politicians			
Source	- Politicians (1 politician from each party in the Austrian parliament (except green party with 2).	*Lack of data.*	All themes
Format	- Politicians small-group dialogues about participants' (with self-selected participants).		
Amount	- Information communicated during 1 short round of consultations.		

Epistemic completeness	- Low quality; served the purpose of participants voicing their opinions rather than exchanging; no further access to policymakers.		
Information from the public			
Source Format	- Public (self-selected) (bottom-up). - Public online poll.	*Not included due to low data and low quality of exchanges.*	
Contextual independence			
Citizens' perceptions External Internal	- High ownership of their recommendations. - 82% members did not feel pressured to think of climate from a certain perspective, 16% did. - *Insufficient data.* - Neutrality of moderators: neutral. - Neutrality of scientists: were to be mediators and not allowed to interfere in debates. - Facilitators sometimes maintained contact with politicians or policymakers.	*Insufficient data.*	
Methods for deliberation and developing of recommendations			
Methods for deliberation			
Group sizes Deliberation methods	- Deliberation mainly took place in workstreams made up of 2 interlinked facilitated groups of 8-10 participants each (groups were predefined to ensure diversity); workstreams sometimes split into pairs or trios to work on specific task. - Plenary and various (facilitated) subgroups. - Predetermined (top-down). - Visioning, internal area of the website, sharing via plenaries, marketplaces (to discover, review, discuss, and comment on the work-in-progress). Predetermined (top-down).	*Insufficient data*	- All themes
Methods for developing recommendations			
Development of recommendations	- Participants developed their own recommendations unconstrained by specific policy questions (bottom-up). - Scientists did not discuss specific instruments or measures but determined 4-5 levers for action per sectoral theme to guide participants.	- Thematic - Scientific - Technical - Sufficiency - Economic/financial - Communication - Adaptation - Policy	- Mainly sectoral themes
Assessment of recommendations	- Scientists assessed recommendations using a predetermined assessment framework, assessing effectiveness (greenhouse gas savings potential), feasibility (social balance, economic feasibility, institutional and legal feasibility, natural feasibility), temporality (feasibility of start date and end date) during weekend 5.	- Scientific - Effectiveness - Ethical - Economic/financial - Institutional/governance - Temporality	

4.3 Deliberation

Deliberation and decision-making are described below and summarized in **Table *16***. Due to lack of data, deliberative framing could not be explicitly measured and will therefore only be mentioned in the discussion of results; small observations are included in the table.

Facilitators

The non-participant observation show that facilitators played key roles throughout the deliberation and provided high-quality facilitation. The moderators continually spoke in 'we' to reinforce a sense of community between participants and used accessible language. Their work included guiding discussions (e.g., ensuring equal participation), keeping the conversation flowing (e.g., redirecting in case of digressions), and helping to develop the recommendations (e.g., summarizing, and reformulating ideas). Importantly, one interview noted that part of the facilitators had previous knowledge about climate, but not all. The results from groups with non-climate-literate facilitators resulted in weaker recommendations in part because a lot of time was spent on minute unimportant details.

Deliberation

Overall, the deliberation was of high quality. The data show that the deliberation showed high participatory equality, with some exceptions, e.g., participants dominating conversations. The marketplace had mixed impacts on participatory equality, favoring more confident participants. Data on other deliberation characteristics are limited, providing an incomplete picture. Available data show that meaningful communication was fostered, with conflicts (mostly) being addressed and resolved thoroughly. However, the lack of data fails to account for the openness of participants to differing perspectives or the presence of internal reflection. Participants showed signs of critical thinking during the consultations with stakeholders and by increased and improved justifications for their arguments.

Additionally, the data reveal varying levels of effectiveness in different aspects of the deliberation process, which either impeded or enhanced the overall quality of deliberation. Participants experienced significant strain due to the density and volume of information, as well as the complexity of formulating recommendations. Notably, non-participant observations indicate that participants struggled to differentiate between concepts such as levers, themes, and measures. They had trouble writing concrete measures and understanding the connection to the larger goal, though this improved over time.

Decision-making

Decision-making took place throughout the assembly using the 'consent principle': decisions could be taken unless there was a serious and justified objection, allowing for the expression of objections and the inclusion of dissent. The consent principle here is based on the idea that if there is no serious objection, consent is considered to be given. This approach is less restrictive than continuously requiring full consensus. This principle was predetermined, and it was well understood by participants and used consistently. During the developing of recommendations, explicit decision-making rarely took place, rather participants made decisions implicitly by discussing points until everyone was satisfied. The final vote for the recommendations also followed the consent principle. Participants reviewed each recommendation one last time based on their impact manifesto and the aim of climate

neutrality by 2040. For each, they gave their approval, or a minor or serious objection during a plenary session. A recommendation passed if fewer than 10 serious objections were made. Overall, the presence of minority views in the recommendations shows that participants were all allowed to express their opinions.

Table 16

Deliberation and decision-making characteristics for the Austrian climate assembly.

Characteristics	Results
Quality of deliberation	
Role of facilitators	Description: - Their work includes guiding discussions (e.g., ensuring equal participation), keeping the conversation flowing (e.g., redirecting in case of digressions), and helping to develop recommendations (e.g., summarizing and reformulating ideas).
	Quality of facilitation: - 30 facilitators and high quality, professional moderation (external evaluation). - They used easy-to-understand language, making complex information more accessible. - Positively reviewed by participants (internal evaluation). - Worked hard to keep a high level of motivation in participants.
Participatory equality	Inclusion of everyone's arguments, perspectives, values, and interests: - Participants were empowered to participate and had equal opportunities to speak, and different perspectives and opinions were presented as essential for the assembly. - The marketplace favored out-going people, engaging some participants more than others. - The marketplace provided an interactive and effective way of participating in a focused atmosphere. - Online tools were used to enhance inclusion of opinions during plenary sessions (e.g., 'slido'). - Time constraints cut some discussions short, especially during the final weekends, sometimes resulting in the removal of a recommendation.
	- Interaction with broader public: Use of a public consultation with poor results (see framing results).
	Participants on similar knowledge levels: - *Assumed to be high following the results of the previous section.* - Use of technical terms and anglicisms complicated the deliberation.
Meaningful communication: reciprocity and reflection	Mutual respect of views: - Participants were encouraged to cooperate and were pleased with the overall cooperation. - Participants were respected and respective.
	Active listening of all participants: - Facilitators allowed for a good balance between passive listening and active participation. - Participants were motivated to participate. - Certain participants dominated conversations more than others, facilitators dealt with differing levels of success.
	Open-mindedness towards differing views and to seeing things from others' perspectives: - *Low data availability.* - Small conflicts arose, but these were treated with great attention, time, and resources. - Serious objections tackled with dynamic facilitation.
	Presence of internal reflection: - *Insufficient data, assumed to be present to a certain extent due to the increase in justifications.*
Mutual justifications, critical thinking, and clarification of opinion	Presence of critical thinking: - *Low data availability.* - Participants questioned some of the opinions and statements of the external stakeholders and politicians during the consultations.
	Use of and improvement of justifications for arguments and opinions: - Participants considered increasing amounts of evidence in their judgements and justifications. - The external stakeholders and politicians noted that participants had high levels of knowledge concerning climate in comparison to the average citizen with whom they interact. - Participants showed a lack of knowledge relating to policy instruments and policy levels.
Non-rational deliberative elements	*Inclusion of:* - *Insufficient data.* - Some participants shared that they did not know how they would survive the following winter.
Presence of deliberative framing	
Deliberative framing	*Insufficient data for a conclusive analysis. Observations include:* - Participants consistently questioned recommendations in terms of social justice, other cross-sectoral themes generally lacked clarity. - Contentious themes during the development of recommendations: food, land-use, and mobility.

	- Certain participants felt targeted, namely those with ties to agriculture.
Quality of decision-making	
Decision-making	Frequency and occurrence: - Implicit: continuously during deliberations. - Final: once, final weekend.
	Rule type: Consent-principle - Implicit: participants not presenting any objections. - Final: approval, minor or serious objection; recommendations approved if less than 10 objections.
	Bindingness: - Low
Minority views	- 14 objections with small justifications included in the report (see following section).

4.4 Outcomes

Qualitative assessment of the assembly's report

The final report contains general principles for political action, general and specific policy recommendations, with a total of 93 recommendations (see ARGE Klimarat, 2022). The report is organized by sectoral theme. Each sectoral theme outlines levers for action and 11-22 recommendations, each containing a small justification and/or explanation. The participants emphasized full ownership of the report. The full list of recommendations can be found in Appendix G and the qualitative assessment is described below and outlined in **Table *17***.

Objections

The recommendations contain a total of 14 objections against 7 recommendations. Objections arose in the themes of mobility, food/land-use, and housing. This means that 7.5% of recommendations received, on average, 2 objections. Objections were never fully against the recommendation itself, except 1 against banning SUV ads ('instead, this should be incentivized using price') (see #75), and one about the commuter allowance ('it should be abolished because it does not make sense') (see #80). Reasons for objections included: insufficient measure, preferred a different approach, change in wording, redundancy, unrealistic, insufficient inclusion of social equity, and insufficiently strict.

