PLANNING LAND USE STRATEGIES: MEETING BIODIVERSITY, CLIMATE AND SOCIAL OBJECTIVES IN A CHANGING WORLD

D4.1 – INTERVENTION POINTS FOR CREATING LAND USE POLICY AND DECISION-MAKING CHANGE

WORK PACKAGE 4, TASK 4.1

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Executive Summary

This report aims to identify potential intervention points that can **create changes in land use policy and decision-making** leading to future transformations. It also serves to guide future work in the PLUS Change project, particularly in **exploring barriers and options for change** across multiple decision-making levels. Based on actor and policy analysis conducted in collaboration with 12 diverse Practice Cases across Europe, the report examines the political economies of land use decision-making to better understand the dynamics shaping current practices. From this analysis, **four key intervention points** were identified across contextual, procedural, and implementation levels.

The four intervention points identified and considered can be summarised as: (1) **enhancing multi-actor participation, equity, and decentralisation**, calling for a shift from top-down to more inclusive, locally responsive processes; (2) **bridging policy gaps and improving cross-sectoral and cross-scale integration**, promoting alignment across policy levels for greater synergy; (3) **responding to external trends and emerging challenges**, recommending adaptive, flexible policies that incorporate bottom-up initiatives and environmental movements; and (4) **strengthening policy implementation, monitoring, and accountability** arguing the need for robust systems, clear responsibilities, and independent oversight mechanisms.

The intervention points identified can serve as strategic entry points for improving land use policy and decision-making by addressing the roles of policies, actors, and their interactions. The findings draw from a rich variety of cases, and they are not intended to be uniformly applied across all EU countries. Rather, the intervention points provide a "palette of options" that can be adapted, explored, and tested to meet the specific needs and challenges of different local and regional contexts.

Content alignment with other PLUS Change deliverables

This deliverable contributes to the PLUS Change project by building strong connections across Work Packages and Tasks, supporting the project's integrative and transdisciplinary approach. Situated within Work Package 4 (WP4) on Transformation Pathways for Sustainable Land Use Strategies, this deliverable builds on earlier engagement with Practice Cases during Workshops 1 and 2, and through the policy and actor surveys that addressed the political economies of land use. These inputs were developed collaboratively with project partners, reflecting the project's transdisciplinary co-creation approach emphasized in Work Package 1 (WP1), integrating insights from experts across disciplines and professions. The deliverable also connects to findings from Work Package 2 (WP2) on Historical Land Use Change and Work Package 3 on Future Sustainable Land Use Strategies, which offer a foundation for understanding how past dynamics and future visions shape booth current and future political economies and governance systems.

The deliverable not only builds on previous work in PLUS Change but also provides a guidance to inform and integrate future work throughout the PLUS Change project. A key contribution of this deliverable is the development of a system of intervention points, which serve as a guidance for future project activities. The system of intervention points is intended to inform several downstream tasks within PLUS Change, particularly the co-development and simulation of policy options (Tasks 4.4 and 5.4), testing of interventions (Tasks 5.1 and 5.2), and the creation of roadmaps for land use decision-making change (Task 5.3). The system of intervention points provides a "palette of options", a flexible framework that can be tested and adapted across different Practice Cases, contexts, and governance scales.

Looking ahead, this report sets the stage for further collaborations with Practice Case partners and researchers, ensuring that its findings can guide the development of targeted, context-sensitive interventions. It may also support the translation of existing project outputs into actionable tools. Moreover, EU-level policy analysis from Deliverable 3.2 can be revisited through the lens of the intervention points to explore cross-scale linkages. Other deliverables, such as the D1.1 Challenges and opportunities for just and equitable land use change in Europe, and the ongoing Possible Landscapes process, can similarly be tailored to align with and address specific intervention points.

1. Introduction

1.1 Purpose & Scope

The main objective of this report is to propose **intervention points to create changes in land use policy and decision-making**, to improve policy and decision-making processes, including interaction with actors. It is intended to deliver a comprehensive analysis of key policies and actors related to land use decision-making, with both positive and negative impacts on biodiversity, climate, and human well-being. Conducting policy and actor analysis in 12 Practice Case areas and in collaboration with Practice Case project partners, this report has enabled a better understanding of political economies in different contexts. The report highlights strategies for strengthening land use decision-making and potentially for fostering transformative change.

By analysing policies and actors in decision-making systems, the report addresses different questions around understanding and improving land use policy and decision-making. It examines major trends and gaps in current policies and actor interactions, and explores opportunities to enhance outcomes for climate, biodiversity, and human well-being. It investigates which levels or parts of decision-making hold the greatest potential for transformative change. It also investigates what specific changes are needed in both policy content and in actor roles to foster more effective and equitable decision-making. Central to this was determining which key actors and policies should be engaged to drive change, and what strategies could amplify their influence. The report also explores how relationships between actors shape land use decision-making, identifying which actors and connections hold dominant, influential, or marginal roles, and how these dynamics impact upon policy outcomes.

Box 1: Task 4.1 as in PLUS Change project's Description of Action document.

T4.1 Political economies of land-use change (Lead: UKF, Contributors: CZECHGLOBE, PURPLE, UL, CRS, SU, all other practice case leads: STICHTING VU, BSC, Parc Verein Ela, Prov Lucca, RRA ZELENI KRAS, Mazovia Reg, EMR, VLM, JINAG, REGION Ile de France, Surrey CC) (M8-22)

Task 4.1 will reflect on questions such as: What are the (policy, governance, planning and management) structures and what is the agency across decision-making systems? Which factors are driving land use decisions the most and what opportunities are there? By doing so, we will be able to generate a broad understanding of influential actors and factors that have shaped the success of key land management and governance approaches, based on which, we develop a set of intervention points intending to improve land use decision making and governance. UKF will apply text mining tools (e.g., R programming, MAXQDA) to conduct document and literature analysis of national and international law, policies and directives collected in T3.2 and T3.3 (sub-national). With insight from CZECHGLOBE and CRS, UKF will combine results with outcomes from the interviews with practice partners and key stakeholders in T2.2 to produce schematic system descriptions including relationships between the structures and actors. During a workshop in M18 (T1.2), a stakeholder matrix developed by UKF will be used by practice partners and the multiplier cluster to determine the competent and/or influential actors for policy implementation in their case. The analysis will identify, at both practice case and European scales, i) failure factors for land use decision making, ii) success factors for land use decision making, and iii) the key transformative intervention points to change policy and/or practice within and across the policy systems (D4.1).

1.2 Document Structure

The report is organised as follows:

Section 1 – Introduction: describes the purpose and scope of the document and its structure.

Section 2 – Conceptual background and methodology: summarises the analytical framework, database and methodological steps used in the report.

Section 3 – Results: presents relevant findings from actors and policy analysis that provide a basis for the formulation of intervention points and for the main messages of this report.

Section 4 – Discussion: presents a system of intervention points to inform land use policy and decision-making change.

Section 5 – Conclusions: summarises main findings and messages, and suggests ways forward

2. Conceptual background and methodology

2.1 Political economies of land use decision-making

This report explores strategies to strengthen sustainable land-use decision-making so as to potentially support transformative changes in social systems to reverse the root causes of human-driven biodiversity and ecological health decline, worsening climatic conditions and rising inequalities (Diaz et al., 2019; IPBES, 2024). To achieve transformative change, we must first understand the structures and interactions that take place in social systems and how to intervene in them.

The **political economies** of a phenomenon such as **land use decision-making** are shaped by complex interactions involving political, institutional, economic, social, cultural or historical factors (Copestake and Williams, 2014) and the environmental conditions and natural events that can influence land use decision-making. It also recognises the culturally accepted modes of governance and decision-making (Whaley, 2018), which have been shaped by historical power relations unique to different places and which evolve over time in response to social, economic, and political shifts (Jessop, 2001). Understanding political economy therefore requires a holistic approach as a myriad of factors need to be considered.

In this report, the term **political economy** refers to those **interactions between policies**[1] **and actors**[2] that shape land use **decision-making systems**[3] and influence how change occurs within them. Because policies and actors are closely interconnected, understanding their relationships is key to explaining how decisions are made, implemented, or challenged; how systems become institutionalised; what barriers may hinder change; and where interventions might trigger transformation. Political economy serves as an analytical framework to explore the decision-making systems in the 12 Practice Cases of the PLUS Change project (Figure 1), identifying variety policies and actors and their influence in land use decisions.

[1]Policy is a set of principles, guidelines and instruments (legislation, laws, regulations, strategies, plans, etc.) designed to shape behaviour towards a desired goal (e.g. sustainable land use). A policy is set and implemented through institutions and concerned actors in a given decision-making system (PLUS Change Glossary, 2023).

[2]**Actors** refer to any person or group who influences, or is influenced by, the process or result of any kind of intention, decision or action.

[3] Decision–making system is a particular part of the governance system targeting e.g. land use decision-making, formed by policies, institutions and actors. Decisions made within the system include those relating directly to how land is used, and those that indirectly shape land use. Decisions can refer to setting goals and, processes, and taking actions (PLUS Change Glossary, 2023).

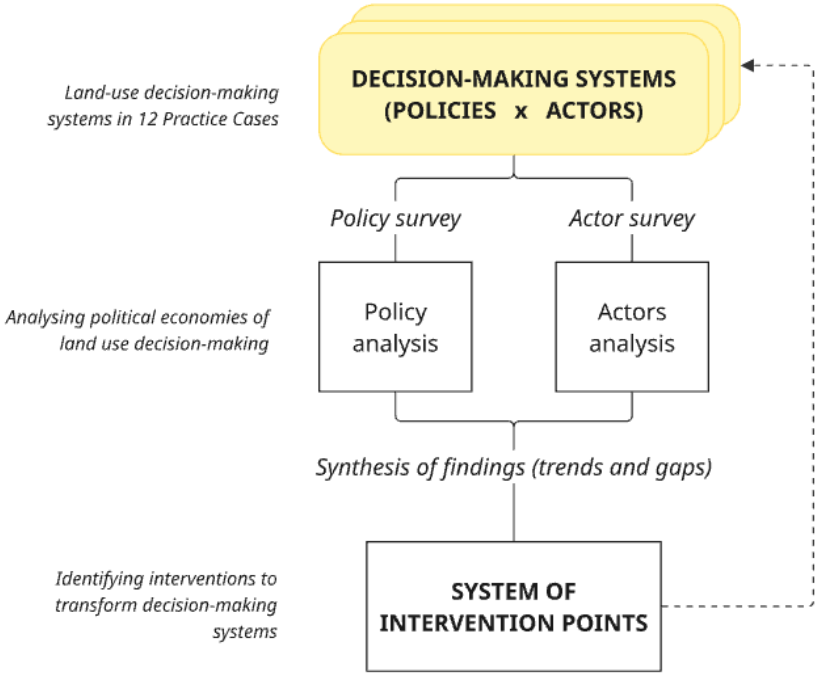

Figure 1: Conceptual framing for analysing political economies of land-use decision-making, addressing policies and actors and their interactions.

As part of this approach, we analysed actors in terms of their motivations, influence, and their roles in decision-making. We also analysed existing subnational and national level policies including legal instruments, strategies, plans and regulatory mechanisms to identify gaps or opportunities for transformation. An essential element of this process was engagement and collaboration with the 12 PLUS Change Practice Cases from across Europe (Table 1).

Table 1: Practice Cases in PLUS Change project

Practice case	Size (pop.)	NUTS	Type	Designation
1. Amsterdam, NL	2 580 km^2 (2,5 million)	NL23, NL32	Urban	Metropol area -region: 32 municipalities, 2 provinces
2. Nitra City, SK	122 km^2 (100 000)	SK023	Urban	Municipality for the city area
3. Flanders, BE	13 500 km^2 (6,5 mil)	BE25	Peri Urban	Region, with 300 municipalities, 5 provinces
4. Kaigu wetland, LV	19,55 km^2 (3 878)	LV009	Rural	A natural habitat located in the administrative territory of Jelgava region
5. Parc Ela, CH	659 km^2 (5 700)	CH056	Rural	Nature Park inc., 6 municipalities.
6. Lucca, IT	1 773 km^2 (387 876)	ITI12	Rural	Province with 33 communes
7. Green Karst, SI	1 456 km^2 (53 092)	SI038	Rural	Region, with 6 municipalities
8. Three Countries Park, DE, BE, NL	3 500 km^2 (under 4 million)	BE22, BE33, NL42, DEA2	Peri Urban	Cross-border partnership: 3 countries, 5 regions, 104 municipalities

Practice case	Size (pop.)	NUTS	Type	Designation
9. South Moravia, CZ	7 188 km^2 (1,3 million)	CZ064	Peri Urban	Region with 7 districts and ~700 municipalities
10. Surrey, UK	1 663 km^2 (1,2 million)	UKJ25, UKJ26	Peri Urban	County, incorporating 11 districts
11. Ile de France	12 000 km^2 (12,3 million)	FR10	Urban, Peri urban, Rural	Region, with 8 departments and 1270 municipalities
12. Mazovia Region	35 558 km^2 (5,5 million)	PL91	Urban, Peri urban, Rural	Region, with 42 counties (incl. 5 cities with county status) and 314 municipalities

The core aim of this analysis is to **identify intervention points**—that is, the key policies and actors with whom to engage to effectively support change in land use decision-making at the Practice Case level (subnational or national) that can further inform EU-level decisions and policies. Understanding actors and policies within this framework allows the strategic identification of interventions for meaningful change in land use decision-making.

To develop a system of intervention points for transforming land use decision-making, this report synthesises findings from a series of analytical steps aimed at identifying key trends, gaps, and related opportunities for change. The analysis undertaken drew on findings from the 12 Practice Cases, focusing on **prevalent policy topics**, **connections between policy aspects**, and the **roles and interactions of actors** as decision-makers, influencers, or implementers. It also considered the **impacts of policies on different stakeholder groups** and **external influences** on policy and decision-making. These methods and findings are further detailed in Section 2.2 (Materials and methods), and in Section 3 (Results). This exploratory process identified patterns and themes by pinpointing critical trends, gaps, and opportunities, which were then organised to draw broader, more generalisable conclusions. The resulting **system of intervention points** presented in Section 4 (Discussion) addresses three levels of change: contextual, procedural, and implementation.

2.2 Materials and methods

2.2.1 Actors analysis – actors in the PLUS Change project

The goal of analysing actors is to understand how governance powers and the roles of various actors interact to shape land use decision-making. More specifically, it **seeks to identify key individuals or organisations** that are either influential or competent in this process, in relation to particular cases or places. Such actors might include policymakers, practitioners, NGOs, researchers, citizens, businesses, tourists, and others, depending on the specific context and intended outcomes. As actors, they - as persons or as groups - either influence or are affected by land use decisions and the related processes (Hauck et al., 2014). By identifying these actors, we can more effectively prioritise their involvement in decision-making, research, and practical applications. (Reed et al., 2009).

Prior to the analysis, a **multi-step actors' categorisation** was developed to systematically identify and classify actors based on their roles and positions in land use governance and decision-making. The process included identification of actors relevant to each Practice Case, compilation of a basic list of actors, and their differentiation and categorisation for analytical purposes so as to examine their influence, interests, and interactions. An **actors' survey** was launched for use by Practice Case partners to indicate the relevant **actors** according to the design categories (Table 2). The survey was circulated via Google Forms to transcribe collected information into a structured database. A total number of 221 actors from across the 12 Practice Cases were recorded. A detailed description of actors was collected within the context of each Practice Case, offering insights into their roles, relationships, and relevance to land use decision-making.

