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Report of cross-national comparative analysis of institutions and stakeholders

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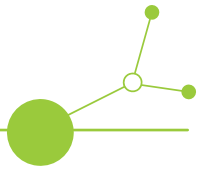

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CONTENT

1. INTRODUCTION

1.1 Research aims and analytical focus

Stakeholder analysis has been widely applied in the context of natural resource management and nature-based solutions (NBS) to understand the interests, influence, interrelations and organisational networks that shape implementation processes (Siddiky and Goel, 2015). As emphasised by Blazcuéz et al. (2021, p. 508), stakeholder analysis typically comprises three interrelated actions: (1) stakeholder identification; (2) stakeholder relationship analysis; and (3) stakeholder categorisation/differentiation, following the framework by Reed et al. (2009). Stakeholders are thereby conceived as "individuals or entities who affect or are affected by a decision or action" (Reed et al., 2009).

In the context of this study, the analytical emphasis is placed predominantly on the identification, categorisation and characterisation of stakeholders involved in the implementation of urban stream revitalisation as a key type of NBS. Specifically, the aim of this analysis is to identify which stakeholders are present in each pilot city and to map the institutional barriers and enabling conditions that shape urban stream restoration. This allows for the derivation of general recommendations and strategic guidelines for improving implementation across Central European cities. Stakeholder identification requires the outlining of clear system boundaries, which may be geographical, social or problem-oriented, in order to determine who is relevant to the particular case and who remains outside its scope (Reed et al., 2009). Previous research demonstrates that stakeholders may be identified based on accessible data sources, such as online information revealing involvement in specific activities (Tsang et al., 2021), though such approaches also risk excluding less visible actors.

Stakeholder identification generally entails two complementary approaches: (1) ex-ante identification, based on expert knowledge, literature review and desk research, and (2) ad hoc identification, which emerges during empirical investigation through tools such as snowball sampling, interviews or focus groups (Blazcuéz et al., 2021). While non-structured, intuitive identification is frequently used in practice (Nugroho and Sari, 2023), reliance on intuition may reinforce cognitive and institutional blind spots, excluding unexpected or marginal actors (Colvin et al., 2016, as cited in Tsang et al., 2021). Consequently, attention to inclusiveness and representation, especially regarding disadvantaged groups, remains an important methodological consideration-even if practical limitations ultimately necessitate the exclusion of some actors ("a line must be drawn at some point", Reed et al., 2009, p. 1937).

Within the ReBioClim project, this stakeholder analysis was conducted for four pilot cities: Dresden, Jablonec nad Nisou, Poznań, and Senica; with the objective of understanding the local governance environment for urban stream revitalisation. By assessing the actors involved, their roles, influence, and relationships, as well as the barriers and enablers they encounter, the analysis provides a foundation for deriving actionable recommendations applicable across these Central European contexts. The analysis covers four individual case-study cities, each presented in a separate section and colour-coded for comparability and visual clarity, as illustrated in Figure 1.

Stakeholder analysis is oriented towards supporting the implementation of NBS, specifically urban stream revitalisation, across selected pilot cities. Given the implementation-focused objective, the

analysis targets actors who hold roles of particular importance in enabling or constraining project delivery. The guideline therefore proposes three core categories of stakeholders:

- Initiators of interventions, such as planners, local authorities or community actors who generate ideas and mobilise action;
- Land or property owners/managers, whose assets are essential for spatial implementation;
- Financing bodies, whether public or private, who fund investment and/or maintenance costs.

Additional Stakeholder Groups (optional, context-dependent):

- Implementation Experts and Advisors – professionals offering technical guidance or project support.
- Potential Beneficiaries and Adversely Affected Parties – users or community members who gain from, or may be negatively impacted by, the revitalisation.
- Other Interested Parties – actors with a broader interest in project outcomes, who may not fit neatly into the above categories but whose perspectives can inform multi-actor coordination.

The distribution of responsibilities across these roles varies widely. Some actors combine roles (e.g., a municipality acting as initiator, landowner and financer), while others participate only in one. Prior case studies suggest that the number of involved actors and the strength of the linkages among initiators, owners and funders are decisive for successful NBS delivery. In addition, bureaucratic processes and permitting authorities play a central role in determining administrative feasibility and timelines.

