

HOW IS JUST RESILIENCE ADDRESSED IN CLIMATE ADAPTATION POLICY?

LOOKING INTO PROCEDURAL JUSTICE IN WATER MANAGEMENT
POLICY IN BELGIUM.

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Abstract

As climate change intensifies, the concept of Just Resilience has gained traction as an approach that seeks to integrate justice into climate adaptation. This thesis explores one key dimension of Just Resilience: procedural justice, which concerns the fairness and inclusiveness of policy processes. Focusing on Belgium, a developed country facing growing water-related climate challenges, the study investigates to what extent procedural justice is embedded in water management policy, with particular attention to two vulnerable groups: farmers and individuals with a low socio-economic status. Through a mixed-methods approach combining document analysis and semi-structured interviews across multiple governance levels, the research assesses how the key indicators of procedural justice (i.e participation, inclusion, transparency, consistency, ethics/trust, and recognition of impact) are operationalised in theory and in practice. The findings reveal that while policy frameworks and documents sometimes acknowledge procedural justice in principle, actual implementation remains limited and fragmented. Vulnerable groups are insufficiently involved in shaping the policies that most affect them. This limited engagement often takes the form of symbolic or one-off consultations, lacking meaningful influence or sustained involvement. As a result, a disconnect emerges between formal commitments to participation and the lived experiences of those most impacted, highlighting a persistent procedural gap in water management, and broader climate adaptation, governance. The thesis concludes that bridging this gap requires strengthening participatory structures and ensuring more meaningful involvement of vulnerable groups throughout the policy process. It ends with a call for a deeper ethical and political commitment to truly inclusive climate adaptation.

Preface

Throughout my academic journey, I have always felt a strong passion for climate-related issues. I am deeply grateful that this thesis allowed me to explore this passion in depth, especially since climate topics are not often prominently addressed across all courses in my programme. This made the opportunity to focus on “Just Resilience” particularly meaningful to me, both academically and personally.

I would like to sincerely thank my supervisor, Claire Dupont, who was truly the ideal promotor for this topic. As both a former lecturer and a guiding presence throughout this process, she brought a refreshing and insightful perspective that deepened my understanding of climate policy. Her encouragement, critical thinking, and trust gave me the freedom to shape this research in the way I felt most relevant, and her guidance pushed me to think beyond what I might otherwise have simply written down. I am very pleased and grateful I got to work with her on this project.

I also wish to thank Evi Van Dorsselaer for her support during a key transitional moment in the process; when I was still finding my way from the initial concept to the final research idea. Her guidance came at just the right time.

Finally, I want to thank my loved ones. My partner Aaron, who not only read through this rather lengthy thesis, but also gave me the mental strength to get through this challenging year. It has been a period of juggling many responsibilities, and I truly hope this thesis marks the successful end of that effort. I could not have done it without him. A heartfelt thanks as well to my sister-in-law Chloë, who carefully reviewed my thesis and offered valuable feedback that meaningfully contributed to the final result. And lastly my friend Helena, with whom I spent these last four years of public administration.

Table of contents

Abstract.....	ii
Preface.....	iii
Table of contents	iv
List of abbreviations	vi
Introduction	8
1.1 Problem definition.....	8
1.1.1 Practical relevance	8
1.1.2 Focus and research question	9
1.1.3 Theoretical relevance	10
2. Theoretical framework.....	12
2.1 Conceptualisation	12
2.1.1 Just Resilience.....	12
2.1.2 Procedural Justice	14
2.1.3 Indicators of procedural justice	15
2.2 Climate adaptation and water policy context	18
2.2.1 Climate adaptation policy.....	18
2.2.2 Water management policy	18
3. Context information	19
3.1 Governance and climate competences in Belgium	19
3.2 Institutional and policy context of climate adaptation and water management.....	20
3.2.1 Policy domain	20
3.2.2 Multi-level climate governance.....	20
3.3 Vulnerability	26
3.3.1 ND-GAIN Country Index	26
3.3.2 Identifying the vulnerable groups in general	27
3.3.3 Vulnerable groups in Belgian water management	29
4. Methodological framework	30
4.1 Choice of research unit	31
4.2 Data collection and analysis	36
4.3 Quality Paragraph	40
5. Results.....	41
5.1 Results document analysis.....	41
5.1.1 Summary table.....	42
5.1.2 Level of Belgium	44

5.1.3 Level of Flanders	47
5.1.4 Level of West Flanders	50
5.1.5 Level of Ostend	53
5.2 Results interviews	56
5.2.1 Participation	57
5.2.2 Inclusion.....	59
5.2.3 Consistency	61
5.2.4 Trust and ethics	62
5.2.5 Transparency.....	63
5.2.6 Impact.....	64
5.2.7 Barriers to participation	66
5.3 Synthesis of findings per level.....	68
Discussion.....	70
Conclusion	76
Bibliography	lxxviii
Appendices	xc

List of abbreviations

COP: Conference Of the Parties

EEA : European Environment Agency

EGD : European Green Deal

EU : European Union

IPCC : International Panel on Climate Change

MMR : Mixed-Method Research

NAP : National Adaptation Plan

NDC : Nationally Determined Contributions

SES : Socio-Economic Status

Introduction

This introduction outlines the problem definition and highlights both the practical and theoretical relevance of the study. It also delineates the research focus and objective. The section addresses existing knowledge, identifies gaps in the literature, and explains how this research responds to them (Stapleton, 2023).

1.1 Problem definition

1.1.1 Practical relevance

According to the Intergovernmental Panel on Climate Change (IPCC), the average global temperature has risen by at least 1.1°C since the Industrial Revolution in 1880 and has been rising significantly since (IPCC, 2021). While this may not seem catastrophic numerically, such a rise is already triggering severe consequences, including extreme weather events and the transgression of planetary boundaries, which will destabilise the current Holocene and will risk causing irreversible effects (Steffen et al., 2015).

A key issue regarding this is the unequal distribution of climate change impacts. Developing¹ countries, which contribute the least to climate change, are disproportionately affected (Schlosberg, 2012). The negative effects are already being felt by these countries, highlighting the urgent need for not only climate mitigation, but also climate adaptation to help the developing countries withstand climate impacts (UNDP, 2024). While climate mitigation refers to efforts to reduce greenhouse gas emissions, climate adaptation is defined as “the processes of adjustment to actual or expected climate and its effects, where it seeks to moderate or avoid harm or exploit beneficial opportunities” (Intergovernmental Panel on Climate Change, 2014; UNDP, 2024).

However, climate change also exacerbates inequalities within countries. Vulnerable groups in society often bear the brunt of these impacts due to limited resources and social marginalisation. Additionally, adaptation policies frequently reveal further inequities, as these groups are often excluded from measures that they need most (Bosello et al., 2012).

This underscores the importance of justice in climate adaptation policy; also referred to as Just Resilience. The concept emphasises “leaving no one behind” as we adapt to the impacts of climate change. This implies that everyone should have an equal opportunity to protect themselves against the negative consequences of climate change and recover from them

¹ Side note: In this thesis, terminology such as “developed/developing” and “poor/rich” is used because these terms are prevalent in the literature and familiar to readers. However, their usage does not imply any value judgment about countries, nor a preference for these terms. Their inclusion is solely intended to align with existing literature, with an awareness that alternative terminology might be more appropriate in other contexts (Khokhar & Serajuddin, 2024).

(European Environment Agency, n.d.). Adaptation measures should not create winners or losers. However, in practice, this is sometimes the case, where certain groups are unable to benefit from climate adaptation solutions, also known as “maladaptation” (European Environment Agency, n.d.-b). The disadvantaged are often vulnerable groups such as women, the elderly, young children, people living in poverty, and farmers (UNDP, 2024). To avoid such unequal outcomes, it is essential to rethink how adaptation policies are designed and implemented. In particular, greater attention must be paid to equity, justice and meaningful engagement of vulnerable groups (European Environment Agency, 2022). Their active participation in policymaking is crucial to ensure that policies reflect the needs of all segments of society and that adaptation strategies are more inclusive and effective (Erokhin, n.d.). Unfortunately, participation remains mostly theoretical and is seldom implemented in practice (European Environment Agency, 2022).

In summary, inequality exists both between and within countries. On the one hand, there is a divide between developed countries and developing countries, including least developed countries (LDCs) and Small Island Developing States (SIDS). Developed countries often possess the resources to adapt more effectively, whereas developing countries bear the brunt of climate change impacts with limited adaptive capacity. However, within countries, vulnerable groups, such as women, farmers, and low-income populations, also face disproportionate risks. These groups often lack access to adaptation measures that could benefit them most, further exacerbating existing inequalities or creating new ones (European Environment Agency, 2022).

1.1.2 Focus and research question

This thesis will focus on Just Resilience within the context of a developed country. Belgium was selected as the case study due to its complex federal governance structure and the resulting multi-level organisation of climate adaptation policy, which made it an interesting research unit. Within this broader policy field, this research focuses specifically on water management policy, for several reasons. First, water management is not only a core element of climate adaptation, but also a policy domain with significant multi-level interaction, with responsibilities distributed across regional, provincial, and local authorities (Coördinatiecommissie Integraal Waterbeleid, n.d.). Second, Belgium is already facing considerable water-related climate challenges, particularly drought and flooding, which are expected to intensify in the coming decades (Vlaamse Milieu Maatschappij, n.d.). Lastly, water-related impacts have direct and disproportionate effects on certain vulnerable groups, making the domain highly relevant for examining questions of justice and inclusion. In this thesis, the focus is placed on two such groups. The first group consists of farmers, who are directly and repeatedly affected by climate-related risks such as droughts and floods, putting agricultural production and livelihoods at stake. The second group includes individuals with a low socio-economic status, who often lack the financial and infrastructural means to prepare for or recover from extreme weather events (European Environment Agency, 2022). These groups are discussed in more detail in Chapter 3, which explores vulnerability in the Belgian context.

Furthermore, given the multi-dimensional nature of Just Resilience, this study narrows its focus to a single dimension: procedural justice. Simply put, this refers to who is involved in decision-making and policy processes (European Environment Agency, n.d.-c). This dimension logically includes participation and inclusion, which are essential aspects to achieve justice. As discussed supra, despite the fact participation is needed to reach more fair policies, it is often limited to formal frameworks, lacking genuine implementation. Therefore, this research seeks to investigate whether that assumption holds true in practice in the chosen context of Belgium and water management policies.

Lastly it is important to mention that this research operates on two levels. It examines the broader concept of Just Resilience in climate adaptation policy and the more specific element of procedural justice (a component of Just Resilience) in water management policy (a component of climate adaptation policy) in Belgium. This study therefore constitutes an initial step towards exploring Just Resilience and takes a deeper look into the presence of procedural justice within this framework. Altogether, this thesis aims to address the following: *“How is Just Resilience addressed in climate adaptation policy? Looking into procedural justice in water management policy in Belgium”*.

1.1.3 Theoretical relevance

While most climate policy research continues to focus on mitigation, there is a growing recognition that adaptation is becoming increasingly urgent (Schlosberg, 2012). Within the realm of adaptation policy, the emerging concept of Just Resilience has gained prominence. This research contributes to this relatively underexplored field by not only engaging with Just Resilience theoretically, but also seeking to conceptualise and partially operationalise it, with a specific focus on the dimension of procedural justice.

Procedural justice, centred around inclusive decision-making and the meaningful participation of vulnerable groups, is increasingly regarded as a core condition for equitable adaptation. However, its systematic implementation remains limited (European Commission, 2021; Brousseau et al., 2024). Furthermore, empirical research examining how participation is actually realised within climate adaptation policymaking is still scarce (Uittenbroek et al., 2019). This highlights the need for studies that explore how procedural justice principles are reflected and enacted in practice. In response, this thesis applies the concept of procedural justice to the domain of water management in Belgium, a context characterised by multi-level governance and significant climate adaptation challenges. In doing so, the research aims to contribute to both theoretical and empirical understanding by analysing the extent to which participatory principles are integrated into relevant policy frameworks and how they are experienced by stakeholders in practice.

Furthermore, this study adds value by bridging normative theoretical frameworks and concepts with empirical policy analysis. Through a mixed-method approach combining document analysis and interviews, it assesses whether and how procedural justice is embedded in water

management policies, and whether these processes translate into genuine participatory outcomes for vulnerable groups.

While this research is limited to one dimension of Just Resilience, the focus on procedural justice provides a manageable and analytically rich entry point. Future studies could build on this foundation by incorporating additional dimensions (such as distributive or recognitional justice) to build a more holistic understanding of Just Resilience in climate adaptation.

2. Theoretical framework

The theoretical framework will present and elaborate on relevant concepts and theories through existing literature. First, the conceptual framework will be elaborated on. Subsequently, additional relevant concepts and ideas will be discussed. This theoretical framework will guide the research toward answering the main research question.

2.1 Conceptualisation

“Just Resilience” is a relatively new concept, but it is frequently referenced implicitly in the literature. For the purposes of this research, an effort will be made to formulate a clear and comprehensive definition of Just Resilience, which will subsequently be operationalised. To establish the conceptual framework, the “snowball sampling” method (also known as the “chain- referral” sampling method) was employed. This approach allowed for the selection of relevant (academic) texts, and by reviewing their reference lists, additional relevant sources were identified (Simkus, 2023). Furthermore, operationalisation ensures that these concepts can be made measurable so they can be systematically identified in the subsequent stages of the research. The same method will be applied to the concept of “procedural justice”.

2.1.1 Just Resilience

The term Just Resilience was first documented in the EU Adaptation Strategy (as a part of the European Green Deal), developed by the European Commission in consultation with Member States (European Commission, 2021). With this strategy, the European Union (EU) aims to adapt to the consequences of climate change and become fully climate-resilient by 2050 (European Union, n.d.-a). This transition incorporates the concept of Just Resilience, acknowledging that climate change impacts are not distributed equally and emphasising the need for fair distribution of adaptation burdens and benefits (European Environment Agency, 2022). It emphasises that justice must be integrated into all stages of the adaptation policy cycle, ensuring that vulnerable groups are actively involved (European Environment Agency, n.d.).

Byskov et al. (2019) discuss “justice in adaptation and resilience,” focusing on “what is owed to people and future generations after the occurrence of environmental change and the depletion of natural resources”. This highlights a focus on intergenerational justice, a dimension absent in other definitions.

Logically, justice is the central element of Just Resilience, as reflected in the term “just” itself. Various definitions highlight types of justice that must be considered in the pursuit of Just Resilience. Beyond intergenerational justice, Byskov et al. (2019) also discuss distributive, compensatory, and procedural justice. Distributive justice pertains to the fair allocation of resources and responsibilities arising from climate adaptation measures. Compensatory justice focuses on addressing unjust harm caused by the impacts of climate change, aiming to restore individuals to their pre-impact condition. Finally, procedural justice emphasises that vulnerable

groups and other actors must be adequately represented and involved in decision-making processes (Byskov et al., 2019).

The three-dimensional framework of Brousseau et al. (2024) complements distributive and procedural justice with recognitional justice, which examines who is most vulnerable and in what ways. In their research on *Fair Adaptation to Climate Change*, Paavola & Adger (2006) view justice in climate change adaptation as encompassing both individual and collective decisions regarding current and future impacts of climate change. These decisions are shaped by broader societal priorities and the distribution of resources and power. Procedural and distributive justice are prominently featured in their framework.

Lastly, restorative justice aims to address loss and damage but goes beyond climate litigation, which frequently fails to adequately compensate claimants for the effects of climate change as the conventional justice system is often ignorant of victim's needs. Restorative justice can be defined as "a process whereby all the parties with a stake in a particular offence come together to resolve collectively how to deal with the aftermath of the offence and its implications for the future" (Robinson & Carlson, 2021).

Synthesising overlapping aspects of the aforementioned definitions, this thesis adopts the EU Adaptation Strategy (2021) as the foundational definition, supplemented with other relevant elements. In conclusion, Just Resilience refers to a fair approach to climate adaptation and resilience, aiming to reduce inequalities in climate change impacts, focusing on vulnerable groups, and integrating various dimensions of climate justice.

Although not all dimensions of Just Resilience will be examined in this study, operationalising them remains valuable for future research. These dimensions can be measured as follows:

1. Distributive justice: The percentage of climate change adaptation funding allocated to developing countries and vulnerable groups, assessed through mechanisms like the Loss and Damage Fund and NAP financing.
2. Compensatory justice: The presence and implementation of compensation programs for climate-related damages or the percentage of losses restored through these programs.
3. Recognitional justice: Presence of acknowledgment of groups disproportionately impacted by climate change (Brousseau et al., 2024).
4. Intergenerational justice: Consideration of what current generations can leave for future generations regarding resilience and adaptation.
5. Restorative justice: Amount of peace circles and group conferences with the victims, offenders and their communities of care. The existence of restorative programmes such as community service and victim compensation funds (Robinson & Carlson, 2021).
6. Procedural justice: see infra.

2.1.2 Procedural Justice

As the European Environment Agency emphasises, ensuring that no one is left behind in the context of climate adaptation, the foundation of Just Resilience, requires a focus on equity and the meaningful engagement of vulnerable groups (European Environment Agency, 2024). In light of the central role that participation and inclusion play within procedural justice, the analysis concentrates on this particular dimension. By evaluating who participates, how they do so, and how inclusive the participation processes are, procedural justice provides a framework to assess the fairness and inclusiveness of decision-making procedures (European Environment Agency, 2024).

To measure procedural justice, a combination of Leventhal's (1980) criteria and additional academic sources that attempt to assess procedural justice will be utilised and adapted to the context of this research. Leventhal (1980) identifies six criteria that define a fair procedure: "consistency of decisions across persons and time", "suppression of decision-maker bias", "accuracy based on good information and an informed decision", "correctability of errors", "representativeness of groups of affected individuals", and "ethically compatible with fundamental moral and ethical values".

Other scholars highlight specific indicators. For instance, Yazar, Haarstad, and Elfving (2025) define procedural justice as encompassing fairness, equality, and inclusion. Similarly, Tyler (2006) underscores the importance of representation and participation, arguing that procedural justice requires that citizens have the opportunity to express their views.

Research on measuring procedural justice often takes place within a judicial context. Wu (2024), for example, explicitly highlights the role of participation in procedural justice, referencing the notion of "one's day in court". This principle implies that if an individual is denied the opportunity to participate, they have not been granted their right of "one's day in court", i.e. the right to be heard. This right significantly influences whether individuals perceive the outcome as legitimate, even if it is not their preferred outcome. This aligns with the concept of "providing voice," as stated in the evaluation toolkit designed to measure perceptions of fairness in court procedures by Lagratta & Jensen (2015), further reinforcing the necessity of participation.

By integrating these overlapping indicators and adapting them to the context of this thesis, procedural justice has been divided into five key indicators: participation, inclusion, consistency, trust, and transparency. Additionally, an "impact" category has been introduced, which is added specifically as climate adaptation policy is analysed. This category examines how climate change impacts are discussed in terms of their unequal distribution and whether certain societal groups are recognised as "vulnerable".

In summary, achieving procedural justice requires that stakeholders have the opportunity to participate in policy and decision-making processes in a fair and consistent manner. Additionally, policymakers must act transparently and uphold a certain level of trust and ethical responsibility.

2.1.3 Indicators of procedural justice

The indicators of procedural justice outlined above will be further conceptualised in the sections below, forming the theoretical foundation upon which this research is built.

2.1.3.1 Participation

Participation in governance refers to the direct or indirect involvement of stakeholders in policy decision-making and planning processes in which they have an interest (Quick & Bryson, 2022). Within the framework of Just Resilience, participation is not merely a democratic ideal but a practical necessity to ensure that adaptation policies equitably reflect the needs of all, especially vulnerable groups (European Environment Agency, 2020). Beyond enhancing the inclusiveness of policy, participation can also help remove psychological and cultural barriers to adaptation, empowering individuals to reduce their vulnerability and strengthen their adaptive capacity (Mahajan et al., 2022).

The intensity of participation can vary. Arnstein's (1969) ladder of participation categorises different levels of stakeholder engagement. At the bottom lies the category of "nonparticipation," which includes forms like manipulation and therapy. When stakeholders are slightly more involved, these forms fall under the "degrees of tokenism," which include being informed, consulted, or advised, but where the powerholders retain full decision-making authority (placation). The highest forms of participation are "partnership," followed by "delegated power," and at the top, "citizen control" (Arnstein, 1969).