Abstract or concrete

First, in terms of clarity, nearly all recommendations are clear, containing a tangible goal. Many recommendations have a clear goal but do not specify how it should be achieved. For instance, recommendation #43 *"Promote energy production from waste (biomass) and close nutrient cycles"* has a clear goal (recycle 100% percent of bio-waste), without including if, for example, non-compliance should be fined. **Second**, some are extremely short (1-2 sentences) or slightly vague about what exactly they entail, but most include several additional details such as justifications or some of the steps that need to be taken. The recommendations vary in terms of *level* of detail, for example recommendation #37 *"Use suitable agricultural land that becomes available to mitigate the climate crisis, e.g., for efficient energy production"* specifies types of tree species. Others, such as recommendation #51 *"Create awareness for climate-friendly food handling"*, simply say the recommendation should be achieved. **Third**, very few recommendations include deadlines, and some refer to actions that should recur. **Fourth**, all recommendations have clear goals, however few have measurable goals. For example, recommendation #16 *"Promote green investments"* does not include what this would translate to, such a minimum percentage. Some do, such as recommendation #11 *"Effective CO2*

pricing in the energy sector". This recommendation may be highly specific due to its link to the (at the time forthcoming and now present) CO2 pricing policy.

Incremental/transformational

All measures are incremental aside from two that could be considered '*transformational'*, recommendations #1 "*Introduce a basic right to climate protection*" and #18 *"Set up a non-partisan climate commission."*

Policy instruments

Most recommendations do not differentiate between policy instruments, but rather propose groups of measures for varying policy fields and levels, which would necessitate multiple policy instruments to be implemented. Recommendations rarely specify a policy instrument using terms such as 'ban,' 'mandatory,' or 'subsidies.' Furthermore, Buzogány et al. (2022) analyzed the recommendations in terms of policy instruments and show that they vary and are evenly distributed across sectoral themes.

In comparison to the status quo

The assembly evaluation report compared the recommendations against current policies (policies in the coalition agreement of the government currently in power[5]). Their analysis shows that: 1) the general and food/land-use recommendations are mostly novel, 2) the production/consumption and mobility recommendations exist but are more demanding than pre-existing policies, 3) the energy and housing recommendations are relatively similar to the status quo.

Table 17

Qualitative assessment of the Austrian climate assembly's recommendations.

Qualitative assessment	Qualification
Report	- 7 principles for political action. - 6 general recommendations. - 87 recommendations organized into 5 sectoral themes, includes the levers for action.
Participant perception of recommendations	- 87% said they would implement a large majority to all of the recommendations. - 93% rated their recommendations as rather to very adequate for reaching the goal of Austria's climate neutrality.
Objections	- Total: 14 objections against 7 recommendations. Objections per sectoral theme: - Food & land use: 3 objections against 2 recommendations. - Housing: 1 against 1 recommendation. - Mobility: 10 against 4 recommendations.
Abstract or concrete	- Clear: All. - Steps: 12 include specific steps, 60 include partial steps, 21 do not include steps. - Deadlines: 12 include a deadline. - Goal: All.
Incremental or transformational	- Incremental: 91 - Transformational: 2
Policy instruments	- Regulatory: 28% - Subsidy-based: 23% - Tax-based: 17% - Informational policy instruments: 14% - Other/several: 18%

[5] "Aus Verantwortung für Österreich": https://www.bundeskanzleramt.gv.at/dam/jcr:7b9e6755-2115-440c-b2ec- cbf64a931aa8/RegProgramm-lang.pdf

In comparison to status quo	- High novelty: general, food/land-use recommendations. - More demanding: production/consumption, mobility. - Similar: energy and housing.

Content assessment of the assembly's policy recommendations

Overall, the report contains a high variety of recommendations relating to the various aspects of climate change. The full analysis of the recommendations is not included in this report as it is of little value for the purpose of a proof of concept. Instead, this section outlines the main findings. First, I give a brief overview of the recommendations, highlighting any main foci and recommendations that stand out.

- *General recommendations*: They are quite broad and include introducing a basic right to climate protection, implementing CO2 pricing, and raising awareness for climate issues. One interviewee noted that "*they were quite radical*."
- *Energy*: They span from scientifically assessing and updating the Climate Protection Law to abolishing fossil fuel subsidies, often focusing on CO2 pricing, and propose making citizen participation in spatial energy planning mandatory.
- *Production/consumption*: They focus on climate labeling, establishing a non-partisan climate commission, mandatorily integrating climate protection into curricula and adult education, and establishing a center for the circular economy.
- *Food/and-use*: The focus is on addressing food waste through communication measures such as raising awareness and climate labelling. Additionally, recommendations include advocating for dual-land use and promoting green farming practices.
- *Housing*: They propose launching a climate-renovation offensive for existing buildings, a vacancy tax on unused spaces, and focus on stopping soil sealing.
- *Mobility*: There is a strong emphasis on public transport, reducing car use, and promoting active mobility. Additionally, they propose implementing a climate-neutral mobility guarantee and shifting zoning from municipal to regional or provincial levels to align with national-level goals.

The recommendation included a high variety of topics (67), 14 of which recur more than once, shown in **Table *18***. Furthermore, all but 2 recommendations are linked to one or more 'lever for action,' except for the general recommendations as they had no specified levers.

Table 18

Topics occurring more than once in Austrian climate assembly's recommendations.

Topic	Recurs
Food waste	6
Car use reduction	5
Building renovation	4
CO2 pricing	4
Energy role models	3
Soil sealing	3
Active mobility	2
Circular economy	2
Climate damaging subsidies	2
Food pricing	2
Fundamental right to climate protection	2
Green diets	2
Green farming	2
Green financing	2

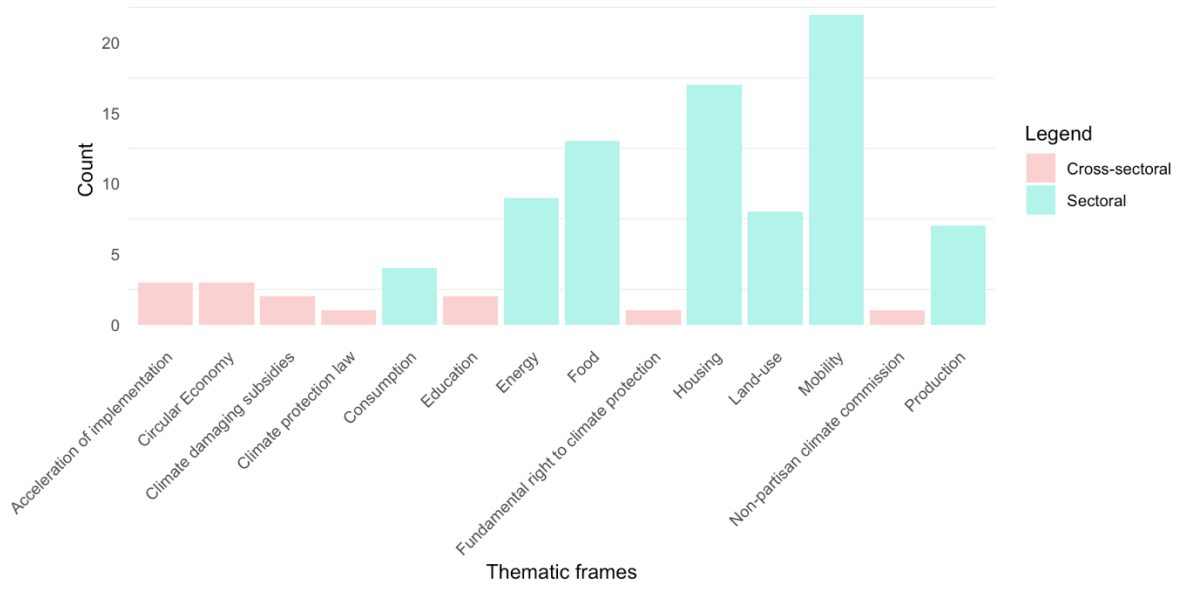
Thematic frames

Each recommendation includes 1 to 3 themes, as main or secondary themes. Sectoral themes occur more frequently and are generally main themes. *Mobility* and *housing* occur the most frequently. Cross-sectoral themes are generally combined with a sectoral theme, but some stand alone. The two main ones are *acceleration of implementation* and *circular economy. Education* and *social justice* are the themes that occur most frequently as secondary themes. *Social justice* and *sufficiency* are the themes most frequently included as an add-on, for example as a sentence mentioning *'to reduce social injustice, X must be implemented'*. Global responsibility is only present in the principles for political action (not included here). **Figure *10*** shows the main thematic frames, highlighting that cross-sectoral thematic frames are lacking.

Some recommendations link multiple themes, sometimes underlining co-benefits or dual-use, including using free agricultural land for energy production, combining renewables (energy) for public transport (mobility), climate-effective synergies between companies for energy production, or reusing sealed land for production of energy.

Figure 10

Frequency counts of the main thematic frames present in the recommendations.