Further relevant stakeholder groups include users or owners of surrounding properties, and members of the general public, who may benefit from, or be adversely affected by, revitalisation measures. The analytical scope depends on the underlying research objective: if the goal is to understand how implementation can be accelerated, the focus should centre on key enablers such as initiators, owners and financial actors; if the goal is to identify who benefits or is negatively affected, a broader and more inclusive mapping of affected parties is required.

This report builds on these conceptual distinctions by systematically identifying key stakeholders across four pilot cities, assessing their capacity to influence decision-making and their level of support for urban stream revitalisation, and analysing institutional barriers and enablers in each context. To enable comparison and ensure visual clarity, each case study is presented in a separate section and colour-coded, as illustrated in Figure 1. The findings support the formulation of strategic recommendations for local governments, river basin authorities, NGOs, and project designers, aimed at strengthening governance, coordination, and implementation of urban stream restoration in Central Europe.

Figure 1. Colour coding of pilot cities.

Dresden	Jablonec nad Nisou
Poznań	Senica

2. CONCEPTUAL AND ANALYTICAL FRAMEWORK

The methodological framework for evaluating key actors in urban stream revitalisation projects is presented in this section. The approach focuses primarily on stakeholder analysis, aimed at identifying, categorising, and characterising actors involved in project implementation, as well as assessing their power-the capacity to influence decisions and outcomes-and their level of support for the intervention. This analysis enables a structured understanding of how stakeholders facilitate or constrain project delivery and supports strategic coordination among actors.

Complementing this, institutional analysis is conducted separately, focusing primarily on the barriers and enabling factors that affect urban stream revitalisation. This analysis is based on semi-structured interviews, guided by questions designed to explore perceived and experienced obstacles to river and stream restoration, as well as to identify existing and potential enablers facilitating such efforts. The interview protocol was structured to elicit stakeholders' perspectives on the most significant obstacles, concrete examples illustrating their impacts, and possible strategies for overcoming them. In addition, supportive instruments, mechanisms, and enabling conditions contributing to successful implementation were examined, including examples of good practice and reflections on their replicability. The overall aim was to gain an understanding of both hindering and enabling factors from the viewpoint of diverse stakeholder groups involved in or affected by urban stream revitalisation processes.

2.1 Stakeholder Analysis Methodology

The stakeholder analysis was conducted using a combination of desk research, local knowledge, and semi-structured interviews. As a first step, the Stakeholder Matrix (Annex D1.1.2 ReBioClim-Stakeholder_analysis-MATRIX) was completed for each pilot city with the support of city representatives acting as project partners. Up to ten key stakeholders were selected per city, and relevant information about their roles, involvement, and relationships was collected.

In cases where some fields could not be fully completed-specifically those related to vision/goal, level of support, or actor power-these thematic areas were addressed in semi-structured interviews with the selected stakeholders. The interviews explored three main topics: (1) the extent of support for urban stream revitalisation and involvement in related initiatives; (2) the stakeholder's position on revitalisation, its relevance, and perceived impact; and (3) the perceived capacity to influence decisions and the stakeholder's role in the decision-making process.

The completed matrix was subsequently used for graphical visualisation of stakeholder influence and support, typically in the form of a stakeholder power–support diagram, complemented by an interpretation table summarising key findings and observations. This approach enabled a structured and comparative analysis of stakeholders across different cities, while maintaining flexibility to include insights emerging from the interviews.

2.1.1 Operationalisation of Actor Power and Level of Support

The assessment of stakeholders' positions was based on a qualitative interpretation of interview data, reflecting two core dimensions: (1) level of support or relationship to urban stream revitalisation, and (2) actor power. The first dimension captures stakeholders' expressed motivation, values, and perceived importance of revitalisation, including their willingness to engage in related activities. The second dimension reflects stakeholders' formal competencies, decision-making authority, and institutional capacity to influence planning, implementation, or outcomes of revitalisation projects.