However, meaningful participation is not present in the rungs of 'nonparticipation' and 'tokenism'. Tokenistic approaches may offer the illusion of inclusion, but without actual "follow-through" or responsiveness to public input, they fail to empower citizens (Arnstein, 1996). As Uittenbroek et al. (2019) emphasise, the manner and intensity of participation are often shaped by local governments. These actors, often closest to citizens, are thus key to facilitating or hindering truly inclusive participation. Given that local levels are seen as the cornerstone of democracy (Arnstein, 1969), their role is particularly important in ensuring just policy outcomes (Young, 2002). Participation in climate adaptation policy must therefore go beyond symbolic inclusion. It should not be approached as a mere 'tick-the-box' exercise, but rather as a deliberate act of democratic legitimacy, particularly in the context of climate adaptation and water management, where vulnerable groups are often disproportionately affected and underrepresented (Andrews et al., 2015).

Erokhin (2024) describes similar elements of participation in climate resilience, emphasising the active involvement of all stakeholders in planning and implementing strategies to mitigate and adapt to climate change. This already points to a more inclusive form of participation, which must also address the voices of vulnerable groups affected by climate change.

Furthermore, an important recent development is that participation is not only being studied in the social sciences but is also being examined in the context of Global Systems Science (GSS) (Mahajan et al., 2022). This approach focuses on system thinking to understand and address

global challenges, including climate change. The core idea is that systems (ecological, social, and economic) do not function independently but are interconnected. To tackle global challenges, an integrated and inclusive approach is needed (European Commission, 2021), in which participation also plays a role. Hence, this systems-based perspective reinforces the idea that participatory processes must be able to accommodate complexity and interdependence. Given the complexity of climate-related issues, participatory processes must also account for diverse values, types of knowledge, and lived experiences. Hutahean (2017) argues that this necessitates transparent, multi-stakeholder decision-making, which still remains underdeveloped in many policy contexts. Despite efforts to include stakeholders, many participatory processes fail to deliver quality of participation and capture the public interest.

The integration of citizen participation into policymaking processes offers numerous advantages. Compared to top-down policies, inclusive participation leads to more legitimate, higher-quality policy outcomes, as it brings in a diversity of knowledge and fosters solutions that reflect collective interests (Newig et al., 2023; Andrews et al., 2015)

2.1.3.2 Inclusion

Inclusion refers to “a particular focus on marginalised and vulnerable citizens in policy and programming upstream (early on in the process) or downstream (later in the process)”. This concept is closely linked to participation, as working towards inclusion in policy naturally enhances participation by the groups concerned (Carothers & Brechenmacher, n.d.). This is also illustrated by the United Nations' definition of social inclusion, which is described as “the process of improving the terms of participation in society, particularly for people who are disadvantaged, through enhancing opportunities, access to resources, voice and respect for rights” (Lenoir et al., n.d.).

Hence, to ensure a just transition, it is essential to include the perspectives of diverse groups in policy (Kaur & Carreras, 2021)

2.1.3.3 Consistency

Consistency refers to “the similarity of treatment and outcomes across people or time, or both” (Tyler, 1988). In the context of this thesis, consistency can refer to whether certain vulnerable groups are included in policy-making on some occasions but excluded on others. It also relates to the continuity of participation, whether participation is a one-time event or whether there is regular and sustained involvement of stakeholders in decision-making processes (Tyler, 1988).

2.1.3.4 Trust and ethics

This indicator pertains to the sincerity and caring nature of policymakers. They must make the right decisions and act in the public interest (Lawrence & Daniels, n.d.). In addition to having trust in policymakers to act correctly, it is important that their actions align with prevailing ethical and moral standards. This is interconnected. Ethical decision-making is directly influenced by moral

intent, which in turn is shaped by the context of decision-making, including perceptions of voice, respect, and trust between the supervisor (i.e. government and policymakers) and the subordinate (e.g. vulnerable groups) (Newman, 1993).

2.1.3.5 Transparency

According to Leventhal (1980), transparency can be seen as “to ensure that accurate information is collected and used in making decisions”. In other words, there must be a certain quality or justification of the decisions made, including feedback to participants about whether and how their input has been used (Newman, 1993). Transparency also relates to the accessibility of (governmental) data (Carothers & Brechenmacher, n.d.).

2.1.3.6 Impact

Lemke et al. (2024) describe stakeholder recognition (of its impact) as an important element of procedural justice. If policymakers fail to acknowledge that certain groups are more severely affected, they will also not know whom to involve in the decision-making process, potentially leading to further marginalisation and vulnerability. In the document analysis, attention is paid to the extent to which there is recognition of the fact that vulnerable groups are more severely impacted, as well as to the mention of types of impacts with unequal distribution. To keep it concise, this is referred to as "impact".

2.2 Climate adaptation and water policy context

2.2.1 Climate adaptation policy

Adaptation is defined by the IPCC as “the process of adjustment to actual or expected climate and its effects” (Birkmann et al., n.d.). The Intergovernmental Panel on Climate Change (IPCC), is a UN body that assesses the science related to climate change. It prepares reports on the current state of climate change, its future trajectory, and strategies to mitigate its negative effects, all based on scientific and technical knowledge (IPCC, n.d.).

Similarly, the UNFCCC, or United Nations Framework Convention on Climate Change, describes adaptation as “adjustments in ecological, social, or economic systems in response to actual or expected climatic stimuli and their effects” (UNFCCC, n.d.-a). This highlights the importance of approaching climate change from a systemic perspective, as its impacts are interconnected across multiple dimensions. In short, climate adaptation policies refer to “the ways in which climate policies are designed and implemented to reduce the impacts of climate change” (Vij et al., 2017). This forms one part of the two-pronged approach of climate policies. The other part concerns climate mitigation, which focuses on reducing and avoiding greenhouse gas emissions (European Environment Agency, 2024). It is important to emphasise that both are crucial in the fight against climate change and are not sufficient on their own (IPCC, n.d.-b).

2.2.2 Water management policy

Climate change is disrupting hydrological processes, which in turn leads to hydrometeorological extreme events, such as floods and droughts, that are expected to become more frequent and intense (Pizzorni et al., 2024; Bartholomeus et al., 2023). Rising sea levels and saltwater intrusion are also water-related consequences that threaten a safe future (United Nations Environment Programme, n.d.). Increasingly, people are dying during severe floods or facing health issues due to water scarcity (Pizzorni et al., 2024). Currently, these problems predominantly affect developing countries, but there is already a shift indicating that developed countries are increasingly impacted as well. The severe floods in Spain in 2024 serve as a recent example (Schoofs & Van Chaze, 2024). The impact of shifting water patterns should therefore not be underestimated. In fact, more than 50% of global financial damages result from these water-related types of climate-related hazards (Pizzorni et al., 2024). This illustrates that is essential to place water management policy at the core of climate adaptation policy (United Nations Environment Programme, n.d.)

Water management policy aims to ensure sufficient water supply for society, including households and sectors such as agriculture and energy. It also addresses “an excess of water”, e.g. through the implementation of flood prevention policies (European Environment Agency, 2024; Bartholomeus et al., 2023). This study focuses on the indicators floods and droughts. Other components like glaciers and snow cover also fall under water management, but are not relevant for the case of Belgium which is the focus of this research (European Environment Agency, n.d.).

3. Context information

The following sections delve into several key elements necessary to understand the broader context in which this thesis operates. First, an analysis will be conducted of Belgium's characteristics, such as its governance structure, and the levels of authority responsible for climate adaptation and water management. The policies shaping Belgium's adaptation strategies will also be discussed. Lastly, the country's vulnerabilities will be examined, alongside the identification of vulnerable groups in general (in relation to Just Resilience) and within water management specifically.

3.1 Governance and climate competences in Belgium

Belgium's federal governance structure presents a complex distribution of responsibilities, with overlapping competencies posing challenges for coordination across levels of government. This structure emerged through six state reforms, with the most decisive reform occurring in 2014. As a result, Belgium now operates at three levels: (1) The federal government, communities (Flemish, French, and German-speaking), and regions (Flanders, Wallonia, and the Brussels- Capital Region), (2) the ten provinces, (3) and the 565 municipalities. Because of the last state reform, local governments exercise delegated authority (Vlaams Parlement, n.d.; Belgium.be, n.d.-a; Belgium.be, n.d.-b).

When Belgium as a whole defends its position at the European or international level, it does so based on an agreement among all levels of government. A Belgian subnational authority cannot act independently within the EU (Kerremans, 2000).

Further, competences are either exclusively federal, exclusively regional, or shared competences. Competences not explicitly assigned to the communities or regions are handled by the federal level, known as residual competences. Competences assigned to the communities and regions are exercised autonomously and exclusively by them, on an equal footing with the federal government (Vlaanderen, n.d.-c).

There are a few exceptions to this rule, but they are not relevant to this study. Generally, federal competences concern matters of common interest to all Belgians (Belgium.be, n.d.-c). Furthermore, the communities are responsible for person-related matters such as culture and education (Vlaanderen, n.d.), while the regions are responsible for issues tied to their specific territories, such as water management, and the environment (Belgium.be, n.d.-d).

Since climate change is a cross-border issue that encompasses more than just environmental concerns, various policy levels are involved, with sometimes overlapping responsibilities. In environmental matters, the federal government is responsible for coordinating climate policy (mitigation and adaptation), while the regions handle areas such as nature conservation and protection, as well as the protection and distribution of water. The communities, however, do not

have authority to act on climate policy (Dienst Klimaatverandering, n.d.-b). The following section explores these governance arrangements in more depth.

3.2 Institutional and policy context of climate adaptation and water management

This section provides an overview of the institutional and policy context in which climate adaptation and water management policies are developed and implemented. It first outlines the broader climate adaptation policy landscape, focusing on the concept of Just Resilience across different policy domains and governance levels. Subsequently, particular attention is given to water management policy, as this is the specific sectoral focus of this thesis. Finally, it examines how water management is positioned within the broader framework of multi-level climate governance, helping to clarify the responsibilities and policy dynamics relevant to procedural justice in climate adaptation.

3.2.1 Policy domain

This research focuses on Just Resilience in climate adaptation policy. However, Just Resilience also applies to other policy domains, such as agricultural policy. For example, transitioning to a low-carbon and climate-resilient agricultural model requires social dialogue and democratic consultation with social partners and other stakeholders, such as communities (Blattner, 2020). Another example is urban resilience, which refers to Just Resilience in urban policy. Leichenko (2011) describes this concept as “the ability of a city or urban system to withstand a wide array of shocks and stresses,” where climate change is considered a significant stressor for cities. Logically, as it is the focus of this research, Just Resilience can and should also be applied in the field of water management. Sayers et al. (2017) highlight the importance of a thorough understanding of disadvantaged communities and their flood vulnerability, which is a prerequisite for fair policies. Just Resilience in water management policy therefore aims at integrating socially just principles into that policy.

3.2.2 Multi-level climate governance

Climate change adaptation is a multi-level governance challenge (Bauer & Steurer, 2014). This complex issue cannot be addressed at a single governance level. The international level is often considered too weak and slow to drive significant change, while local level efforts are seen as limited in scope due to the pressures of a globalised world where countries and international interests tend to overshadow local efforts, reducing their effectiveness (Gupta, 2007). Therefore, solutions are distributed across different governance levels, ranging from the overarching international level to the specific local level (Bauer et al., 2012).

Thus, climate change adaptation operates within a complex web of international environmental law, which is designed to address this global challenges through multi-level governance and

cooperation. Key frameworks such as the UNFCCC, decisions made at the Conferences of the Parties (COPs), and influences from both international and national legislation provide the foundation for adaptation measures (Paavola & Adger, 2006). These frameworks often emphasise both mitigation and adaptation, with specific tools and mechanisms to guide its implementation (Climate Strategies, 2024). The same logic applies to water management policy in Belgium, which is embedded within broader climate adaptation policy. Here too, a multi-level governance approach is in place.

3.2.2.1 International and European level

At the international and European level, several key policy frameworks shape Belgium's obligations and strategies in the field of climate adaptation. These frameworks provide overarching guidance and targets, which national and regional policies are expected to align with. The most relevant ones for this research, given the focus on procedural justice in climate adaptation and climate adaptation policy are discussed below (Climate Strategies, 2024).

Global Goal on Adaptation

The Global Goal on Adaptation (GGA) is a component of the Paris Climate Agreement. Its main objectives are to strengthen resilience and reduce vulnerability. All 190 signatory countries, including Belgium, are therefore required to focus on adaptation planning and implementation through tools such as National Adaptation Plans (NAPs) (UNFCCC, n.d.-b). These goals were further concretised by an overarching framework (UAE Framework for Global Climate Resilience) established during COP28 in 2023. Although a step forward, it still needs to be refined by 2025 as it is clear that global adaptation action must be accelerated (Hussein, n.d.; Thorp et al., 2024). This is notably mentioned in the framework, alongside the importance of urgent action by 2030 in sectors such as agriculture and water (Thorp et al., 2024). The focus on water resilience only emerged with the development of the framework in 2022, as it was not yet addressed in the Paris Agreement of 2015 (Agwa, 2025). Concretely, this means that Belgium as a signatory country is required to incorporate water-use efficiency into its policies by 2028 in order to address water scarcity. Additionally, the country must increase the reuse of water resources (UNFCCC, 2022). Lastly, the framework also provides an inclusive guideline. Namely, it states that the regeneration and preservation of nature in adaptation approaches must be of an inclusive kind (UNFCCC, 2023).

Nationally Determined Contributions (NDCs)

The NDCs (Nationally Determined Contributions) are national climate pledges that countries have made for themselves and arise from the Paris Climate Agreement. All signatory countries are required to prepare an NDC, detailing their efforts to reduce their greenhouse gases as well as the efforts to adapt to the impacts of climate change (UNDP, 2023).

National Adaptation Plans (NAPs) link to the adaptation aspect of the NDCs (Leclerc, 2025). These plans are supplementary (non-mandatory) tools intended to enhance or systematically integrate adaptation elements into the NDCs (UNFCCC, n.d.-a). Most NAP submissions come

from developing countries and Least Developed Countries (LDCs) in regions like South America and Africa, emphasising their heightened need for adaptation measures compared to developed countries (NAP Central & UNFCCC, n.d.).

Belgium has submitted an NDC, albeit focused only on the mitigation aspect. In this, it commits to a reduction of net greenhouse gas emissions by at least 55% by 2030. The sectors receiving the most attention include energy, agriculture, and forestry (NDC Partnership, n.d.).

European Adaptation Strategy

The European Adaptation Strategy of 2021, as part of the European Green Deal, provides a framework for how the European Union can adapt to the impacts of climate change. Since Belgium is a member of the European Union, it is bound by this strategy and the associated guidelines.

One of the key objectives of the strategy is to develop a smarter adaptation process. This involves making data and risk assessment tools accessible to everyone, for example, through the Climate-ADAPT platform. This platform contains extensive information on climate-related risks and enables member states to exchange knowledge and experiences. Additionally, the strategy aims for systemic adaptation measures, based on the principle that climate change requires an integrated and comprehensive systems approach (Dienst Klimaatverandering, n.d.-b).

This European Adaptation Strategy falls under the well-known European Green Deal (EGD). Belgian adaptation strategies must align with the objectives of the EGD, which aims to make the EU climate-neutral and resilient by 2050. One of the three main pillars supporting the EGD is the “no person and no place left behind” principle. This implies that the measures should bring about sustainable equality, avoiding the exacerbation of existing inequalities or the creation of new ones, which is the foundation of Just Resilience (European Commission, 2021). Water is also a central element in this strategy, as water shortages in the EU significantly impact the economy and exacerbate issues such as food security and social inequality. Hence, to minimise long-term negative consequences, adaptation measures are necessary, including the sustainable reuse of water in agriculture and the development of additional supply and storage infrastructure for drinking water (EUR-Lex, 2021).

Aarhus Convention

In the context of this thesis, the Aarhus Convention is an important international agreement in terms of participation to highlight. This agreement on environmental democracy operates within the European Union and has three pillars. The first concerns access to information, such as information on public health and safety and measures affecting the environment. The second is public participation in decision-making, which refers to the public's right to participate in environmental-related decision-making. Finally, access to justice in environmental matters ensures the right to uphold the previous pillars and, if necessary, to appeal to a court or another independent body. This also applies to environmental law in general (European Commission, 2021).

3.2.2.2 Level of Belgium

Belgium's intricate federal governance system is similarly evident in its climate adaptation and water management policies. The following section outlines the key frameworks, agreements, and measures at each level of governance. At the provincial and local levels, attention is limited to Flanders, as this region constitutes the primary unit of analysis in this study.

National and regional level

As discussed above, climate adaptation is a complex issue because it is organised at multiple levels. Both the regions and the federal government have their respective responsibilities.

First, at the national level, specific adaptation measures must be taken focusing on actions to strengthen collaboration on adaptation. At this level, all Belgian governments work together. This approach emerged partly from analyses of the EU adaptation framework and the European Adaptation Strategy. This illustrates the interconnection of obligations and influences across various levels (Nationale Klimaatcommissie, 2017).

In terms of adaptation policy at the national level, a National Adaptation Strategy (NAS) had been approved. The development of a National Adaptation Plan (NAP) in which both the federal as regional level has responsibilities, was one of its three major objectives (Mertens et al., 2013). The main points of this plan were to provide information on adaptation policy and to identify measures to strengthen cooperation between different governance levels (i.e. federal and regional level). To facilitate communication between levels of power the National Climate Commission was established, serving as the central coordination committee for climate adaptation policy in Belgium (Nationale Klimaatcommissie, n.d.). It ensures internal coordination of Belgium's climate policy at the national level. Regarding the NAP, it was only in effect from 2017 to 2020. The development of a new NAP was scheduled for late 2023, but no further information has been communicated as of now (European Environment Agency, n.d.-c). The focus currently lies more on the individual adaptation plans of the various levels.

The federal level focuses on overarching matters, such as understanding and anticipating climate change risks. The federal climate policy consolidates Belgian objectives derived from international and European agreements. A series of federal adaptation measures has been drawn up for 2023-2026. These have been formulated in such a way that they are in line with, among other things, the Paris Agreement and the European adaptation strategy. Some measures also concern water management. For example, the measure aimed at more economical consumption of drinking water and measures to prevent waste and promote reuse (Dehaen, 2023).

Furthermore, the regions have significant responsibilities with regard to climate adaptation, and most adaptation measures are also implemented at the regional and local levels. Therefore, each of the three regions has a Regional Adaptation Plan (RAP) in effect (European Environment Agency, n.d.-c). In Flanders, climate adaptation is primarily implemented through the Flemish Adaptation Plan, which is part of the Flemish Climate Policy Plan. This plan aims to identify vulnerabilities related to climate change and improve resilience to better withstand its potential

impacts. Approximately half of this plan focuses on water management, particularly addressing drought and flooding (Vlaamse Overheid, 2023).

At the level of Brussels, adaptation policy is embedded in the Brussels Air, Climate, and Energy Management Code and the similarly named plan. For example, in 2017, the Brussels Region adopted a regional water management plan for the period 2017–2021, which provides an approach to addressing water management challenges. At the Walloon level, the Air-Climate- Energy Plan dedicates a specific chapter to adaptation, which includes impact and vulnerability analyses, as well as adaptation actions. One such adaptation action is water management (Environment Agency, n.d.-c).

Lastly, specifically for water management policy, the European Water Framework Directive has been transposed into Flemish legislation. This Integrated Water Policy Decree sets out the objectives and principles of integrated water management. These broad guidelines are further detailed through implementing decrees, such as the decree on financial instruments like expropriation in the public interest and the obligation to provide compensation (Coördinatiecommissie Integraal Waterbeleid, n.d.-b).

Local level

At the local level, provinces and municipalities also play a crucial role. Provinces often have specific climate adaptation plans, translating the objectives of climate neutrality and resilience from the provincial climate plan into concrete approaches and actions. They also provide support to local governments in drafting local climate action plans. Municipalities that have signed the Covenant of Mayors (a European initiative) commit to achieving EU climate and energy targets (Vlaanderen, n.d.-b).

The local level is seen as the cornerstone of climate adaptation since this is where concrete measures are planned and implemented (Vlaamse Milieumaatschappij, n.d.). Local governments are closest to citizens and play a key role in addressing societal challenges (Vlaanderen, n.d.-e). The Flemish government acknowledges the importance of local administrations in shaping a strong climate policy and building a resilient Flanders. To support them, it provides financial and policy assistance. Additionally, *Het Netwerk Klimaat* of the VVSG (Association of Flemish Cities and Municipalities), subsidised by the Flemish government, offers guidance and resources for municipal climate adaptation projects (VVSG, n.d.-a).