Table 2: Actors survey

Questions	Answers format/options
Indicate the PLUS Change Practice Case	• Single choice • 'Region Ile-de-France (FR)', 'Amsterdam (NL)', 'Flanders (BE)', 'Green Karst (SL)', 'Kaigu peatland (LV)', 'Lucca (IT)', 'Mazovia Region (PL)', 'Nitra City (SK)', 'Parc Ela (CH)', 'South Moravia (CZ)', 'Surrey (UK)', 'Three Countries Park (DE, BE, NL)'
Actors' id (initials)	• Open-ended • *text
Occupation / Job	• Open-ended • *text
Main stake	• Single choice • 'Ownership; Decision making; Expertise; Use and Profit; Interest; Dissemination; Other
Actors group (which category best describes the actor)	• Single choice • Major landowners (e.g. large-scale owners or land tenants); Minor landowners (e.g. small-scale landowners, personal use, urbanization perspective); Central government (e.g. ministries and other central authorities); Regional government (e.g. authorities, state administration and specialised agencies); Local government - a single or more municipalities (e.g. municipality, members of councils and offices); Environmental and nature agencies (e.g. professional organisations and agencies, experts and advisors); Planning authorities and agencies (e.g. planning and development agencies, experts and advisors); Property developers and investors (e.g. investors in construction or other business); Natural resources managers (e.g. agricultural holdings, forest managers, farmers, operators of water sources, mining, hunting, fishing, etc.); Manufacturing sector (e.g. both larger or smaller companies, local business); NGOs and civic sector; Active citizens; Media; Advocates (e.g. prominent national/regional personalities - ambassadors, champions); Tourism; Other
Position	• Single choice • Internal (actor lives in the area); Associated (actor is involved in various activities, relationships, historical ties, or cooperations in the area. This position goes beyond external actors while not owning nor living in the area); External (actor operates or has stake in the area); Other
Engagement	• Single choice • Primary (directly affected by the project topic); Secondary (indirectly affected by the project topic); Other
Influence / Power (according to decision-	• Single choice • Influential; Partly influential; Non-influential

Questions	Answers format/options
making possibilities. This is meant as actor relation to priority issues/challenges in a Practice Case.)	
Expertise / Knowledge (according to the level of knowledge)	• Single choice • Expert/ Well-informed; Partly informed; Uninformed
Interest / Motivation / Commitment level	• Single choice • Leader; Supporter; Neutral / Unbiased; Adversarial / Resistant; Other
Actor priority (the degree of actors' importance from a project perspective)	• Single choice • High; Moderate; Low

At the subsequent analysis stage, the individual actors' categories were examined to gain insights into the roles of different actors in land use decision-making. Statistical tests were conducted to identify relationships between the categories, to understand and potentially guide actor selection. We conducted Pairwise Chi-squared tests to assess the significance of the relationships between individual actor categories from the survey, assessing their pairwise independence or association. Cramer's V test was then carried out to quantify the strength of these relationships. The detailed results are included in Appendix 1.

2.2.2 Policy analysis – policy aspects and actors in policies

Policy analysis was undertaken with the aim of gaining insights into political economies in Practice Case areas, it was done by identifying and gaining insights into the relevant policies related to land use decision-making in respective Practice Case regions or countries. A two-stage policy survey was conducted in cooperation with Practice Case partners to collect data on **policies** (such as strategies, visions, plans, legislation, etc.) at **local, regional or national scale,** where local scale refer to municipal, city or metropolitan authority level. The surveys were designed through an iterative process, in light of ongoing developments in PLUS Change and in Practice Cases, and were consulted upon with several partners (KNOWLEDGE SRL, UL) to better mutually inform other related project tasks (T3.2, T3.3). Survey results were captured in an Excel-based database that was later analysed. The **first policy survey** was focused on collecting the most **relevant policy documents** from the perspective of Practice Cases, including broader specifications and characteristics of these documents (Table 3). The result was **81 policy documents** (Appendix 2), which constituted our database for policy analysis. It should be highlighted that for most characteristics, a multiple-choice option was possible when filling in the policy document, this means that a single policy document could contain multiple variables (subcategories).

Table 3: The first policy survey on relevant policy documents and their characteristics.

Questions	Category in the analysis	Answers format/options
Indicate the PLUS Change Practice Case	Practice Case	• Single choice • 'Region Île-de-France (FR)', 'Amsterdam (NL)', 'Flanders (BE)', 'Green Karst (SL)', 'Kaigu peatland (LV)', 'Lucca (IT)', 'Mazovia Region (PL)', 'Nitra City (SK)', 'Parc Ela (CH)', 'South Moravia (CZ)', 'Surrey (UK)', 'Three Countries Park (DE, BE, NL)'
Title of the policy document	Policy document	• Open-ended • *text
Summarise the main (overall) objectives as stated by the policy document	Objective	• Open-ended • *text
What is the scale of the policy document? (multiple choice possible)	Scale	• Multiple choice • Local', 'Subnational', 'National'
How would you characterise the policy document according to the following categories? (multiple choice possible)	Character	• Multiple choice • Planning', 'Programme or Action plan', 'Regulation', 'Strategy or Visionary',
Indicate bindingness of the policy document	Bindingness	• Single choice • 'Binding', 'Non-binding', 'Combined'
Which of the PLUS Change topics, if any, are addressed by this policy? (multiple choice possible)	PLUS Change topic	• Multiple choice • 'Biodiversity', 'Climate change', 'Human wellbeing',
Which thematic scope the policy document covers? (multiple choice possible)	Theme	• Multiple choice • 'Cultural heritage', 'Land use management', 'Natural resources management', 'Nature protection', 'Rural development', 'Sectoral documents', 'Urban development'
Which land use systems the policy document addresses? (multiple choice possible)	Land use system	• Multiple choice • 'Agriculture', 'Energy infrastructure', 'Forestry', 'Industry and commerce', 'Nature /Green infrastructure', 'Settlements', 'Transport infrastructure', 'Water /Blue infrastructure'

The **second policy survey** (Table 4) aimed to capture deeper insights into various **aspects of the policy including actors in policies,** based on the documents collected in the first survey. Each Practice Case partner was asked to complete the survey for two **key policies** relating to their case. They identified **25 policy documents** in total, which were then subjected to detailed analysis.

Table 4: The second policy survey on key policy documents, their policy aspects and actors.

Questions	Category in the analysis	Answers format/options
Indicate the PLUS Change Practice Case	Practice Case	• Single choice • Region Île-de-France (FR)', 'Amsterdam (NL)', 'Flanders (BE)', 'Green Karst (SL)', 'Kaigu peatland (LV)', 'Lucca (IT)', 'Mazovia Region (PL)', 'Nitra City (SK)', 'Parc Ela (CH)', 'South Moravia (CZ)', 'Surrey (UK)', 'Three Countries Park (DE, BE, NL)'
Title of the policy document	Policy document	• Open-ended • *text
What specific targets are stated in the document? Here, a target	Target	• Open-ended • *text

Questions	Category in the analysis	Answers format/options
refers to specific measurable objectives (both quantitative and qualitative)		
What specific measures are set out in the document? Here, a measure refers to actions or means to achieve the specific objectives (both quantitative and qualitative).	Measure	• Open-ended • *text
Are there mechanisms to monitor and/or evaluate the implementation of the policy document? If yes, please briefly describe them.	Monitoring	• Open-ended • *text
Are there any indicators or benchmarks set for the monitoring and/or evaluation? If yes, please briefly describe them.	Indicators	• Open-ended • *text
What is the timeframe for the implementation of the policy document? (search for details of timelines in the document if available)	Timeframe	• Single choice • less then 5 years; 5-10 years; more than 10 years; information not available
How would you characterise the public inclusion in the process of policy document development and approval?	Public inclusion	• Multiple choice • Directive (public only informed or not communicated to public at all); Consultation (limited participation); Partnership (public as a actor); Delegation of power (public as a decision maker); Other
Which actors have the decision-making power?	Decision-makers	• Multiple choice • central government authority; regional government authority; local government authority; professional agencies (e.g., nature protection, spatial development, etc.); natural resources management (e.g., water or forest managers, technical infrastructure, etc.); private sector (e.g., developers, manufacturing, etc.); non governmental sector; citizens (public); other
Which actors can influence the decision-making process, but do not have direct decision-making powers themselves?	Influencers	• Multiple choice • central government authority; regional government authority; local government authority; professional agencies (e.g., nature protection, spatial development, etc.); natural resources management (e.g., water or forest managers, technical infrastructure, etc.); private sector (e.g., developers, manufacturing, etc.); non governmental sector; citizens (public); other
Who is responsible for the implementation of the policy document? (search for responsible authorities or actors if available)	Implementers	• Multiple choice • central government authority; regional government authority; local government authority; professional agencies (e.g., nature protection, spatial development, etc.); natural resources management (e.g., water or forest managers, technical infrastructure, etc.); private sector (e.g., developers, manufacturing, etc.); non governmental sector; citizens (public); other
Which actor groups are the most positively influenced by the implementation of this policy document?	Positively influenced (actors)	• Multiple choice • central government authority; regional government authority; local government authority; professional agencies (e.g., nature protection, spatial development, etc.); natural

Questions	Category in the analysis	Answers format/options
		resources management (e.g., water or forest managers, technical infrastructure, etc.); private sector (e.g., developers, manufacturing, etc.); non governmental sector; citizens (public); other
Specify what are the positive influences of the policy implementation on the above indicated actors	Positive influence	• Open-ended • *text
Which actor groups are the most negatively influenced by the implementation of this policy document?	Negatively influenced (actors)	• Multiple choice • central government authority; regional government authority; local government authority; professional agencies (e.g., nature protection, spatial development, etc.); natural resources management (e.g., water or forest managers, technical infrastructure, etc.); private sector (e.g., developers, manufacturing, etc.); non governmental sector; citizens (public); other
Specify what are the negative influences of the policy implementation on the above indicated actors	Negative influence	• Open-ended • *text
In relation to this policy, do you identify other trends or initiatives that have impact on land use, but which are coming from the bottom (e.g., local groups, private actors) outside the authorities?	External initiatives	• Open-ended • *text
Describe what are the effects of the policy implementation on land use / land cover changes. In other words, what underlying pathways of change are to be expected (e.g. in case of energy policy, an increase in biofuel production may result in land conversion to agriculture, or in a shift from food to energy crops).	Effects on land use	• Open-ended • *text

The policy documents were subjected to further analysis, using text-based semi-quantitative analytical methods (Appendix 3). Firstly, word frequency counts were conducted to assess the prevalence of words and themes in policy aspects (objectives, targets, measures, monitoring, indicators), followed by bi-gram analysis on the most common word pairs within each policy aspect, revealing patterns in present and underrepresented themes and topic areas. Then, co-occurrence and network analysis were performed to reveal linkages and gaps within and across documents. The co-occurrence and network analysis were conducted also for identifying trends and gaps for actors, the relationships between them and their interactions with policies. Finally, we analysed the different policy effects on stakeholders as recorded via survey.

3. Results

3.1 Actors analysis

The actor analysis exercise consists of two parts. The first examines who the actors involved in the PLUS Change project are, analysing those actors engaged in a series of workshops and project activities (3.1.1). The second part presents an analysis of the actors' roles in the policies and the impact of the policies on these actors (3.1.2).

3.1.1 Actors engaged in PLUS Change: Workshop 1 & 2 in Practice Cases

This section of the analysis provides an overview of those who were identified as important actors in the context of the Practice Cases and who were involved in the PLUS Change research activities and largely during the initial Workshops 1 and 2 held by each of the 12 Practice Cases. Based on the actors' survey described in Section 2.2.2, we have compiled a list of **220 actors** from the 12 Practice Cases. This section summarises key **actors' characteristics as assessed by Practice Case partners**, such as:

- Primary stake; Actor group; Position; Engagement; Influence/ power; Expertise/ knowledge; Interest/ motivation/ commitment; Position (within the Practice Case); Priority (by the Practice Case)

In Box 2, we summarised the descriptive results from the actor survey.

Box 2: Descriptive results of the analysis of the actors directly or indirectly involved in the PLUS Change project

Looking at the **distribution of actor groups** (Figure 2) with representation in PLUS change Practice Cases, actors from Local governments (n=43; 19,5%), Regional governments (n=34; 15,5%) made up more than a third (n=77; 35%) of all 220 actors from across Practice Cases. Governmental actors therefore constituted most of all actors that were identified in relation to Practice Case topics and the PLUS Change objectives, with a few more actors from Central government (n=6; 2,7%), although it has often been assumed that Central government is directly or indirectly represented by authorities and government bodies at hierarchically lower levels, such as Regional governments, Planning authorities and agencies, or Environmental and nature agencies (examples of Practice Cases: Parc Ela, Ile de France). At the same time, these actor groups were largely considered to be influential in decision-making processes by all Practice Case partners, with Central governments playing a decisive role (see section 3.1.2). The following cluster includes actors representing Natural resource management (n=22; 10%), Planning authorities and agencies (n=22; 10%), NGOs and civic sector (n=20; 9,1%), Environmental and nature agencies (n=19; 8,6%), and Research or education (n=13; 5,9%). In this cluster, agencies and managers tended to have some influence, while research and education or the civil society sector had little or no influence on decision-making, according to practice partners. The overall distribution of actor groups is more nuanced when we look at the different actors involved in the Practice Cases (Figure 3), which correspond to specific themes and range of issues.

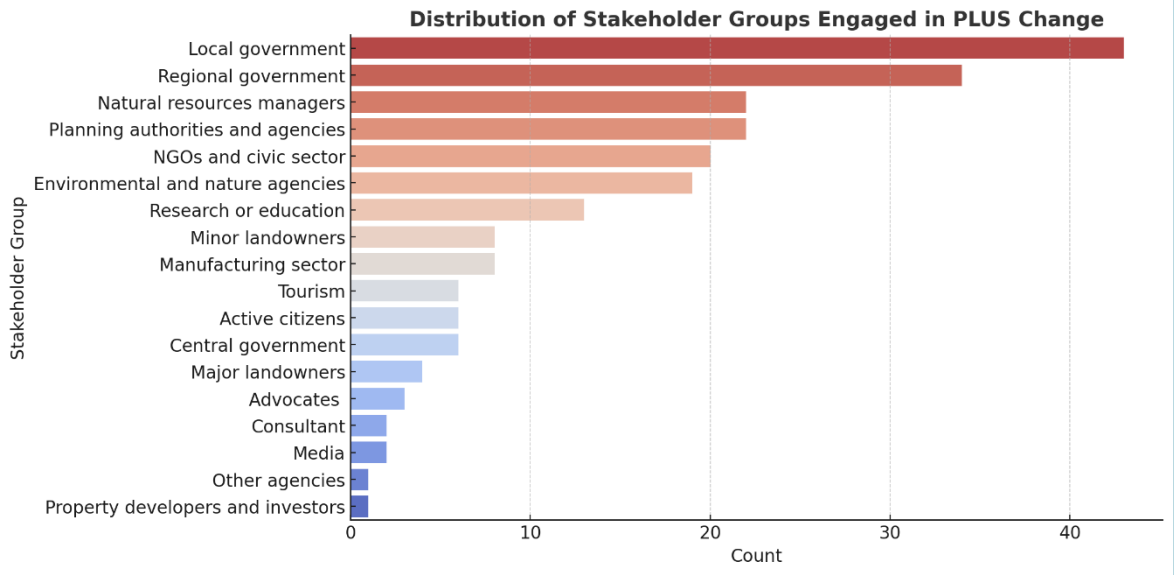

Figure 2: Distribution of actors according to their group affiliation in the PLUS Change project.

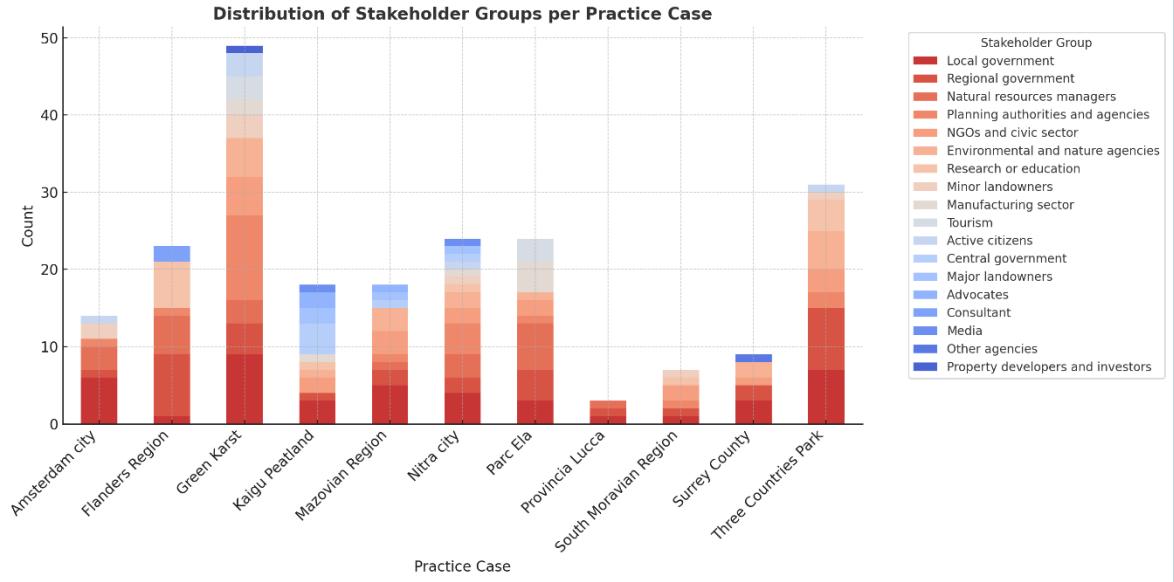

Figure 3: Distribution of actors as per Practice Cases.