Stakeholders were assigned numerical scores on a five-point scale for both dimensions. These values were not derived through quantitative coding, but through interpretive judgement grounded in statements about professional roles, institutional mandates, and perceived ability to influence decisions. This approach recognises that actors may exhibit high support but low influence (e.g., experts or civic actors without formal authority), as well as high influence but moderate support (e.g., administrative bodies or organisations with resource power but competing priorities). Given the described approach, the resulting scoring functions as a comparative output, providing a structured synthesis of qualitative insights into stakeholders' support and power.

The dimension of actor power was operationalised as the perceived and enacted capacity of individual stakeholders to influence planning, decision-making, and implementation processes in urban stream revitalisation. Power was understood broadly, encompassing formal authority, control over resources, institutional mandates, organisational position, recognised expertise, and the ability to mobilise actors or shape discourse. Based on the qualitative analysis of interview transcripts, stakeholders were assigned values on a five-point ordinal scale, reflecting variations in their potential to affect outcomes either directly or indirectly (see Table 1).

A score of 1 (very low power) denotes actors with minimal or no tangible influence over decisions. These stakeholders typically lack formal competencies, financial resources, or organisational backing and may only express opinions informally. This includes, for example, individual citizens or local users of the area, whose influence is largely symbolic: "As a citizen I can write a comment, but who will listen to me?"

Scores of 2 (low power) represent actors with limited or indirect influence, who may be able to raise concerns or engage with authorities, but lack the capacity to enforce or shape decisions. This includes smaller associations or local initiatives, often dependent on voluntary engagement and lacking sufficient organisational resources. Their influence is contingent and often mediated through others: "We can send suggestions to the municipality, but whether they include them, we don't know."

A score of 3 (moderate power) reflects partial or context-dependent influence, typically grounded in recognised expertise or professional engagement, yet without decisive authority. These actors are able to shape proposals, provide evidence, or influence professional discourse, while ultimate decisions remain with others. Typical examples include academics, consultants, project designers, or mid-level municipal staff. As one interviewee stated: "I can prepare options and recommendations, but the city leadership decides."

Actors assigned a score of 4 (high power) possess significant capacity to influence planning or implementation, either through institutional mandate, control of financial resources, or professional authority acknowledged by others. This category includes senior municipal officials, regulatory authorities, or major institutional stakeholders. Their participation is often necessary for projects to proceed: "If we approve it, the project can start; without us it is a problem."

Finally, a score of 5 (**very high power**) denotes actors with decisive authority over key processes or resources, whose approval is mandatory for implementation. These stakeholders often hold formal legal responsibility for water management, financial allocation, or land ownership. Typical examples include river basin authorities, senior municipal politicians, or national agencies with statutory responsibilities. As one respondent made explicit: "Without our consent, the revitalisation will not happen."

Table 1: Operationalisation of Actor Power (1–5 scale)

Score	Interpretive Label	Description	Illustrative Example Quote
1	Very Low Power	Actor has no formal authority, no recognised expertise, and limited access to decision-making; influence restricted to personal opinion	"They don't ask us, we're just informed afterwards."
2	Low Power	Actor has some access or minor consultative input, but limited mandate and negligible impact on outcomes	"We can comment, but it rarely changes anything."
3	Moderate Power	Actor has recognised expertise or formal role; can influence decisions within specific domains, but not determine outcomes	"We shape parts of the project, but cannot decide the direction."
4	High Power	Actor has formal decision-making authority or substantial institutional leverage; can drive agendas and allocate resources	"If we decide to prioritise it, we can make it happen."
5	Very High Power	Actor holds key institutional control, sets strategic direction, mobilises significant resources, and has final say	"Ultimately, the decision rests with us."

This graded categorisation enabled a comparative and heuristic mapping of actors' roles within the governance system, while acknowledging the qualitative nature of the assessment and the contextual variability of power relations across municipalities.

The dimension of level of support captures stakeholders' attitudes, commitment, and engagement towards urban stream revitalisation, including their perceived importance of the topic, willingness to contribute to its advancement, and alignment of professional or organisational goals with ecological restoration. Based on qualitative coding of interview data, stakeholders were assigned a value on a five-point ordinal scale, reflecting variations in support from passive resistance to active advocacy (see Table 2).