Furthermore, a key instrument at the local level is the Local Energy- and Climate Pact (LEKP), a cooperation agreement between local governments and the Flemish government. This pact translates European climate objectives into concrete local actions, with financial support from the Flemish government. Since its introduction, three versions of the LEKP have been developed. The second version was a more ambitious and comprehensive plan than the first LEKP. One of the four pillars addressed the issue of drought, with measures such as increased depaving in municipalities and additional rainwater capture. This version was signed by 215 municipalities, thereby committing to the objectives for 2030 (Vlaanderen, n.d.-f).

The same applies to water management plans, where municipalities play a crucial role. They manage local waterways and are responsible for urban planning projects, such as parks, where decisions on water storage and drainage are made (VVSG, n.d.-b).

Most Flemish municipalities have developed local climate adaptation plans, where water management is a key component. Many have also implemented rainwater and drought management plans, aimed at water reuse, buffering, and delayed drainage to mitigate drought and water scarcity. The latter initiative aligns with Flanders' Blue Deal, which sets stricter requirements for municipal water policy. For example, municipalities can only receive water-related subsidies if they have a rainwater and drought management plan (Coördinatiecommissie Integraal Waterbeleid, n.d.-c).

3.3 Vulnerability

The IPCC defines vulnerability as “propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts and elements including sensitivity or susceptibility to harm and lack of capacity to cope and adapt (Oppenheimer et al., 2014). This section approaches vulnerability in two ways. First, the ND-GAIN Index is used to assess Belgium's vulnerability to climate impacts. Then, the focus shifts to vulnerable groups within global society, and more specifically within Belgium, which this research will further examine. This is an essential component, as Just Resilience and procedural justice explicitly consider these groups to achieve a socially just adaptation transition.

3.3.1 ND-GAIN Country Index

The ND-GAIN Country Index², developed by the University of Notre Dame Global Adaptation Initiative, evaluates countries based on their vulnerability to climate change and their readiness to adapt to its negative impacts (University of Notre Dame Global Adaptation Initiative, 2022). The factors considered in formulating the vulnerability ranking include health, food security, and infrastructure, with each sector comprising several sub-indicators, such as child malnutrition (food) and the impacts of sea level rise (infrastructure). According to this assessment, the three least vulnerable countries are Switzerland (1), the Czech Republic (2), and Norway (3). Most high-ranking countries are located in Europe and belong to the highest income brackets, underscoring the significant role of economic capacity and geographic location in fostering climate resilience (University of Notre Dame Global Adaptation Initiative, 2022).

This aligns with the research of Nath & Behera (2011), which argues (from the different perspective) that the poorest countries suffer the most due to their geographic locations, low institutional capacity, and limited incomes. This finding is further supported by the ND-GAIN Country Index when examining the most vulnerable countries. At the bottom of the index, Chad ranks as the most vulnerable, followed by the Solomon Islands and Niger. The majority of the lowest-ranking countries fall within the categories of developing countries, Least Developed Countries (LDCs), or Small Island Developing States (SIDS), and predominantly belong to the lowest income brackets (University of Notre Dame Global Adaptation Initiative, 2022). Similar trends are observed for the "readiness" factor, which highlights the limited adaptive capacity of these developing nations. This lack of readiness exacerbates their vulnerability to climate-induced shocks, creating a contrast with developed countries.

In summary, this demonstrates a critical divide between developed countries, which not only emit more greenhouse gases but also possess greater resources to address and adapt to climate impacts (Concern, 2021). The developing countries on the other hand generally experience a lack of existing or qualitative infrastructure and limited (financial) resources to adapt (Chinowsky et al., 2011). Reckien et al. (2018) also found that vulnerability constrains adaptive capacity, particularly for certain groups within society. These groups, similar to developing countries,

² Data from 2022 (University of Notre Dame Global Adaptation Initiative, 2022).

experience a lack of power, suboptimal infrastructure, and limited access to resources. In the following sections, the vulnerability of these groups in the context of climate change will be further examined.

Belgium ranks 24th in the ND-GAIN index, 23rd in terms of vulnerability, and 26th on the readiness indicator. Although the 23rd rank for vulnerability is a relatively strong score, it requires some nuance. Examining the subdata reveals that Belgium performs particularly poorly (high scores, closer to 1, indicate poor performance) on indicators such as dam capacity, urban concentration, and disaster preparedness.

Additionally, the indicators for “projected change of flood hazard” and “projected change of sea level rise impact” are relatively high. This subdata indicates that Belgium is particularly vulnerable to issues like water management (e.g., risks of flooding) and heatwaves, especially in densely populated urban areas.

In terms of readiness, Belgium’s score reflects its capacity to attract investments and effectively transform them into concrete climate adaptation measures. This demonstrates Belgium’s strong preparedness to respond to climate challenges, as evidenced by its high score on governance readiness (University of Notre Dame Global Adaptation Initiative, 2022).

Similar findings can be observed for Flanders in the 2023 Nature Report by the Institute for Nature and Forest Research. Due to urbanisation, high population density, and significantly altered water systems, Flanders is particularly vulnerable to water scarcity and flooding. These phenomena are expected to increase due to climate change (Instituut en Bosonderzoek, 2023).

3.3.2 Identifying the vulnerable groups in general

Which groups are considered vulnerable depends on the type of climate change impact and the level of exposure, as well as the demographic characteristics of the individuals in question (Kreslake et al., 2016). Individuals can also belong to multiple vulnerable groups, such as an elderly person with a low SES, making them even more vulnerable. The ability to adapt to climate change effects also determines whether a group is considered (extra) vulnerable (European Environment Agency, 2022). Below, some commonly identified vulnerable groups are discussed.

The first group concerns people with a lower socio-economic status (SES). A socio-economic status “indicates the extent to which individuals, families, households, and geographical areas have the ability to produce or consume socially valued goods” (VZInfo, n.d.). A low SES is often associated with increased susceptibility to disasters and a limited or slow ability to recover post-disaster (Saja et al., 2018).

Also, the increasing frequency and intensity of climate events place greater pressure on natural resources and adaptive capacity. This not only raises the risk of more people falling below the poverty line but also exacerbates the challenges faced by those who are already vulnerable. Low-income individuals often reside in areas with higher exposure to climate hazards, such as flood-prone regions as housing tends to be cheaper there (Reckien et al., 2018). The location of their

residence also plays a role; these areas generally have lower property values due to associated risks, pushing poor households into these vulnerable spaces. Furthermore, these neighbourhoods often lack the infrastructure needed to withstand extreme weather conditions, which further deepens social and economic inequalities (Reckien et al., 2018; European Environment Agency, 2022). Socio-economic status is thus a critical determinant of vulnerability.

Especially in the above-mentioned group, the so-called “ecological injustice” of the climate issue is again coming to the fore: although individuals with a lower socio-economic status are among the most severely affected by climate change, they typically contribute the least to its causes (Dierckx, 2019). Empirical evidence shows that these populations often have the smallest ecological footprint, largely due to financial constraints that limit high-consumption lifestyles, such as frequent travel. However, it is important to emphasise that their environmentally conscious behaviours are not solely driven by economic necessity. Many individuals within these communities are also aware of their relatively low environmental impact and engage consciously in sustainable practices when possible (Van Ryckeghem, 2024). Nonetheless, structural barriers often prevent low-income groups from living more sustainably. They frequently reside in poorly insulated homes and rely on outdated, polluting vehicles due to limited access to affordable and efficient public transportation. These environmentally harmful conditions are not a matter of choice, but rather a reflection of systemic inequality and a lack of accessible alternatives (Blanckaert et al., 2019). Policies such as subsidies for solar panels or energy-efficient renovations are examples where people with low SES are often excluded, despite their equal or greater need compared to the middle class (Van Ryckeghem, 2024).

Next, women are among the vulnerable groups, primarily due to global gender inequality. The wage gap between men and women often leaves women in a weaker financial position (Reckien et al., 2018). Furthermore, the elderly are physically less resilient to climate impacts. They are often less able to handle temperature extremes (e.g. low heat tolerance) and are generally less capable of taking care of themselves, also during extreme weather events (Koppe et al., 2004; Kaźmierczak et al., 2018).

Lastly, the indigenous people. It is estimated that out of 476.6 million Indigenous people worldwide, around 370 million experience livelihoods negatively impacted by climate change due to factors such as droughts and storms (WHO, 2024; Leal Filho et al., 2021). Although Indigenous peoples represent less than 5% of the global population, they make up 19% of the world's poorest individuals (United Nations, 2022). Discrimination often leads to exclusion and fewer opportunities compared to non-Indigenous populations. They also face challenges like place dislocation due to land dispossession (Ford et al., 2020).

3.3.3 Vulnerable groups in Belgian water management

While commonly mentioned vulnerable groups, such as the elderly, youth, women, and low-income individuals, are all relevant in Belgium, this thesis focuses on two groups most pertinent to the context: farmers and individuals with a low socio-economic status.

The European Environment Agency (EEA) identifies farmers as particularly vulnerable due to the disproportionate effects of climate change on agricultural production. Wetter winters and drier summers are both detrimental to soil and crops. Excess water cannot be drained effectively, and drought hinders irrigation, livestock drinking water, and stable sanitation. Additionally, new pests and diseases are emerging due to climate change, to which crops are less resistant (STOWA, n.d.). Higher temperatures also result in heat stress in livestock, negatively affecting their health (Ministerie van Landbouw, Natuur en Voedselkwaliteit, 2021). These are just a few examples of the challenges farmers face. If they cannot adequately adapt to this accumulation of negative effects, climate change will jeopardise the future of agriculture, which in turn impacts their livelihoods (European Environment Agency, 2022; Pörtner et al., 2022). Consequently, Belgium becomes even more vulnerable due to decreased agricultural productivity and potential threats to food security (Hossain & Atibudhi, 2023).

The second group consists of people with low socio-economic status, as previously discussed in section 3.3.2, and is also applicable to Belgium. For this vulnerable group, adapting to and recovering from extreme weather events is challenging, often due to financial constraints (European Environment Agency, 2022). They are more likely to suffer from heat-related illnesses and deaths, often because they live in poorly insulated homes or cannot afford air conditioning for example. Water-related challenges also disproportionately affect this group. For example, the heavy rainfall and resulting floods in 2021 that impacted Belgium and other parts of Europe (Lambert, 2021). The Vesdre Valley near Pepinster in Wallonia was particularly hard-hit, with several houses collapsing and multiple fatalities (Cardoen et al., 2021). Then-Prime Minister De Croo referred to the victims as Belgium's "first climate victims". Furthermore, the people living closest to the river were often those with the least resources and were hit hardest. Their lack of means prevented adequate adaptation, resulting in low resilience and a slow recovery process (Vandebos, 2022).

4. Methodological framework

For this research, a mixed-method approach was employed. This approach combines a quantitative method with a qualitative method to achieve a stronger outcome than each method individually (Malina et al., 2011). Mixed-method research (MMR) belongs to the post-positivist paradigm. It considers the objectivity of positivism (quantitative aspect) while allowing for more room for subjectivity (qualitative aspect) (Dawadi et al., 2021). A qualitative approach was indicated from the outset as it is particularly well-suited for exploring complex social phenomena and contexts in depth. Qualitative methods are especially effective for under-researched topics (of which Just Resilience is an example) due to their exploratory nature, allowing for a richer understanding of emerging concepts, dynamics, and human-centred insights (Lim, 2024).

Within MMR, there are various methods. This research opted for the “between-methods” approach, which combines at least one quantitative method and one qualitative method. This can further be subdivided into different approaches, and the dimension chosen here is the parallel design. This combines the different methods to triangulate, serving the same research question. The results of each study are analysed individually and then compared to gain a more comprehensive understanding of the issue. This also contributes to corroboration and validation (Vigoda-Gadot & Vashdi, 2020).

Triangulation is a key feature of MMR, in which different methods are combined, as well as data collected from various sources, to achieve a comprehensive understanding of the research problem. This also increases the credibility of the research and allows for cross-verification of information (Hassan, 2024; Dawadi et al., 2021). Thus, MMR is a robust methodology that yields accurate results by highlighting the strengths of both methods while mitigating their weaknesses. It provides richer insights that cannot be obtained by employing only one of the two methods. However, some challenges are associated with this method (Dawadi et al., 2021). Choosing to implement two methods does not justify conducting them with less rigor, assuming that their combination will still yield quality results. Furthermore, conducting both thoroughly requires significant time and resources (Belardinelli & Mele, n.d.).

In this study, the combination of document analysis (quantitative) and interviews (qualitative) is essential to address the research questions comprehensively, ensuring that the theoretical insights from policy documents align with the practical perspectives gathered through interviews. This approach helps to achieve a deeper understanding of procedural justice in the context of climate adaptation and water management.

4.1 Choice of research unit

This section justifies the selection of the research units at different governance levels, from Belgium as the national context to specific localities. The choice of research units is based on their relevance to the research question and the aim of examining procedural justice in water management across multiple scales. By exploring national, regional, provincial, and local levels, this research provides a comprehensive understanding of how water management policies are developed and implemented, with particular attention to the needs of vulnerable groups.

Belgium as research unit

As previously outlined, Belgium was selected as the primary research setting (cf. section on vulnerability). Given that water management is governed across multiple tiers of government, this research adopts a funnel approach, analysing how principles of procedural justice are reflected across the national, regional, provincial, and local levels (Newcastle University, n.d.). This approach allows for a more comprehensive understanding of whether and how procedural justice is integrated into climate adaptation policies, particularly within the water management domain.

Regional research unit

Within the regional context, this thesis focuses on Flanders for several reasons. Firstly, Flanders faces climate challenges, including both flooding and prolonged drought. The years 2011, 2017 to 2020, and 2022 were particularly marked by extreme drought events (Vlaamse Milieumaatschappij, n.d.). Secondly, practical considerations such as the use of Dutch, accessibility to policy documents, and easier communication with interviewees supported the decision to focus on Flanders.

Provincial research unit

The selection of West Flanders as the provincial research unit was partly informed by data from *Waterinfo*, a platform managed by the Flemish government that provides forecasts and simulations for flood and drought risks. This tool presents a map of Belgium where various scenarios, both current and projected, can be simulated, covering pluvial (rainwater runoff), fluvial (river flooding), and coastal flooding situations (Vlaamse Milieumaatschappij, n.d.).

According to this data, West Flanders is significantly affected by flood risk, especially in relation to coastal flooding (Waterinfo, n.d), see Figure 1 below.



Figure 1. Coastal, pluvial and fluvial flooding in Flanders. (Waterinfo, n.d.).

For drought analysis, the IMPACT tool was consulted. This is an application within the *Climate Portal Flanders*, offering a synthesis map with filters for various climate-related themes. When filtered for “drought,” it becomes clear that West Flanders and East Flanders are currently the most affected provinces.

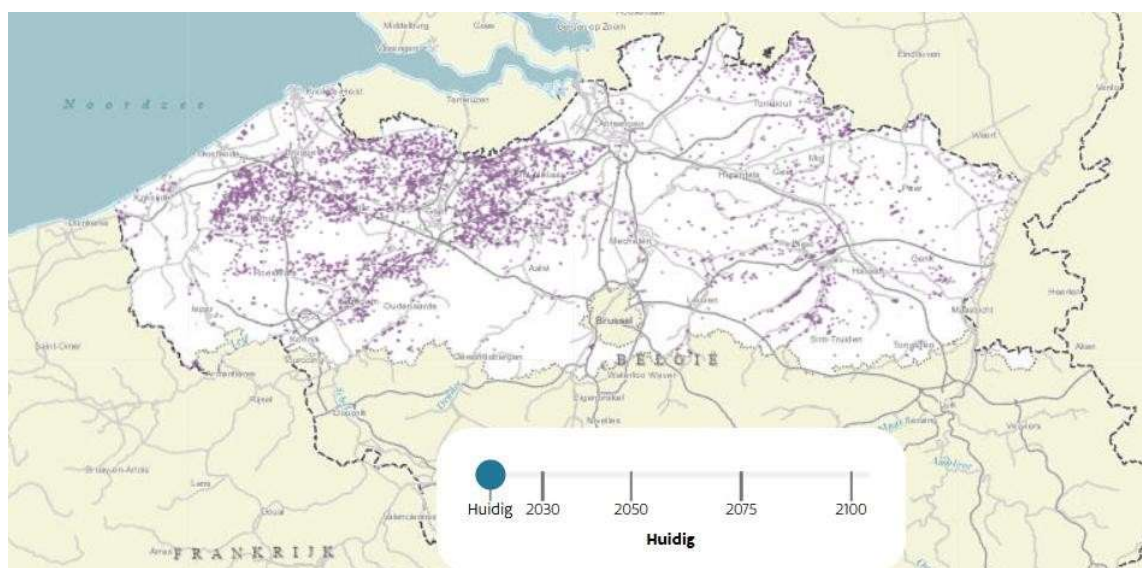


Figure 2. IMPACT tool illustrating drought impact in Flanders, today (Klimaatportaal Vlaanderen, n.d.).

Projections for 2050 indicate that drought will become an increasingly prominent issue throughout Flanders, intensifying compared to present-day conditions. Since West Flanders is already experiencing this challenge and is expected to continue facing it in the future, the province was deemed a logical choice at the provincial level.

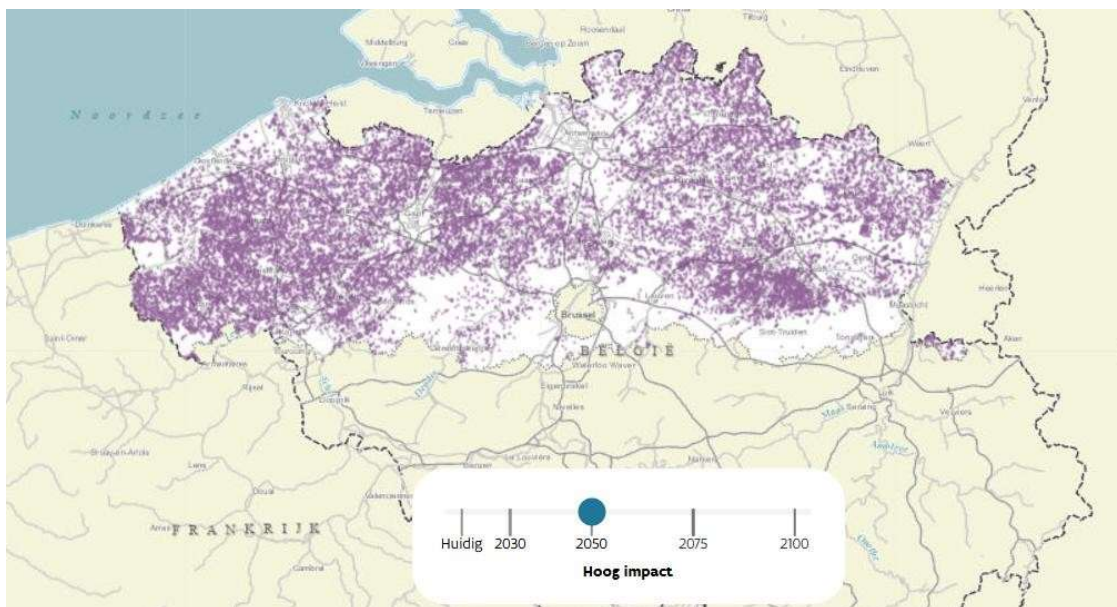


Figure 3. IMPACT tool illustrating drought impact in Flanders, 2050 (Klimaatportaal Vlaanderen, n.d.)

Moreover, West Flanders has the highest number of farmers in the region. The most recent data from 2023 indicates that 7,463 agricultural enterprises were registered in the province. Although this remains the highest number in Flanders, it reflects a significant decrease compared to 2013, when there were 8,678 farms, representing a 14% decline over the past decade (Provincies.incijfers.be, n.d.).

Local research unit

Following the logic of the funnel approach, a municipality within the selected province of West Flanders had to be identified as a relevant research unit. To determine this, flood and drought maps were again consulted. For the document analysis, it was essential that the municipality had a climate adaptation plan and/or water management policy documents available. Furthermore, the municipality needed to host vulnerable populations. More than half of underprivileged households in West Flanders reside in the coastal zone, with urbanised coastal municipalities being particularly vulnerable to poverty (Kustportaal, n.d.). This significantly narrowed the selection area to the coastal region.