Looking at the number of workshop participants, somehow **less represented** were actors coming from Manufacturing sector (n=8; 3,6%), Small landowners (n=8; 3,6%), Active citizens (n=6; 2,7%), the already mentioned Central government actors (n=6; 2,7%) and Tourism representatives (n=6; 2,7%). The most underrepresented actor groups are Major landowners (n=4; 1,8%), local Advocates (n=3; 1,4%), Consultants (n=2; 0,9%), Media (n=2; 0,9%), Property developers and investors (n=1; 0,5%), and Other agencies (n=1; 0,5%). Lower representation in terms of numbers of actors engaged does not directly translate to underrepresentation as some actor groups may only have one organisation to represent them. However, counts do represent trends for further consideration (for example in WP5), to see if the numbers reflect the importance of that actor group in decision-

making processes. For example, landowners and property developers or investors were considered especially influential in decision-making processes but with low representation in the PLUS Change project.

As for the **influence**, most actors associated with various actor groups were considered Partly influential (n=112; 50,9%) or Influential (n=89; 40,5%), with few actors having little or no influence (Non-influential, n=19; 8,6%).

As for the **main stake**, actors with main stakes through Expertise (n=88; 40%), Decision-making (n=54; 24,5%) and Interest (n=43; 19,5%) largely prevail, representing 84% of all listed actors from across the Practice Cases involved. Ownership as a main stake was represented by 16 actors (6.8%), Use and Profit by 14 actors (6.4%), and Dissemination only by 6 actors (2.7%), suggesting that actors with the mentioned stakes were largely unrepresented in Practice Cases involved in the PLUS Change project.

From the point of view of the **actors' position** in relation to the Practice Case areas, Internal actors that live in the area form a solid majority of involved actors in the PLUS Change project (n=141; 64%). Associated actors are involved in various activities, relationships, historical ties, or cooperations in the area while not owning land nor living in the area (n=39; 17,7%), External actors are those that operate, manage resources, or have another stake like landownership in the area (n=39; 17,7%). Another characteristic is the priority for the actors' engagement assigned by Practice Case leaders either as Primary actors, which indicates that the project objectives and outcomes have direct impacts on them (n=127; 57,7%), or as Secondary actors which indicates indirect effects of the project on these actors (n=93; 42,3%).

Based on the level of **actors' knowledge or expertise** in relation to Practice Case topics and PLUS Change objectives, Practice Case partners recognized that the vast majority of actors are Well-informed or experts (n=136; 61,8%) or Partly informed actors (n=75; 34,1%), with only a few actors considered being Uninformed (n=9; 4,1%).

The Practice Case partners were also asked to assign a **level of engagement** to each actor they identified. Most actors are seen as Supporters (n=118; 53,6%) in terms of project objectives in Practice Cases, having Neutral/Unbiased (n=45; 20,5%) attitudes towards the objectives, or are seen as Leaders (n=44; 20%). Few actors were assigned to none of these categories (n=7; 3.2%), as Adversely/Resistant (n=5; 2,3%) or as Critical (n=1; 0,5%). This suggests largely positive attitudes towards the project objectives.

In the last step of the survey, Practice Case partners have scored actors according to their **overall priority in PLUS Change project**, where most actors were given high priority (n=126; 57,3%) or moderate priority (n=82; 37,3%), with there being only a few low priority actors (n=12; 5,4%).

Next, the statistical testing for frequencies and co-occurrence of the data variables (see 2.2.1) assessed the significance of the relationships between individual actors' categories and the strength of these relationships (see the heatmap in Appendix 1). The results showed the **strongest relationships** exist between the **following pairs of actor categories**:

- Main Stake and Actor Group
- Influence/Power and Actor Priority
- Expertise/Knowledge and Influence/Power
- Relationships between Influence/Power and Engagement, Actor group and Engagement are also considerable

The strong association between **Main Stake** and **Actor Group** suggests that these two characteristics are inherently linked. This was an expected outcome, as actor groups are often defined by their primary stake. For example, Local and Regional governments (with links to Central government) primarily engage as decision-makers or experts in land use governance, while

Planning Authorities and Agencies and Environmental and Nature Agencies typically act as experts, contributing specialised knowledge. NGOs and the Civic Sector are driven by strong interests in environmental and social issues, often advocating for community and ecological concerns. Meanwhile, Major and Minor Landowners are primarily involved due to their ownership status, directly influencing land use decisions. However, the relationships between actor groups and their main stakes are more nuanced and depended on the context of a given Practice Case.

The strong association between **Influence/Power and Actors Priority** and between **Influence/Power and Expertise/Knowledge** highlights the importance of considering actors' influence and knowledge base when prioritising engagement efforts. This suggests that actors with greater power and influence tend to be given higher priority, which is not surprising if the project/Practice Case aims to increase a certain impact. On the other hand, it may point to a certain underestimation of less influential actors who may not be irrelevant and whose voice remains in the background.

3.1.2 Actors' roles in policies and policy impacts

This analysis focused on how the **25 key policies** (see 2.2.2 and 3.2.2) engage different **actors** and their **roles in decision-making, implementation, in influencing policy and decision-making**, and how **policies impact upon particular actor groups**. These results are based on the second policy survey (see 2.2.2) with specific focus on actor-policy relationships which extends far beyond the actors involved in PLUS Change project (see 3.1.1). The results here specifically focus on the following questions form the policy survey (see table 4 in section 2.2.2):

- How would you characterise the public inclusion in the process of policy document development and approval?
- Which actors have the decision-making power?
- Which actors can influence the decision-making process, but often do not have direct decision-making powers themselves?
- Who is responsible for the implementation of the policy document?
- Which actor groups are the most positively influenced by the implementation of this policy document? Specify what are the positive influences.
- Which actor groups are the most negatively influenced by the implementation of this policy document? Specify what are the negative influences.

Actor's roles as decision-makers, influencers and implementers

We analysed the overall count, distribution and co-occurrence of actor groups and their roles in policy and decision-making acting as decision-makers, influencers, and implementers (Figure 4) to draw some general trends.

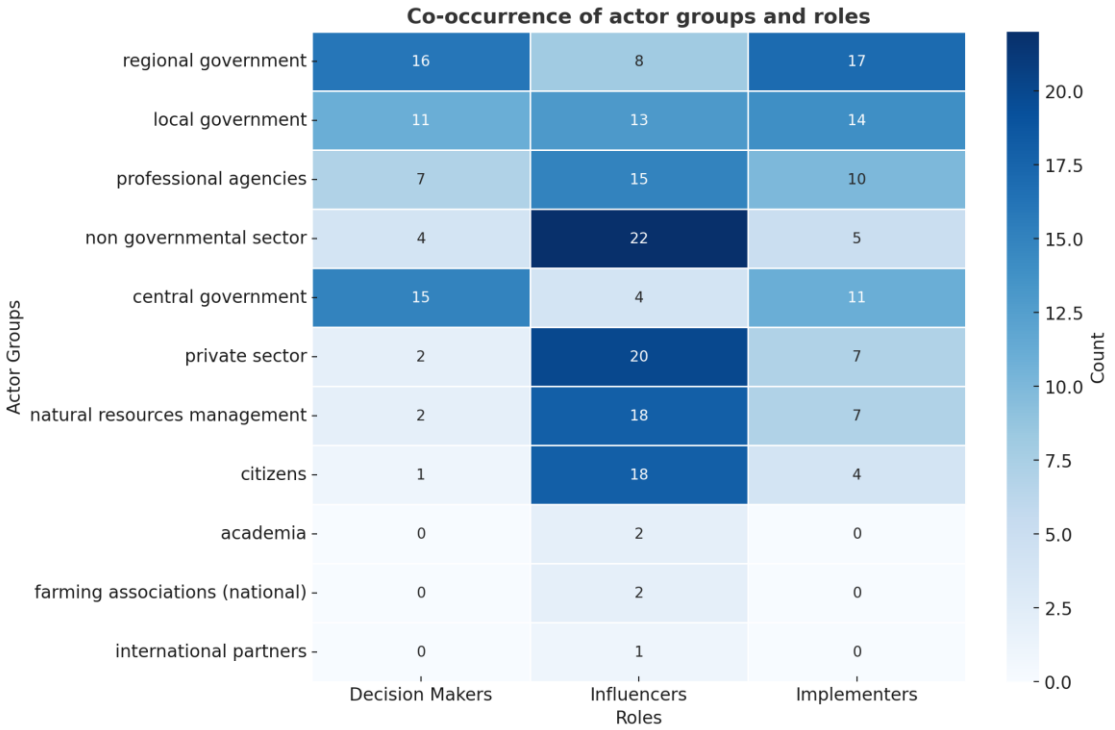

Figure 4: Actor's roles in policies and decision-making across the Practice Cases.

A frequency and co-occurrence analysis revealed that **national (central)** and **regional governments** dominate **decision-making. Local governments** also have relatively strong presence as decision-maker but at the same time often act as **influencers**. The influence is strong likely because they operate closer to the various actor groups and oversee real-world policy execution. While having a strong influence on shaping policy agendas and regulations, their role as decision-makers may remain constrained. This suggests that policies are developed at higher levels but implemented at the local level. However, this proved not to be true for all Practice Cases and contexts. For instance, in cases such as Mazovia region or Nitra City, local governments and authorities play pivotal role in decision making as they issue binding land-use directives, local legal acts, zoning or regulatory plans. The case of Kaigu peatland is another example of a divergence from the general trend, this time in the opposite direction, as local government has almost no role as a decision-maker, influencer or implementer, compared to the general trend where local authorities play an important role. In Kaigu peatland case, policies and decisions are more centralised, dominated mainly by the national level.

Limited representation of **Citizens** and **Natural resource manager**s in decision-making suggests that policy processes may not be fully participatory. Moreover, **public participation** in policy and decision-making related processes is largely **consultation-based**, or **directive** in the cases of Parc Ela and partly also Three Countries Park. **Partnership** between public and decision-making authorities remains rare and was only noted for the cases of Lucca, Nitra City, Ile de France, and Surrey.

As for the **influencers** that represent actors positioned outside of the traditional decision-making structures, the analysis pointed out the frequent involvement of the **private sector** and the **non-governmental sector** across the cases. For instance, while business and industry sector may not be involved in policy formation, their influence might be strong. Similarly, non-governmental sector actors seem to have a voice to shape the policies, but with only constrained participation in decision-making. **Citizens** and **natural resource managers** are often mentioned as influencers but seldom as decision-makers. In cases such as Amsterdam and Three Countries Park, non-governmental sector, natural resource managers and citizens seem to have higher influential role compared to other cases, which suggests greater civil society engagement and bottom-up influence.

Policy **implementation** is largely represented by **local** and **regional governments** that usually follow national policy frameworks. The high presence level here indicates that local authorities are crucial for translating policies into action. The analysis further highlighted other governmental **professional agencies,** such as nature conservation agencies or planning agencies, as frequently operating as implementers. These are often directed by central or hierarchically lower-level authorities, but their technical expertise is likely to be important for policy execution. **Private sector** and **natural resource managers** are other actors that relatively often operate as implementers. There are however examples of cases with a high variety of actors in implementation roles, such as Amsterdam City, Mazovia region, or South Moravia.

Academia is one actor group that seems overall to be **underrepresented** across all cases. This may suggest that scientific expertise is not fully leveraged in policy discussions and decisions, or that its inclusion comes via different pathways (e.g. papers and reports, private consultants, etc.).

Network analysis of actor groups and their roles

We further conducted network and co-occurrence analysis to better understand how different actor groups connect to Practice Cases, and how they cluster in different roles.

The **decision-makers network** (Figure 5) confirmed the previously described trends. Policy decisions remain government-led, with little input from other actors. Further, the decision-making is visible at different governance levels, mostly central and regional, with overall less involvement of local level. In general, governments frequently co-occur as decision-makers, reinforcing the assumption of a strongly institutionalized decision-making process. Professional agencies and non-governmental sectors occasionally co-occurred with governments, indicating that some policies involve advisory or external actors in the decision-making processes, but such situations are rare. Private sector, natural resource managers and citizens have a low co-occurrence with other decision-makers, reinforcing the sense that they are mostly excluded or marginalised from formal policy decision-making.

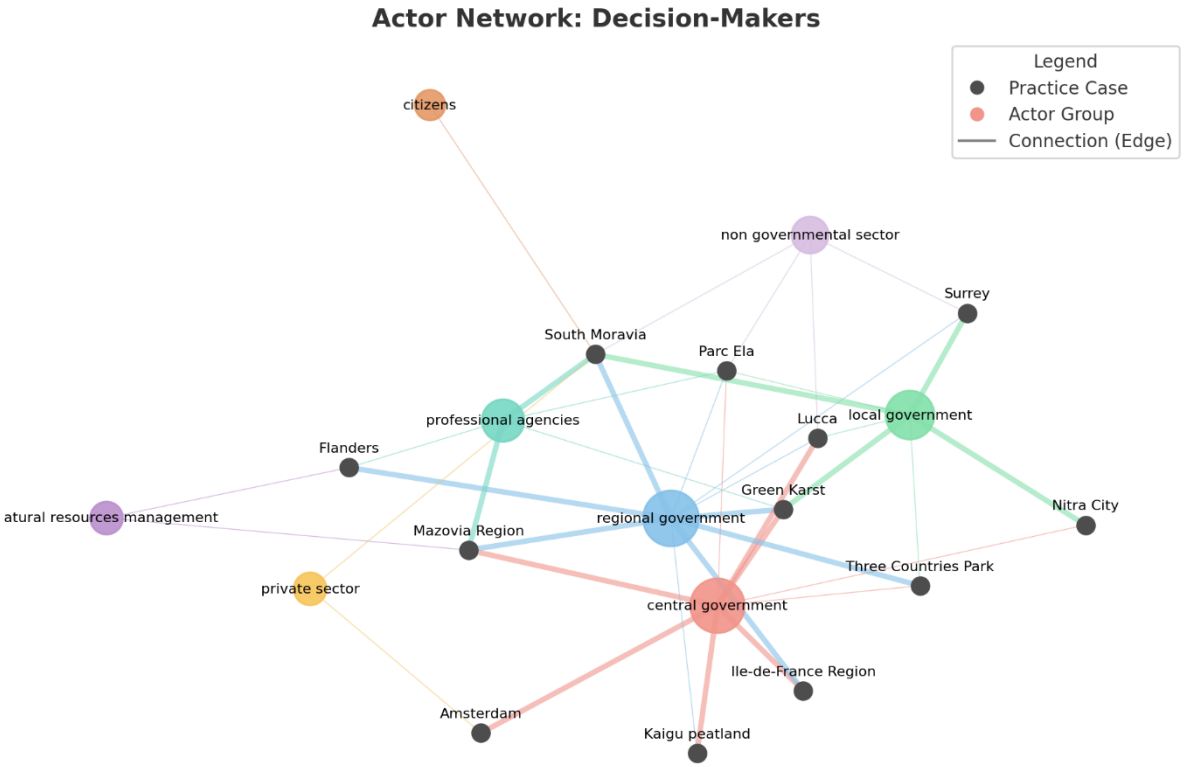

Figure 5: Decision-makers actor network across Practice Cases.
**The size of the node indicated overall occurrence of the actor group. Thickness of the connection indicates occurrence per Practice Case. Placement of each Practice Case is relative to its affiliation to actor groups including strength of relationships but is not clustered in relation to other Practice Cases.*

The **influencers network** (Figure 6) is the most complex, highly connected, and multi-actor driven. Policy influence is distributed across multiple sectors outside of governments, unlike decision-making, which is government driven. Local and regional governments still hold influence at the policy level, but this is more dispersed compared to decision-making. Different actor groups influence policies depending on the case. In some instances, like Flanders or South Moravia among others, the non-governmental sector and citizens are indicated to have a strong influence, while in others, the most frequently cited influencers are the private sector (e.g., Surrey, Mazovia Region) or professional agencies (Kaigu Peatland, Three Countries Park, Ile de France Region, etc.). As for the general trends, besides the governmental bodies, actors from the non-governmental sector, the private sector, and natural resource management frequently co-occur, indicating that these actors often influence policies simultaneously. At the same time, the private sector and non-governmental sectors often co-occur with professional agencies. This may suggest that expertise-driven entities have a strong presence as influencers, even if they do not participate in formal decision-making. Citizens, although mentioned several times as influencers, have weaker links with other actors, suggesting that their role is more isolated and probably less influential.