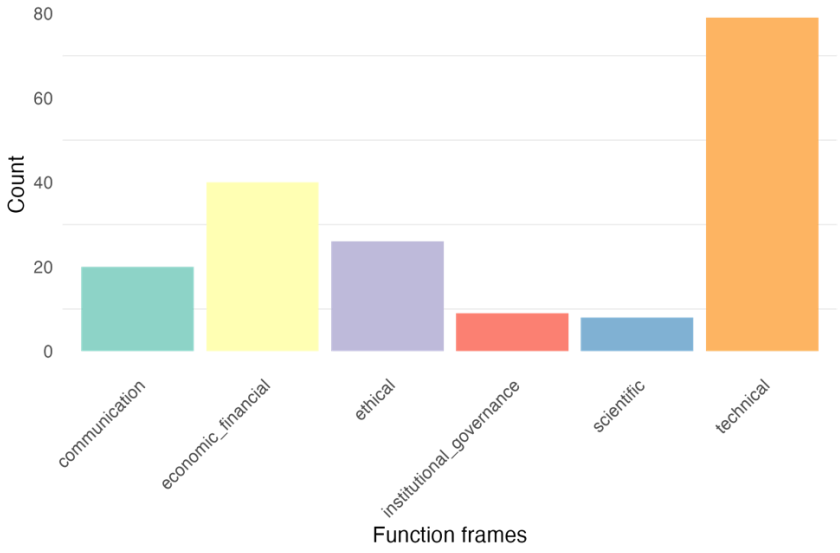
Function frames

Most recommendations have multiple function frames (1.96 on average). Most include a technical frame, and nearly half include and economic/financial. Ethical frames are present but remain minor. Developmental/socio-economic and national/international security are not present. The frequency of frames is shown in **Figure *11*** below.

A feature of note includes the duality of the economic frame. Certain recommendations include 'sufficiency' that differs from Hulme et al.'s (2018) definition of the frame. 2 recommendations call for 'abolishing harmful subsidies'—again, depicting an economic instrument as a problem rather than a solution. Furthermore, the institutional/governance frame includes initiatives for collaboration at multiple levels. The communication frame emphasizes increasing public awareness (through education, labelling, and information

sharing). The ethical frame is used multiple times as the *justification* for a recommendation, for example #21 *"Ban the destruction of new goods."* The ethical frame recurs to urge various actors, such as municipalities, to take on exemplary roles.

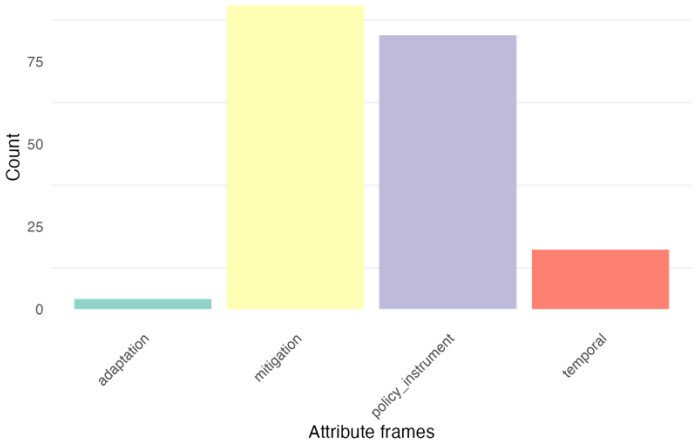
Figure 11
Frequency counts of the main function frames present in the recommendations.



Attribute framings

Most recommendations have multiple attribute frames (2.11 on average), with the majority including a *mitigation* and/or *policy* frame—shown in Figure *12*. *Adaptation* is included in 1 measure (revaluation of risk areas) and 1 lever (building stock adaptation). Two address both, with adaptation as a co-benefit (afforestation, building renovation). Regarding *temporal* frames, most recommendations do not explicitly mention a timeframe, but many make statements such as "*this should be implemented."* As the assembly task is *"what should we do today (…),"* these recommendations may be implying 'now.' However, some include a deadline, mostly short-term (less than 5 years), and some include both short- and long-term frames. *Policy* frames too are not clear-cut. Most recommendations propose measures 'that should be done or promoted,' but without stating *how* to achieve this, i.e., not explicitly stating a policy instrument(s) (these were excluded from policy frames). Some measures include explicit terms such as 'mandatory' or 'ban,' and a higher number mention *a* policy instrument, although the implementation of that recommendation would necessitate multiple. The results for the policy frame should therefore be regarded with caution.

Figure 12
Frequency counts of the main attribute frames present in the recommendations.

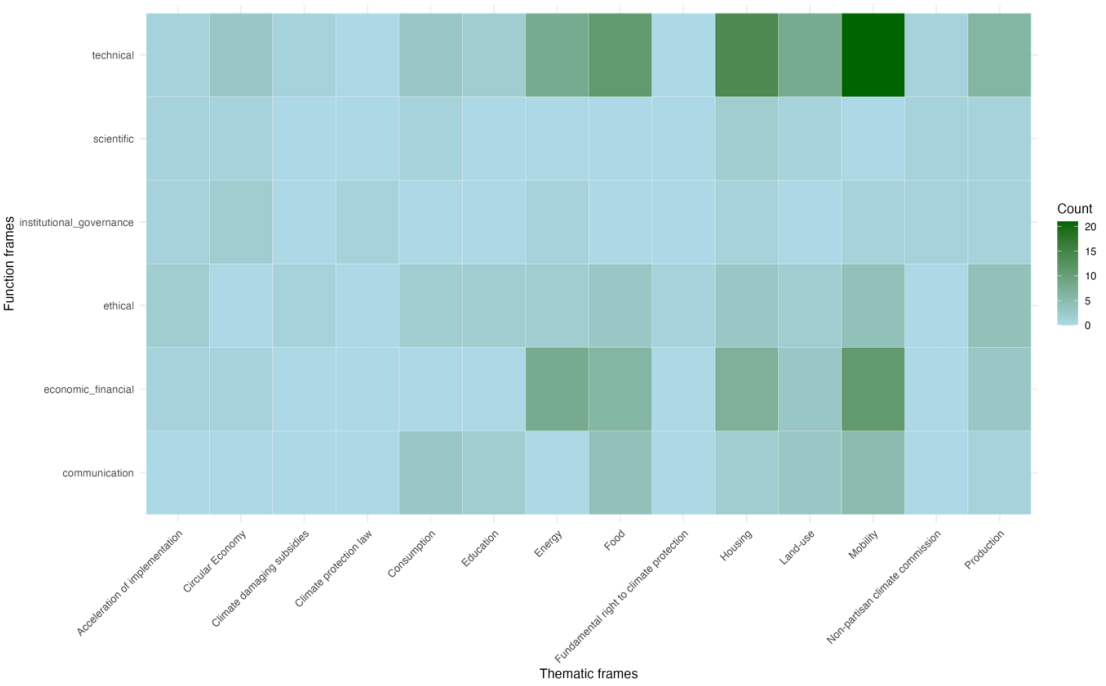


Overlaps between function frames and thematic frames

Figure *13* shows the overlaps between function frames and thematic frames, i.e., how often they co-occur in a recommendation. The sectoral themes mostly co-occur with technical or economic/financial frames. The cross-sectoral themes mostly co-occur with ethical frames. This report omits the same analysis for attribute frames since most recommendations focus on policy and mitigation frames, resulting in no significant findings.

Figure 13

Co-occurrence of the function frames and thematic frames present in the recommendations.



Additional outcomes

The data analysis revealed a few additional insights about additional outcomes that can be linked to framing. **First**, the more information participants learned, the more they were concerned about climate change. But most participants were less worried after the assembly than before it. Indeed, often concern for climate turned into ‘passion’. This can be explained by the fact that they learned not only about the problems but what can be done about it.

Second, most participants did not change their views on climate, although so did change towards being more in favor of climate protection. This is, however, not representative of the Austrian population since there were participant selection biases. **Third**, one interviewee highlighted the empowerment of citizens. One participant had shared that the assembly enabled her to comprehend climate issues. As a result, she now feels equipped to engage with related information encountered in the media. **Lastly**, once the assembly ended, the participants founded a post-assembly participants association[6]. Their goals are to raise awareness and remind politicians of the urgency of the issue.

[6] See https://klimarat-verein.at/

5 Discussion

5.1 Applying the analytical framework

The key finding of this study is the viability of the analytical framework. Its application to the case demonstrated that 1) all the elements that frame included in the framework lead to framing, and 2) an assembly will likely include more framings that included in the framework, emphasizing the pervasiveness of framing. Furthermore, the results indicate that framing occurs continuously and that there is an interplay of frames, meaning the identification of framing must not be underestimated, nor should framing itself.