Taking all of these considerations into account, the municipality of Ostend was selected at the local level. The *Waterinfo* map once again. These “hazard maps” provide detailed information on flood probabilities and expected water depths (Vogels, 2022). This confirmed that Ostend is highly exposed to pluvial, fluvial, and coastal flooding. In particular, with regard to coastal flooding, Ostend ranks among the most vulnerable areas under current climate conditions (Waterinfo, n.d.). Figure 5 shows a simulation of the hazard maps for all three flood types under present-day climate conditions.



Figure 5. Coastal, pluvial and fluvial flooding in Ostend. (Waterinfo, n.d.).

Additionally, the *Coastal Portal* provides maps and data concerning the Belgian coastal zone. When filtered for *disadvantaged neighbourhoods*, the data confirms that vulnerable households are predominantly located along the coast. Ostend emerges as one of the most socially vulnerable municipalities, as shown in Figure 6 (Kustportaal, n.d.-a). The city has a lower socio- economic status than other coastal and central cities. It also has a relatively high proportion of residents receiving social assistance and facing financial hardship (Sumaqua & Stad Oostende, 2024).

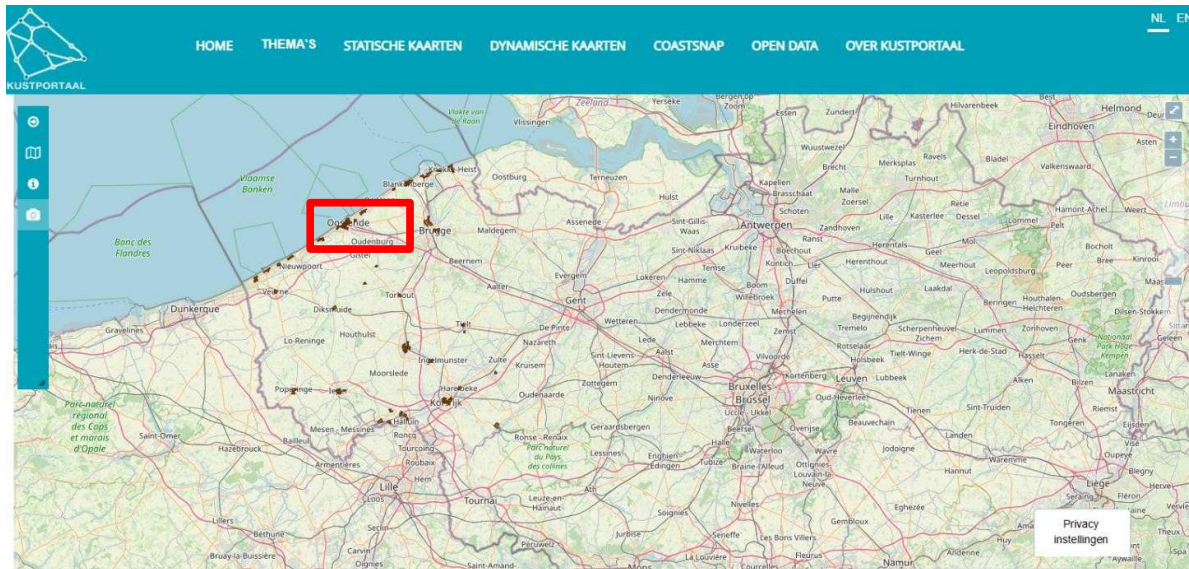


Figure 6. Map of disadvantaged neighbourhoods in the Belgian coastal zone (Kustportaal, n.d.).

Lastly, despite the relatively low number of agricultural enterprises in Ostend, the city remains a valuable research unit for this study. The limited presence of a vulnerable group does not justify reduced policy attention. On the contrary, it can be argued that their marginal representation makes them even more susceptible to exclusion from policy discussions and decision-making processes (Doan, 2024).

4.2 Data collection and analysis

Both desk research and field research were conducted. Desk research corresponds to the first phase of the study, in which a document analysis was performed using Excel to assess the presence of formal recognition and implementation of procedural justice. Thus, for each governance level, a systematic analysis was conducted, focusing on documents such as climate adaptation plans, specific water management plans, and regulations concerning flooding and drought. This part of the research is considered quantitative. See Appendix 1 for the table which shows how the Excel document is structured, as well as an example/its meaning.

The aim of this document analysis was to determine a score out of six that indicates the extent to which an indicator of procedural justice is present, based on the “citation in text”. To locate these citations, a keyword table was first created for each indicator. This was mainly done using glossaries related to each specific indicator, which provided relevant words to identify whether the indicator was present or not. For example, for the indicator “participation,” the identified keywords included “input,” “collaboration,” “stakeholders,” and “involved”. By using the search function within the documents, it was possible to determine whether these aspects were present, and in what context, which allowed for assessing the presence or absence of participation. For the indicators “inclusion” and “participation,” some keywords overlapped. In such cases, the classification depended on the context, determining whether the keyword referred to inclusion or participation. By working with a keyword table, the systematic application of this method across different levels and documents was ensured.

Consequently, a scoring table was created to be able to assign the scores. Since the indicators used were not metric but rather qualitative, the table had to be formulated descriptively. To achieve this, the scoring system used in the Benchmark Report by “Sustainabul”³ was applied (Van Den Dries et al., 2024).

The scale follows a six-point structure, ranging from ‘entirely absent’ to ‘fully present’, referring to each indicator individually. Each score is accompanied by additional information for recognition. For example, a score of 4 out of 6 corresponds to “emerging presence,” meaning that the aspect is present, with the mention of vulnerable group(s), but without concrete elaboration (see Appendix 2 for the full scoring table). Further, the final procedural justice score was then determined by summing all the scores per document, after which the average is calculated to obtain a final score out of six per document. Scores are then aggregated per governance level while acknowledging that procedural justice consists of multiple dimensions that require nuanced interpretation.

³ Sustainabul is an institution that evaluates and ranks educational institutions based on their sustainability performance. This scoring table, based on the “Sustainabul” system, was originally developed by me as part of a project for the Green Office at Ghent University. In collaboration with other higher education institutions, the goal was to assess the sustainable practices of these institutions, score both hard and soft indicators, and subsequently rank them.

The second phase of the research (field research) consisted of interviews, which fall within qualitative research. Kvale (1983) describes interviews as being an effective method for obtaining descriptions of the interviewee's life-world, while respecting their interpretation of the phenomenon. For this reason, interviews were deemed a necessary step in this study. The underexplored topic of Just Resilience and procedural justice will be examined through discussions with policymakers, and representatives for the two vulnerable groups, assessing their perceptions of procedural justice: whether they feel procedural justice is present and whether they are satisfied with the quality of participatory processes. Thus the aim is to see whether theory (results of the documents analysis) aligns with practice.

To conduct the interviews, the preference lay in holding them face-to-face to really foster engagement. However, online interviews were also held, as they are more feasible to conduct. Additionally, Computer-Mediated Communication (CMC) such as email correspondence, was used (Opdenakker, 2006).

Semi-structured interviews were chosen, as they are the most commonly used type of interview in qualitative research (Adhabi & Anozie, 2017). While a general guide is followed and some questions are predetermined, there is still room for discovery and input from the interviewees (Magaldi & Berler, 2020). This approach allows the interviewer to respond to the interviewee's answers in real time and ask more in-depth questions beyond the initially prepared ones (Adhabi & Anozie, 2017). The objective was to conduct interviews with three individuals per governance level, with the exception of the federal level, which holds only limited competencies regarding water management. The primary responsibilities in this domain lie with the regional governments, making the federal level less relevant for this study's scope. The selected interviewees had to possess relevant information or involvement concerning policy matters and vulnerable groups. Specifically, at each level (Flanders, West Flanders and Ostend), one policymaker, one representative for individuals with a low socio-economic status, and one representative for farmers were selected.

Initially, the aim was to interview members of vulnerable groups directly. However, this proved unfeasible due to the sensitive nature of certain situations (e.g., individuals with a low socio-economic status may not feel comfortable identifying themselves as such), as well as the practical difficulty of reaching these individuals. As a result, institutions closely connected to these groups were approached instead.

Prior to each interview, an informed consent form was sent out. This document included consent to record the interview, consent to process personal data, and confirmation of voluntary participation. Additionally, participants were informed in advance about the purpose and scope of the study, which was reiterated at the start of each interview. The interviews were recorded to facilitate transcription. These transcripts were then coded in NVivo software to enable systematic analysis and the identification of patterns and connections. This process will be further discussed in the results section.

Below is a table providing additional information about each interviewee, including their role, the corresponding governance level (Flanders, West Flanders, Ostend), and the group they represent (policymakers, representatives of farmers, or representatives of individuals with a low socio-economic status). The selection of interviewees was based on their institutional relevance, direct involvement in climate and water policy, and their representational role for the vulnerable groups. Policymakers were identified by examining climate adaptation plans and subsequently contacting the competent authorities responsible at each governance level. For the agricultural sector, interviewees were chosen based on their appearance in policy documents. In Ostend, where the number of active farmers is limited, 'Buitengoe'd' was selected following a recommendation by a city official. At the Flemish level, Boerenbond was included as the primary farmers' union and Inagro for West-Flanders was chosen due to their farming expertise that sometimes is used for policy-making. For the low SES group, organisations were selected based on their established role in supporting vulnerable communities and their involvement in climate-related issues. 'Welzijnszorg' was included because of its work at the intersection of poverty and structural inequalities, including environmental vulnerability. 'SAAMO' was particularly relevant due to its initiatives such as *De Klimaatstem van Mia*, which aims to amplify the voices of socially disadvantaged groups in climate governance (SAAMO, n.d.). Lastly, Woonsporg, the social housing company in Ostend, was selected because it was explicitly mentioned in the city's climate adaptation plan and works closely with low-income residents on housing and sustainability initiatives.

Name and role interviewee	Level	Group	Date
1: Koen Soudiacourt (chief of staff governor West Flanders) & Chris Marey (policy advisor)	West Flanders	Policy makers	25 March 2025
2 : Kathy Haustreate (Policy coordinator Integraal Waterbeleid) & Lieve De Roeck (Secretary CIW)	Flanders	Policy makers	28 March 2025
3: Dries Mergaert (water broker, Inagro)	West Flanders	Farmers	28 March 2025
4: Joke Coopman (General Coordinator Buitengoed)	Ostend	Farmers	1 April 2025
5: Frieda Bex (Policy planning & Project policy, Welzijnszorg)	Flanders	Low SES	3 April 2025
6 : Timo Wyffels (Policy coordinator Climate, city of Ostend)	Ostend	Policy makers	3 April 2025
7 : Elie Claeys (Community worker SAAMO West-Flanders)	West Flanders	Low SES	14 April 2025
8 : Alan Van Laer (Project manager Woonprong)	Ostend	Low SES	Via mail, 15 April 2025
9 : Fien Vandekerchove (Water policy advisor, Boerenbond)	Flanders	Farmers	Via mail, 17 April 2025

Table 1. Interview information

4.3 Quality Paragraph

Several considerations can be made regarding the quality of this research. As previously mentioned, a mixed-methods approach (MMR) was used, following a parallel design where both quantitative and qualitative research were conducted simultaneously. The combination of desk research, fieldwork, and prior literature review ensures triangulation. Triangulation is a key feature of MMR, in which different methods and data sources are combined to achieve a comprehensive understanding of the research problem. This increases the study's credibility and allows for cross-verification of information (Hassan, 2024).

For the document analysis, several elements enhanced its reliability. The analysis was conducted systematically across levels using the same keyword and score tables. However, it is important to note that the score table, while based on an existing model, is not entirely derived from academic sources, as no such table currently exists specifically for this context. Inspiration was drawn from sources attempting to measure procedural justice, often in judicial rather than climate or water policy contexts. Nonetheless, efforts were made to minimise interpretative bias by clearly defining scoring criteria. One potential limitation is that the analysis focused on what is present in the documents, rather than systematically identifying what might be missing. While absence of certain elements may imply gaps in procedural justice, this was not explicitly assessed.

It can also be argued that more interviews would be needed to achieve data saturation. Only one interview per stakeholder group was conducted per level (i.e., policymakers, farmers, and low socio-economic representatives), totalling nine interviews. Due to limited time and resources, it was not feasible to conduct additional interviews. However, the primary aim of this research was to provide an initial overview of procedural justice in water management policy, leaving room for future research to delve deeper through additional interviews.

Furthermore, ethical considerations were thoroughly addressed. Each interviewee received an informed consent form outlining their voluntary participation, information about the study, and permission for recording and transcription (Miles et al., 2014). Interviewees were also offered the option of anonymisation, although none opted for it. If desired, transcripts were sent for approval to confirm accurate representation.

In terms of external validity, the findings are not generalisable beyond Belgium due to differences in context and governance structures. However, parts of this research may serve as a foundation for similar studies in other EU-developed countries bound by comparable frameworks (e.g. the Aarhus Convention and the Nationally Determined Contributions). However, the systematic nature of the document analysis does contribute to theoretical generalisability and repeatability.

5. Results

This results section is divided into three parts. First, the findings from the document analysis are presented using graphics. Second, a deeper qualitative analysis follows, based on the conducted interviews. Lastly, the two datasets are brought together in a synthesis to explore connections and/or differences between the document analysis and interview results.

5.1 Results document analysis

This section follows the logic of the funnel method, moving from the national to the local level to ensure a clear and structured overview. For each governance level, both the general presence of procedural justice and its individual indicators are analysed.

Three visualisations are provided for each level. The first graph shows the overall score (out of 6) for procedural justice per document. The second graph offers a more detailed view, presenting the average scores (out of 6) per procedural justice indicator for each level. However, these averages may present a distorted picture, as the number of occurrences (or “hits”) per indicator varies. To address this, a third type of graph was developed, illustrating the frequency of keywords associated with each procedural justice indicator. It is therefore crucial that the second and third graphs are interpreted in conjunction. This approach to data visualisation was chosen to facilitate later comparisons between the findings of this analysis and those derived from the interviews.

Finally, it is important to nuance the scores and show how to interpret them. A score of six out of six represents an ideal situation, where the indicator is fully developed, clearly implemented, and explicitly addresses the (needs of) vulnerable groups. In practice, such a level is rarely achieved, especially in complex governance systems. Therefore, for example, a score of three out of six should not be interpreted as a failure, but rather as a moderate presence indicating that the concept is recognised (however, without specific mentioning of the vulnerable groups) but still lacks full translation into concrete action. This nuance is crucial when interpreting the graphs. The goal is not to rank policies, but to assess how and to what extent procedural justice in all its dimensions is integrated into water management policies and where further development may be needed.

5.1.1 Summary table

Graph 1 presents the aggregated document scores across the four governance levels. The calculation of these scores is briefly outlined below.

Using glossaries, a keyword table was developed for each indicator of procedural justice (see Appendix 3). These keywords were applied to relevant documents (e.g. climate adaptation plans and water policy plans) to identify content reflecting procedural justice principles. Each document received a score from 1 to 6 for each indicator, based on the descriptive scoring table (see Appendix 2).

Once all keywords were assessed, a document's average score per indicator was calculated. For this, all scores per indicator were summed and then divided by the number of keyword matches found (see the "Calculation" sheet in the submitted Excel file for visual reference).

This process was repeated for all documents at each governance level. Then, an average score per level was calculated, indicating how well procedural justice is reflected at that level overall. The resulting figure⁴ shows the following average scores:

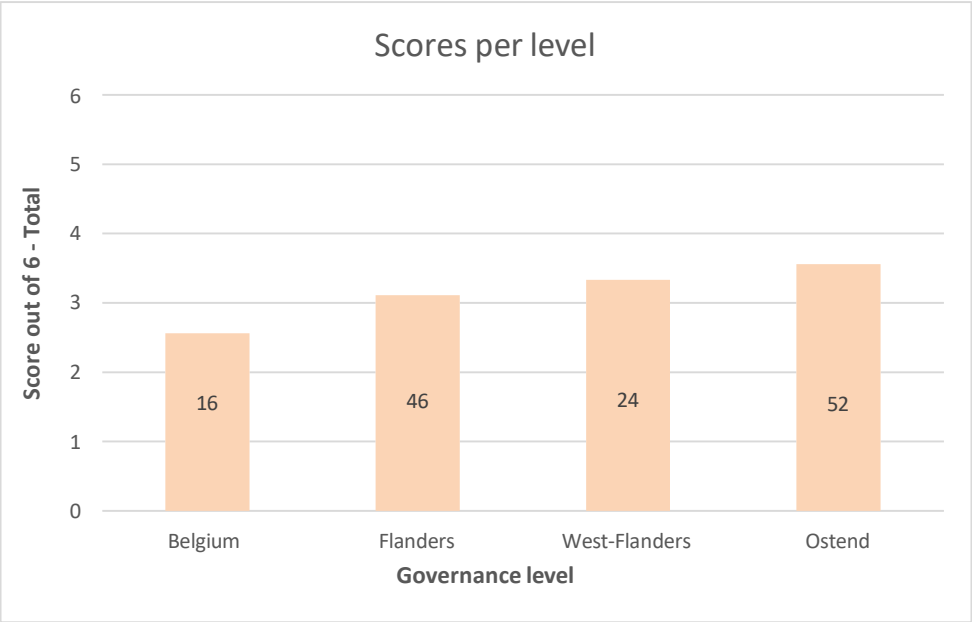
Belgium: **2.56/6**
Flanders: **3.11/6**
West Flanders: **3.33/6**
Ostend: **3.56/6**

Based on the scoring table, documents at the national level fall between "*limited presence*" and "*mediocre presence*" of procedural justice. In general, references to procedural justice were often vague and lacked direct mention of vulnerable groups (i.e. farmers and people with a low socio-economic status).

In contrast, Ostend scored the highest with 3.56/6, indicating a level between "mediocre presence" and "emerging presence". The local documents were more specific, better substantiated, and made more frequent reference to vulnerable groups, contributing to the higher score. Furthermore, Ostend had the highest keyword count, while Belgium showed the lowest. West Flanders had fewer keyword hits than Flanders but outperformed Flanders in average quality, indicating fewer but more relevant references to procedural justice.

⁴ Note: the numbers in the bars refer to the number of keywords found per governance level, which helps avoid bias due to unequal text lengths.

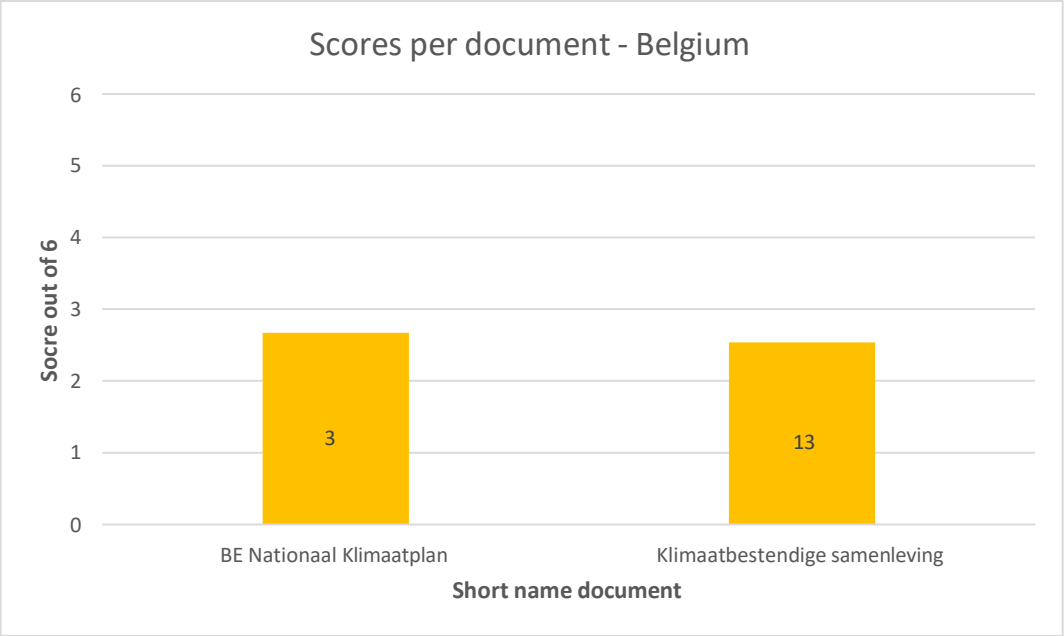
Overall, the graph suggests that the more specific the governance level, the higher the presence of procedural justice.