A score of 1 (**very low support**) indicates opposition or clear disinterest, where actors perceive revitalisation as unnecessary, problematic, or conflicting with other priorities. Such actors may explicitly question the value of interventions, express scepticism about their outcomes, or emphasise perceived risks and costs: "I don't see why we should change anything; it only creates problems."

Scores of 2 (**low support**) reflect reluctant or conditional acceptance, where actors acknowledge revitalisation but exhibit limited enthusiasm and minimal willingness to engage. Support tends to be

reactive rather than proactive, often framed by constraints, doubts, or competing agendas: "If we must do it, we will, but it's not something we would push for."

A score of 3 (neutral or moderate support) corresponds to a balanced, pragmatic engagement, where actors recognise both benefits and limitations. Such stakeholders may be willing to contribute within their role, though revitalisation is not a central priority. Their support is typically contingent on resources, feasibility, or alignment with broader objectives: "It's a good idea, but there are many other needs we must consider."

Scores of 4 (high support) indicate positive endorsement and active cooperation, where actors value revitalisation as beneficial for urban quality, ecology, or community wellbeing. These stakeholders are generally willing to participate, allocate resources, and advocate within their sphere of influence: "We really want to move this forward; it's important for the city and the environment."

Finally, a score of 5 (very high support) denotes strong normative commitment and proactive advocacy, where revitalisation is perceived as an essential goal. Actors in this category frequently initiate projects, mobilise others, and promote restoration in professional, political, or public arenas. Their discourse emphasises urgent need and long-term vision: "Revitalisation is crucial; we must act, and we should lead the way."

Table 2: Operationalisation of Level of Support (1–5 scale)

Score	Interpretive Label	Description	Illustrative Example Quote
1	Very Low Support	Actor opposes or dismisses revitalisation; perceives it as costly, risky, or unnecessary	"I don't see why we should change anything."
2	Low Support	Actor shows minimal or reluctant support; compliance rather than engagement; competing priorities dominate	"If we must do it, we will, but it's not our priority."
3	Moderate Support	Actor recognises benefits, but support is pragmatic, resource-dependent, or conditional	"It's a good idea, but other needs come first."
4	High Support	Actor values revitalisation and actively cooperates; willing to allocate time and resources	"We really want to move this forward."
5	Very High Support	Actor is a strong advocate; proactively initiates, promotes, and enables revitalisation	"This is crucial and we must lead on it."

These scales enabled a structured and interpretive characterisation of stakeholder positions, facilitating comparative analysis.

2.2 Institutional Analysis Methodology

The institutional analysis was conducted separately, with a focus on the barriers and enabling factors influencing urban stream revitalisation. This analysis complemented the stakeholder analysis by examining formal and informal rules, procedures, and organisational contexts that shape project feasibility and governance. Its purpose was to gain a nuanced understanding of factors that hinder or

facilitate implementation, from the perspective of diverse stakeholder groups involved in or affected by the projects.

2.2.1 Data Collection

Data were collected through semi-structured interviews conducted with stakeholders involved in urban stream revitalisation across four cities: Senice, Dresden, Poznan, Jablonec nad Nisou. Interviews were carried out between July and November 2025, recorded with participants' consent, and subsequently transcribed and translated where necessary.

Stakeholders were selected based on their roles in enabling or constraining project implementation, and interviews aimed to capture perceived barriers and enabling factors. The interview protocol focused on key thematic areas: obstacles to implementation, strategies for mitigation, supporting mechanisms, illustrative examples of success, replication potential, and factors contributing to project acceleration. The semi-structured format allowed additional relevant topics to emerge during discussions, while maintaining focus on the core research objectives.