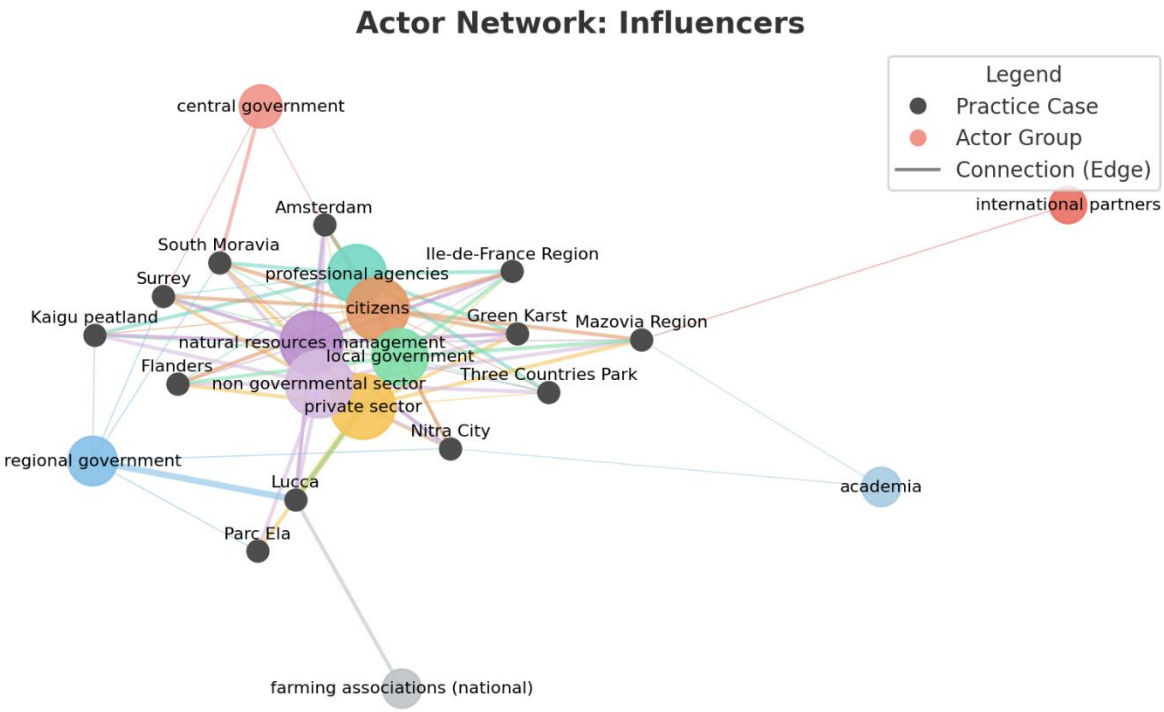

Figure 6: Influencers actor network across Practice Cases.
**The size of the node indicated overall occurrence of the actor group. Thickness of the connection indicates occurrence per Practice Case. Placement of each Practice Case is relative to its affiliation to actor groups including strength of relationships but is not clustered in relation to other Practice Cases.*

The **implementation network** (Figure 7) confirmed that local and regional governments appear to dominate implementation, which was also confirmed by their high co-occurence as implementers. This is quite logical, as implementation is often a legal responsibly placed upon local or regional government, their involvement is therefore inevitable. Natural resources management and professional agencies appear together frequently besides governmental actors, which could be explained by common mechanisms where policy implementation is often delegated to affiliated agencies and even entities outside of government structures (e.g. land use managers). The non-governmental sector, private sector and citizens co-occur in some cases, suggesting that some policies engage with other external actors (e.g. through enforcing regulations). However, private sector and natural resource management actors were less involved in implementation than analysis expected, indicating a limited level of inclusion of businesses and land use managers in policy execution. Also, non-governmental sector and citizens appeared to be least involved as policy implementers.

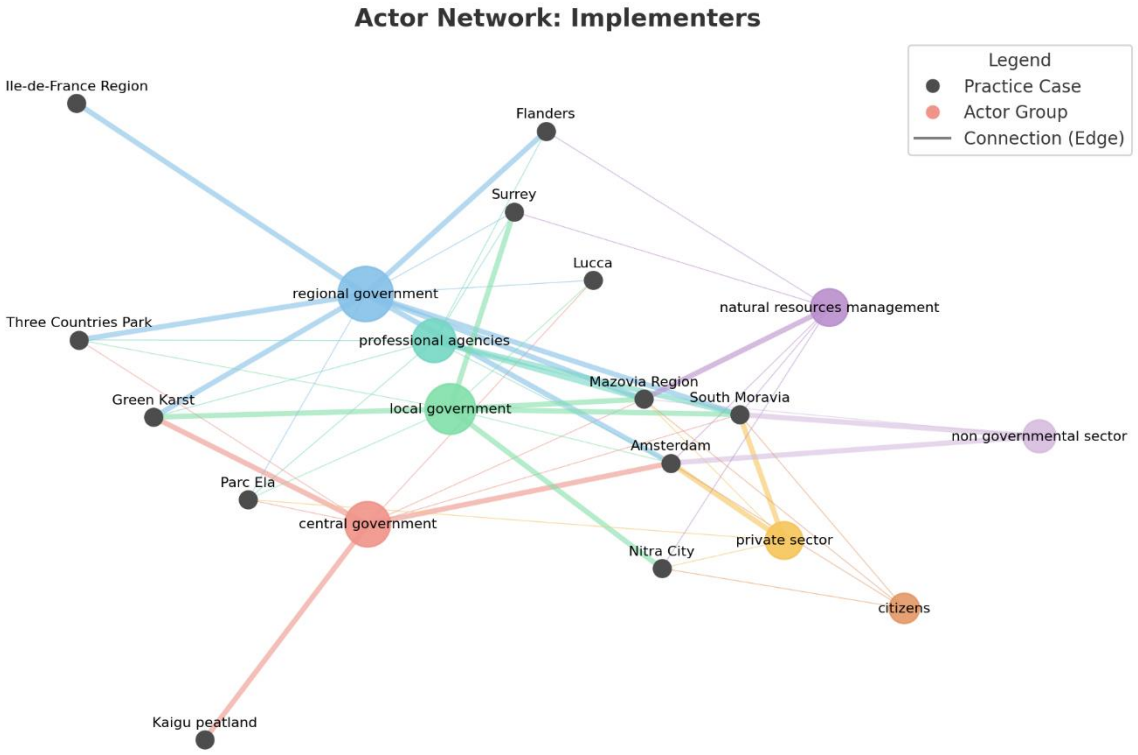

Figure 7: Implementers actor network across Practice Cases.
The size of the node indicated overall occurrence of the actor group. Thickness of the connection indicates occurrence per Practice Case. Placement of each Practice Case is relative to its affiliation to actor groups including strength of relationships but is not clustered in relation to other Practice Cases.

Positive and negative impacts of policies on actor groups

In this part of the analysis, we investigated what are the different policy and decision-making impacts and how these affect various actors (Figure 8). Looking at the figure, policies have both positive and negative perceived effects on actors, with different manifestations in practice as is narrated below. These effects relate to how policies affect different groups of actors and what these effects are (e.g. effects of housing policies on residents or impacts of nature conservation-focused regulations on investors) as perceived by Practice Case partners.

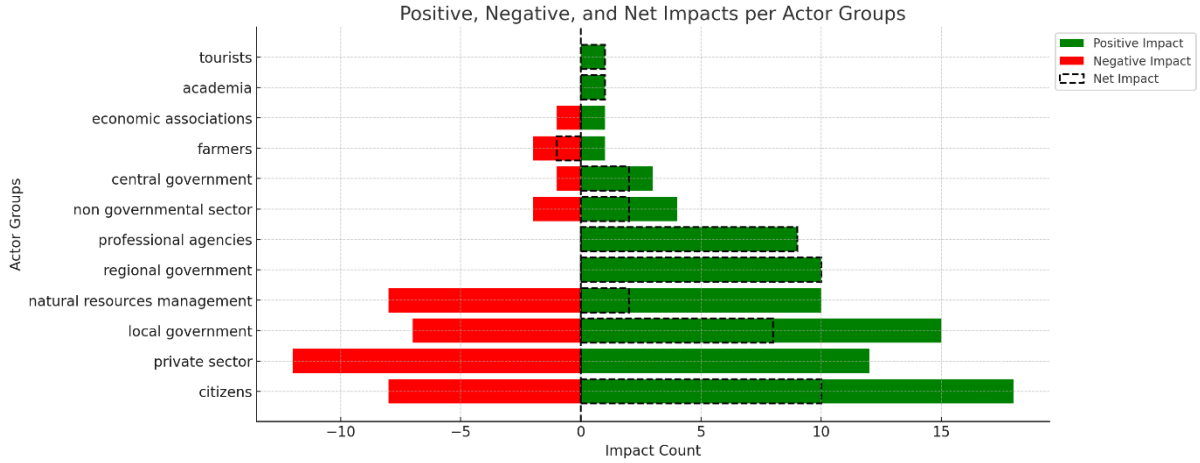

Figure 8: Positive, negative and net policy impact as per actor group

The actors most frequently positively affected are (in order) citizens, local and regional governments, the non-governmental sector, the private sector, professional agencies and natural resource managers. Local and regional governments benefit from their important role in policy decisions and influence, and as they receive autonomy and financial support to implement policies. This is evident in cases like Mazovia Region and Nitra City, where they have authority over land-use planning. Non-governmental sector benefits from civil engagement policies and conservation funding, as seen in Amsterdam and Three Countries Park. Private sector often benefits from financial incentives and the related economic opportunities. In Amsterdam City and Kaigu Peatland cases, policies promote sustainable business practices. In Lucca, policies allowing private enterprises to benefit from structured growth and development opportunities Citizens seem to be the group with the most to gain, as policy objectives often focus on improving environmental conditions and climate resilience, housing opportunities, new jobs or overall quality of life, to name a few. However, this is only assumed if policies are implemented as desired, which is not always the case. Sometimes citizens benefit from policies promoting public participation, such as in Amsterdam, where civic engagement is encouraged.

Several **actor groups experience both benefits and constraints**, depending on the policy context. Local governments exemplify this duality. In Mazovia Region and Nitra City, they gain more decision-making power, but in Kaigu Peatland, they are sidelined by national authorities, potentially limiting their ability to influence the process or implement policies locally. This highlights the potential strain on decision-making powers at the level of local authorities, or associated agencies. The private sector also experiences mixed outcomes. In Surrey and Mazovia Region, businesses benefit from investment-friendly policies, yet in Ile-de-France and Green Karst, they face restrictive regulations that impact economic activities. Natural resource managers are another group experiencing mixed fortunes. While they receive support for conservation efforts in cases like Three Countries Park, they face restrictions on resource use in areas like Kaigu Peatland and Green Karst. Finally, citizens may experience many positive effects of policies as outlined above but may also face less than positive side-effects of the same polices

including rising housing prices, worsening environmental conditions due to unwanted and/or unplanned urbanisation, or displacement. These side-effects are seen in instances such as Mazovia Region, Nitra City, or Green Karst.

On the negative side, natural resource managers, citizens and private sector actors are **the most negatively affected actors**. Natural resource managers face land-use restrictions and conservation policies, particularly in Kaigu Peatland and Green Karst, limiting their ability to utilise natural resources. In South Moravia, stricter requirements for energy efficiency and environmental standards may lead to increased costs and limitations on building and activities undertaken by both natural resource managers and businesses. They can also be negatively affected by a lack of involvement in policymaking, which can lead to solutions that do not respond to local needs, as was indicated in the case of Lucca. Similarly, in Ile-de-France Region, Green Karst or Surrey, private sector actors face regulatory constraints, affecting commercial activities and business opportunities. Citizens, and especially marginalised communities and economically vulnerable groups, suffer numerous negative policy impacts (often unintended consequences) related to rising housing prices, relocation, and environmental degradation.

Considering the net policy impacts, the most fluctuating positive and negative effects were recorded for citizens, private sector, local governments, and natural resource management.

Trends and gaps based on actors analysis

- **Top-down governance and power asymmetries**: Policy and decision-making remains predominantly top-down and government-led, with national and regional governments dominating decisions, while local governments often act more as implementers or influencers rather than key decision-makers. Although some local authorities possess strong decision-making powers, most have limited autonomy, reducing their ability to deliver context-specific solutions. Policy formation is generally centralised, excluding other actors and reinforcing institutional rigidity and power imbalances that hinder inclusive and perhaps adaptive decision-making. In the broad political economy, this trend positions local authorities as pressure points, who have to trade-off positive and negative impacts, and integrate diverse wishes across actor groups and policy goals.
- **Limited cross-sectoral collaboration:** As described in the previous point, decision-making processes are often hierarchical, lacking collaboration. Scientific and academic expertise seems underutilised, suggesting a gap in evidence-based policymaking. While the private and non-governmental sectors influence policies, their roles in formal decision-making and implementation are limited, restricting innovative and inclusive solutions. Furthermore, natural resource managers are rarely involved in governance, and implementation tends to remain top-down, rather than being co-managed with local actors. In terms of the political economy, there are opportunities for broader engagement and co-management with local actors and scientific actors in ways that bridge across sectors.

- **Weak public participation and equity concerns**: Public involvement in policy processes is largely consultative, offering few opportunities for active participation or partnership. This weak engagement contributes to policies that may overlook local needs, especially in marginalised communities. The uneven distribution of benefits and burdens raises issues of fairness and equity, particularly in cases where private sector influence is present and is driven by narrow economic interests. The minimal involvement of citizens or natural resource managers highlights a broader lack of inclusivity and participatory governance. There are opportunities in the political economy for opening spaces for participation, and this can be matched to the different roles and capacities of actors. We note that given the broad range of stakeholders, and the top-down nature of governance, participation could be meaningful at higher governance levels than only the local level.

3.2 Policy analysis

The results in this section of the report are based upon an analysis of the first policy survey, which sets out the general characteristics of the relevant policy documents (n=81) in the Practice Cases (3.2.1), and a second policy survey covering specific aspects of policy documents identified by Practice Case partners as key policies (n=25) (3.2.2).

3.2.1 Relevant policy documents: an overview

This section provides an analysis of a set of **81 policy documents** that are most relevant to specific PLUS Change Practice Cases. Here, we summarise the general results of these documents by their **scale, character, thematic scope, binding nature, PLUS Change topics, addressed land use systems, objectives** and **importance** (Box 3).

Box 3: Descriptive results from the analysis of relevant policy documents in Practice Cases.

As for the **Scale of policy documents**, the subnational scale was the one most often represented (n=40), followed by national (n=28), while the local scale was rather unrepresented (n=18). This follows logically given the background of the Practice Cases, where a regional-level focus prevails. Looking at the **Character of policy documents** (Figure 8), most policy documents were identified as strategic or visionary (n=47), or for planning (n=37). Less common were programmes or action plans (n=19) and regulations (n=18).