5.2 Framing in the Austrian climate assembly

The low representativeness of the participants in terms of climate attitude and the assembly's de facto link to the green political party must be considered when examining the results. The low representativeness is likely because attitude to climate was excluded in the selection criteria, and that pro-climate citizens are more likely to accept an invitation to partake in a climate assembly. Both aspects make the assembly seem pro-climate biased, delegitimizing the process from the start—hindering the core value of inclusion. This suggests that *who commissions* the assembly is relevant for framing, even if it is the government. These factors may be because this was Austria's first national citizens' assembly. Additionally, the overarching design approach of the assembly was clearly top-down. However, other aspects (e.g., scope and link to policymaking) had characteristics of a bottom-up assembly. This suggests the assembly was not fully constrained in a certain direction.

Framing

All elements that frame from the analytical framework showed instances of framing, except the link to policymaking—suggesting the *absence* of framing is also a type of framing.

The **elements that frame** that played significant roles are described here. **First**, the scope was framed technically and temporally. This questions the scientific plausibility of a 2040 aim and what this entails for defining climate policies (see Cherry et al., 2021). **Second**, the structure determined workstreams—creating mini assemblies—meaning each workstream framed climate differently. This was balanced out by 'marketplaces' for participants to exchange and learn about the themes (and thus frames) present in other workstreams. This approach emphasized the importance of cross-stream elements to mitigate imbalanced framings due to participant division. The 'marketplace' proved effective in this regard, though it tended to favor some participants over others. Moreover, the structure prioritized sectoral themes, reinforcing sectoral policy logics. **Third**, various bottom-up aspects added diverse frames, opening-up the discussion. This suggests bottom-up aspects can lead to deliberative framing. **Fourth**, the presence of scientists throughout the assembly reiterates their non-negligeable role in framing climate change. For instance, the results show that nearly all recommendations include or are linked to the levers for actions, indicating the importance of the levers in shaping the recommendations. Furthermore, the scientific assessment of the recommendations assigned, in essence, a 'quality' stamp to each recommendation. However, the interviews noted that the assembly led to the self-empowerment of citizens through knowledge; this should not be underestimated. **Lastly**, many elements framed climate change thematically, with sectoral themes overshadowing cross-sectoral ones, and this was reinforced by the scientists' areas of expertise.

The results presented **novel characteristics** that I propose as relevant for framing. **First**, first order elements that frame: the 'collaboration agreement' and 'impact manifesto.' I argue that these are relevant for framing because both included new frames. Additionally, the latter highlights frames participants considered of prime importance. **Second**, second order elements that frame: methods for deliberation via the 'marketplace,' methods for developing recommendations via 'levers for action', and the scientific assessment framework for the recommendations. These add to the characteristics of the methods for deliberation and developing recommendations, reinforcing Shaw et al.'s (2021) statement that framing takes many forms.

The results also presented **novel frames**. This suggests that frames are not a one-sized fits all. I propose to add some of these frames to the framework. **First**, a 'function frame': levels of action, split into 3 levels, individual, national, and international. The assembly often framed climate change in terms of the scale of the problem and or solutions. **Second**, an 'attribute frame': systems thinking, framing climate in terms of wholes and relationships. Systems thinking is important for understanding climate and can make participants aware of interlinkages (KNOCA, 2024) but may complexify the task (as shown in this case study). This frame is present in other assemblies (see Andrews et al., 2022; KNOCA, 2024). **Third**, I propose to expand Hulme et al.'s (2018) 'communication' frame to include communication 'as a solution', that can be defined as 'raising awareness and/or educating people about climate change and/or to increase climate action.'

Additionally, the thematic framings global responsibility and systems thinking were particularly complex for participants. This indicates that certain ways frames or perspectives of climate are harder to grasp. This could be explained by comparing them to technical frames. Technical frames generally point out specific, tangible aspects, e.g., e-vehicles. Conversely, Lakoff (2014) writes that systems thinking is harder for humans to grasp as our language is made to talk about direct causation, e.g., pedaling a bike. However, we do not have language for systemic causation because we cannot experience it directly, instead, it must be learned and studied to be understood. This suggests that the significance of a frame is linked to its complexity.

Overall, the assembly presented the frames that correspond to dominant frames (Romsdahl, 2020; Romsdahl et al., 2018). Non-dominant frames were less present, notably ones such as social science, suggesting that the 'science' frame should be subdivided. The broad and individual-level framings of climate made climate more relevant to the participants.

Deliberation

The results show the importance of the facilitators during deliberation, due to their roles of constantly 'reframing' information. This suggests that their climate literacy will play a role in how they frame climate. Furthermore, the high quality of deliberation highlights that that multiple (participant) perspectives were present. However, since participants were not representative of the broader population, this suggests perspectives were not as different as they could have been. Additionally, the difficulty participants had in distinguishing between elements—such as levers, themes, and measures—highlights that the clear distinctions one draws as a researcher are much blurrier in practice and suggests that different framings have varying roles of importance.

Deliberative and persuasive framing

The assembly showed the presence of both deliberative and persuasive framing. The extensive range of frames discussed indicate the presence of **deliberative framing**.

Interviews reveal that participants particularly engaged with issues of social justice. This engagement is likely tied to the diverse backgrounds of participants, some of whom were uncertain about their ability to meet basic needs in the near future. For more affluent participants, this assembly provided their first opportunity to have meaningful conversations with underprivileged Austrians, suggesting that participants engaged with their emotions. As the assembly progressed, recommendations were consistently questioned through a social justice lens. However, although diverse frames were mentioned, they often lacked clarity. The deliberations also tackled contentious themes, those relating to food and land-use, as well as mobility, standing out as highly debated and not always resolved. The presence of deliberative framing indicates the willingness of the sponsoring institution to consider alternative framings of climate change, possibly influenced by the assembly's origin: a citizens' initiative.

The prominent role of scientists and the lack of certain frames hints at the presence of **persuasive framing**. Even though the scientists came from a range of backgrounds, and were not to influence participants, the entire assembly process was tightly linked to science. Furthermore, dominant frames were clearly prioritized through the sectoral logic of the assembly, and non-dominant frames received little attention during the deliberation phase. Lastly, the interviews showed that certain conflicts could be explained by participants feeling targeted. For instance, participants with ties to agriculture felt targeted by the number of suggestions aimed towards their livelihood. This suggests a potential oversight in frames: There may have been an overemphasis on—or inadequate explanation of—individual-level perspectives at the expense of systemic and community-level considerations.

Decision-making

Decision-making did not seem to outweigh the deliberation, thus not impeding its quality. The use of a consent principle is potentially at risk of the acquiescence bias, where people, when in doubt, tend to agree with a statement. While this bias is generally attributed to situations such as surveys and questionnaires (see the example of Dunsch et al., 2018), I posit that the developing of recommendations is comparable, as participants must agree or disagree with a set of statements.

Outcomes

The recommendations included a high variety of frames. The main frames were technical, economic/financial, mitigation, and sectoral thematic frames. The low presence of cross-sectoral thematic frames is likely due to the sectoral thematic framing of the assembly, but also to their complexity. Most recommendations are incremental, but some are transformational. The lack of political commitment could have played a role: Multiple participants noted *"I wish that truly every point is also discussed publicly. I'd rather it would be kicked than forgotten."* (Praprotnik et al., 2022, p. 27); incremental recommendations are less likely to face political and public backlash.

Overall, the results include achievements in line with deliberative framing theory, namely that participants thought outside of the dominant framed box (e.g., incremental recommendations), recognized instances of imbalances in power and influence (see stakeholder consultations), and helped foster transformation and found innovative solutions (e.g., recommendations compared to the status quo). Due to the research's role as a proof of concept, it cannot state that these are due to deliberative framing. However, the results do indicate some of the benefits of deliberative framing, namely enhancing the quality of deliberation. They also indicate its limitations, namely the difficultly to attain it in practice.

The framing of public will (the assembly report) must be treated with caution due to the low representativeness of participants. Contentious issues were present during the assembly and in the resulting recommendations. However, objections to these recommendations were not particularly contentious. This raises questions about whether a more representative sample of the Austrian population would have introduced additional frames and potentially reached less consensus. The low representativeness may have contributed to the formulation of some of the more ambitious recommendations, although similar national assemblies have also proposed ambitious measures.

5.3 Practical tool

In addition to the analytical framework, this report provides a concrete tool for practitioners to become aware of framing within climate assemblies and how to engage with it. It is essentially an executive summary of this thesis, formatted as a table and can be found in **Table *19*** below. The tool answers the first part of research question 4.

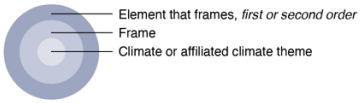
Table 19 *A tool for practitioners to become aware of framing within climate assemblies.*

How to recognize framing within climate assemblies

What is framing:
Framing involves presenting an idea in a specific manner or perspective, i.e., giving information a certain meaning

Why is it important:
Framing shapes how climate information is perceived and responded to, influencing deliberation in assemblies, potentially steering discussions, and impacting their legitimacy.

How to become aware of framing:
Framing takes many forms within assemblies. This tool conceptualizes framing as threefold, 1) an element that frames, such as format, 2) a frame, such as a technical frame, and 3) the information being framed, depicted below. The tool can be used to become aware of how framing occurs in climate assemblies.