Graph 1. Cumulative scores per governance level

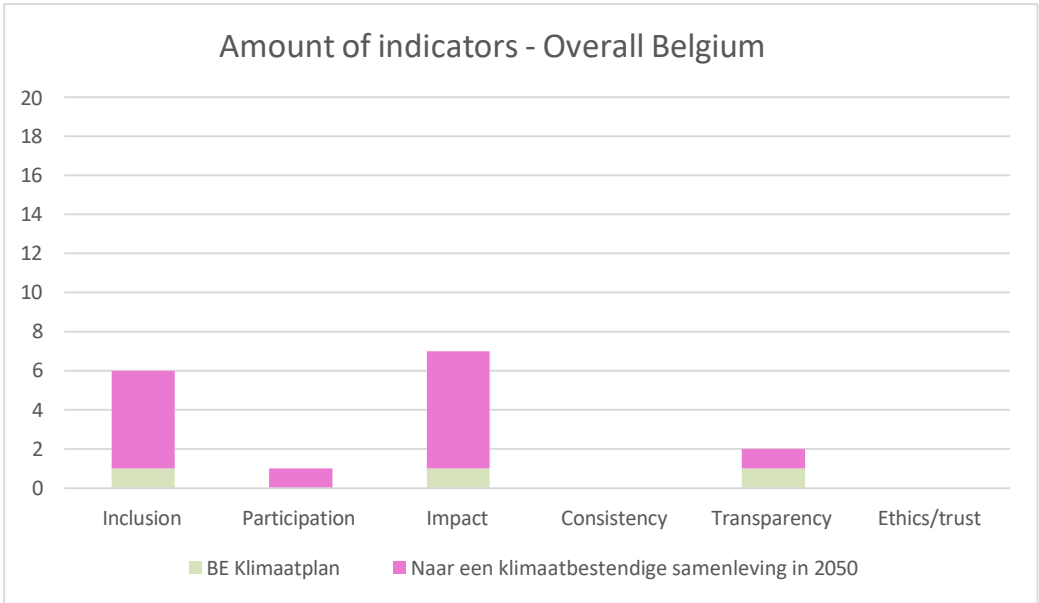
5.1.2 Level of Belgium

At the national level, two documents were analysed as no additional relevant documents were identified concerning climate adaptation or water management. The Belgian National Climate Plan received an average score of approximately 2.67 out of 6 (see Graph 2.1). The second document “*Naar een klimaatbestendige samenleving in 2050*” (i.e. “*Klimaatbestendige samenleving*” in the table for readability) is a federal policy plan outlining federal climate adaptation measures for 2023–2026. This document scored slightly lower, with an average of 2.54 out of 6 (see Graph 2.1).



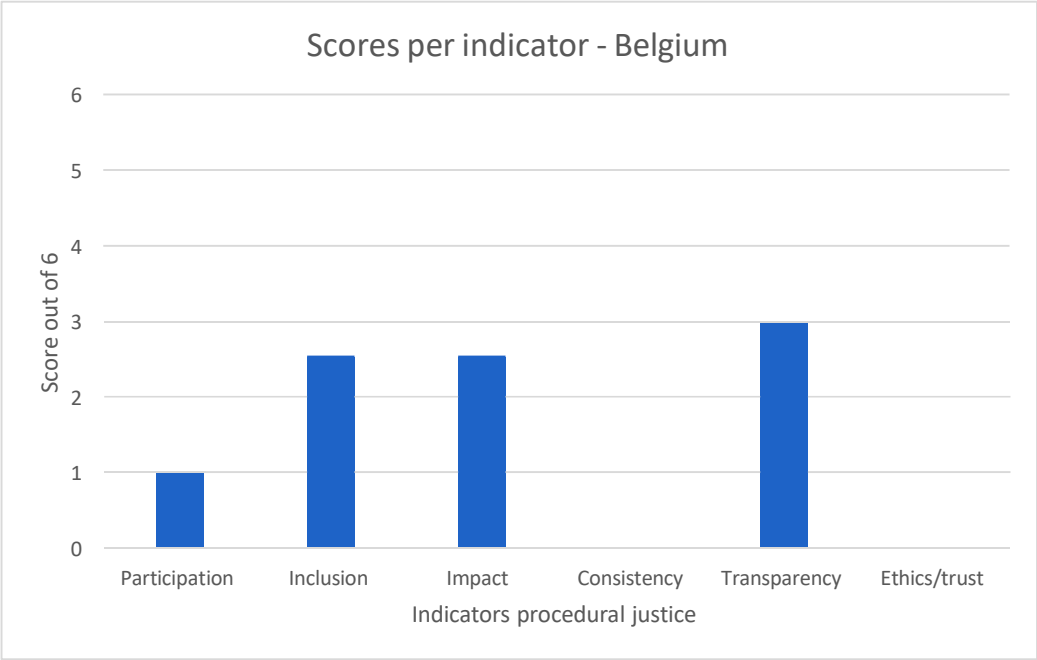
Graph 2.1 The individual document scores added together, with documents shown separately – Belgium.

When examining the individual indicators, most keyword matches were found in the “Klimaatbestendige samenleving” document (see Graph 2.2). The most frequently represented indicators were “inclusion” and “impact”, while “ethics/trust” and “consistency” were completely absent. Regarding the target groups referenced in the texts, the term “everyone” was used 11 times, suggesting a universalist framing. Farmers were mentioned 3 times, whereas people with a low socio-economic status were explicitly referred to only once. This already indicates a lack of targeted attention toward structurally vulnerable groups, despite broader inclusivity language.



Graph 2.2 Amount of procedural justice indicators present in the documents, as well as cumulatively – Belgium.

While the frequency data gives insight into what indicators are most often mentioned, it does not reflect how deeply or concretely they are integrated into policy. Therefore, graph 2.3 shows the averaged score out of 6 for each individual indicator of procedural justice. Here, transparency received the highest average score (3/6), as the national level mentions the importance of information sharing and communication. However⁵, this score is based on only two references in total. Although those references were relatively well elaborated, the limited number of mentions suggests that transparency is not a central focus in the policy documents. Similarly, indicators like “inclusion” and “impact” were mentioned more frequently, but their average scores were moderate, indicating that these references were often vague or abstract.



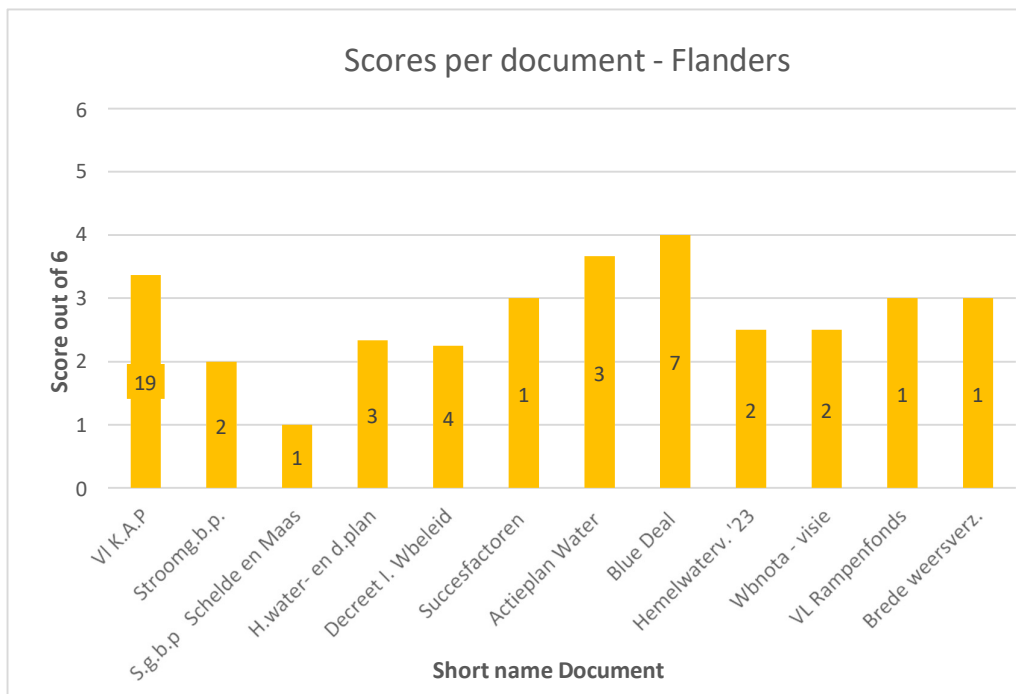
Graph 2.3 Average score out of six per indicator of procedural justice – Belgium.

⁵ This underscores the importance of nuancing the findings, as well as the need to read both graphics (frequency and average score per indicator) next to each other.

5.1.3 Level of Flanders

Many fitting documents (12) were found at the regional level (see Graph 3.1). These included the Flemish Climate Adaptation Plan, official reports from Flemish government agencies, legislative texts, and informational brochures for municipalities.

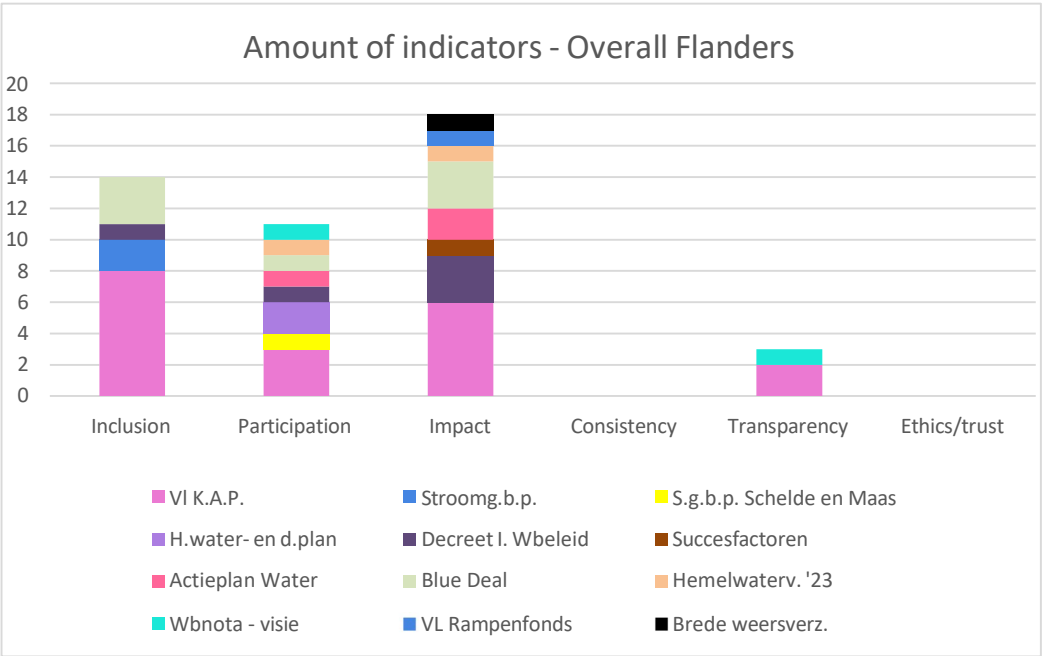
The lowest scoring documents are the “*Stroomgebiedsbeheersplannen van Schelde en Maes*” with a score of 1/6 (nuance; only one keyword was found), the “*algemene stroomgebiedsbeheerplannen*” with a total score of 2/6, the “*Decreet Integraal Waterbeleid*” which scored a 2.25 out of 6. Furthermore, the highest scoring documents were the “*Blue Deal Vlaanderen*” (4 out of 6), the “*Actieplan Water voor land- en tuinbouw 2019 – 2023*” (3.67 out of 6), and the Flemish Climate Adaptation plan (3.37 out of 6).



Graph 3.1 The individual document scores added together, with documents shown separately – Flanders.

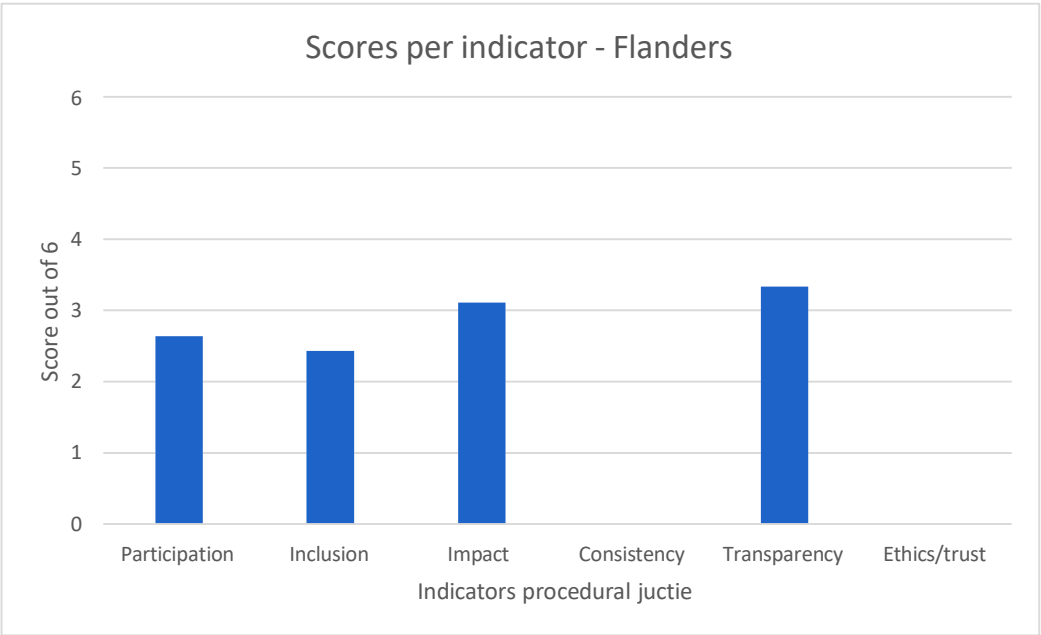
In terms of indicators, the most commonly found were “impact (18 hits), followed by inclusion (14 hits), and participation (11 hits) (see Graph 3.2). Interestingly, although a substantial number of documents were reviewed, no relevant segments emerged for the indicators “consistency” and “ethics/trust,” which may be explained by the relatively narrow selection of keywords used (see Annex 3). In terms of indicators, (recognition) of impact was the most common (18), followed by inclusion (14) and participation (11).

As for the group references, farmers were mentioned 20 times, the low SES-group 6 times, and ‘everyone’ a total of 16 times. This already indicates a much higher relative visibility of vulnerable groups compared to the national level.



Graph 3.2 Amount of procedural justice indicators present in the documents, as well as cumulatively – Flanders.

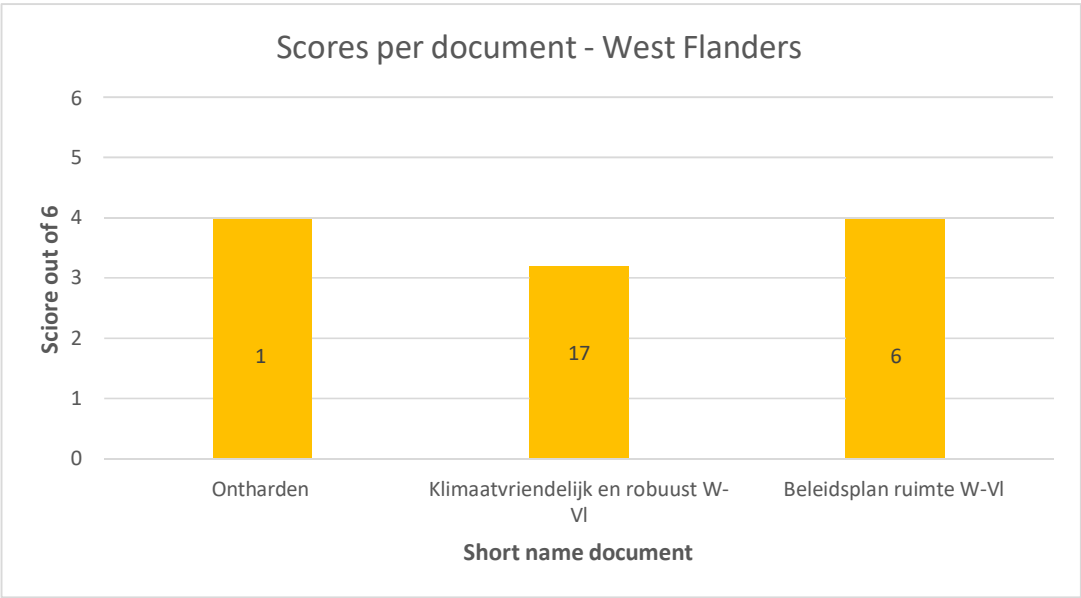
When examining the average scores per indicator, the results across the four found indicators are relatively similar (see graph 3.3). Once again, transparency received the highest average score (3.33 out of 6), while inclusion scored the lowest (2.43 out of 6). Notably, participation scored higher at this regional level than at the national level. Although participation was not mentioned frequently in the policy documents, the references that were found scored relatively well in terms of quality. This suggests that the few mentions of participation were concrete and meaningful, rather than superficial.



Graph 3.3 Average score out of six per indicator of procedural justice – Flanders.

5.1.4 Level of West Flanders

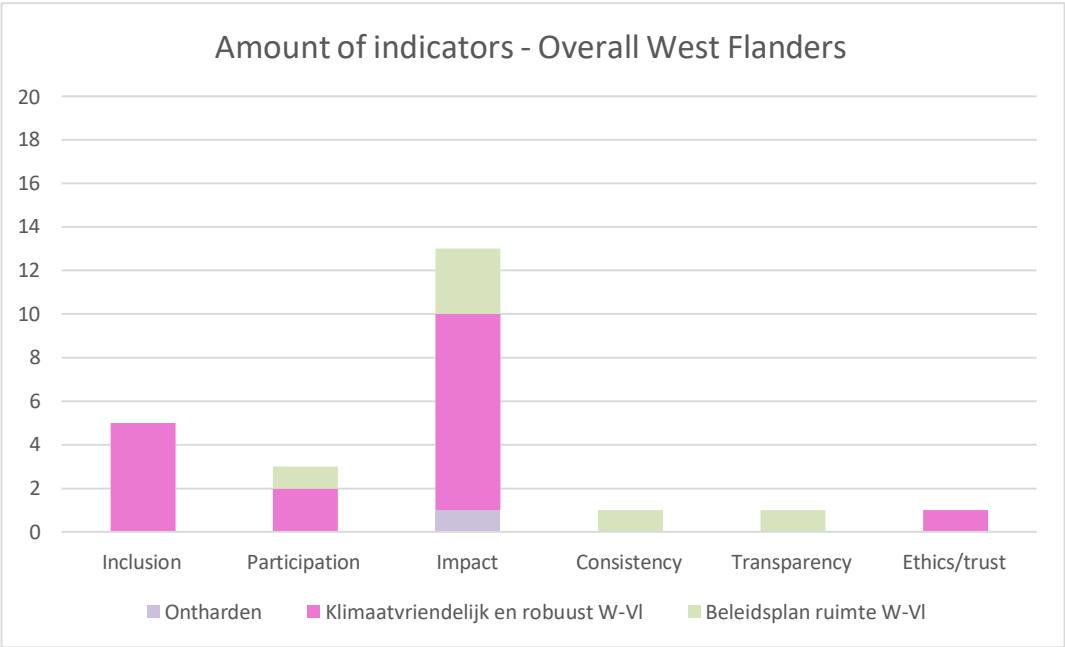
In the provincial climate adaptation plan “*Klimaatvriendelijk en robuust West-Vlaanderen*”, 17 keywords were found. However, the overall score was only 3.18/6, suggesting that while procedural justice appeared often, the content was not always strong or specific. The other two documents scored 4/6 each.



Graph 4.1 The individual document scores added together, with documents shown separately – West Flanders.