In terms of policy **Bindingness**, the policy documents are almost evenly split between being either binding (n=27, 33,3%), non-binding (n=28, 34,6%), or a combination of the two (n=26, 32,1%)

The PLUS Change topics were quite evenly represented across the policies from Practice Cases. Human wellbeing was found to have the highest coverage (in 62 documents) followed by Biodiversity (55 documents) and Climate (54 documents). This suggests a good coverage across PLUS Change objectives considering the policy documents at local to national scales. Additionally, there are 5 documents which have not touched upon any of the PLUS Change topics.

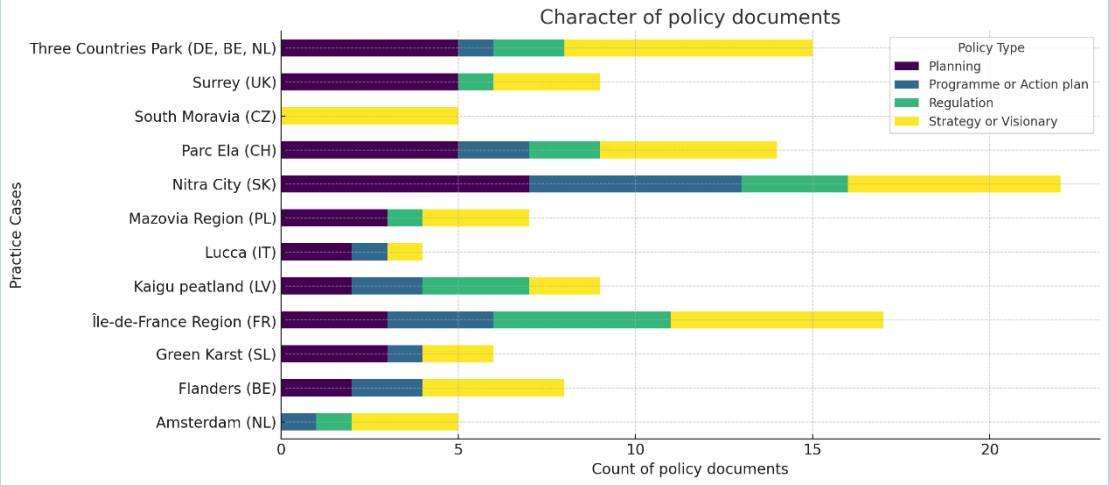

Figure 9: Policy documents by character from across all Practice Cases (total n. of documents = 81). Multichoice answer was possible, i.e. for a single document multiple characters could be selected.

Regarding the **Thematic scope** of analysed policy documents, the highest coverage was found to be for the themes of Nature protection (in 53 documents) and Natural resource management (in 52 documents), followed by Land use management (in 48 documents) and Urban development (in 43 documents). Less than half of documents touched upon Sectoral themes (37) and Rural development (35). The least represented theme across Practice Cases was Cultural heritage (23)

We then investigated what **Land use systems** have been addressed by these policies. Related to the thematic dominance of Nature protection and Natural resource management, Nature and green infrastructure land use systems were those most frequently addressed across the analysed policies (65). Next, quite evenly distributed, but at quite a lower mark than what has been reported above, came Agriculture (in 51 policies), Settlements, Transport infrastructure, and Blue infrastructure (each in 47 policies), and Industry and commerce (in 46 policies). Finally, we found 40 policies addressing Energy infrastructure and 35 policies related to Forestry land use systems.

3.2.2 Key policy documents in Practice Cases: trends and gaps

The results here reflect the first policy survey (see 2.2.2), which resulted in a set of **25 key policy documents** in the context of Practice Cases. Specifically, the following text focuses on the policy-related aspects such as **policy objectives, targets, monitoring mechanisms and indicators** which are addressed within these policy documents.

Frequent words and phrases in policy documents

Here is described the basic analysis of the most often occurring words (word frequencies) and phrases (word pairs, or bi-grams) after removing from consideration so called “stop” words (such as ‘a’, ‘the’, ‘for’, etc.). The word clouds provide an overview of top frequent words (Figure 10) and phrases per individual Practice Cases, revealing the local priorities and strategies which are then summarised below.

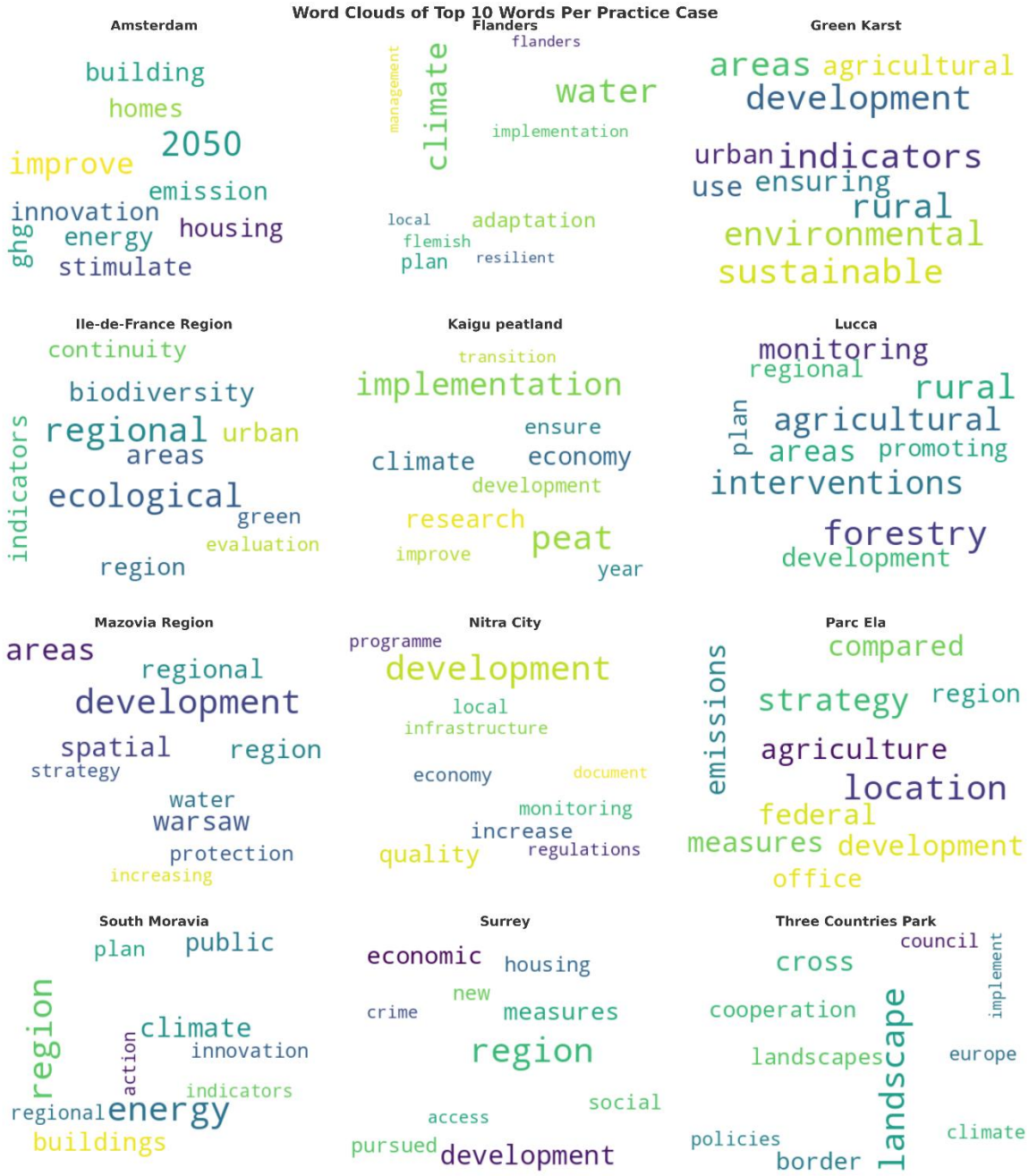

Figure 10: Word clouds of top 10 occurring words per Practice Cases.

Amsterdam: The most frequent words like "2050" and "homes" indicate a focus on long-term urban planning. The presence of "emission" and "GHG" in targets, along with "stimulate innovation" in measures, indicates an emphasis on reducing greenhouse gas emissions and decarbonization efforts through technological advancements.

Flanders: Key words such as "water", "climate", and "adaptation" indicate a focus on climate resilience and water resource management. Bigrams like "climate adaptation" and "adaptation

measures" highlight climate resilience strategies, while "water security" suggests water management concerns. The terms "green" and "blue" in measures hints at integrating nature-based design. Terms like "drought" and "resilient" further emphasize the need for mitigating climate risks and ensuring water security.

Green Karst: The most frequent words include "development," "rural," "spatial," and "agriculture," underscoring a strong emphasis on rural sustainability, land-use planning, and balancing environmental conservation with economic activities.

Region Ile-de-France: The most prominent words are "ecological", "regional", and "continuity", which suggest a strong focus on maintaining ecological networks and biodiversity conservation, integrating nature in spatial development. The bigrams "ecological continuity" and "action plan" reinforce this, indicating structured approaches to environmental conservation.

Kaigu Peatland: Key words include "transition", "peat", and "climate", suggesting a focus on peatland conservation and energy transition with climate neutrality objectives. The bigrams "just transition" and "climate neutral" confirmed this, indicating further an emphasis on fair transition. Terms like "emissions" and "resources" suggest that policies aim to reduce carbon footprints while managing natural resources efficiently.

Lucca: The words "plan", "interventions", and "regional" emphasise territorial planning and intervention strategies. Additionally, words such as "forestry," and "rural" indicate an emphasis on rural development and forest management. The frequent appearance of the words "agriculture" and "production" suggests that policy efforts are directed at promoting food security.

Mazovia Region: Top words "Warsaw", "development", "strategy", "spatial", and "region" indicate a focus on urban planning and regional growth strategies. The word combinations suggest that urban-rural dynamics play an important role in policy objectives.

Nitra City: Words prominently feature "development,", "region", "quality," and "sustainable," emphasizing urban transformation, improving living standards, and economic modernization. The term "infrastructure" further suggests efforts to enhance urban structures and mobility.

Parc Ela: The most frequent words "strategy", "location", and "development" suggest a strong emphasis on regional strategic planning. The term "federal" indicates the involvement of national-level policy frameworks. The presence of "agriculture" and "tourism" indicates that policies focus on specific sectors to balance economic growth with sustainability.

South Moravia: Key words "climate", "region", and "land" suggest regional-level environmental policies with a focus on land use and climate resilience. The presence of "energy" and "innovation" points to a push for technological and sustainable energy solutions.

Surrey: Frequent words like "economic", "development", and "region" indicate a strong focus on economic growth and regional policies. The term "crime" appears, suggesting that policy measures related to safety and crime prevention may be important considerations. The appearance of "housing" and "investment" suggests efforts to manage population growth and infrastructure investments.

Three Countries Park: The words "landscape", "cooperation", and "cross-border" indicate a focus on transboundary landscape management and collaboration and landscape conservation. The bigram "land use" suggests territorial planning considerations, while "climate" and "operation" point to climate-related policy actions.

Trends and gaps found based on policy analysis

Based on the above analysis of word and phrase frequencies, a co-occurrence and network analysis of policy aspects (objectives, targets, measures, monitoring mechanisms, indicators) was further carried out, revealing trends and gaps, represented and under-represented themes within and between policies.

- Overall, **strong linkages** exist between **objectives, targets, and measures**, suggesting that policy intentions are translated into actions. However, **weaker connections** appear between **implementation measures** and **monitoring mechanisms**, raising concerns about how policies are tracked, **policy accountability** and a potential **implementation gap**. Monitoring mechanisms and indicators remain underdeveloped, with fewer recurring terms related to tracking, progress, and benchmarking.
- As for objectives, across all policies there is a trend of having a strong emphasis on **sustainability**, **climate adaptation**, and **urban and regional planning**. Policies frequently integrate climate action and sustainability objectives with spatial strategies. The overlap between several planning policies and strategies with nature-based solutions or biodiversity conservation objectives highlights a trend toward integrating **ecological considerations**. Additionally, policies frequently reference "green" and "blue" as progress measures, indicating a reliance on nature-based solutions and water-related metrics.
- Key **policy terms revolve also around "climate," "energy," "emission," "infrastructure," "water," and "adaptation."** This is particularly evident in policy measures addressing water management and climate action, or agriculture. However, while **climate mitigation and adaptation goals** are frequently mentioned, their incorporation into policies is often **inconsistent or vague**, raising concerns about climate resilience planning.
- The aspects related to **energy efficiency** and **technological innovation** receive low emphasis, indicating that these are not fully incorporated in the policies.
- Furthermore, **social and economic aspects remain secondary** compared to environmental concerns. Given that these issues can complement each other, and focussing on environmental concerns should be steered to produce social benefits, the two issues should have more equal consideration.
- **Equity and public participation receive limited attention**, indicating that policies may not sufficiently address inclusive and just processes.

3.3 Other initiatives and trends which influence policy

This analysis reflects the findings from a specific question (from the second policy survey) related to influential initiatives or trends other than policy documents. This was done to understand the broader context of influence around policy and decision-making. Processing the survey data, we concluded with the following dominant trends:

- **Land-use dynamics** emerged as the most frequently identified external trend, indicating significant shifts in how land is planned about, developed, and used. This includes urban expansion, zoning regulations, infill development, and strategic spatial planning. The prominence of this issue suggests that changes in land use are shaping policy outcomes as much as the policies themselves. There might be a general **need for governance that is more responsive to evolving spatial pressures.**
- **Bottom-up initiatives** such as community-driven and grassroots activities were identified as another influential trend, which suggests that local actors are playing an increasingly active role in shaping land use and policy implementation. Examples of these initiatives might include citizen-led conservation efforts, local urban planning movements, and decentralised governance models. The growing frequency of bottom-up influences indicates that **traditional top-down policymaking approaches may need to integrate more participatory approaches to align with land use realities**.
- **Market forces and economic factors** were also frequently mentioned, demonstrating the financial dimensions of land use decisions. These often stem from real estate investments, land value fluctuations, private sector development incentives, and funding constraints. This suggests that **financial considerations impact both public and private land use strategies**, sometimes aligning with policy objectives and on other occasions coming into conflict with them.
- **Environmental movements** promoting environmental concerns including climate actions, biodiversity conservation, and green infrastructure development appeared as another prominent trend. These movements reflect increasing pressure for policies to incorporate sustainability principles and long-term environmental planning. The presence of this trend suggests that land use **decisions are increasingly influenced by ecological considerations coming from non-governmental and public sphere**, potentially leading to stricter environmental regulations.

4. Discussion: Intervention points for creating land use policy and decision-making change

The European Union is constantly seeking to improve policymaking through better policy coordination while respecting national and regional sovereignty and place specifics. This report proposes actions through policies and actors that can potentially help strategize and govern land use change. Here, findings from the analysis of actors and policy documents (Section 3) from across the Practice Cases are synthesised to formulate a broader **system of intervention points** (Figure 11) for creating land use policy decision-making change addressing the contextual, procedural and implementation levels.