How to engage participants with framing?
Participants and organizes can engage in deliberative framing by becoming aware of dominant frames of thinking and how these impact understanding of climate. The dominant frames of climate are economic growth, science, technology, and emissions. To move beyond dominant frames, they can discuss alternative frames, values, and emotions.

Frame	Definition	What this means for the assembly
Frames that define causes, problems, and solutions; offer a moral view		
Technical	Climate change, caused by fossil-fuel technologies, is viewed as a technical problem requiring technological and innovative solutions.	Convey the message that climate is to be understood in terms of expert knowledge or consensus and as a problem that needs solving, closing down the discussion and omitting areas inherent to addressing climate.
Scientific and factual	Due to the complexity and uncertainty of climate change, increasing scientific knowledge is essential for adequately addressing it.	
Economic or financial	Climate change is an externality of economic growth and certain modes of production and consumption, necessitating improved quantification of costs and benefits and the use of economic and financial instruments to address it.	In/exclusion likely leads to the in/exclusion in the recommendations.
(inter)national security	Climate change poses a geopolitical security risk that necessitates new state-level or international security responses.	
Institutional or governance	Structural and institutional inertia are the root causes of climate change, necessitating new or improved forms of governance institutions as current regulations are inadequate.	
Communication	Climate science and risks are poorly communicated to the public, with problematic media representations and misinformation confusing opinions, highlighting the need for raising awareness and educating people.	
Developmental (global scale)	Climate change is a byproduct of socio-economic development, and unequal development inhibits adequate climate responses.	
Ethical, values, and emotions (human scale)	Climate change causes an unequal distribution of burdens, raising significant issues of justice, and people have a moral responsibility to future generations, nature, and the most vulnerable to mitigate its impacts.	Conveys the message that climate is a matter of right/wrong, considers responsibility and values, key for public support.
Attribute frames		
Policy	Specific policy instruments and/or measures that are being/should be implemented to tackle climate change.	In/exclusion likely leads to the in/exclusion in the recommendations.
Mitigation or adaptation	Defines climate change in terms of mitigation and/or adaptation.	
Temporal	Defines climate change temporally (short-, long-term, and/or urgent problem).	Can be questioned concerning scientific plausibility.
Thematic frame	Defines climate in terms of the sectoral or cross-sectoral themes that are in/excluded or prioritized over others.	Narrows the scope and influences the perceived importance of a theme; in/exclusion likely leads to the in/exclusion in the recommendations.
Levels: individual, national, and international	Defines the problems and solutions to climate change at the individual, national, or international level.	In/exclusion likely leads to the in/exclusion in the recommendations. The individual level risks omitting the importance of systemic and collective action.
Systems thinking	Framing climate in terms of wholes and relationships	Can make participants aware of all the interlinkages but complexifies the task.

Element that frames	How it frames	The main frames it can include	What this means for the assembly

Framing climate change			
Link to policymaking	- Alignment to policymaking process - Commitment given to implement recommendations - Timing of assembly vs. policymaking process	- Policy frames	- Loose/broad alignment broadens/narrows the scope but may reduce/increase relevance to policymakers. - Clear commitment enhances participant recruitment, generate public attention, and support for policies. - Engaging participants too late decreases trust.
Task *The guiding question of the assembly*	- Specificity (e.g., goal, deadline, or policy objective) - Inclusion of a specific element (e.g., effectiveness)	- Thematic frames	- Specificity fosters practical and actionable responses. - Omission of elements (may) lead to their omission in the recommendations.
Scope *The range of themes the assembly considers*	- Openness of scope (extent of inclusion of participants and/or public in the setting of the scope) - Breadth - Task (guiding question) - Themes	- Thematic frames	- A broader scope opens up discussions by including diverse perspectives, complexifies deliberation, and leads to a higher number of recommendations and their selection uptake by policymakers. - A narrower scope closes down discussions by excluding themes, likely leads to more tangible results, and do not question normative assumptions or political interest.
Framing climate change and affiliated themes			
Assembly structure	- Configuration of participants - Duration - Location	- Thematic frames	- Prioritizes themes. - Indirectly determines time, format and amount of information. - Workstreams creates 'mini assemblies,' leading to varied framings of climate change for different groups.
Information communication	Source - Sources communicating information (e.g., scientists, activists, advocates, and other stakeholders) - Choice of experts. Format and amount of information - Formats used for communicating information. Epistemic completeness - The quality and extent to which participants have access to the relevant information and sources.	- Scientists: focus on technical frames - Societal stakeholders: include alternative thematic frames - Politicians and policymakers: policy frames	- The credibility and authenticity of sources influences how participants trust them, scientists are often perceived as the only legitimate source for climate. - Formats frame information by engaging participants differently, conveying different messages, and making it more accessible. - The quality, amount, and access to relevant information ensures participants achieve similar knowledge levels.
Contextual independence	- The process is free from external pressure.		- Assemblies should avoid external framing.
Methods for deliberation and developing recommendations	- Methods used. - Group sizes. - Extent of coproduction of the recommendations, from predetermined policy questions to fully citizen-developed recommendations.		- The methods used to guide deliberations and the development of recommendations will nudge participants in certain directions. For instance, using fairness principles to guide recommendations.

5.4 Limitations

This study includes limitations; the first concerns the analytical framework. In practice, the various phases of the assembly are not as distinct as in theory, making it complex to analytically delineate between the characteristics of the assembly and framing. Even published papers face similar challenges, as evidenced by Caluwaerts & Reuchamps' (2023) and the OECD's (2021) evaluation frameworks that assess the same aspects but divide assembly characteristics differently. However, distinctions must still be made. The various characteristics overlap, but some—such as the deliberation methods—fundamentally form the basis of deliberation, thus supporting the distinctions in the framework. Since this research aims to *explore* framing, slight overlaps are not critical. Furthermore, the framework includes an analytical overlap between thematic frames and framed themes. The distinction was necessary as thematic framings of climate are significant for framing climate, but it is equally important to consider the content being framed as this provides further understanding of framing in practice. An additional limitation is that due to the abductive nature of this research, the analytical framework was built thanks to the help of the case, and the case itself serves as a proof of concept. This could potentially mean the case is not applicable to others. However, the analytical framework was based on literature first and foremost, and then refined using the case, rendering it applicable to future cases.

Second, due to time constraints and low data accessibility, the study investigated only one case and had limited data, including a low number of interviews and no participant interviews. Additionally, one interviewee noted difficulty recalling all details of the assembly. These limitations reduce the validity of the results, particularly regarding deliberation where data was lacking. A further limitation is the lack of depth of the analysis, lowering validity. To get to the core of the analysis of framing, I would have had to code data. However, the recommendations serve as a tangible outcome of the recommendations, providing a benchmark for the analysis. These limitations remain secondary, as this research was exploratory, aiming to build and test a framework—the goal was reached with the available data. The developed framework encourages researchers to incorporate framing characteristics into their analyses, such as evaluation reports.

A third limitation relates to sources. The analytical framework is based on grey literature, the KNOCA briefing by Shaw et al. (2021). As this briefing was not published in a peer-reviewed journal, I sought out and verified each referenced source, some of which are grey literature or sources I was unable to locate. Despite this, the briefing was authored by academic researchers and KNOCA briefings are frequently cited in academic papers (e.g., Boswell et al., 2023; Elstub, Carrick, et al., 2021). The extensive reliance on grey literature is not particularly concerning, as they were used to construct an analytical framework—that was then tested empirically—rather than to make definitive claims. Furthermore, the study relied on secondary sources. The secondary sources limited my view of the assembly to the source's interpretations of the data, indicating that some data may have been overlooked. However, these sources originated from academia and included external and internal evaluations as well as raw non-participant observation data, thus allowing for the triangulation of findings.

Lastly, I acknowledge my personal limitations. There may have been some loss of detail in the analysis due to language differences and the extensive data analysis. To mitigate this, I cross-referenced the original German data with English translations, particularly in cases of ambiguity. However, I cannot be certain that nothing was missed. Furthermore, framing is an abstract concept and heavily dependent on the researcher's interpretation. To counter

subjectivity, I practiced self-reflection regarding my positionality by ‘reframing’ my thoughts and engaging in critical discussions with peers. Furthermore, I established safeguards by grounding my work in the established research of other scholars to mitigate biases and implementing a systematized analysis process, including cross-checking data. This ensured a more robust analysis and increased the validity of the results.

5.5 Theoretical implications

The analytical framework

The application of the analytical framework to the case study demonstrates its practical utility, revealing that framing occurred consistently throughout the assembly and involved characteristics not initially included in the framework. This suggests that the framework must be applied flexibly, acknowledging that framing can manifest in various ways. Additionally, the absence of many frames identified by Hulme et al. (2018) indicates that the list of frames may need updating. The analysis also highlights the subjective nature of determining the presence of framing, underscoring the need for cautious application. Furthermore, the results support the claim that bottom-up/top-down aspects of climate assemblies are relevant for framing; I therefore argue that framing should be included into top-down/bottom-up criteria, persuasive as the former and deliberative framing as the latter.