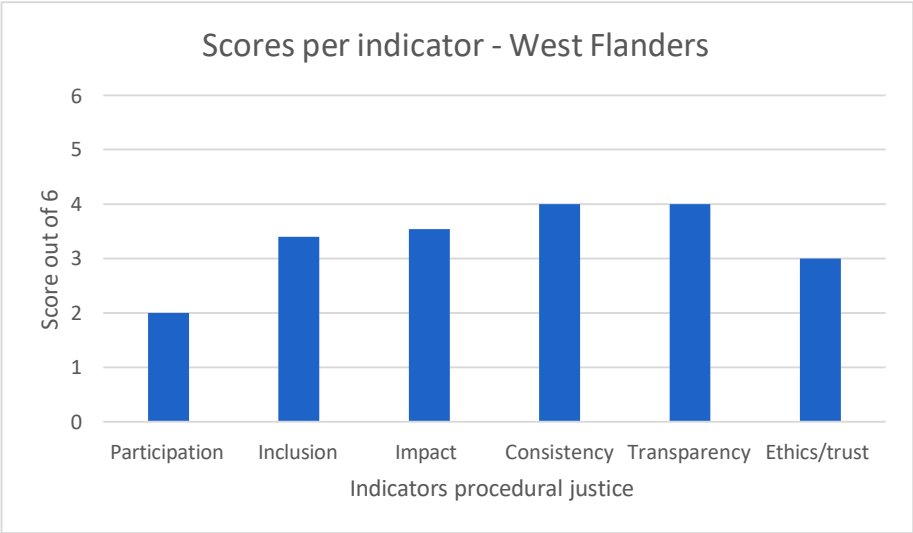
Again, the most hits were found for the indicator “impact” (13), followed by inclusion (5 hits) and participation (3 hits). Again, we see most results for the indicators “impact” (13), then “inclusion” (5) and finally “participation” (3). Additionally, 1 result each was found for “consistency” and “ethics/trust”, which did not appear at the regional and national level.

The mentioning of groups is quite similar to the regional level as vulnerable groups are relatively more visible here than in federal documents. Farmers are mentioned 14 times, ‘everyone’ a total of 7 times, and the group of low SES twice.



Graph 4.2 Amount of procedural justice indicators present in the documents, as well as cumulatively – West Flanders.

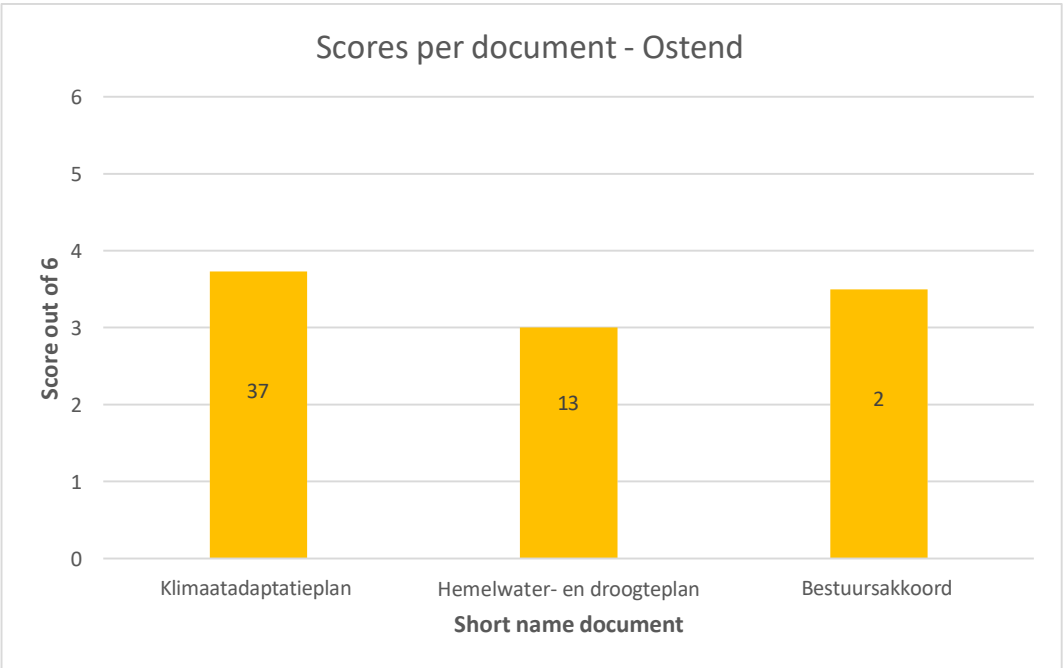
Here too, transparency received a relatively high score, as did consistency. However, it is important to note that each of these indicators was found only once in the documents, making its average scores less representative of a broader policy trend. Participation, in contrast, had both a low average score and low frequency, similar to the national level. Lastly, the indicator impact was mentioned more frequently and received a moderately high score (3.54 out of 6), indicating a stronger presence in comparison to the other indicators.



Graph 4.3 Average score out of six per indicator of procedural justice – West Flanders.

5.1.5 Level of Ostend

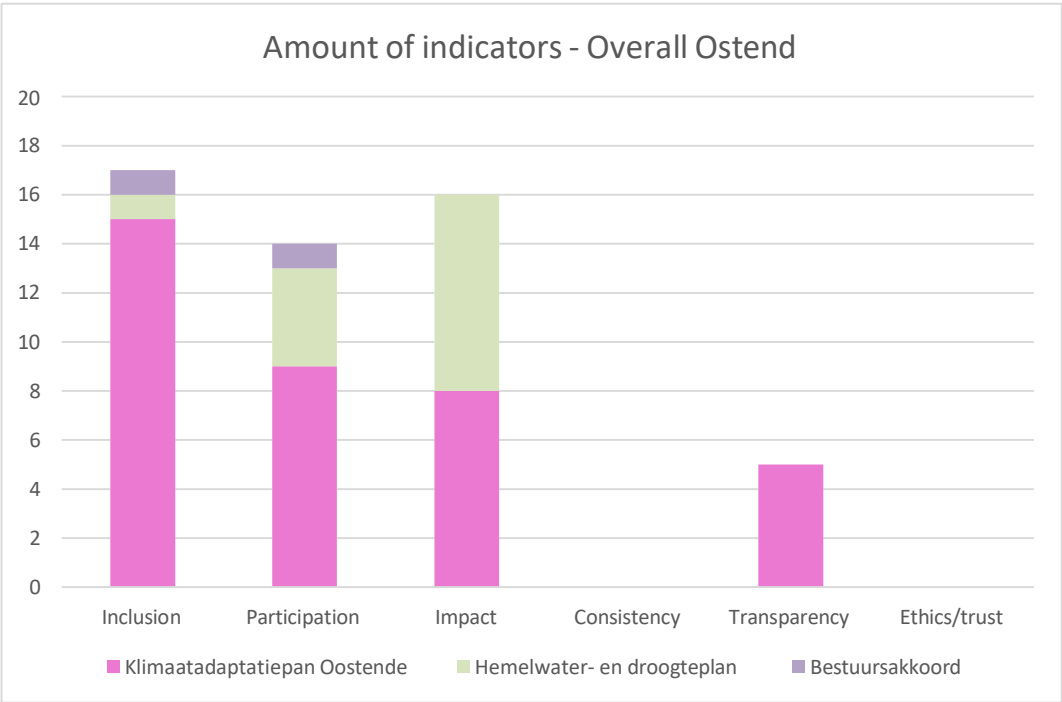
The local level reached the highest score. Ostend’s local climate adaptation plan not only had the highest keyword count, but also the highest quality references to procedural justice.



Graph 5.1 The individual document scores added together, with documents shown separately – Ostend.

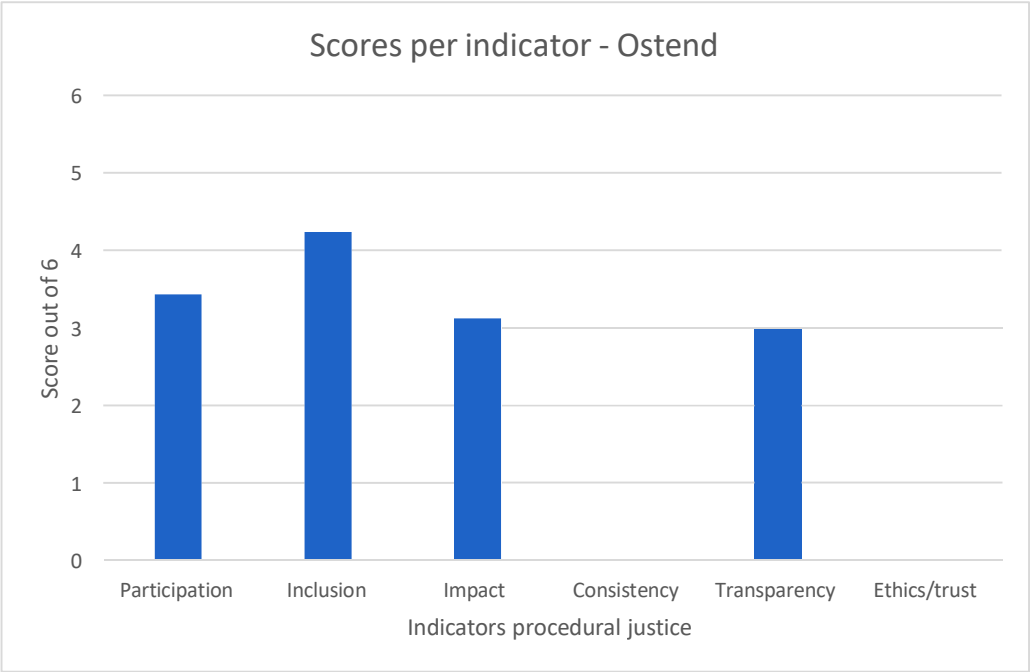
Notably, alongside a strong presence of impact-related content (16 hits), inclusion was the most prominent indicator with 17 hits, followed by participation (14 hits). As with the federal and Flemish levels, no hits were recorded for “consistency” and “ethics/trust”.

As for the group mentions, ‘everyone’ (often phrased as “all citizens”) was mentioned 34 times. Farmers 11 times, which is surprising given the low number of farmers in Ostend. And finally, the low SES-group was mentioned 7 times, which is the highest number across all governance levels



Graph 5.2 Amount of procedural justice indicators present in the documents, as well as cumulatively – Ostend.

When analysing the quality of the indicators in the local context, inclusion stands out, both in terms of frequency and average score (4.23 out of 6). It was the most frequently mentioned indicator in Ostend and also scored highest across all levels analysed. Participation also scored higher here than in the other policy levels and appeared relatively often, already indicating a more explicit attention to procedural justice at the local level.



Graph 5.3 Average score out of six per indicator of procedural justice – Ostend.

5.2 Results interviews

In total, nine interviews were conducted. Interviews were held across all levels of governance, except the national level, due to Belgium's limited competencies regarding water management at that level. Therefore, interviews were conducted at the levels of Flanders, West Flanders, and Ostend. At each of these levels, interviews were held with three categories of actors: (1) policymakers, (2) representatives of farmers, and (3) representatives of people with a low socio-economic status (SES). There was a relatively high target for data saturation. This high target was due to the heterogeneity of groups, which requires more interviews than with a homogeneous group (Baarda et al., 2013). However, it can be argued that overlap between vulnerable groups may have enabled saturation to occur sooner. Despite this, due to time constraints and the layered design of the research, further interviews were not feasible. Still, the limited number of interviews does not undermine the validity of this exploratory research. As a first step in an underexplored domain, this study contributes initial insights that future research can build on. Additionally, the use of a mixed-methods approach strengthens the overall analysis, as qualitative interviews are complemented by a systematic document analysis.

The interviews were recorded, transcribed, and analysed in NVivo. While an inductive coding strategy was followed, without predefined nodes, coding evolved organically to align closely with the six indicators of procedural justice. In total, eight top-level codes were identified: the six core indicators, barriers to participation, and suggestions for making policy more inclusive. Therefore, this results section is organised according to the six procedural justice indicators. Each subsection then follows a funnel approach, moving from broader governance levels to the local context, mirroring the structure of the document analysis section.

Further, NVivo attributes were used to assign characteristics to each interview, such as governance level and stakeholder group. This allowed for grouped analysis and the identification of trends across governance levels and actor categories. The next step consisted of executing matrix queries, the results of which are shown in Tables 2 and 3. These tables serve as a reference point for the analysis. The columns indicate the nodes, and the rows distinguish between stakeholder groups or governance levels. This way, these matrices not only provide a structural overview but also allow a comparison of indicator frequency across interviews, paralleling the quantitative analysis.

	A : Flanders	B : West Flanders	C : Ostend
1 : Barriers	10	3	10
2 : Consistency	2	1	2
3 : Impact	6	10	5
4 : Ethics, trust	1	1	2
5 : Inclusion	9	8	16
6 : Possible improvements	2	2	3
7 : Participation	6	10	14
8 : Transparency	5	5	2

Table 2. Matrix NVivo per level

	A : Policy makers	B : Low SES	C : Farmers
1 : Barriers	8	15	0
2 : Consistency	3	1	1
3 : Impact	11	4	6
4 : Ethics, trust	3	1	0
5 : Inclusion	18	3	12
6 : Possible improvements	1	6	0
7 : Participation	16	9	5
8 : Transparency	5	0	7

Table 3. Matrix NVivo per group

5.2.1 Participation

Participation is a cornerstone of procedural justice, especially in the context of climate adaptation. It must exceed symbolic engagement or “tokenism” to be considered meaningful (Arnstein, 1996). This section therefore investigates how participation is implemented at various governance levels, according to the findings from the interviews.

In NVivo, the node “participation” included both “non-participation” and “effective participation”. While participation was discussed slightly more frequently than non-participation, the quality of participation also varied. For example, some instances involved only post-decision consultation or unidirectional information sessions, which align with the lower rungs of Arnstein’s ladder of participation (Arnstein, 1969).

As shown in Table 1, there is a discernible trend: participation is more frequently mentioned the more specific the governance level becomes. Qualitatively, similar patterns emerge. Active participation was mentioned six times at the Flemish level and seven times for both West Flanders and Ostend. As for the groups involved, farmers were referenced 11 times, people with low SES seven times, and policymakers 11 times (with six about farmers, three about low SES, and two about citizens in general). This shows that farmers are mentioned more frequently than people with a low SES.

Flanders

At the Flemish level, participatory processes in water management seem to be generally limited and fragmented. Participation in these processes is often driven by European legal requirements, rather than a systemic commitment to inclusive governance. An example is the public consultations for river basin management plans, where citizens have the opportunity to provide input. Initially, these consultations were supported by direct public outreach campaigns. However, the process has since been mediated through intermediary organisations, reflecting a shift in communication strategy towards more indirect engagement (L. De Roeck & K. Haustraete, personal communication, 28 March 2025).

Regarding rainwater management and drought planning, Flemish policy encourages that municipalities make at least an attempt to involve citizens, for instance through consultations with municipal advisory councils. However, due to stringent timelines for the implementation of these plans, such participatory efforts were not made compulsory (L. De Roeck & K. Haustaete, personal communication, 28 March 2025). In contrast, the Boerenbond highlighted the importance of formal public consultations, which allow them to submit feedback informed by their members' concerns. Nevertheless, in the case of the Flemish Climate Adaptation Plan, no public consultation was conducted, and farmers were minimally consulted during the drafting phase (F. Vandekerchove, personal communication, 17 April 2025).

With regard to individuals with a low socio-economic status, there is a notable absence of meaningful participatory practices. In instances where input was solicited, it typically occurred during so-called “participation moments”, which often resembled informational sessions rather than genuine participatory processes, further marginalising these groups from active decision-making (F. Beckx, personal communication, 3 April 2025).

West Flanders

At the provincial level, some opportunities for participation are available, particularly in the context of drought management measures. For example, a provincial drought task force has been established, involving various stakeholders such as farmer organisations. Policymakers in West Flanders view farmers as essential partners in water management, both for reducing water pollution (a responsibility often imposed on the farmers) and for conserving water resources (where they are seen more as enablers) (C. Marey, personal communication, 25 March 2025). However, from the perspective of farmers themselves, participation often consists merely of informational sessions about decisions already made. An interviewee states that “there is little margin or space to process additional guidance or input from farmers” (D. Mergaert, personal communication, 28 March 2025).

This sentiment was echoed by a representative of low SES communities, who described these sessions as one-way communication rather than genuine consultation (E. Claeys, personal communication, 14 April 2025). Nevertheless, policymakers indicated that resilience-building initiatives targeting vulnerable groups are being developed. For instance, European-funded projects will aim to better inform local residents about individual adaptive measures they can take (C. Marey & K. Soudiacourt, personal communication, 25 March 2025).

Ostend

In Ostend, participation is mainly pursued during the implementation of adaptation measures, rather than during policy design. Vulnerable groups were not included in the development phase of the Climate Adaptation Plan, but the city aims to involve them during implementation to ensure greater social legitimacy. Furthermore, the policymaker acknowledged missed opportunities regarding resilience in areas like greywater reuse for sustaining green infrastructure, noting that future-oriented thinking in this domain requires resident support and understanding. Such support is difficult to achieve without participatory engagement (T. Wyffels, personal communication, 3 April 2025).

Additionally, the local social housing agency (Woonsprong) is involved in renovation projects that aim to improve resilience among low-income residents (A. Van Laer, personal communication, 15 April 2025).

As for farmers, Ostend has a formal Farmers' Council open to all local farmers. In principle, this allows for input on various issues, but the council was not consulted during the drafting of the Climate Adaptation Plan, partly due to internal uncertainty about how to involve it. The same pattern was observed with the rainwater and drought plan: although farmers are considered important partners, no space for their input was created. Still, policymakers emphasised the meaningful role farmers can play in local adaptation and water policy going forward (T. Wyffels, personal communication, 3 April 2025).

5.2.2 Inclusion

Inclusion, as defined in the theoretical framework, requires that vulnerable groups have genuine access to policy processes. This section assesses the extent to which these groups are not only present but also recognised as legitimate stakeholders and how inclusion is present (direct/indirect) in the different governance levels.

In the NVivo matrices, references to inclusion were most frequently found at the local level of Ostend (16 times), followed by Flanders (9) and West Flanders (8). Per group, policymakers mentioned inclusion 16 times (7 times regarding farmers, 6 regarding low SES individuals, and 3 concerning citizens in general), while farmers themselves referred to it 12 times. Respondents from low SES backgrounds only mentioned inclusion three times, underscoring their underrepresentation. A recurring trend is that when inclusion does occur, it typically takes the form of representation through intermediary organisations, rather than direct involvement, particularly in the case of farmers.

Flanders

Policymakers at the Flemish level emphasised the importance of including farmers, but primarily do so via representative organisations such as the Boerenbond. These organisations are granted seats in strategic advisory bodies, allowing them to be informed and, to some extent, consulted (L. De Roeck & K. Hastraete, personal communication, 28 March 2025).

The Boerenbond itself confirmed that farmers are rarely involved directly, but rather through representation. The positions that representative organisations take are formed through internal consultation within diverse structures, in which farmers (large and small, intensive and extensive) can express their views on policy. Consequently, there are opportunities to provide feedback on policies, and efforts are made to reflect a range of perspectives from across the agricultural sector. However, the Boerenbond indicated that their input has not been taken seriously in recent years. They expressed concern that farmers' views are often disregarded in policy-making and

that there is even a sense that agricultural interests are being specifically targeted by certain governmental measures (F. Vandekerchove, personal communication, 17 April 2025).

As for low SES groups, the only reference to inclusion at this level pertained to the social water tariff ((L. De Roeck & K. Haustraete, personal communication, 28 March 2025). Broader involvement in water management or climate policy remains absent (F. Beckx, personal communication, 3 April 2025).

West Flanders

According to provincial policymakers, farmer organisations are involved in certain specific policy issues, such as water quality. For such occasions, dedicated structures are set up temporarily **chris**. For example, in the context of rainwater and drought plans, farmers are again indirectly included through organisations like Inagro that provide farming-expertise. This often takes the form of technical agricultural input provided by those type of institutions, who support West Flemish municipalities and ensure that agricultural concerns are taken into account. The Boerenbond is also invited to attend meetings related to these plans (D. Mergaert, personal communication, 28 March 2025).

Once again, as was also the case at the Flemish level, there is no explicit or systematic inclusion of people with a low socio-economic status. The only example mentioned in this regard was once again the social water tariff (C. Marey & K. Soudiacourt, personal communication, 25 March 2025).

Ostend

The city of Ostend is actively learning how to make decisions and set priorities based on social indicators, in order to work in a more socially inclusive manner. A clear shift is visible compared to the previous administration, during which inclusion and participation were not really a part of the political agenda. In the current legislature, however, they are high priorities. This is reflected in several upcoming inclusive initiatives. Although many are still in the design phase, they are expected to be implemented (T. Wyffels, personal communication, 3 April 2025).