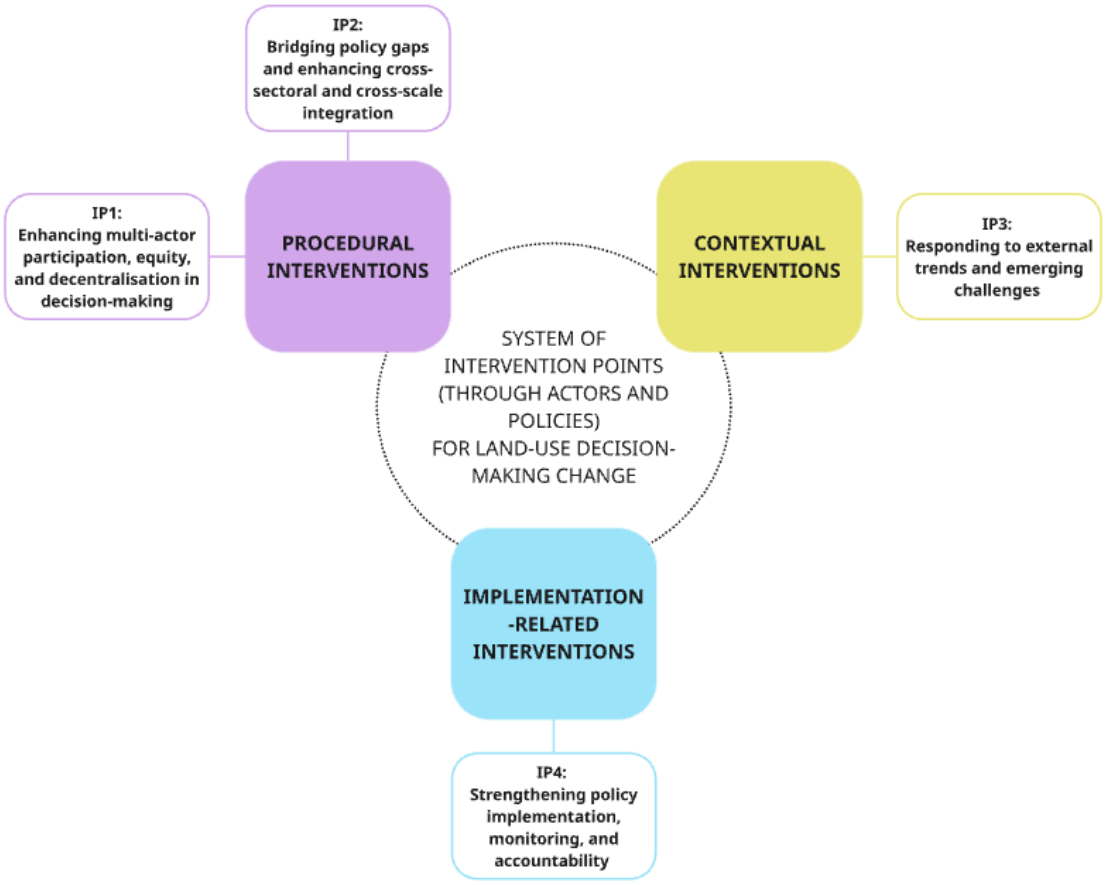

Figure 11: System of intervention points for land use policy and decision-making change.

Table 6 summarises these intervention points, including the key challenges and actions they address. These interventions are understood as important areas in which action could be taken, in relation to policies, actors, and their relationships. The four intervention points at which we have arrived are the culmination and key part of this deliverable, their **main purpose is to inform** other downstream **tasks in the PLUS Change project** when **developing and simulating policy**

options (T4.4, T5.4), **testing interventions** (T5.1, T5.2), or **creating roadmaps for land use decision-making change** (T5.3).

Table 5: Overview of intervention points, the key challenges and actions they address

Intervention type	Intervention points	Key challenges	Main actions proposed
Procedural	**IP1: Enhancing multi-actor participation, equity, and decentralisation in decision-making**	Defining the role of actors to improve the policy and decision-making processes	- Decentralise decision-making - Address power asymmetries - Strengthen public engagement through meaningful participation at multiple decision-making levels - Enhance private sector involvement - Underrepresented actors should be considered
	IP2: Bridging policy gaps and enhancing cross-sectoral and cross-scale integration	Integrating sectoral objectives into policies at different scales for stronger synergies	- Integrate stronger biodiversity considerations - Improve linkages between policies at different levels - Enhance the integration of economic and social dimensions - Highlight sustainability as a core priority - Integrate technological or infrastructure innovation and energy efficiency
Contextual	**IP3: Responding to external trends and emerging challenges**	Incorporating emerging external challenges (European trends and challenges)	- Adapt policies to rapid land use changes and trends - Scale-up and integrate impactful bottom-up initiatives - Engage broader environmental movements (initiatives) in policymaking (see also IP1) - Balance market forces with regulatory safeguards to enhance policy objectives
Implementation	**IP4: Strengthening policy implementation, monitoring, and accountability**	Setting up policy implementation processes including clarifying the responsibilities of actors	- Develop robust and reliable monitoring and evaluation mechanisms - Ensure policy implementers are explicitly identified - Establish independent oversight bodies and controlling mechanisms

The following section further specifies the individual **intervention points for creating conditions for land use policy change and decision-making**. By implementing these intervention points, decision-makers and practitioners at different levels can improve the effectiveness, inclusiveness and coherence of land use policies. The recommendations made here aim to build on recognised trends, bridge identified gaps, enhance stakeholder collaboration, and enhance conditions for transformative change in land use governance.

4.1 Intervention point 1: Enhancing multi-actor participation, equity, and decentralisation in decision-making

This **procedural** intervention point focuses on the challenge of defining the role of actors to improve policy and decision-making processes and is characterised by the following main actions:

- **Decentralise decision-making**
- **Address power asymmetries**
- **Strengthen public engagement through meaningful participation at multiple decision-making levels**
- **Enhance private sector involvement**
- **Underrepresented actors should be considered**

A shift from centralised, top-down, governance models towards more participatory and decentralised models with a distribution of mandates, is critical for transforming land use policy decision-making open to more relevant actors. Findings suggested that local governments could adopt stronger positions in decision-making on local and regional issues. For example, local and regional governments operate more as executive institutions, while re-funding and giving a greater mandate to the local level in particular, could lead to decision making processes and outcomes that better addresses local needs.

Addressing power imbalances between all actors, but especially among governmental bodies, the private sector, and civil society is necessary to create more inclusive and fair policy outcomes. Non-governmental sector and citizens could play an active role in shaping policies rather than remaining limited to consultative roles. Achieving meaningful engagement requires strengthening public participation, shifting from passive consultations to collaborative decision-making processes. This approach could mean that the actors affected have a greater direct influence on land use planning, shaping the future of the environment, infrastructure, and services. Prioritising social equity is crucial to addressing key challenges like displacement, affordability, and socio-economic disparities, ensuring that land use strategies reflect the needs of all communities. Emphasising governance mechanisms, such as decentralised, bottom-up, policymaking and robust stakeholder engagement frameworks, could be essential to foster more inclusive, equitable, and effective policies.

Furthermore, the findings suggested that private sector actors, particularly in environmentally focused policy areas, need to be more involved to ensure effective incentives and collective responsibility for sustainability goals, where major businesses, landowners or land managers become more involved in land use change that addresses nature and climate stewardship (REF).

4.2 Intervention point 2: Bridging policy gaps and enhancing cross-sectoral and cross-scale integration

This **procedural** intervention point focuses on the integration of sectoral objectives into policies at different scales in order to enhance synergies and is characterised by the following main actions:

- **Integrate stronger biodiversity considerations**
- **Improve linkages between policies at different levels**
- **Enhance the integration of economic and social dimensions**
- **Highlight sustainability as a core priority**
- **Integrate technological and infrastructure innovation and energy efficiency**

While climate considerations appear as an objective strongly anchored in the policies, a challenge in current land use policies is the lack of integration between e.g. legally binding biodiversity objectives and planning policies. Lack of legal instruments to implement higher-level policy at the local level often creates problems. Addressing such gaps and disconnects would embed conservation efforts deeper into land use planning. Similarly, a stronger linkage between policies at different levels, as well as strategic planning policies and regulatory frameworks, is needed to enhance policy execution, as seemingly weak connections (and sometimes contradictory objectives) currently hinder the effectiveness of policy enforcement.
Beyond environmental concerns, policy frameworks could more comprehensively incorporate economic and social dimensions, technological and infrastructure innovation, integrating equity, public participation, and economic resilience into land use planning and governance. Lack of focus on long-term societal and economic transformations may indicate a need for more forward-thinking policy frameworks. Overall, sustainability could be emphasised more as a cross-cutting and broad theme rather than prioritising only its environmental dimensions.

4.3 Intervention point 3: Responding to external trends and emerging challenges

This **contextual** intervention point deals with the integration of external challenges (European trends and challenges) and is characterised by the following main actions:

- **Adapt policies to rapid land use changes and trends**
- **Scale-up and integrate impactful bottom-up initiatives**
- **Engage broader environmental movements (initiatives) in policymaking**
- **Balance market forces with regulatory safeguards to enhance policy objectives**

Policies will need to be flexible and adaptive to the rapid pace of land-use changes, including urban expansion, shifts in zoning, and evolving spatial planning needs. More dynamic governance

approaches could be introduced to ensure that policies remain relevant and responsive. Additionally, bottom-up initiatives such as community led conservation efforts and local urban planning movements might be formally recognised and integrated into official land use governance frameworks. Economic market forces heavily influence land use decisions and could therefore be better balanced with regulatory safeguards to ensure that financial drivers do not undermine sustainability, needs of local actors or social equity. At the same time, environmental movements advocating for climate action and biodiversity protection could be actively engaged and perhaps brought into policymaking processes in a formalised way, ensuring that public demand for stronger environmental governance translates into legal and policy commitments.

4.4 Intervention point 4: Strengthening policy implementation, monitoring, and accountability

This **implementation-oriented** intervention point addresses policy implementation processes including the responsibilities of actors and is characterised by the following main actions:

- **Develop robust and reliable monitoring and evaluation mechanisms**
- **Ensure policy implementers are explicitly identified**
- **Establish independent oversight bodies and controlling mechanisms**

Policy effectiveness is often undermined by the lack of well-structured monitoring mechanisms. Establishing well-defined monitoring and evaluation frameworks with clear indicators, benchmarking and measurable targets could ensure greater accountability in policy execution. Additionally, policies could explicitly outline the roles and responsibilities of implementing bodies and controlling mechanisms to prevent execution insufficiencies. Independent oversight bodies may be established to provide transparency and accountability, ensuring that land use policies are not only well-intentioned but also effectively executed and enforced. Strengthening policy oversight through independent bodies would prevent unchecked influence from dominant stakeholders.

4.5 Other interventions

The analysis of **perceived land use effects** in policy analysis revealed distinct patterns in how policies are expected to shape land use planning and management. Processing and analysing the data, we concluded with the following grouping of land use effects and the associated challenges: *Environmental sustainability and conservation, Urban expansion, Agricultural transformation, Water management, Infrastructure development*. Directly linked to these challenges could be another supplementary intervention point: **Aligning policies with land use realities.** However, we decided not to include it as a distinct intervention point due to its different nature compared to other interventions, as well as for these aspects are addressed in more detail by the other tasks

of the project (e.g., Task 3.2). Nevertheless, in this context, we see the following main actions to benefit land-use decision-making:

- Ensure policies account for urban expansion pressures, to prevent land take and environmental degradation
- Integrate water management into broader land-use frameworks
- Recognize the role of agriculture and forestry in sustainable land use
- Prioritize infrastructure planning in policy frameworks.

To address urban expansion pressures, proactive planning measures could be developed that balance economic growth with sustainability and other related objective (biodiversity, climate, and human well-being), thus preventing unchecked land alternation. Agricultural policies targeting land transformation are major forces and could be strengthened to support rural livelihoods while maintaining ecological integrity. Infrastructure development, including transport, energy, and industrial expansion, could be prioritized within land-use frameworks to ensure that growth and connectivity are managed sustainably and equitably. Finally, water management could be more effectively integrated into broader land use frameworks to mitigate climate risks and ensure long-term resource resilience.

5. Conclusions

This report sets out to enable practitioners and policy actors to better understand the political economies of land use decision-making across the PLUS Change Practice Cases. Its aim has been to identify potential intervention points that can support future transformations in land use policy and governance. Drawing from this analysis, the report has outlined a system of four key intervention points across contextual, procedural, and implementation levels. These intervention points are detailed in chapter 4 of this report and serve as critical entry points for addressing and navigating the power relations, inclusiveness and participation levels, coherence and integration, and effectiveness of land use decision-making by addressing policies, actors, and their relationships. However, we acknowledge that these intervention points are formulated at a high level and could be broken down into more specific and more digestible actions as we have proposed for each of them. Such specified actions could then respond more directly to the challenges in specific contexts.

While the findings are based on the 12 diverse Practice Cases involved in PLUS Change project, the findings should not be seen as universally applicable across all EU countries. Each case reflects its unique context, limiting the scope to generalise the results arrived at. Instead, the intervention points offer a "palette of options" that can be selected from, tested and tailored to specific contexts, issues, and scales. For instance, looking at the analysis of actors involved in PLUS Change (3.1.1), there might be different opportunities to focus on certain actor groups in each of the “political economies”, thinking about “who” could potentially lever some of the intervention points. Finally, the report will provide a foundation for further consultation with policymakers and experts from the Practice Cases to deepen further its findings and use them to guide interventions for planning land use strategies.

Doing such work is within the scope of the next steps of the PLUS Change project. Specifically, the consortium will explore, with each practice case, options, tools and approaches for addressing the IPs, and will co-create road-maps for addressing those that the PCs identify as relevant to them. Such work includes, for instance, co-developing and simulating policy options (Tasks 4.4 and 5.4), testing interventions (Tasks 5.1 and 5.2), and creating roadmaps for transformative land use decision-making (Task 5.3). Further, the IPs can provide a useful framework for considering the results already created within PLUS Change, and their translation into useful tools within Task 1.4. For example, EU-level policies presented in Deliverable 3.2 can be examined for their relationship and contribution to IPs. Additionally, discussion and co-creation outputs, such as the ethics and justice framework (Deliverable 1.1) and the Possible Landscapes process can be tailored towards specifically addressing IPs.

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Appendices

Appendix 1

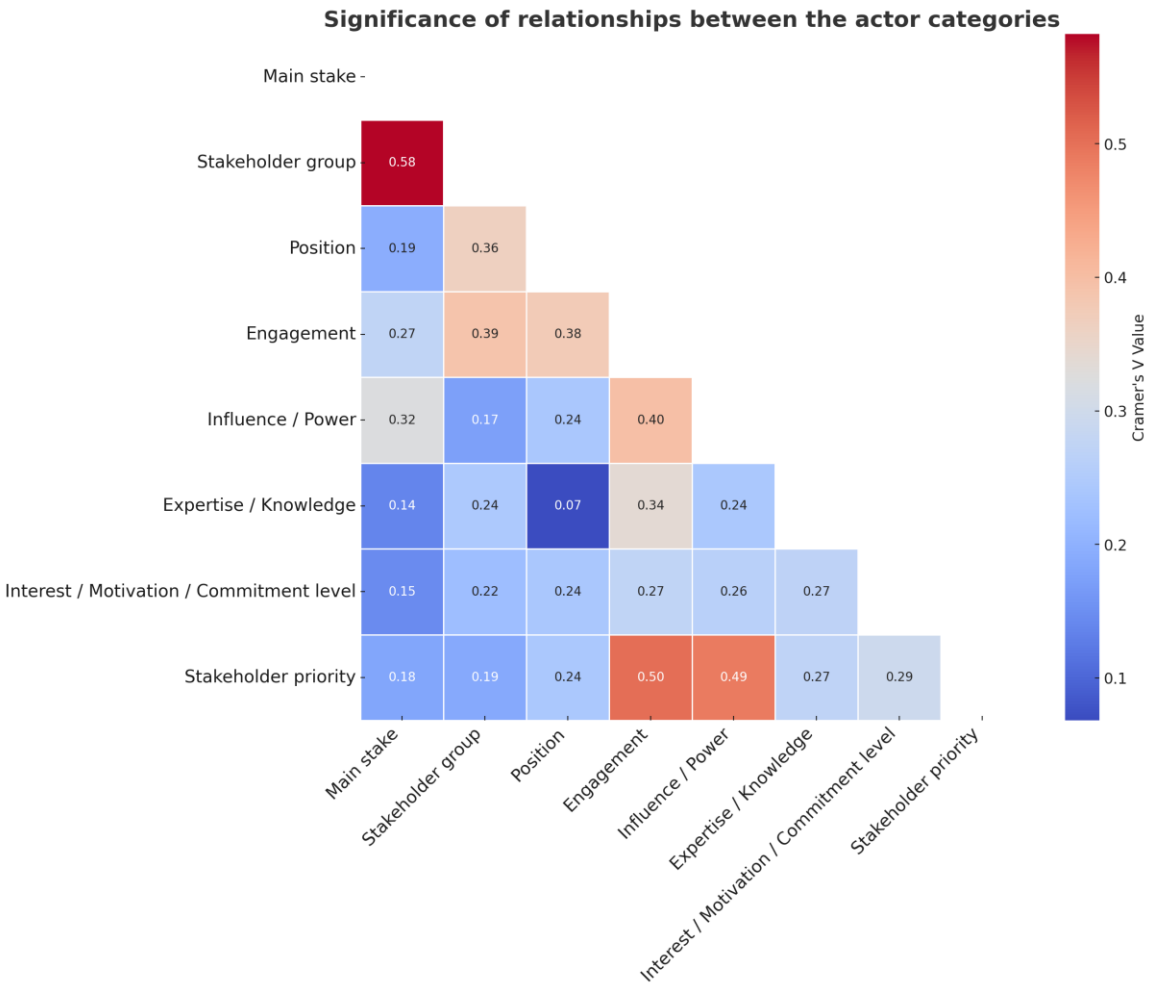

Figure 12: A1: Heatmap showing significance of relationships between the actor categories (actors engaged in PLUS Change project). Values closer to 1 indicate strong relationships, while values closer to 0 indicate weak relationships.