2.2.2 Data Analysis

The transcribed interviews were analysed using open coding (Hendl, 2005) and subsequent interpretation and conceptualisation, supported by Atlas.ti and MS Excel. Coding was guided by pre-defined categories, with codes reflecting both barriers and enablers, as well as illustrative examples and insights into supportive conditions. The codes used were:

- Barrier main
- Barrier mitigation
- Barrier other
- Enablers main
- Illustrative obstacle
- Replication
- Speed up support
- Success story

The coding process allowed the identification of recurring patterns and relationships between barriers and enablers. The outcome of this procedure is a structured description of the institutional environment, highlighting both hindering and facilitating factors. This description provides the basis for comparative assessment across cities, enabling identification of common challenges, best practices, and potential strategies for improving urban stream revitalisation implementation.

3. STAKEHOLDER ANALYSIS

This chapter provides a general overview of the key stakeholders identified by project partners in each city according to the established methodology. Stakeholders were selected from a broader list to represent up to ten individuals per city, ensuring coverage of crucial roles such as: project initiators (including steering, coordination, and mediation), financiers or grant applicants, landowners or land users, permitting agencies and regulatory bodies, experts or advisors, and other interested parties with potential gains, losses, or indirect interest in project development.

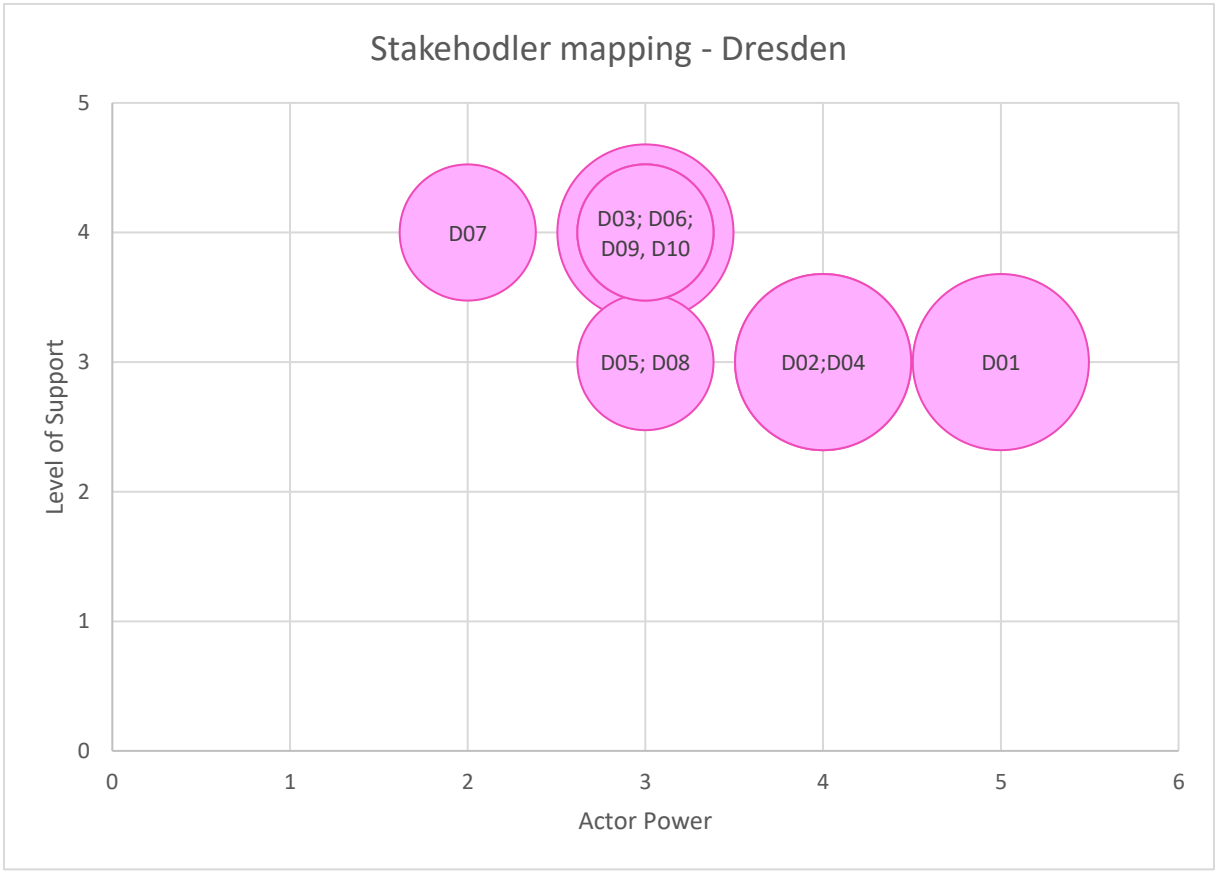
The stakeholder distribution is presented for each city through a combination of bubble charts and corresponding tables. In the bubble charts, the horizontal axis represents stakeholder power, and the vertical axis represents level of support. The size of each bubble represents the number of roles that a stakeholder performs, while additional characteristics are provided in the accompanying tables. Each table contains detailed information on stakeholder type, thematic focus, expertise, and roles.