One example involves plans to upgrade certain neighbourhoods as a means of financing the climate transition. Currently, 60% of people are unable to carry out climate-adaptive renovations on their own. However, if the city takes part in these projects, it can help make them more affordable. Renovation costs are typically not recouped when a property is sold, but if the city invests in public space improvements (e.g. adding green infrastructure), the value of nearby homes increases, improving the resale margin. Resident engagement is crucial in this approach, as the neighbourhood must be co-developed with all types of residents (including renters, landlords, people without financial means...).

A key concern here is the risk of gentrification. If the home of a low-income family is upgraded, it may no longer be affordable for similar households after resale. The city is aware of this risk and continues to search for solutions. This illustrates that while Ostend is indeed launching socially

inclusive projects, many of these are still in development, as inclusion and participation have only recently been prioritised (T. Wyffels, personal communication, 3 April 2025).

For these type of projects, people with a low SES will be involved and reached via organisations such as Woonsporg, the local social housing company (A. Van Laer, personal communication, 15 April 2025).

Lastly, regarding the farmers, local policymakers acknowledge that their collaboration with the agricultural sector is limited. However they do believe that the province does represent the interests of farmers. They themselves consider this group to be highly valuable for involvement in both water management and climate adaptation. While not yet widely practised, opportunities are expected to arise in the near future. For example, farmers are likely to be involved in the management of the waterlevel consultations, as outlined in the local Climate Adaptation Plan, in order to help create a more climate-resilient polder region (T. Wyffels, personal communication, 3 April 2025).

5.2.3 Consistency

Consistency in procedural justice refers to the systematic and continuous implementation of participatory processes. This section explores whether the inclusion of stakeholders is embedded in structural governance, or rather takes place on an ad hoc basis.

Mentions of this indicator were scarce across all governance levels. In NVivo, segments were coded in terms of "ad hoc" versus "structural involvement". Both Flanders and Ostend had two mentions, and West Flanders only one. Only once was the low-SES group mentioned in this context, while the agricultural sector was referenced once by representatives and three times by policymakers.

Flanders

Regarding people with a low socio-economic status, there appears to be a tendency to limit systematic engagement. In some instances, ad hoc participation was mentioned, such as consulting a specific neighbourhood at a given moment. However, such approaches lack the durability required for genuine inclusion, as they are not applied consistently across all groups. This indicates a fragmented and uneven participatory framework (F. Beckx, personal communication, 3 April 2025).

Further, according to the Boerenbond, farmers are typically only engaged after political decisions have already been made. At that stage, many parameters are already fixed, limiting their influence and undermining the principle of meaningful and continuous participation (F. Vandekerchove, personal communication, 17 April 2025).

West Flanders

At the provincial level, a similar pattern emerges. Collaboration with agricultural stakeholders in the water management domain is often incidental and initiated by individuals, such as the basin

coordinator. These consultations are mostly project-based, temporary structures created to address a specific issue (e.g. relating to river basis) and dissolved once resolved. Thus, they lack the permanence of sustainable participatory structures (C. Marey & K. Soudiacourt, personal communication, 25 March 2025).

Ostend

At the local level, signals are mixed. Certain issues, such as water level management, clearly require a structural approach: *“No, that must be structural. That can’t be ad hoc. Otherwise, it would never gain public support.”* (T. Wyffels, personal communication, 3 April 2025). That is because these decisions often indirectly impact the income of farmers, for instance when agricultural lands are temporarily flooded as part of climate adaptation measures. This underscores the need for consistent and inclusive consultation.

However, this structural intent is not always realised in practice. For example, the agricultural council of Ostend was not consulted in the drafting of the Climate Adaptation Plan, partly due to internal uncertainty about how to engage the council (and councils in general) (T. Wyffels, personal communication, 3 April 2025). This illustrates a lack of institutionalised participation, despite the existence of formal structures.

5.2.4 Trust and ethics

Trust and ethical governance are vital to foster legitimacy and ensure long-term engagement in climate adaptation. This section examines whether policymakers manage to build trust and promote fairness among all citizens.

Nonetheless, this indicator was only occasionally mentioned during the interviews. When mentioned, it primarily revolved around building trust with target groups and the difficulty of ensuring fairness in a complex society. One mention was found at the Flemish level, one in West Flanders, and two in Ostend. Three of these referred broadly to “citizens,” while only one, in Ostend, explicitly related to people with a low SES.

Flanders

Policymakers noted the lack of refined and accessible instruments for socially evaluating policy. Instead, broad principles and generic tools are used, which makes it difficult to tailor policies to the diverse situations and needs within society (L. De Roeck & K. Haustaete, personal communication, 28 March 2025).

West Flanders

An important ethical issue was raised by the interviewee, who, as both a representative of people with a low socio-economic status and a resident of West Flanders, pointed to a perceived imbalance in how protective infrastructure is distributed. He observed that industrial zones often

appear to receive quicker and more robust protection against flooding than residential areas. This has led to a growing perception among residents that public authorities prioritise economic interests over the safety and well-being of citizens, which in turn erodes trust in the fairness of climate adaptation measures (E. Claeys, personal communication, 14 April 2025).

Ostend

At the local level, the importance of trust was strongly emphasised, particularly within the social domain. One policymaker noted that adaptation policy often overlooks the role of trust, even though it is essential for public support: *“I think we abstract too much from this in adaptation policy... We need trust in what we’re doing to build support for investments”*. Despite this recognition, there is currently no tool or framework in place to systematically assess the fairness or ethical implications of adaptation measures for different population groups (T. Wyffels, personal communication, 3 April 2025).

Additionally, concerns were raised by farmers about a lack of feedback mechanisms. For example, they reported that no follow-up reports were provided after meetings, making it unclear whether their input had been considered (J. Coopman, personal communication, 1 April 2025).

5.2.5 Transparency

Transparency goes beyond access to information; it also involves clear communication about decisions and feedback on stakeholder input. This section investigates how transparent governance processes are perceived to be, and whether stakeholders feel adequately informed and acknowledged.

Mentions of transparency were relatively modest: five at both the Flemish and West Flanders levels, and two at the local level. Five references were made by policymakers (usually concerning farmers and citizens in general), seven by farming representatives, and none for the low SES group.

Flanders

Communication toward citizens and farmers is described as formal and limited. Although public consultations are held on climate adaptation policies, communication is often passive: *“We do that via a website. We don’t run major public campaigns targeted at citizens.”* (L. De Roeck & K. Haustraete, personal communication, 28 March 2025).

Despite that, efforts are made to make information accessible via municipalities and newsletters, yet the participatory dimension remains weak: *“We write to all municipalities asking them to post it publicly”* (L. De Roeck & K. Haustraete, personal communication, 28 March 2025).

Lastly, farmers can obtain information via organisations like the Boerenbond or research centres, but in general, they must actively seek it out themselves (F. Vandekerchove, personal

West Flanders

In West Flanders, transparency seems to rely mostly on informal networks and local engagement. Policymakers depend on word-of-mouth within the farming community (C. Marey & K. Soudiacourt, personal communication, 25 March 2025).

Although some plans are communicated more explicitly (e.g., rainwater and drought plans), the intensity of communication varies between municipalities. Therefore it was noted that targeted communication toward the broader agricultural sector still requires significant improvement (D. Mergaert, personal communication, 28 March 2025).

Ostend

Farmers reported that while they do receive information, there is in general limited opportunity for two-way communication or formal follow-up. For example, feedback reports are not provided after farmers council meetings, leaving farmers without clarity on whether their input was considered or incorporated (J. Coopman, personal communication, 1 April 2025).

It was further noted that although organisations such as Inagro and Velt disseminate relevant information, e.g. through newsletters, it remains the responsibility of farmers themselves to actively seek out this information. This can pose a barrier to transparency and inclusivity, particularly for those who lack time, digital access, or familiarity with institutional procedures (J. Coopman, personal communication, 1 April 2025).

In relation to the low socio-economic status group, no explicit (or even implicit) references to transparency were found in the interviews.

5.2.6 Impact

Recognising unequal impacts is crucial to fair climate adaptation. This section assesses whether vulnerable groups feel that their specific risks, losses, and capacities are acknowledged and addressed in climate adaptation and water management policies.

During the interviews, numerous statements were coded under the NVivo node "(recognition of) impact". These ranged from general awareness of the disproportionate effects of climate change on specific groups, to more concrete issues such as eligibility for financial compensation, access to insurance, and the feasibility of adaptation measures. The findings reveal whether and how the impacts on these groups are not only recognised in discourse, but also translated into policy design and implementation.

A relatively large number of relevant issues were identified under this category. The majority were related to farmers (6 instances in direct interviews and 4 through interviews with policymakers), 4 instances in interviews low SES representatives, and 6 instances concerning citizens in general, which were mentioned during interviews with policymakers.

Flanders

At the Flemish level, there is explicit attention to the structural impacts of climate risks, such as flooding and drought, and how these should be addressed through policy. For instance, a compensation mechanism has been established for farmers who allow their fields to flood, ensuring that excess water can be managed effectively (C. Marey & K. Soudiacourt, personal communication, 25 March 2025).

Despite such measures, farmers still face considerable challenges. In particular, they report that obtaining permits for groundwater extraction remains difficult. The agricultural sector frequently encounters sectoral regulations which complicate or delay the permitting process (F. Vandekerchove, personal communication, 17 April 2025).

Additionally, Flemish authorities have recently increased their focus on flood-prone residential zones. For example, the designation of water-sensitive open space areas has led to a ban on future construction in these zones. This is seen as a way to protect citizens from future climate-related surprises (C. Marey & K. Soudiacourt, personal communication, 25 March 2025).

However, farmers in Flanders find that things are quite difficult in terms of permits, such as the granting of permits for groundwater extraction. The agricultural sector therefore still often comes up against sectoral regulations that make granting permits difficult (F. Vandekerchove, personal communication, 17 April 2025).

West Flanders

In West Flanders, the effects of drought and climate change are already being strongly felt, particularly within the agricultural sector: “Frequent dry summers have already had a significant impact on agriculture” (D. Mergaert, personal communication, 28 March 2025).

To address these challenges, the provincial government has introduced concrete measures, such as promoting the construction of private reservoirs and implementing a water storage regulation. In addition, farmers can receive financial compensation for allowing their land to be temporarily flooded to mitigate flooding risks downstream. However, important nuances emerged regarding the accessibility of such measures. Under the provincial water storage regulation, farmers must co-finance the construction of water reservoirs. While this benefits both the province and the farmer, it still requires a significant financial contribution from the latter. Consequently, smaller-scale or less affluent farmers, who are equally affected by drought, are often unable to afford this. Despite the success of the initiative in terms of interest (with 100 farmers applying in the first year), only 5 could be selected due to limited capacity and strict eligibility criteria. As such, this adaptation measure, though innovative and effective, is not yet universally accessible, and may

inadvertently exclude the most vulnerable within the farming community (D. Mergaert, personal communication, 28 March 2025).

With regard to low-SES populations, provincial policymakers stated that the overall focus remains on collective adaptation measures. They emphasised that no groups are explicitly excluded, but rather, measures are designed to benefit the broader population. This universal approach, however, may risk overlooking specific vulnerabilities (E. Claeys, personal communication, 14 April 2025).

Ostend

It was acknowledged in interviews that poverty exacerbates vulnerability to climate risks. As a result, social indicators are now being applied in certain projects to ensure that socio-economic vulnerabilities are considered in decision-making.

Another major challenge identified was the affordability of individual adaptation measures. A large share of residents cannot afford interventions such as raising floor levels or insulating their homes. In response, the city is experimenting with collective neighbourhood renovations and urban renewal initiatives as alternative financing models. The goal is to ensure that the added value of greening efforts also benefits low-income households (T. Wyffels, personal communication, 3 April 2025).

Nevertheless, the risk of gentrification was acknowledged. When a home belonging to a low-income family is upgraded, it often becomes unaffordable for similar households upon resale or rental. The city is aware of this and is actively exploring solutions such as housing cooperatives. However, these initiatives are still in their early stages. The mere fact that this issue is recognised indicates a growing awareness of the unequal impacts of both climate change and adaptation measures.

Policymakers stressed that a transition which is not socially inclusive is unlikely to succeed. For this reason, involving vulnerable groups, such as people living in poverty, in the implementation of adaptation measures is considered a key priority (T. Wyffels, personal communication, 3 April 2025).

5.2.7 Barriers to participation

During the interviews, attention was also given to potential barriers to the participation of vulnerable groups in water management policymaking. Two categories of barriers were identified: those originating from political and governmental structures, and those experienced by the target groups themselves.

Regarding the first category, several interviewees emphasised that significant obstacles within policy structures and political cultures hinder effective participation. For example, as mentioned previously, the former municipal administration of Ostend was not oriented towards participatory governance and actively dismantled participatory structures. Although the current administration has taken steps towards promoting participation and inclusion, "silo-thinking" within governmental departments remains a major challenge to creating an integrated approach. As Ostend's

policymaker noted: "*The city organisation is not one single entity ... communication between departments is not always effective*". Additionally, there is a general lack of policy knowledge on how to engage with vulnerable groups. Expertise on working with these groups often resides in different departments than those responsible for climate or water policy (T. Wyffels, personal communication, 3 April 2025).

Furthermore, financial resources are rarely allocated specifically for participatory processes. One possible explanation for this is that the voices of individuals with a low socio-economic status are assigned little "symbolic capital" within policymaking contexts; their contributions are often not regarded as "policy-relevant," resulting in their structural underrepresentation (F. Beckx, personal communication, 3 April 2025).

Beyond these structural barriers, various obstacles were also identified on the side of the target groups themselves. One of the most prominent findings is that participatory processes are often designed for individuals who are fluent in the "language of policy". This mismatch leads to feelings of exclusion among others, who may experience insecurity, shame, or a perceived lack of knowledge. These issues were reported at both the regional and provincial levels. Additionally, even when individuals with a low socio-economic status manage to voice their opinions, their input is often not taken seriously. Finally, practical barriers also play a role: the complexity, technical nature, and time-intensive character of the issues at stake make participation particularly challenging (F. Beckx, personal communication, 3 April 2025 & E. Claeys, personal communication, 14 April 2025).

5.3 Synthesis of findings per level

This section presents the synthesis of the findings from both the document analysis and the interviews, structured according to the four levels of governance in Belgium. Given the use of a parallel mixed-methods research design, this approach is essential to enable the triangulation of insights from both methods (Malina et al., 2011; Dawadi et al., 2021). While each method was analysed separately, the integration at this stage allows for a more comprehensive understanding of procedural justice across governance levels, or even reveal contradictions between the two researches. The aim is to give an overall assessment of procedural justice at each level of governance in Belgium

National level

As discussed earlier in the document analysis section, the national level in Belgium primarily plays a strategic and coordinating role in climate adaptation. Since no interviews were conducted at this level, due to its limited implementation role in water management, this synthesis relies solely on findings from the documents. National documents relating to water management, such as the National Adaptation Plan, refer to participation and inclusion mainly in abstract terms and as part of Belgium's obligations under European and international climate frameworks. However, they lack concrete mechanisms for involving citizens or vulnerable groups in decision-making processes. As a result, the presence of procedural justice at this level remains limited and mostly symbolic, with low scores across key indicators like participation, inclusion, and impact.

Regional level

In Flanders, procedural justice is moderately present, though unevenly distributed. Policy documents do slightly acknowledge participation, particularly of farmers, indicating some recognition of sectoral vulnerability. This is reflected in interview findings, which note that farmers are often consulted in the context of drought policy. However, participation tends to remain informal and consultative, rather than structurally embedded (F. Vandekerchove, personal communication, 17 April 2025).

Groups with a low socio-economic status are rarely mentioned, and formal inclusion mechanisms to engage them are absent. Inclusion thus seems to remain sector-specific, rather than socially comprehensive. Furthermore, while impact is acknowledged for agricultural vulnerabilities, social vulnerability is largely overlooked. The region's efforts reflect a partial approach to procedural justice: relevant for some (however with large room for improvement), invisible for others.

Provincial level

In West Flanders, procedural justice is more present than at higher levels, though still limited in scope. Participation in water management may occur through drought-related consultation platforms, where agricultural organisations such as Boerenbond and ABS are represented. Farmers thus have a voice in both policy and practice, albeit mainly through formal sectoral representation rather than broad participatory processes.

Other vulnerable groups, particularly people with low socio-economic status, are largely absent from both policy documents and participatory initiatives. Recognition of impact also remains largely confined to agricultural risks, with minimal attention given to the socio-economic dimensions of flooding or drought. Overall, West Flanders falls short of a holistic approach to procedural justice.

Local level

At the local level (Ostend), procedural justice in water management is most prominently present, at least at the policy level. Policy documents from the city of Ostend devote relatively substantial attention to participation, inclusion, and the recognition of socially vulnerable groups. In contrast to higher governance levels, residents with low socio-economic status are explicitly identified as a target group, and water-related vulnerabilities in specific neighbourhoods are acknowledged. Participation is promoted through climate projects, neighbourhood-focused actions, and collaborations with local organisations.

Nevertheless, interviews reveal that these policy intentions have only been partially realised in practice. Many planned measures are still in preparatory or experimental phases. Currently, participation by vulnerable groups often remains limited to temporary consultation moments or symbolic involvement, without structural follow-up. Moreover, effectively reaching low SES groups remains a persistent challenge. However, while vulnerable groups have not been directly involved in policymaking thus far, the administration explicitly aims to engage them during later stages of the policy cycle, particularly during implementation.

Farmers are scarcely represented at the local level due to the limited presence of agricultural activities in Ostend, although they are recognised as potentially valuable partners in water management. While Ostend's policy documents clearly outline an inclusive vision, translating these ambitions into sustainable participation and effective representation of vulnerable groups remains a work in progress.

Discussion

Analytical framing and contribution

This study aimed to assess how procedural justice, as a core component of Just Resilience, is addressed within climate adaptation policy in Belgium, specifically in the domain of water management. Through a document analysis across different governance levels and a series of interviews with relevant stakeholders, several trends and gaps have emerged that merit critical reflection. These findings are interpreted through a multidimensional understanding of procedural justice, as conceptualised earlier in this thesis, comprising six dimensions: participation, inclusion, transparency, consistency, impact, and ethics/trust. This research makes a theoretical contribution by offering a comprehensive framework for conceptualising (and in lesser extent operationalising) the relatively new concept of Just Resilience, with particular emphasis on the concept of procedural justice. By developing six concrete indicators for procedural justice, this study provides a novel, grounded approach for evaluating the fairness of decision-making processes, especially in contexts where vulnerable communities are involved in climate adaptation and resilience planning. This operational framework extends beyond theoretical discussions, providing a practical tool for assessing procedural justice in resilience processes.

Variation in procedural justice

One prominent finding from the document analysis is the clear variation in the presence of procedural justice indicators depending on the proximity of the governance level. The more specific and localised the policy level, the higher the score on procedural justice. Local level documents showed more detailed and action-oriented references to participation and inclusion compared to higher level documents. This trend aligns with findings in the literature on multi-level governance in climate adaptation, which argue that participation and legitimacy are often more feasible at the local scale due to contextual knowledge and citizen proximity (Bauer & Steurer, 2014; Uittenbroek et al., 2019; Newig et al., 2023).

Superficial implementation of participation and inclusion

However, the mere inclusion of participatory mechanisms in documents does not automatically imply meaningful procedural justice. Analysis based on Arnstein's (1969) Ladder of Participation revealed that most references fell within the middle rungs: consultation and placation. These rungs are classified as "tokenism" and do not ensure actual power redistribution. However, as previously noted, meaningful participation must transcend tokenistic gestures. Cornwall (2008) also observes that consultation often serves to legitimise predetermined outcomes, rather than enabling shared decision-making. This was supported by interviews, where several respondents noted that participatory moments often took place after decisions had been shaped, or were limited to information-sharing sessions without substantive dialogue. Such findings echo longstanding concerns in the literature about participation being used as a form of legitimization, rather than as a tool for empowerment (Jager-Vreugdenhil, 2011).

While inclusivity is occasionally referenced in policy documents, these mentions are generally vague, non-committal, or lacking in concrete implementation strategies. As such, there remains a significant gap between the stated intention to be inclusive and the actual recognition or involvement of vulnerable groups.