The analytical framework (and tool) can be used for future research and by practitioners. **First**, given the importance of framing, it can be (in part) integrated into existing evaluation frameworks such as the ones by OECD (2021) and Caluwaerts & Reuchamps (2023). **Second**, I invite researchers to apply my framework to other cases, to enhance the framework, to gain additional empirical insights and to use it for comparative analyses. **Third**, the framework could be used as a basis for investigating the influence of framing. This can be done using process tracing (see Beach & Pedersen, 2019) and comparative case studies. The influence of framing could be traced within the assembly and beyond, for example how the frames within the assembly are discussed by the public or how governments respond to the assembly’s report. **Fourth**, this framework can be used to increase understanding about the differences between persuasive and deliberative framing, in which cases one may be more adapted, and how to foster deliberative framing.

To gain a more comprehensive understanding of framing when applying the framework, the results suggest ways to enhance it. **First**, researchers should be present during the assembly to increase the data collection. **Second**, due to the pervasive nature of framing, researchers should engage in more in-depth analyses. This could be achieved through coding of scripts throughout the assembly. The coding would identify the themes/topics present, and its links to a 1) frame and function, and 2) element that frames. Furthermore, codes could be hierarchized to contain overarching codes (e.g., ethical framing) and subcodes (e.g., emotions). The subcodes would provide the coding framework for a script analysis, and the general codes could be used to guide non-participant data collection. This hierarchy of codes would allow the analytical framework to be applied for both types of data sources, depending on the aim, and data availability, of the research. **Third**, participant surveys and semi-structured interviews would further enhance the analysis by providing insights into participants' perspectives on framing, thereby increasing the validity of the results. **Fourth**, the analysis of the recommendations could be enhanced, for example by evaluating them in terms of their potential contribution of the recommendations to reducing emissions and/or to limiting global warming to 1.5°C (Carrick, 2022) (and link this scientific plausibility of the task).

Framing

When adding frames to climate deliberation, it is not simply about increasing the number of frames: The consideration of the *frame* itself is crucial. Future research could further knowledge about frames and their implications.

First, I invite researchers to contribute to research on the dominant versus minority framings of climate. This research aimed to see past the dominant framing of climate change, but still lacks information about minority frames. This is likely because dominant framings are how most people, including myself, understand, and thus engage, with climate. To move past this, perhaps we must start by 'deframing' climate as proposed by Castree (2021). To integrate minority frames into deliberations, it is necessary to understand them. Here, I add a new research question—is there a limit to frames that climate should include? For example, climate denialism could be seen as a frame. McKinnon (2016) argues that climate denialism should not be tolerated, but climate denialist participants are sometimes present (see Andrews et al., 2022). What does this mean for climate assemblies?

Second, researchers should investigate the deeper implications of frames in climate assemblies. For example, incorporating individual frames can make climate more relatable to people, thereby making other frames and their meanings more tangible. However, Bee et al. (2015) argue that current climate policy is disconnected from how climate change is experienced and contested. While framing climate change at the individual level—in terms of the everyday—can reveal how mundane governance decisions affect individuals, focusing on individual choices can obscure the broader systemic issues that produce climate change. The focus on individuals shifts responsibility away from the state, allowing politics to continue business-as-usual. It is also important to remember that individual actions would only reduce emissions by up to 25%, emphasizing the importance of not using the individual frame too much (as calculated for France by Dugast et al., 2019). Instead, Bee et al. (2015) argue that individuals should direct their energy towards supporting collective action that addresses the deep inequalities of climate change. This suggests frames could be researched, or addressed, in tandem with other frames—for example, combining the individual and collective frames.

Third, further research could investigate how to make complex frames more tangible for participants. This can be linked to widely used framing of climate change in terms of uncertainty (not investigated in this case). Furthermore, complexity will impede how participants justify their arguments. For example, a technical frame can easily be justified using arguments such as *"this will decrease X emissions."* Ethical perspectives are harder to justify—as most measures will involve a disproportionate distribution of burdens and benefits. How are justifications for different frames made?

To enhance scholarly research, I urge scholars to engage in interdisciplinary collaboration. Psychology, environmental policy, and deliberative democracy researchers should collaborate closely. For example, research shows that cognitive biases inhibit deliberation about climate change (Zaval & Cornwell, 2016). Furthermore, psychology and cognitive research reveal that our brains operate through two systems: System 1 responds quickly and is related to feelings and intuition, and system 2 responds slowly and is more rational. In situations of distress, including emotionally, system 2 takes over (Kahneman, 2011). This suggests that framing impacts system 1, and that system 2 is necessary for engaging with frames. Investigating climate change framing through interdisciplinary research would provide comprehensive insights into how to effectively frame climate change to participants.

5.6 Policy implications

For future assemblies, greater transparency in the process and facilitating data access for researchers should be implemented. Additionally, the current use of differing definitions and terminologies creates confusion. While having multiple definitions fosters refinement of conceptualizations, it complexifies understanding. I recommend scholars and practitioners to streamline and consistently define their terminology to improve communication and understanding.

Due to the pervasiveness of framing in climate assemblies, carefully considering the implications of framing when organizing assemblies is key. Clearly defining the role or aim of climate assemblies can help choosing how to integrate framing. For example, should the assembly aim to give politics to-do lists or be a platform for giving voices to nuanced public opinions? Assemblies cannot tackle everything (Vrydagh, 2022) and making informed opinions will increase the quality of climate deliberation. If an assembly aims for specific recommendations, persuasive framing and a narrow scope would be more appropriate. However, it is crucial to remember the political problems deliberative democracy aims to tackle, notably including alternative framings of climate. This suggests climate deliberation could be made up of interconnected assemblies with differing purposes—perhaps a general climate assembly to consider overarching principles and secondary assemblies to consider specific policies.

This report furthers the claim that climate deliberation is unique—due to the higher levels of knowledge preparation but mainly linked to how climate affects all our lives. In citizens' assemblies, the participants are telling others what to do; in climate assemblies, the participants are deciding what the *collective they* should do. This was highlighted by individuals feeling targeted during the assembly and reinforces the importance of considering beliefs and values, i.e., including deliberative framing. Furthermore, equipping facilitators with climate knowledge and awareness of framing can enhance deliberations. Additionally, to uphold the core value of inclusion and thereby increase the legitimacy of the process, participants' attitude to climate can be included systematically in selection procedures.

This research showcases some of the dangers and benefits of (deliberative) framing. I therefore invite practitioners and governments to be are aware of framing and engage in deliberative framing when organizing climate assemblies. The tool provided by this report will aid in identifying framing. In doing so, practitioners need to be aware of the pervasiveness of framing, possibly engaging in deliberative framing themselves when defining key aspects of the assembly. By actively considering how dominant framings and their own personal assumptions impact their choices, they will likely enhance the design of assemblies. Deliberative framing can also be fostered by relying on diversified sources of knowledge (Blue, 2015; Cherry et al., 2021). Key design aspects to consider are the assembly structure—if it includes workstreams and including cross-stream elements—and assembly scope. Furthermore, to improve the integration of more complex frames, these frames could be communicated in more diverse ways. For example, systems thinking could be introduced using the interactive method of a 'climate fresco'[7]. Integrating systems thinking could provide a overarching frame to link separate frames, providing a more comprehensive framing of climate change. Deliberative framing is particularly suited for discussing ethical frames, as these discussions depend on our values and require thorough dialogue, reinforcing the call for

[7] see https://climatefresk.org/world/

more deliberative democracy to achieve *just* climate action. This finalizes the answer to research question 4.

6 Conclusion

In conclusion, this study aimed to investigate framing within climate assemblies. First, it posited that actively engaging with framing is key to enhance deliberative democracy. Second, it produced an analytical framework to investigate the occurrence of framing within climate assemblies, outlining the key components of framing. Third, it applied the framework to a case study to demonstrate its applicability and further the understanding of framing in practice. Lastly, it proposes a tool for practitioners to be aware of and to understand how framing occurs in assemblies. The study highlighted, and confirmed, the pervasiveness of framing within climate assemblies. It also explored the concept of deliberative framing—to actively acknowledge and work *with* framing to *enhance* deliberation rather than influence it. It furthered the claim that deliberative framing can pave the way towards alternative framings and novel ideas, indicating that deliberative framing should be a key component of climate assemblies for them to spur climate action.

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Appendices

Appendix A: Interview protocol

Introduction

Thank you very much for your time and willingness to participate. This research project studies national climate citizens' assemblies, specifically their scope[8] and how it influences the assembly. It is part of my master thesis, carried out at Utrecht University. **This interview is semi-structured**, meaning the following questions only serve the purpose of guiding the interview to ensure I cover all aspects. The name of all respondents will be kept confidential. Before starting the interview, I kindly ask you to read the informed consent form and to sign it if you agree with the conditions of this interview. Additionally, with your consent I will turn on the automatic transcription of our call.

1. Respondent

1.1. What was your role or position regarding the climate assembly?
1.2. What is your area of expertise?
1.3. What were your key responsibilities regarding the assembly?

2. Scope of the assembly

I am aware of the following information concerning the assembly and its scope.