Table 6: A1. Statistical analysis for significance and strength of associations between stakeholder characteristic (variables) from stakeholder survey.

Variable 1	Variable 2	Chi-squared	p-value	Cramer's V
Main stake	Stakeholder group	454.735	4.17E-50	0.582187
Main stake	Occupation / Job	1096.192	0.003986	0.329555
Main stake	Position	52.62901	9.21E-05	0.194068
Main stake	Engagement	21.37336	0.000688	0.273243
Main stake	Influence / Power	55.22598	2.87E-08	0.321914

Variable 1	Variable 2	Chi-squared	p-value	Cramer's V
Main stake	Expertise / Knowledge	18.32186	0.049771	0.137778
Main stake	Interest / Motivation / Commitment level	52.57413	0.0066	0.146178
Main stake	Stakeholder priority	24.53824	0.006293	0.182322
Stakeholder group	Occupation / Job	3898.852	3.60E-06	0.320279
Stakeholder group	Position	186.6925	3.97E-12	0.363836
Stakeholder group	Engagement	51.42732	4.58E-05	0.39021
Stakeholder group	Influence / Power	49.43627	0.067176	0.174475
Stakeholder group	Expertise / Knowledge	61.90076	0.00463	0.242963
Stakeholder group	Interest / Motivation / Commitment level	170.4345	0.000121	0.222244
Stakeholder group	Stakeholder priority	51.4479	0.045821	0.187231
Occupation / Job	Position	869.5878	0.01378	0.315556
Occupation / Job	Engagement	208.3894	0.243011	0.238902
Occupation / Job	Influence / Power	431.4973	0.072165	0.301822
Occupation / Job	Expertise / Knowledge	432.415	0.068039	0.305289
Occupation / Job	Interest / Motivation / Commitment level	1267.82	0.006692	0.304773
Occupation / Job	Stakeholder priority	432.6184	0.06715	0.306052
Position	Engagement	35.03261	4.57E-07	0.376326
Position	Influence / Power	33.1584	5.77E-05	0.240045
Position	Expertise / Knowledge	10.06198	0.260703	0.06816
Position	Interest / Motivation / Commitment level	72.2698	9.86E-07	0.23888
Position	Stakeholder priority	33.61763	4.76E-05	0.242229
Engagement	Influence / Power	36.87626	9.83E-09	0.399016
Engagement	Expertise / Knowledge	27.00576	1.37E-06	0.337849
Engagement	Interest / Motivation / Commitment level	22.00093	0.00121	0.273206
Engagement	Stakeholder priority	57.39782	3.44E-13	0.502913
Influence / Power	Expertise / Knowledge	29.6845	5.67E-06	0.242631
Influence / Power	Interest / Motivation / Commitment level	41.47069	4.09E-05	0.262776
Influence / Power	Stakeholder priority	107.9441	2.00E-22	0.488234
Expertise / Knowledge	Interest / Motivation / Commitment level	43.04802	2.22E-05	0.26973
Expertise / Knowledge	Stakeholder priority	36.37772	2.42E-07	0.272437
Interest / Motivation / Commitment level	Stakeholder priority	48.8391	2.23E-06	0.293852

Appendix 2

Table 7: A2: Policy documents collected in the 1st policy survey (N=81) that later resulted in selection of key policies in the 2nd survey.

Practice Case	Policy document title	Cluster
Amsterdam (NL)	Nationale woon en bouwagenda	Urban case
Amsterdam (NL)	Klimaatwet	Urban case
Amsterdam (NL)	Natuurambitie grote wateren 2050 en verder	Urban case
Amsterdam (NL)	Nederland Natuurpositief	Urban case
Amsterdam (NL)	Meerjarenprogramma woningbouw	Urban case
Flanders (BE)	Flemish Climate Adaptation Plan	Regional case
Flanders (BE)	Call Weerbaar Waterlandschap	Regional case
Flanders (BE)	Blue Deal	Regional case
Flanders (BE)	Policy Note 2019-2024 Environment submitted by Zuhal Demir, Flemish Minister of Justice and Enforcement, Environment, Energy, and Tourism	Regional case
Flanders (BE)	Resilient Water-Land-Scape advisory	Regional case
Flanders (BE)	Landscape Biography: Heart of Haspengouw	Regional case
Green Karst (SL)	Municipal Spatial Plan of the Municipality of Postojna	Regional case
Green Karst (SL)	Common Agricultural Policy 2023-2027	Regional case
Green Karst (SL)	Slovenian Smart Specialisation Strategy	Regional case
Green Karst (SL)	Regional Development Plan of the Primorje-Notranjska Region	Regional case
Green Karst (SL)	Slovenia's Development Strategy 2030	Regional case
Green Karst (SL)	Spatial Development Strategy 2050 of Slovenia	Regional case
Île-de-France Region (FR)	Plan locaux d'urbanisme et Plan locaux d'urbanisme intercommunaux (PLUI)/ Local urban development plans and inter-municipal local urban development plans	Regional case
Île-de-France Region (FR)	Loi climat et résilience / "Climate and Resilience" Low	Regional case
Île-de-France Region (FR)	Schéma de cohérence territorial (le SCOT) /Territorial Coherence Scheme (SCOT)	Regional case
Île-de-France Region (FR)	2. SDRIF-E (urban master plan with environmental considerations)	Regional case
Île-de-France Region (FR)	Le Schéma Régional de Cohérence Écologique (SRCE) / The Regional Ecological Cohesion Scheme (SRCE)	Regional case
Île-de-France Region (FR)	Plan régional d'adaptation au changement climatique (PRACC) / Regional Climate Change Adaptation Plan (PRACC)	Regional case
Île-de-France Region (FR)	Divers dispositifs de financement régionaux / Various regional funding schemes	Regional case
Île-de-France Region (FR)	Stratégie régionale pour la biodiversité 2020-2030 / Regional biodiversity strategy 2020-2030	Regional case
Kaigu peatland (LV)	The Spatial Plan of Jelgava Municipality [In Latvian - Jelgavas novada teritorijas plānojums]	Nature case
Kaigu peatland (LV)	Law on environmental impact assessment	Nature case
Kaigu peatland (LV)	Law on specially protected natural areas	Nature case
Kaigu peatland (LV)	Law on subterranean depths	Nature case
Kaigu peatland (LV)	JSC "Latvia's State Forests" Fire Prevention Plan for the Nature Reserve "Kaigu purvs" [In Latvian - AS "Latvijas valsts meži"	Nature case

Practice Case	Policy document title	Cluster
	Ugunsdrošības preventīvo pasākumu plāns Dabas liegumam "Kaigu purvs"]	
Kaigu peatland (LV)	A Strategy for the Sustainable Use of Peat 2020-2030 [In Latvian - Kūdras ilgtspējīgas izmantošanas pamatnostādnes 2020.–2030. gadam]	Nature case
Kaigu peatland (LV)	Development Programme of the Zemgale Planning Region for 2021-2027 [In Latvian - Zemgales plānošanas reģiona attīstības programma 2021.–2027. gadam]	Nature case
Kaigu peatland (LV)	Sustainable Development Strategy of Zemgale Planning Region 2015-2030 [In Latvian - Zemgales plānošanas reģiona ilgtspējīgas attīstības stratēģija 2015-2030]	Nature case
Kaigu peatland (LV)	Territorial plan for a just transition [In Latvian - Taisnīgas pārkārtošanās teritoriālais plāns]	Nature case
Lucca (IT)	Italy CAP Strategic Plan	Regional case
Lucca (IT)	Complement for Rural Development Tuscany 2023-2027	Regional case
Lucca (IT)	The Provincial Plan for Territorial Coordination	Regional case
Mazovia Region (PL)	Regional spatial development plan of the Mazovia Region (Plan Zagospodarowania Przestrzennego Województwa Mazowieckiego)	Regional case
Mazovia Region (PL)	The Regional Development Strategy 2030+ of the Mazovia Region (Strategia Rozwoju Województwa Mazowieckiego 2030+)	Regional case
Mazovia Region (PL)	The National Urban Policy 2030 (Krajowa Polityka Miejska 2030)	Regional case
Mazovia Region (PL)	The ecophysiographic study for the Regional Spatial Development Plan of the Mazovia Region (Opracowanie ekofizjograficzne do Planu Zagospodarowania Przestrzennego Województwa Mazowieckiego)	Regional case
Nitra City (SK)	Masterplan for Nitra City (under preparation)	Urban case
Nitra City (SK)	Programme Slovakia 2021-27	Urban case
Nitra City (SK)	Programme of Economic Development and Social Development of the Nitra Self-Governing Region until 2030 (2022)	Urban case
Nitra City (SK)	Sustainable Mobility Plan for Nitra City (2020)	Urban case
Nitra City (SK)	Climate Change Adaptation Strategy for the Slovak Republic (2018)	Urban case
Nitra City (SK)	Master Plan - Nitra Region (2023)	Urban case
Nitra City (SK)	Programme of Economic Development and Social Development of the Strategic Planning Region Nitra (district Nitra - 2023)	Urban case
Nitra City (SK)	Green Space Plan for the City of Nitra (2022)	Urban case
Nitra City (SK)	Climate Change Adaptation Strategy for the City of Nitra (2019)	Urban case
Nitra City (SK)	Nitra alive - Manual for Open Spaces (2024)	Urban case
Nitra City (SK)	Nature, Biodiversity and Landscape Conservation Framework to 2030 (2020)	Urban case
Parc Ela (CH)	Regionaler Richtplan Albula - Naturpark Parc Ela (Albula Regional Structure Plan - Parc Ela Nature Park)	Nature case
Parc Ela (CH)	Kommunales räumliches Leitbild der Gemeinde Albula/Alvra (Municipal spatial model of the municipality of Albula/Alvra)	Nature case
Parc Ela (CH)	Future direction of agricultural policy	Nature case
Parc Ela (CH)	Klimastrategie Landwirtschaft und Ernährung / Climate strategy for agriculture and food	Nature case
Parc Ela (CH)	Neue Regionalpolitik im Kanton Graubünden. Umsetzungsprogramm Graubünden 2024–2027	Nature case

Practice Case	Policy document title	Cluster
Parc Ela (CH)	Projektbericht Vernetzungsprojekt Region Albula (Project report on the Albula region agricultural networking project)	Nature case
Parc Ela (CH)	Standortentwicklungsstrategie Region Albula (location development strategy Albula region)	Nature case
Parc Ela (CH)	WEGE IN DIE ERNÄHRUNGSZUKUNFT DER SCHWEIZ. Leitfaden zu den grössten Hebeln und politischen Pfaden für ein nachhaltiges Ernährungssystem	Nature case
South Moravia (CZ)	Regional Innovation Strategy	Regional case
South Moravia (CZ)	Concept of drought protection for the territory of the Czech Republic for the period 2023-2027	Regional case
South Moravia (CZ)	Climate Action Plan	Regional case
South Moravia (CZ)	Development Strategy of the South Moravian Region 2021+	Regional case
South Moravia (CZ)	Strategic objectives for soil by 2030	Regional case
Surrey (UK)	The Town and Country Planning Act 1947	Regional case
Surrey (UK)	The South East Plan	Regional case
Surrey (UK)	Surrey Development Plan, (after 1980 Comprising Surrey Structure Plan And Local Plans)	Regional case
Surrey (UK)	Surrey Structure Plan 2004	Regional case
Surrey (UK)	Surrey Local Transport Plan, Surrey Climate Change Strategy, Local Plans	Regional case
Surrey (UK)	National Planning Policy Framework	Regional case
Surrey (UK)	Joint Spatial Planning Framework	Regional case
Three Countries Park (DE, BE, NL)	EU Nature Restoration Law	Nature case
Three Countries Park (DE, BE, NL)	Council of Europe Landscape Convention	Nature case
Three Countries Park (DE, BE, NL)	EU Climate adaptation strategy	Nature case
Three Countries Park (DE, BE, NL)	VLAAMS KLIMAATADAPTATIEPLAN	Nature case
Three Countries Park (DE, BE, NL)	Erstes Klimaschutzpaket Nordrhein-Westfalen	Nature case
Three Countries Park (DE, BE, NL)	Provinciaal Waterprogramma 2022-2027 (Limburg, The Netherlands)	Nature case
Three Countries Park (DE, BE, NL)	PLAN AIR CLIMAT ENERGIE 2030 DE LA WALLONIE - PACE 2030	Nature case
Three Countries Park (DE, BE, NL)	ETC/Interreg Regulation – Model for Interreg programmes (INTERREG Meuse-Rhine programme)	Nature case
Three Countries Park (DE, BE, NL)	EMR 2030 Strategy	Nature case

Appendix 3

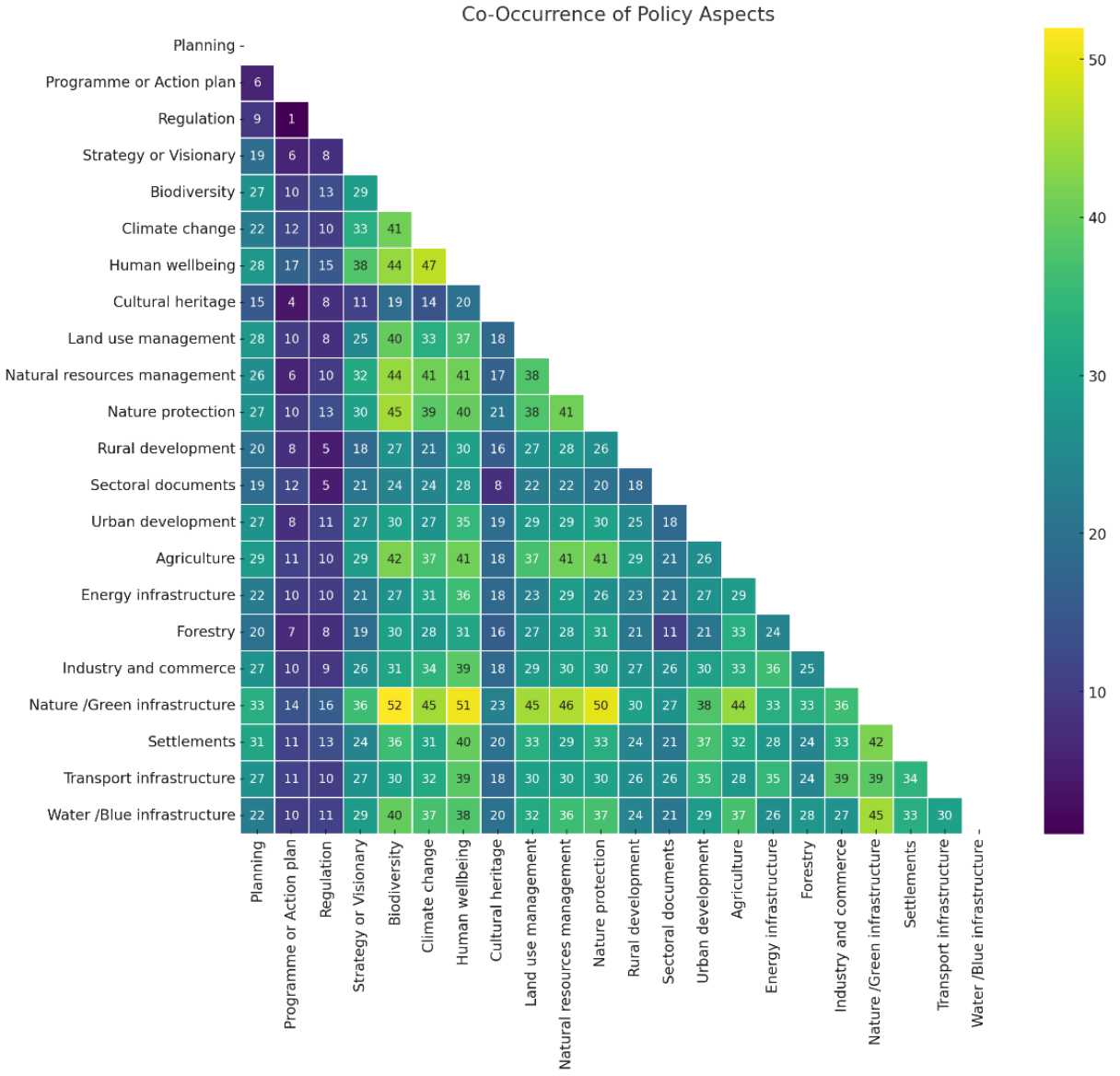

Figure 13: A3: Heatmap of relationships between the policy characteristics.