This overview establishes a framework for the subsequent city-specific subchapters, where the composition, engagement, and capacities of stakeholders are examined in detail. While the presentation format is consistent across cities, each subchapter highlights the unique characteristics and patterns of stakeholders in that specific urban context, allowing for comparative analysis without repeating the general methodological approach.

3.1 Dresden – Stakehodler Analysis

3.1.1 Stakeholder Mapping and Interpretation

Figure 2: Stakeholder mapping in Dresden and Interpretation Table



Interpretation for Dresden

code	Type of stakeholder	Area of interest	Actor roles							POWER	SUPPORT	ROLE	Key Actor Group
			Initiating	Steering and coordination	Implementing	Mediating	Financially contributing	Specialist support	Land owner	Ability to influence decision making.	For urban stream revitalisation.	Total sum of roles.	
D01	Sectoral agencies	Local	yes	yes	yes	yes	no	yes	no	5	3	5	Influencer
D02	Sectoral agencies	Local	yes	yes	yes	yes	no	yes	no	4	3	5	Influencer
D03	Sectoral agencies	Local	yes	yes	no	yes	yes	yes	no	3	4	5	Ally
D04	Sectoral agencies	Local	yes	yes	no	yes	yes	yes	no	4	3	5	Ally
D05	Small and medium enterprises	Regional	no	no	yes	no	no	yes	no	3	3	2	Marginal Actor
D06	Small and medium enterprises	Regional	no	yes	yes	no	no	yes	no	3	4	3	Ally
D07	Public authorities	Local	no	yes	no	yes	no	yes	no	2	4	3	Marginal Actor
D08	Sectoral agencies	Local	no	yes	no	yes	no	yes	no	3	3	3	Marginal Actor
D09	Interest groups, NGOs	Local	no	yes	no	yes	no	yes	no	3	4	3	Ally
D10	Public authorities	Local	no	yes	no	yes	no	yes	no	3	4	3	Marginal Actor

In Dresden (see Figure 2), the stakeholder landscape shows that D01 and D02 are central influencers, combining high power with multiple key roles such as initiating, steering, implementing, and mediation. These actors are pivotal in driving project decisions and coordinating activities.

Allies (D03, D04, D06, D09) exhibit moderate to high support and perform several operational or advisory roles, contributing actively to project implementation and providing expertise in specific thematic areas.

Marginal actors (D05, D07, D08, D10) have lower power or fewer roles, and while they are involved in certain activities, their influence on overall project decision-making is limited. However, they may still be important for localized engagement or specialized contributions.

The bubble chart (Figure 1) combined with the table clearly illustrates these distinctions: bubble size reflects the number of roles, while positions on the power-support axes indicate influence and engagement. This integrated view allows identification of key actors, potential gaps, and strategic partners for effective project management in Dresden.

Key Stakeholder Groups

The dataset identifies key stakeholders in the project for the given city, grouped by stakeholder type and area of interest. Sectoral agencies are the most represented category, followed by small and medium enterprises, public authorities, and interest groups or NGOs. Stakeholders vary in the number of roles they perform, thematic areas they focus on, and expertise they contribute, highlighting the multidimensional engagement required for project implementation. The accompanying table provides a detailed overview of each stakeholder's roles, thematic focus, and expertise.