- Guiding question: *"What do we need to do today to live in a climate-neutral future tomorrow? Proposing measures to reach climate neutrality in Austria by 2040."*
- Assembly structure: *[I showed interviewee the work-in-progress diagram of the structure.]*

2.1. This is how I have summarized the structure of the assembly in terms of scope and the themes it addressed. Does this seem correct and/or do you have anything to add?
2.2. Could you lead me through the decision-making process that led to the setting of this scope (i.e., climate) and the selection of these themes?
2.3. Could you describe how and why you chose to divide participants into thematic workstreams (for each phase: learning, consultation, deliberation).
2.4. To what extent was the 'aim' or guiding question important throughout the assembly? And was this clear for participants?

3. Themes

3.1. Did participants have any say in the themes?
3.2. Do you think they influenced the assembly in any way?
3.3. Cross-sectoral themes–how were they determined, and how (and by whom) were they tackled?
3.4. Cross-sectoral themes–I have come across multiple so-called cross-sectoral themes ('Querschnittthema') but find contradicting or competing information.
Could you explain which are 'correct', how they were determined and how (and by whom) they were addressed? Do these refer to the 'Neigungsgruppe'?

[8] The original research question was formulated around 'scope' rather than 'framing'. Since the research objects remained the same (as scope and its related elements are integral to framing), the wording used in the interviews was left unchanged to avoid introducing inaccuracies.

4. Learning

4.1. Overall, do you think the participants received a good picture of the climate crisis?
4.2. Adaptation and mitigation–were they addressed during the assembly and how?
4.3. Questions–how and when could questions/Q&As for experts be asked?
4.4. Any additional comments concerning learning?
4.5. Environmental psychology–do you think it was useful?
4.6. Scientific feedback for recommendations–did it mostly take place per thematic workstream? Any additional information?
4.7. Learning documents (informational brochures) and the internal area for the participants–were they used/useful?

5. Consultation

5.1. Any comments concerning the consultation in regards to the scope of climate change?
5.2. Any additional comments concerning consultation?
5.3. Did participants prepare and then discuss each consultation prior and post each consultation? Did this take place within their workstreams?

6. Deliberation (discussions, developing recommendations and decision-making)

6.1. How knowledgeable were the moderators and facilitators about climate change and do you think this was important for the assembly?
6.2. How did thematic workstreams 'mix' together and how 'effective' was this? *[if applicable]*
6.3. Contentious topics and dilemmas–do you remember any major dilemmas and how were these resolved? Did this happen within workstreams or not?
6.4. Were there any 'hot' topics or themes participants seem more interested about? (e.g., social aspects vs. technical ones)?
6.5. Any additional comments concerning deliberation?
6.6. Do you think the fact that all members learned about all themes together helped when workstreams had to come together again?

7. Recommendations

7.1. Did any new, 'surprising,' ideas come out of the assembly?
7.2. Was there an overarching aim for the outcome of the recommendations? (policy levels, specificity etc.)
7.3. Did participants receive scientific feedback for their recommendations? If so, how did this take place?
7.4. Was there any sort of evaluation of the effectiveness of the recommendations during the process and if so, did that lead to any changes in the recommendations?
7.5. How were the principles for action and general recommendations written, by whom and how were they voted on?

8. Decision-making

8.1. How did the final decision-making take place?
8.2. How did the final decision-making take place? (I.e., how were serious objections formulated and shared)

9. Miscellaneous

9.1. Did any aspects seem particularly important for approaching such a broad subject?

9.2. Systems thinking–was think incorporated into the assembly?

10. Influence of scope on the climate assembly

10.1. What impacts did the breadth of the scope of climate change have on the various phases of the assembly? (learning, consultation, deliberation, decision-making, recommendations)

10.2. Do you think there were other impacts? In a positive or negative way?
E.g., trust, opinion change, empowerment, polarization, systems-thinking…

11. Participants

11.1. Bottom-up aspects of the assembly: did participants have a say in the assembly design at any point?

11.2. The participant selection was slightly biased ‘pro-climate’ – were any members ‘anti-climate’? Did this impact the assembly?

12. Context

12.1. Links to politics and policy [insert link to policy for the case]–could you elaborate on this

12.2. How would you describe the political environment of the country in terms of experiences with deliberative forums?

12.3. Links to politics and policy: the evaluation report wrote that there was no clear definition of how the assembly would be used. In addition, the assembly recommendations clearly mention the importance of the Climate Change Act (Klimaschutzgesetz). Do you know of any additional information concerning this?

13. Closing

13.1. Is there anything else you would like to share?

Appendix B: Email interview questions

Not included for privacy reasons.

Appendix C: Comprehensive list of sources from the assembly website

The sources in Table C1 below can be found at:

- For webpages: https://klimarat.org/
- For all the documentation: https://klimarat.org/dokumentation/

Table C1

Comprehensive list of sources utilized from the Austrian climate assembly's website.

Data	Date, source	Extent of use and use for results[1]
Webpages[2]		
Home page	n.d. Der Klimarat	Extensively reviewed 1-4 (5)
The Climate Council's teams and advisory boards		
Documentation		
Written and video summaries of weekends		
6 written summaries, one per weekend	15.01-12.6.2022 Der Klimarat	Extensively reviewed 1-4 (5)
6 video overviews, one per weekend		
Scientific informational texts in preparation for weekends		
General climate science	In preparation for 15.01.22 Der Klimarat	Partially reviewed 2
Food and land-use	In preparation for 26.02.22 Der Klimarat	
Energy	In preparation for 26.03.22 Der Klimarat	
Housing	In preparation for 26.03.22 Der Klimarat	
Mobility	In preparation for 26.03.22 Der Klimarat	
Production/consumption	In preparation for 26.03.22 Der Klimarat	
Short videos interviews with scientific experts		
Interviews with general climate science experts & leads of the assembly's scientific advisory board	In preparation for 15.01.22 Dr. Georg Kaser (climate and glacier researcher), Dr.in Birgit Bednar-Friedl (environmental economist)	Used for additional insights 2
Interview with food and land-use expert	In preparation for 26.02.22 Dr. Martin Schönhart (agricultural economist)	
Interview with energy, production/consumption expert	In preparation for 26.03.22 Prof. Dr. Nebojsa Nakicenovic (energy expert)	
Video recording of formal scientific presentations		
Basics of the climate crisis	15.01.22 Dr. Georg Kaser (climate and glacier researcher)	Partially reviewed 2
The role of Austria	16.01.22 Dr.in Birgit Bednar-Friedl (environmental economist)	
Food and land-use	26.02.22 Dr.in Marianne Penker & Dr. Martin Schönhart (University of Natural Resources and Life Sciences)	
Climate crisis psychology	26.02.22 Dr.in Isabella Uhl-Hädicke (environmental psychologist)	
Energy	26.03.22 Dr. Willi Haas (social ecologist), Prof. Dr. Nebojsa Nakicenovic (energy expert)	
Housing	26.03.22	

	Dr.in Andrea Jany (architect and housing researcher), Dr. Alexander Passer (professor of sustainable construction)	
Mobility	26.03.22 Dr. Paul Pfaffenbichler (traffic expert), Dr. Sebastian Seebauer (environmental psychologist)	
Production/consumption	26.03.22 Dr.in Monika Köppl-Turyna (economist), Dr. Karl Steininger (climate economist)	
Opinion papers		
Global responsibility	In preparation for 26.03.22 AG Globale Verantwortung (Global Responsibility Organization)	Partially reviewed 2
Social justice	In preparation for 26.03.22 Armutskonferenz (Poverty Conference)	
Mobility	In preparation for 26.03.22 Behindertenrat (Disability Council)	
Energy	In preparation for 26.03.22 Bundesjugendvertretung (BJV, Federal Youth Representation)	
Energy, production/consumption, social justice	In preparation for 26.03.22 AK und ÖGB (Chamber of Labour and Austrian Trade Union Federation)	
Energy, mobility	In preparation for 26.03.22 Klimavolksbegehren (Climate Referendum)	
Food/land-use	In preparation for 26.03.22 Landwirtschaftskammer (LKÖ, Chamber of Agriculture)	
Social justice, food/land-use, energy, general	In preparation for 26.03.22 Ökobüro (Eco-office)	
Food/land-use, production/consumption, energy	In preparation for 26.03.22 Umwelt Dachverbands (Environmental Umbrella Organization)	
All themes	In preparation for 26.03.22 Wirtschaftskammer und der Industriellenvereinigung (Chamber of Commerce and the Federation of Austrian Industries)	
Videos of stakeholder presentations		
Introductory video to stakeholder consultations	23.04.22 External stakeholders	Partially reviewed 2
Stakeholder introductions	23.04.22 External stakeholders	
Online consultation		
Results from the online consultation	14.05.22 Public	Partially reviewed 2

(1) Extensively reviewed = analyzed using content analysis, partially reviewed = analyzed selectively for specific information, used for additional insights = reviewed succinctly. (2) Webpage titles translated by author.