Vulnerable groups are particularly underrepresented. Although this research focused specifically on farmers and individuals with low socio-economic status, their explicit recognition and inclusion in policy documents was minimal in general. Interviewees confirmed that these groups are rarely targeted in participatory efforts, nor are they given genuine influence in policy processes. However, a subtle distinction emerged: while farmers were somewhat more visible in documents, they were primarily framed as implementation partners rather than as political participants. Their involvement can be seen more as instrumental than as deliberative. This distinction illustrates a broader trend in climate adaptation policy, where certain stakeholders are still not seen as legitimate contributors to policymaking, despite their situated knowledge and lived experience. This reflects the kind of instrumental and structural power described by Brisbois & de Loë (2016), where certain stakeholders are included due to their practical resources, but are not granted discursive or agenda-setting power. As a result, their knowledge might be used, but their political voice remains marginal.

This instrumental involvement is further reflected in how participation (and inclusion) occurs: mainly via indirect mechanisms, such as representative organisations. While these actors can influence policy to some degree, they typically lack formal authority and fall under the category of informal stakeholders, which may risk weakening representativeness when direct engagement is not feasible (Vitálišová et al., 2021). This pattern was repeatedly confirmed in interviews. Furthermore, despite formal references to inclusivity, participatory mechanisms were rarely institutionalised or iterative. They tended to be sporadic and project-based, rather than embedded across the full policy cycle. This undermines both the long-term legitimacy and the adaptiveness of climate resilience planning. This limitation is consistent with literature that stresses the need for sustained engagement to accommodate evolving stakeholder interests and enhance policy durability (Vitálišová et al., 2021). Besides this, additional factors further hinder the effectiveness of these efforts. The barriers cited by interviewees, such as time constraints or lack of resources, are furthermore consistent with other studies (MacKean, 2024).

Quiet dimensions: transparency, trust and ethics

Transparency was one of the least visible indicators in the policy documents. While some references scored moderately in the document analysis, interviewees rarely described experiencing transparency in practice. This suggests that formal mechanisms for openness may exist, but are not yet perceived as meaningful or legitimate by stakeholders. As outlined by Leventhal (1980) and Newman (1993), transparency requires both the use of accurate information in decision-making and clear feedback to participants about how their input influences outcomes, as also stated in the theoretical framework. The absence of such feedback weakens the legitimacy of participation and reduces its capacity to foster trust and engagement.

The dimension of trust and ethics was even less present. Interview data revealed little evidence of mutual respect, moral commitment, or trust in government processes. According to the theoretical framework applied in this thesis, trust is not merely a function of institutional procedures, but emerges through perceived fairness, sincerity, and accountability (Lawrence & Daniels, n.d.; Newman, 1993). While there are indications that cities like Ostend are taking steps to strengthen relationships with residents, recent data from the '*Gemeente- Stadsmonitor*' reveal that only 22% of residents in Ostend express trust in their local government, compared to 29% across the Flemish Region (Vlaanderen, n.d.-d). These low figures confirm that efforts to build trust remain fragile, and they align with the scepticism voiced by several interviewees.

It is also important to note that the strikingly low number of hits for the indicators ethics/trust and consistency may partly be attributed to the comparatively limited scope of the glossary used for these indicators. It may also imply that these dimensions are possibly under-conceptualised and under-operationalised within the current climate adaptation policy discourse. Unlike participation and inclusion, which are often more intuitively integrated into policy frameworks, indicators such as trust and ethics may be taken for granted or overlooked entirely. This narrow interpretation of procedural justice seems to focus only on the more "visible" indicators. Yet procedural justice is not achieved by addressing some indicators in isolation; these dimensions are interconnected and must be approached as a whole. As illustrated earlier, participation without structural embedding and long-term institutionalisation (i.e. consistency) may offer only temporary legitimacy but does not constitute sustained procedural justice. Future research should therefore pay closer attention to how these 'quieter' dimensions of justice are conceptualised and embedded in both theory and practice.

This interrelatedness between indicators is also reflected in the interview findings. In several instances, the boundaries between indicators appeared blurred, with participants describing experiences that could be associated with multiple dimensions at once. This is not unexpected: as discussed earlier, procedural justice should be approached holistically rather than as a sum of separate parts. As already noted in the theoretical framework, there is often a thin line between concepts such as participation and inclusion, which are not only theoretically connected, but also practically experienced as overlapping by stakeholders. The presence of overlap in the results therefore reinforces the idea that these indicators function in relation to one another, and that their interpretation in practice is inherently fluid.

Importance of equity instead of equality

Moreover, a central insight emerging from this research is the importance of emphasising equity rather than equality in the context of Just Resilience. While these concepts are often used interchangeably in policy discourse, they are in fact fundamentally different (Barraza, 2024). Equality implies treating everyone the same, regardless of their starting position. Equity, on the other hand, recognises that different groups face different levels of vulnerability and therefore require differentiated support, a principle of "tailored treatment rather than identical treatment" (Minow, 2021). Equity thus goes a step further than equality: it not only seeks fairness, but calls

for structural change to address systemic disadvantages. In the context of climate adaptation (and even in general), this means ensuring that vulnerable groups, such as people with a low socio-economic status or farmers, are not merely treated the same as others, but receive the attention, resources and opportunities they need to achieve comparable resilience outcomes. This equality/equity distinction is crucial when analysing policy discourse. The document analysis revealed a consistent use of vague and general terms such as “everyone” or “all citizens”. While this may seem inclusive, it might reflect a limited understanding of equity. There may be an implicit assumption that including “everyone” automatically ensures fairness, but this overlooks how certain groups face barriers that others do not. As a result, such general language can unintentionally exclude those who need targeted inclusion and participation the most. Thus, for Just Resilience to be more than a rhetorical goal, it must be grounded in equity-focused procedural justice where policies do not just invite participation in general terms, but actively seek to recognise and include those most affected by climate risks.

Elaboration on the conclusion

Based on the findings of this study, it can be concluded that while procedural justice is partially addressed, particularly at the lower governance levels, it remains shallow in terms of both depth and inclusivity. Without the explicit involvement and empowerment of vulnerable groups, efforts toward procedural justice and Just Resilience remain superficial and incomplete. Similar concerns are echoed in the broader literature: while cities across Europe are increasingly experimenting with participatory approaches to climate adaptation, scholars note that many of these initiatives still lack clarity in purpose, structure, and inclusivity (Uittenbroek et al., 2019). This suggests that the challenge of moving beyond tokenistic participation is not unique to the Belgian context, but part of a wider European pattern.

Building on this, scholars argue that effective climate adaptation critically depends on collaborative and deliberative governance. Stakeholder participation and partnerships across multiple levels of governance are seen not just as desirable, but as essential to ensuring that adaptation strategies are inclusive, context-sensitive, and legitimate (Uittenbroek et al., 2019). This is further supported by authors such as Vitálišová et al. (2021), who argue that: “Stakeholder participation is a way to end social and environment injustices”. However, the findings of this study suggest that such participatory ideals are still far from fully realised in practice, particularly when it comes to structurally involving vulnerable groups. This discrepancy between theory and practice is clearly illustrated in the case of Ostend, where the climate adaptation plan explicitly referred to involving the farmers’ council. However, interviewees confirmed that this group was not engaged at any point in the process. Thus, despite formal commitments, no consultation occurred in practice, reinforcing the conclusion that vulnerable groups are often mentioned in policy without being meaningfully included in decision-making.

Such cases not only reveal implementation gaps, but also highlight why procedural justice must be understood as a foundational element of equitable adaptation. Procedural justice plays a central role in ensuring that adaptation does not reinforce existing inequalities, by asking whose

voices are heard, who participates in decision-making, and whose knowledge is valued. The concept of Just Resilience underscores that resilience cannot be considered just if it excludes marginalised groups from shaping adaptation priorities and processes (Meerow & Newell, 2019). When such participation is absent, there is a heightened risk that adaptation serves dominant interests while sidelining those most affected by climate risks.

Furthermore, climate adaptation and water management in Belgium is shaped by a multi-level governance framework, where competencies largely lie with the regions. At the Flemish level, policy frameworks outline the inclusion of citizen participation in the development of rainwater and drought plans. This inclusion aligns with broader European frameworks, such as the Aarhus Convention, which emphasise public participation in environmental decision-making. However, despite these influences, Flemish policy did not make participation mandatory for municipalities, primarily due to the tight timelines they faced in drafting and submitting their plans. This highlights the challenges of multi-level governance: while higher levels set expectations, local governments often struggle to fully implement them due to practical constraints.

Hopeful for the future

Although this discussion highlights several pain points, it should not leave an overall negative impression. During the interviews, I observed genuine goodwill and frequent individual recognition that things need to change, and that change is indeed possible. Early steps toward more inclusive governance are already visible: supranational regulations from the European Union, increased attention to water and drought planning at the Flemish level, the involvement of farmers in provincial drought councils, and plans to include people with low socio-economic status in implementation processes in Ostend. These developments offer a more nuanced perspective on the findings. What is still needed is a better alignment between desirability and feasibility, acknowledging that participation and inclusion of vulnerable groups are rarely straightforward, but must nonetheless be actively pursued.

It is also important to note that, besides the limited generalisability to other countries (see *infra* for elaboration), it does not necessarily follow that the findings from Ostend apply to other cities, nor that the findings for West Flanders are valid for other provinces. It is quite possible that there are other geographic areas in Belgium where procedural justice is realised more qualitatively.

Methodological reflections and research in the future

Regarding the methodology, the use of Mixed Methods Research (MMR) in this study was crucial for obtaining a comprehensive understanding of procedural justice within water management policy in Belgium. Relying solely on document analysis would have provided a limited, one-dimensional view, focusing only on the formal commitments in policy documents, while neglecting the practical challenges and stakeholder experiences. On the other hand, interviews alone would

have lacked the necessary context of policy intentions and might have led to a more subjective interpretation. By combining both methods, this research was able to validate and enrich the findings and allowed for a more robust analysis, providing a fuller picture of how procedural justice is enacted in practice and offering a clearer understanding of the gaps between policy intentions and actual outcomes.

However, several methodological limitations must be acknowledged. Firstly, while the interviews were crucial in providing qualitative insights into the lived experiences of stakeholders, the relatively small sample size (nine interviews) poses a limitation. Conducting only one interview per stakeholder group at each level (policymakers, farmers, and low socio-economic representatives) meant that the depth of perspectives captured was limited. This limitation means that data saturation was not fully achieved, and the findings may not reflect the full complexity of experiences across the two vulnerable groups. And secondly, while the findings contribute to understanding procedural justice in the context of Belgian water management, it is important to acknowledge the context-specific nature of the research. The study was conducted within the Belgian policy framework, and while the insights gained may be applicable to other EU countries with similar governance structures, the findings cannot be generalised beyond this context without further research. The external validity of the findings is therefore limited, and future studies in different national or regional contexts would be necessary to assess the broader applicability of the conclusions. This is especially relevant considering that Belgium is classified as a high-income, developed country (United Nations, 2014). Applying this research to developing country contexts, where adaptation needs are often more urgent and resources more constrained, would likely lead to different outcomes (McCandless & Faus Onbargi, 2023). As previous studies have noted, research approaches and findings that are tailored to developed settings may fail when transferred to different governance systems or socio-economic conditions, particularly if context is not carefully accounted for (Miranda & Zaman, 2010b). This further underscores the need for context-sensitive approaches when studying procedural justice across diverse settings.

Lastly, it is important to emphasise that procedural justice is only one pillar of Just Resilience. In this thesis, Just Resilience is conceptualised as “a fair approach to climate adaptation and resilience, aimed at reducing inequalities in climate impacts, with a focus on vulnerable groups and the integration of multiple dimensions of climate justice”. It is essential that all identified dimensions of justice are pursued, not solely procedural justice.. As Schlosberg (2007) argues, climate justice encompasses not only a fair distribution of burdens and benefits, but also recognition, participation, and the promotion of capabilities. These dimensions are deeply interrelated and cannot be addressed in isolation, as is the case with the indicators of each justice dimension. This interconnection underscores the need for future research to examine additional dimensions of justice to more comprehensively assess the extent and quality of Just Resilience.

Conclusion

This thesis explored how procedural justice, as one of the dimensions of Just Resilience, manifests in water management policy in Belgium. Ensuring that no one is left behind in climate adaptation (i.e. Just Resilience) requires a focus on equity and the meaningful engagement of vulnerable groups (European Environment Agency, 2024). In this research, procedural justice looked at the fairness and inclusiveness of policy processes, which is evaluated through six core indicators. The analysis centred on two vulnerable groups: farmers and people with a low socio-economic status. The aim was, simply put, to see whether water management policies (as a part of climate adaptation policies) included the vulnerable groups and gave them opportunities to participate in the policy processes, to ensure that water management processes remain just and equitable for all, avoiding the exclusion of already vulnerable populations.

Through a mixed-methods approach combining multi-level document analysis and a series of interviews, this study found that procedural justice is only partially addressed in current policy and even less in practice. It appeared that, although participatory language is increasingly included in water management policies and particularly at the lower governance levels, such references often remain superficial and lack structural follow-through. Engagement efforts rarely move beyond consultation and seldom include vulnerable groups in a meaningful way. Farmers are occasionally involved in policy implementation, but this engagement tends to be limited, context-dependent, and shaped by institutional interests rather than by principles of equitable participation. Individuals in low socio-economic positions are almost entirely absent from both policy frameworks and participatory practices in practice. The interviews further revealed that where participation occurs, it is often mediated through representative organisations with limited formal power. Moreover, participatory efforts are sporadic and project-based rather than institutionalised, weakening both trust and policy responsiveness.

These findings point to a disconnect between the normative aspirations of procedural justice and the practical realities of climate governance in Belgium. Without structurally embedding inclusive, transparent, and empowering participation mechanisms, water management policies risk reinforcing the very inequalities it aims to address.

Although not the primary focus of this research, the research and interviews provided valuable recommendations on how we can progress towards more procedurally and socially just climate adaptation in the water sector. Perhaps the most obvious recommendation, yet arguable the most essential one, is that the participation of vulnerable groups in water management policymaking must move beyond tokenistic consultation. This was particularly emphasised by interviewees representing people in low socio-economic positions. Participatory processes should be grounded in trust and long-term engagement, recognising individuals in low socio-economic positions, and vulnerable groups in general, as “experts of their own environments”. This requires methods tailored to their lived realities, such as working through existing social infrastructures (e.g., social housing organisations or community coaches) and investing in repeated, localised forms of dialogue. These insights underscore that meaningful participation is not simply about including more voices, but about rethinking how those voices are engaged. It is equally important for

policymakers to recognise that involving vulnerable groups is not merely a formal obligation. Their local knowledge can actively contribute to better outcomes. As supported by Uittenbroek et al. (2019), such embedded expertise improves both the quality and legitimacy of adaptive measures.

A second recommendation emerging from the interviews is the need for stronger collaboration across policy domains, particularly between water management, housing, and social policy. Several interviewees highlighted that procedural justice cannot be achieved if vulnerable populations are excluded from integrated planning processes. For instance, respondents stressed that social housing organisations should be structurally involved in adaptation planning, that local actors with knowledge of vulnerable communities should be engaged early, and that adaptation measures, such as insurances or investments in the living environment, must account for socio-economic realities. These insights point to the need for a more holistic governance approach that recognises the lived experiences of vulnerable groups and integrates diverse forms of expertise. This aligns with the theoretical foundations of Global Systems Science (GSS), which emphasise that complex challenges such as climate adaptation require system-based thinking that acknowledges the interdependence of societal, ecological, and economic dimensions (Mahajan et al., 2022; European Commission, 2021). From this perspective, advancing procedural justice demands participatory processes that are not only inclusive but also capable of bridging sectoral divides. This allows policy-making to better reflect the complex realities of vulnerability and resilience, and to support more meaningful participation across different levels of government. These recommendations show that making climate adaptation policy more fair requires flexible institutions and a willingness to adjust how participation and decision-making are organised, especially to better reach and support vulnerable groups.

Ultimately, if climate adaptation is to be truly just, the inclusion of vulnerable groups must move beyond symbolic gestures and formal consultation frameworks. Structural reforms are needed to embed participation as a non-negotiable element of policy design and implementation. Without genuine power redistribution, the promise of Just Resilience remains a hollow ideal. This research, therefore, calls for a radical rethinking of procedural justice and Just Resilience; not as boxes to tick, but as core principles that require systemic change to ensure “equitable access to tools, resources, and opportunities for all” (European Environment Agency, 2024).

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Appendices

Appendix 1. Table 1: Excel Document – columns

Heading	Meaning/examples
Document name	<i>Vlaams Klimaatadaptatieplan</i> ; <i>Klimaatvriendelijk en robuust West-Vlaanderen</i>
Document type	Policy document, legislative article
Document info	Length, author, year
Theme	Flooding, drought, overarching
Keyword	List of keywords per indicator to search in document. E.g. “dialogue”
Vulnerable group	Farmers, people with a low socio-economic status, or everyone (i.e. citizens in general)
Indicator	The six indicators of procedural justice, cf. part 1.1.2. E.g. Participation, inclusion...
Citation in text	The part of the text indicating whether procedural justice is present or absent
Score	Score out of 6
Extra info citation in text	Extra (background)information for the reading when needed.
Link	Link to the document

Appendix 2. Table 2: Score table procedural justice

Score table

Score	Explanation	Example
1 = Not present	Aspect not present, not even indirectly to referred	No mention of vulnerable groups, procedural justice or any of its indicators.
2 = Limited presence	Indirect or vague referrals	General findings such as "... experts have been consulted to solve this," without further explanation of how it happens. A connection to procedural justice (or one of its indicators) is implied but not explicitly applied. Remains general and vague.
3 = Mediocre presence	Aspect present, but no concrete elaboration	Mention of an indicator without an explicit reference to vulnerable groups or without further elaboration. An indicator is named with a statement such as "citizens should be consulted," but it is unclear how this is done.
4 = Emerging presence	Aspect present with mention of vulnerable group(s), but no concrete elaboration	Mention of an indicator with an explicit reference to vulnerable groups. For example: "Farmers should be involved," but without elaboration on how this is done.
5 = Present	Aspect clearly present, supported with measures/examples/... Including mention of vulnerable group(s)	Mention of an indicator, with a reference to vulnerable groups and their needs. For example: Participation is explicitly present with details on how it happens (consultation, co-creation, etc.). Transparency: explicitly present with clear information on how processes work and how documents can be accessed. Consistency: participation occurs on a regular basis (not just once). Trust: strengthened through regular communication. Impact: recognised through results
6 = Fully present	Explicitly present and detailed elaboration and clear implementation of (social) measures, including mention of vulnerable group(s)	Mention of the vulnerable group, clearly indicating that they are vulnerable. The indicator is present with a full elaboration on how they are involved in policy-making.

Appendix 3. Table 3: Excel Document – columns

Impact	Inclusion	Participation	Transparency	Ethics/trust	Consistency
“impact”	“inclusion”	“participation”	“transparency”	“trust”	“consistent”
“affect”	“equity”	“citizen participation”	“information”	“ethics”	“every”
“damage”	“support”	“public participation”	“knowledge gaps”	“just”	“always”
“safe”	“vulnerable”	“input”	“announce”	“justice”	“regularly”
“recovery”	“equity”	“decision-making”	“clear”	“integrity”	“constant”
“protection”	“diversity”	“active listening”	“openness”	“democracy”	“standard”
“resistant”	“marginalised groups”	“collaboration”	“clarity”	“faith”	
“expropriation”	“underrepresented”	“common ground”	“visible”	“honesty”	
“sale”/“sell”	“equal” / “equality”	“consensus “	“communication”	“confidence”	
“purchase”	“permit”	“dialogue”			
“money”	“dialogue”	“interest”			
“announce”	“partner”	“stakeholders”			
“restoration”	“socio-economic status”	“vulnerable populations			
“pre-emption”	“composition”	“together”			
“compensation”	“parties”	“dialogue”			
“risk”	“involved”	“partner”			
“floodingrisk”	“informed”/”information”	“socio-economic status”			
“reconstruction”	“involved”	“group”			
“cost”	“everyone”	“composition”			
“victim”	“anyone”	“parties”			
	“farmers”	“involved”			
	“low SES”	“informed”/”information”			
	“households”	“farmers”			
	“victim”	“low SES”			
		“co-creation”			