Stakeholder Power and Support Distribution

Stakeholder positions in the bubble chart (Figure 1) show the relative distribution of **power** (X-axis) and **support** (Y-axis). Bubble size represents the **number of roles each actor holds**, allowing identification of multi-role actors. Stakeholders such as D01 and D02 combine high power with multiple roles, indicating central influence in project decision-making and coordination. Other actors, including D03 and D06, demonstrate moderate power but high support, reflecting active engagement in specific operational or advisory capacities.

Key Actors: "Influencers", "Allies", "Blockers", "Marginal Actors"

Analysis of power, support, and roles allows classification of stakeholders into functional groups:

- **Influencers**: High power and high support (e.g., D01, D02), often involved in initiating, steering, and mediating the project.
- **Allies**: Moderate power but high support (e.g., D03, D06, D09), contributing specialized expertise or assisting in implementation.
- **Blockers**: Low support or conflicting interests (not prominent in this dataset, but could include local actors with limited engagement).
- **Marginal actors**: Low power and/or limited roles (e.g., D07, D10), contributing minimally to decision-making but potentially affected by project outcomes.

Interpretation
Overall, the combination of tables and bubble charts illustrates the **distribution of stakeholder influence, engagement, and expertise** across the project in each city. Key actors, often sectoral agencies, are positioned centrally with multiple roles and thematic focus, while other stakeholders provide specialized support or localized engagement. The dataset and visualizations together allow for identifying strategic partners, gaps in stakeholder involvement, and potential areas for targeted engagement to ensure project success.

3.1.2 Narrative Analysis of Stakeholer Dynamics

Dresden – Stakeholder Landscape: Key Highlights

- **Institutional actors possess significant procedural authority,** but their support for revitalisation is often pragmatic and moderated by administrative constraints rather than driven by strong normative ecological commitments.
- **Professional experts strongly advocate biodiversity-oriented, integrated solutions,** yet their influence remains advisory, highlighting structural barriers related to legal frameworks, funding instruments and time pressures in urban development.
- **Community-level stakeholders show high normative support and social commitment,** but lack formal decision-making power, resulting in a governance system where socially valued outcomes depend on institutional willingness to incorporate participatory approaches.

Urban stream revitalisation in Dresden is embedded within a governance system characterised by a relatively strong institutional infrastructure, with multiple sectoral agencies, municipal departments and professional organisations involved in initiating, coordinating and implementing restoration activities. Core municipal actors take responsibility for project initiation, strategic guidance and procedural management, often operating within established administrative frameworks that regulate land availability, subsidies and permitting. These actors demonstrate notable procedural power, though their support is frequently pragmatic rather than explicitly transformative, constrained by competing priorities, statutory obligations and concerns about feasibility.

A second cluster of municipal actors assumes responsibility for financing and organisational steering of restoration activities. While supportive of revitalisation, these actors frame their engagement through administrative rationality and long-term maintenance responsibilities rather than advocacy for ecological innovation. Supportive attitudes are present, yet often moderated by technical risk, regulatory complexity and the need to ensure multi-functional benefits such as flood safety, recreation and urban quality.

Private-sector experts, planners and engineering firms contribute specialised technical knowledge in design, ecological restoration and implementation. Their influence is advisory and contingent, as they lack formal decision-making authority but can shape project options, design quality and professional discourse. They tend to emphasise holistic, biodiversity-oriented concepts and highlight structural obstacles, including insufficient regulatory tools, restrictive funding schemes and pressures to accelerate development timelines.

Community-level and civil-society actors occupy positions of low formal power but high discursive support, framing revitalisation as a tool for neighbourhood improvement, social cohesion and climate-sensitive urban development. These actors promote inclusive, participatory approaches and highlight the social value of green and blue spaces, although their influence depends on institutional receptiveness.