Appendix D: Informed consent form template for interviews

Date: Place: Utrecht

The research project

Title:	Designing the scope of National Climate Citizens' Assemblies
Host institution:	Utrecht University
Student:	Noemie Vetterli (n.j.vetterli@students.uu.nl, +41 79 887 89 84)
Supervisor:	Prof. Frank van Laerhoven (f.s.j.vanlaerhoven@uu.nl)

This research project is for my master's thesis at Utrecht University, and it is carried out under the supervision of Prof. Frank van Laerhoven. The thesis will be finalized by July 2024. The aim of my research is to investigate national climate citizens' assemblies, specifically how their scope[9] influences the assembly.

Participation in the project includes

An interview of 45-60 minutes. The participant may request to receive the final thesis via email when it is finalized.

Voluntary participation

Participation is voluntary, and you may withdraw from the project at any time, without having to give any reason.

Confidentiality and anonymity

Your responses will be kept strictly confidential, and digital data will be stored in secure computer files. Any publications based on this research will not include your name or any other individual information by which you could be identified. The project's research records may be reviewed by departments at Utrecht University responsible for regulatory and research oversight.

Further use of data

Your data will be used exclusively by researchers and for scientific purposes. The final thesis will be published in an online Utrecht University repository.

Consent

I hereby confirm with my signature that my questions have been satisfactorily answered that I have read, understood, and agree to the terms of this consent, and participate voluntarily in this project.

_____	_____
Participant name	Signature
_____	_____
Interviewer name	Signature

If you have questions, comments or concerns about this research project, please contact me:
Noemie Vetterli, n.j.vetterli@students.uu.nl
If you have questions about your rights while taking part in the study or have concerns about the treatment of research participants, please write to: the secretary of the SG ERB, etc-beta-geo@uu.nl).
Whom to contact in case of concerns about privacy? Send an email to: privacy-geo@uu.nl

[9] The original research question was formulated around 'scope' rather than 'framing'. Since the research objects remained the same (as scope and its related elements are integral to framing), the wording used in the interviews was left unchanged to avoid introducing inaccuracies.

Appendix E: Data Transfer Agreement for non-participant observation data of the Austrian climate assembly

Not included for privacy reasons.

Appendix F: Overview of the Austrian scientific information

Table F1

Overview of the scientific information presented to participants during the Austrian climate assembly.

Theme	Duration and format	Main information conveyed
Climate change science	- Lecture & informational brochure - Online summaries & material - Q&As - Informal learning	- Adaptation and mitigation - Measures vs. instruments - Energy - industry - transport - agriculture - buildings
Food/land-use		Levers for action: - Choice of food - Decrease food loss and food waste - Improve production (of food) - Increase carbon sinks - Provide renewable energy
Environmental psychology	- Lecture - Informal learning via experts and moderators	- Definition environmental psychology and answering why do we know so much, and yet so little happens? - Focused on individual changes
Energy	- Lecture & informational brochure - Online summaries & material - Q&As - Informal learning	Levers for action: - Decrease overall energy usage (without impacting quality of life) - Switch to renewable energy sources (decarbonization) - Increase energy efficiency (disruptive innovation) - Restructure financing (investments, CO2 pricing)
Mobility		Levers for action: - Decrease volume of traffic - Shift to less CO2 intensive modes of transport - Increase efficiency - Break habits
Production/ consumption		Levers for action: - Decrease GHGs in the use and production of products - True cost - Promote social and technological innovations for the reduction of GHGs (+ necessary accompanying legal framework) - Provide infrastructure, public, and private financing (e.g., circular economy) - Raising awareness and labeling
Housing		Levers for action: - Existing uses: activate and make attractive - Demand the best possible renovations - Anticipate adaptation requirements - Focus on gray and operational emissions
Cross-sectoral themes*	- Q&As - Informal learning	- Systems thinking - Social justice - Global responsibility - Circular economy - Climate damaging subsidies - Education - Health - Sufficiency - Acceleration of implementation - Fundamental Right to Climate Protection

**Lack of data concerning these themes.*

Appendix G: Austrian climate assembly list of recommendations

The original list of recommendations can be found in ARGE Klimarat (2022), the translation below is from Buzogány et al. (2022).

General Recommendations

1. Introduce a basic right to climate protection
2. Abolish subsidies that are harmful to the climate
3. Form and expand cross-border alliances for climate protection
4. Implement effective CO2 pricing
5. Support the labor market in the direction of climate protection
6. Raise awareness for inconvenient measures

Energy

7. Introduce an effective climate protection law without delay
8. Expand zero-emission energy nationwide with the goal of 100% renewable energy supply
9. Require energy suppliers to adjust their pricing policies
10. Abolish subsidies for fossil energy
11. Effective CO2 pricing in the energy sector
12. Use already sealed areas for energy production and avoid further soil sealing
13. Municipalities and public administration should take on an exemplary role and make use of savings potential
14. Financial service providers should set an example and make use of savings potentials
15. Companies should play an exemplary role and exploit savings potentials
16. Promote green investments
17. Make citizen participation in spatial energy planning mandatory

Consumption and Production

18. Set up a non-partisan climate commission
19. Create experimental spaces for social and technological innovations
20. Make product reparability obligatory
21. Ban the destruction of new goods
22. Make energy labels compulsory for more consumer goods and take into account the entire product life cycle
23. Extend and tighten the EMAS environmental management label
24. Increase private investment capital in climate-impacting investments: green stock index and green government bonds
25. Introduce more favorable loan conditions for climate-impacting projects
26. Expand financial participation of citizens in regional climate-friendly projects
27. Integrate climate protection in curricula and adult education
28. Restrict advertising for products that are harmful to the climate and ban advertising for products that are particularly harmful to the climate
29. Introduce or expand refill stations in supermarkets/drugstores
30. Create a coordination office for climate-effective synergies between companies
31. Reduce plastic packaging waste
32. Establish a center for the circular economy

Food and Land Use

33. Set political incentives for a climate-friendly diet
34. Introduce climate-friendly and value-based pricing of food products
35. Introduce greenhouse gas tariffs based on climate footprint for food from third countries
36. Introduce a ban on food destruction
37. Use suitable agricultural land that becomes available to mitigate the climate crisis, e.g., for efficient energy production
38. Make it compulsory to use climate-friendly food in restaurants and large-scale kitchens
39. Establish a legal framework for portion sizes in large kitchens and restaurants
40. Implement unit pricing instead of bulk packaging
41. Prohibit quantity discounts for food
42. Promote self-sufficiency in renewable energy in communities and on farms
43. Promote energy production from waste (biomass) and close nutrient cycles
44. Examine and align agricultural policy measures at EU and national level with regard to their actual impact on the climate
45. Promote CO2 sequestration through sustainable forestry and make tree planting in public spaces mandatory
46. Create the basis for humus build-up
47. Provide targeted support for small and medium-sized enterprises in the implementation of climate protection measures
48. Promote innovative climate-friendly production and distribution channels for agricultural products
49. Promote knowledge and education on climate-friendly nutrition
50. Introduce anti-discrimination legislation for vegetables and fruit: compulsory purchase of crooked vegetables
51. Create awareness for climate-friendly food handling
52. Promote transparency and compulsory labelling of food product standards
53. Promote and advertise public distribution refrigerators

Housing

54. Immediate offensive to promote redevelopment
55. Stop soil sealing - promote redevelopment more than new construction
56. Stop soil sealing - shift regional planning competences
57. Stop soil sealing - implement development deadlines for building plots
58. Compulsory installation of photovoltaics
59. Introduce a vacancy tax and mandatory vacancy reporting
60. Make buildings energy self-sufficient
61. Harmonize the legal framework for climate-neutral buildings
62. Co-housing from 0 to 100+
63. Develop and legally anchor the best possible climate-friendly building and renovation standards
64. Introduce CO2 pricing for building materials
65. Reduce grey emissions, promote circular economy: recycle building materials
66. Re-densify existing buildings
67. Climate-friendly retraining and apprenticeship program in the building sector
68. Re-evaluation of risk areas
69. Mobilize already dedicated building land
70. Energy quality label with redevelopment effect

71. Adapt monument protection to the climate

Mobility

72. Introduce a climate-neutral mobility guarantee
73. Promote public transport
74. Promote cycling and walking
75. Introduce higher taxes for climate-damaging vehicles
76. Shift zoning from municipal to regional or provincial level
77. No new registrations (first registrations) of cars with combustion engines after 2027
78. Strengthen parking space management, city toll, and car-free city centers as further options
79. Promote climate-friendly freight transport - introduce a level playing field for rail and road transport
80. Ecologize commuter allowance and kilometer allowance
81. Reduce speed on roads
82. Optimize the shared use of cars
83. Reduce company cars
84. Introduce paraffin taxation
85. Expand international train traffic
86. Make returns in online retailing subject to a charge
87. Implement inclusiveness and accessibility in all means of public transport
88. Give away free public transport tickets
89. Build more charging stations for electric vehicles
90. Develop a car lifetime calculator
91. Anchor tax deductibility of bicycles in law
92. Reduce the number of journeys to school and kindergarten by private car
93. Introduce a monthly car-free day