Table 8: A3.1: Word frequencies (words) and bi-grams (word pairs) per policy aspects across Practice cases. The table shows up to top 10 highest records per each category

	Words					Word pairs				
case	objective	targets	measures	monitoring	indicators	objective	targets	measures	monitoring	indicators
Amsterdam	2050 (2)	2050 (2); emission (2); ghg (2); homes (2); housing (2)	improve (3); building (2); energy (2); innovation (2); stimulate (2)	monitoring (2)	No frequent terms	No frequent terms	emission 2050 (2); ghg emission (2)	stimulate innovation (2)	No frequent terms	No frequent terms
Flanders	water (13); climate (11); plan (8); adaptation (4); local (4); management (4); resilient (4); areas (3); drought (3); flemish (3)	water (6); climate (2); flanders (2); security (2)	water (12); climate (7); implementation (5); approach (3); blue (3); cross (3); green (3); infrastructure (3); sectoral (3); space (3)	adaptation (5); climate (5); monitoring (4); based (2); flanders (2); flemish (2); indicators (2); investments (2); measures (2); study (2)	No frequent terms	climate adaptation (3); adaptation measures (2); adaptation plan (2); climate change (2); climate impacts (2); climate resilience (2); flemish climate (2); flooding drought (2); manage water (2); water management (2)	water security (2)	green blue (3); climate smart (2); open space (2); space water (2); sub basin (2); targets integrated (2); water safety (2)	climate adaptation (3); adaptation monitoring (2)	No frequent terms
Green Karst	development (5); rural (4); spatial (4); sustainable (4); agriculture (3); ensuring (3); policy (3); strategy (3); aims (2); areas (2)	sustainable (6); agricultural (4); areas (4); environmental (4); reducing (4); urban (4); development (3); economic (3); ensuring (3); farm (3)	measures (7); development (6); environmental (5); infrastructure (5); rural (5); agricultural (4); areas (4); sustainable (4); urban (4); climate (3)	progress (6); indicators (5); policy (4); use (4); assess (3); challenges (3); data (3); ensuring (3); evaluations (3); feedback (3)	indicators (9); benchmarks (5); land (5); rural (5); use (5); areas (4); economic (4); environmental (4); farm (4); number (4)	focuses improving (2); quality life (2); rural areas (2); spatial development (2); spatial planning (2); sustainable resilient (2)	agricultural land (2); urban areas (2)	agricultural practices (2); developed areas (2); financial incentives (2); rural development (2); sustainable agricultural (2)	evaluation process (2); key performance (2); performance indicators (2)	land use (2); rural areas (2); specific indicators (2); urban areas (2)

	Words					Word pairs				
case	objective	targets	measures	monitoring	indicators	objective	targets	measures	monitoring	indicators
Ile-de-France Region	ecological (28); regional (28); areas (16); continuity (15); urban (14); biodiversity (12); region (12); srce (10); land (9); management (9)	achieve (2); activities (2); agricultural (2); continuity (2); ecological (2); locate (2); major (2); measures (2)	biodiversity (9); areas (7); urban (7); species (6); ecological (5); green (5); promote (5); agricultural (4); development (4); forest (4)	evaluation (11); monitoring (10); indicators (9); policy (9); analysis (7); implementation (6); environment (4); impact (4); phase (4); regional (4)	axis (14); indicators (11); green (9); blue (8); possible (8); make (7); region (6); regional (6); srce (6); belt (5)	ecological continuity (15); action plan (6); green blue (6); local players (6); protected areas (6); coherence scheme (5); ecological coherence (5); regional ecological (5); account urban (4); areas particularly (4)	ecological continuity (2)	ecological continuities (3); adapted biodiversity (2); avoid simplification (2); forest areas (2); limit fragmentation (2); maintain restore (2); management practices (2); peri urban (2); restore ecological (2); simplification edges (2)	monitoring evaluation (5); environmental impacts (2); evaluation based (2); evaluative questions (2); governance bodies (2); indicators intermediate (2); local urban (2); planning documents (2); point view (2); public policy (2)	green blue (8); make possible (7); axis make (5); blue belt (5); components green (4); ile france (3); planning documents (3); urban planning (3); agricultural areas (2); areas axis (2)
Kaigu peatland	transition (4); peat (3); affected (2); climate (2); economic (2); economy (2); ensure (2); environmental (2); just (2); latvia (2)	peat (9); emissions (4); indicators (4); performance (4); resources (4); skills (4); support (4); training (4); year (4); economy (3)	research (10); climate (8); peat (8); development (6); economy (5); ensure (5); implementation (5); improve (5); areas (4); cooperation (4)	implementation (12); eu (4); ministry (4); responsible (4); actions (3); funds (3); monitoring (3); tpjt (3); activities (2); authorities (2)	reference (4); value (3); initial (2); target (2); year (2)	climate neutral (2); just transition (2); neutral economy (2); peat resources (2); transition climate (2)	performance indicators (4); peat extraction (3); peat resources (3); training retraining (3); co2eq year (2); eur private (2); fixed assets (2); ghg emissions (2); indicators area (2); kt co2eq (2)	climate smart (3); peat extraction (3); based ideas (2); climate neutral (2); commercial sector (2); demonstration projects (2); economic transformation (2); efficient technologies (2); knowledge skills (2); natural resources (2)	eu funds (3); implementation process (2)	initial reference (2); reference value (2); reference year (2); value reference (2)
Lucca	plan (8); interventions (6); level (5); development (4); national (4);	promoting (8); interventions (6); areas (5); forestry (5); rural (5); use	forestry (12); agricultural (10); rural (9); areas (7); production (6);	monitoring (11); committee (5); regional (4); interventions (3); actors (2);	benchmarks (2); defined (2); eu (2); indicators (2);	rural development (3); 2023 2027 (2); land use (2); new cap	agri food (3); food forestry (3); forestry enterprises (3); rural areas (3);	rural areas (5); agri food (4); food forestry (4); agricultural agri (3);	monitoring committee (5); regional monitoring (3); implementation	benchmarks defined (2); defined eu (2); eu policies (2);

	Words					Word pairs				
case	objective	targets	measures	monitoring	indicators	objective	targets	measures	monitoring	indicators
	regional (4); basis (3); cap (3); implementation (3); rural (3)	(5); agricultural (4); agriculture (4); sustainable (4); agri (3)	development (5); food (5); including (5); management (5); agri (4)	commission (2); data (2); implementation (2); national (2); region (2)	policies (2); regulation (2)	(2); regional level (2)	agricultural agri (2); identification distribution (2); sustainable use (2); use water (2); water resources (2)	agricultural forestry (3); forestry enterprises (3); access credit (2); development rural (2); development strategies (2); facilitating access (2)	interventions (2); national monitoring (2)	indicators benchmarks (2); policies regulation (2)
Mazovia Region	development (11); spatial (9); region (8); warsaw (8); strategy (6); regional (5); areas (4); mazovia (4); plan (4); accessibility (3)	development (6); natural (3); areas (2); conservation (2); economic (2); protection (2); significant (2); social (2); sustainable (2); value (2)	areas (9); water (8); increasing (5); land (5); protection (5); environmental (4); including (4); management (4); warsaw (4); area (3)	regional (6); development (3); region (3); report (3); spatial (3); assembly (2); implementation (2); planning (2); review (2)	area (2); greenbelt (2); indicators (2)	development plan (4); spatial development (4); mazovia region (3); regional development (3); development strategy (2); mazovian voivodeship (2); metropolitan area (2); open areas (2); plan mazovian (2); quality life (2)	areas significant (2); natural areas (2); significant value (2); sustainable development (2)	functional area (2); increasing water (2); open areas (2); warsaw functional (2); water reservoirs (2); water retention (2)	spatial development (3); regional assembly (2)	No frequent terms
Nitra City	development (12); quality (5); document (4); nitra (4); region (4); sustainable (4); city (3); economy (3); inhabitants (3); objectives (3)	increase (8); development (6); local (6); infrastructure (5); quality (5); create (4); education (4); management	areas (4); regulations (3); development (2); measures (2); policy (2); protection (2)	monitoring (6); programme (5); development (4); municipal (4); action (3); implementation (3); municipalities (3); plan (3);	indicators (3); regulations (2)	climate change (2); high quality (2); life inhabitants (2); nitra modern (2); nitra region	capacity quality (2); circular economy (2); complete reconstruct (2); completion modernisation (2); create conditions (2);	No frequent terms	development programme (4); municipal development (4); action plan (2); integrated territorial (2); joint municipal (2); member	No frequent terms

	Words					Word pairs				
case	objective	targets	measures	monitoring	indicators	objective	targets	measures	monitoring	indicators
		(4); social (4); economy (3)		territorial (3); approval (2)		(2); quality life (2)	developing sustainable (2); development city (2); education increase (2); increase capacity (2); increase share (2)		municipalities (2); programme joint (2); territorial investments (2)	
Parc Ela	location (6); strategy (5); development (4); federal (4); office (3); region (3); agriculture (2); canton (2); compared (2); drawn (2)	potential (3); production (3); tourism (3); agricultural (2); attractiveness (2); better (2); compared (2); diet (2); domestic (2); food (2)	action (2); measures (2)	progress (3); achieving (2); environmental (2); level (2); measure (2); measures (2); monitoring (2); reviewed (2); sub (2); target (2)	emissions (4); 2050 (2); agriculture (2); gas (2); greenhouse (2)	location development (3); development strategy (2); federal office (2); strategy drawn (2)	agricultural production (2); domestic agricultural (2); greenhouse gas (2); housing optimising (2); winter tourism (2)	No frequent terms	level progress (2); progress achieving (2); reviewed years (2); years using (2)	gas emissions (2); greenhouse gas (2)
South Moravia	region (4); climate (3); land (3); plan (3); use (3); competitiveness (2); energy (2); innovation (2); moravian (2); regional (2)	region (6); energy (5); buildings (4); aims (3); better (3); climate (3); emission (3); regional (3); standard (3); water (3)	energy (6); public (6); climate (3); community (3); efforts (3); innovation (3); region (3); research (3); sustainable (3); buildings (2)	action (4); document (3); implementation (3); monitoring (3); plan (3); strategy (3); ensures (2); evaluation (2); involving (2); policy (2)	energy (4); indicators (4); number (4); region (4); benchmarks (3); include (3); buildings (2); example (2); progress (2); public (2)	land use (2); moravian region (2); south moravian (2)	zero emission (3); attract foreign (2)	No frequent terms	action plan (3); regular updates (2)	renewable energy (2)
Surrey	region (7); development (5); economic (4); new (3); pursued (3); social (3); access (2); crime (2); delivered (2); growth (2)	completions (2); land (2); net (2); region (2)	measures (4); housing (3); included (2); investment (2); policies (2); regeneration (2); sector (2)	produced (2); progress (2); report (2); taken (2)	emission (2); reduction (2); targets (2)	development delivered (2); new development (2)	No frequent terms	No frequent terms	No frequent terms	emission reduction (2)

	Words					Word pairs				
case	objective	targets	measures	monitoring	indicators	objective	targets	measures	monitoring	indicators
Three Countries Park	landscape (5); aims (2); climate (2); cooperation (2); countries (2); cross (2); emr (2); operation (2); parties (2)	landscape (4); border (3); cross (3); areas (2); climate (2); european (2); landscapes (2); promote (2); region (2); urban (2)	landscape (8); border (4); cooperation (4); cross (4); landscapes (4); policies (4); implement (3); public (3); regional (3); activities (2)	council (4); europe (4); committee (3); committees (3); convention (3); experts (3); ministers (3); shall (3); actions (2); implementation (2)	No frequent terms	No frequent terms	cross border (3)	cross border (4); local regional (2)	council europe (4); committee ministers (3); committees experts (3); europe shall (2); implementation convention (2); monitoring implementation (2)	No frequent terms

Table 9: A3.2: Actor co-occurrence matrix based on actor groups in policies as decision-makers, influencers, and implementers.

DECISION-MAKERS	central government	citizens	local government	natural resources management	nongovernmental sector	private sector	professional agencies	regional government	-	-	-
central government	0	0	3	1	1	1	3	9	-	-	-
citizens	0	0	0	0	0	0	0	0	-	-	-
local government	3	0	0	0	3	1	4	7	-	-	-
natural resources management	1	0	0	0	0	0	2	2	-	-	-
nongovernmental sector	1	0	3	0	0	1	2	4	-	-	-
private sector	1	0	1	0	1	0	1	1	-	-	-
professional agencies	3	0	4	2	2	1	0	7	-	-	-
regional government	9	0	7	2	4	1	7	0	-	-	-

INFLUENCERS	academia	central government	citizens	farming associations (national)	international partners	local government	natural resources management	non governmental sector	private sector	professional agencies	regional government
academia	0	0	2	0	1	1	2	2	2	0	0
central government	0	0	4	0	0	2	3	4	3	4	2
citizens	2	4	0	0	1	10	14	16	14	13	4
farming associations (national)	0	0	0	0	0	0	0	0	0	0	0
international partners	1	0	1	0	0	1	1	1	1	0	0
local government	1	2	10	0	1	0	9	11	10	8	4
natural resources management	2	3	14	0	1	9	0	16	14	13	5
nongovernmental sector	2	4	16	0	1	11	16	0	18	14	6
private sector	2	3	14	0	1	10	14	18	0	10	7
professional agencies	0	4	13	0	0	8	13	14	10	0	4
regional government	0	2	4	0	0	4	5	6	7	4	2

IMPLEMENTERS	central government	citizens	local government	natural resources management	nongovernmental sector	private sector	professional agencies	regional government	-	-	-
central government	0	2	5	3	3	3	4	7	-	-	-
citizens	2	0	4	4	3	4	3	3	-	-	-
local government	5	4	0	6	4	6	9	10	-	-	-
natural resources management	3	4	6	0	3	4	6	6	-	-	-
nongovernmental sector	3	3	4	3	0	5	4	5	-	-	-
private sector	3	4	6	4	5	0	5	6	-	-	-
professional agencies	4	3	9	6	4	5	0	10	-	-	-
regional government	7	3	10	6	5	6	10	0	-	-	-

Table 10: A3.3: Frequency occurrences of actor groups in policies

Actor group	Measured Occurrences	Expected Occurrences
regional government	41	23.27273
local government	38	23.27273
professional agencies	32	23.27273
nongovernmental sector	31	23.27273
central government	30	23.27273
private sector	29	23.27273
natural resources management	27	23.27273
citizens	23	23.27273
farming associations (national)	2	23.27273
academia	2	23.27273
international partners	1	23.27273

Table 11: A.4: Count of positive and negative policy effects per actor groups

Actor group	Positive effects	Negative effects
citizens	17	8
local government	15	7
private sector	11	12
regional government	10	0
natural resources management	9	8
professional agencies	9	0
Nongovernmental sector	4	2
central government	3	1
academia	1	0
farmers	1	2
economic associations	1	1
tourists	1	0