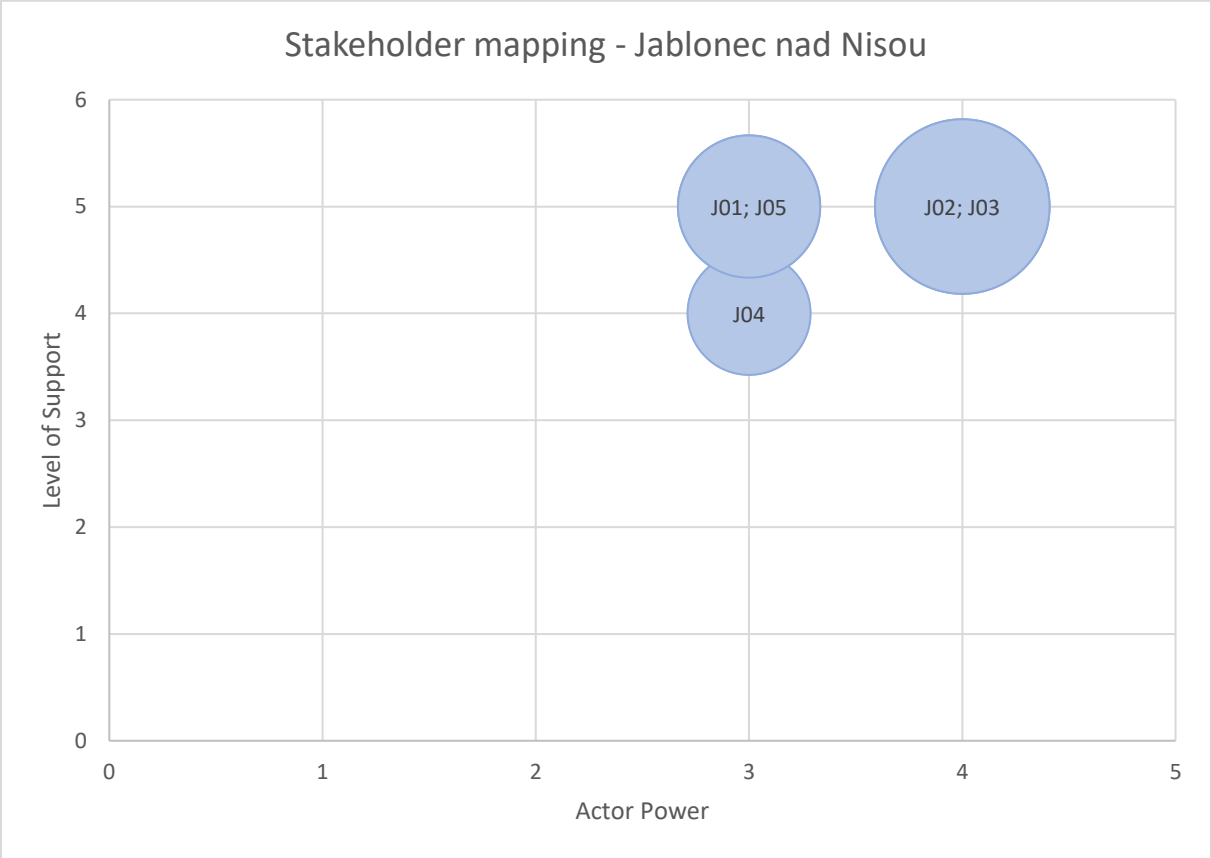
Across the network, support for revitalisation is broadly positive, but distributed asymmetrically: political-administrative actors hold power with cautious support, experts hold knowledge with moderate influence, and community actors hold motivation with minimal authority. This produces a

system where ecological innovation is possible, but contingent on negotiation, institutional alignment and the availability of long-term resources.

3.2 Jablonec nad Nisou – Stakehodler Analysis

3.2.1 Stakeholder Mapping and Interpretation

Figure 3: Stakeholder mapping in Jablonec nad Nisou and Interpretation Table



code	Type of stakeholder	Area of interest	Actor roles							POWER	SUPPORT	ROLE	Key Actor Group
			Initiating	Steering and coordination	Implementing	Mediating	Financially contributing	Specialist support	Land owner	Ability to influence decision making.	For urban stream revitalisation.	Total sum of roles.	
J01	Public authorities	Local	yes	yes	no	yes	no	yes	no	3	5	4	Ally
J02	Public authorities	Local	yes	yes	yes	yes	yes	no	yes	4	5	6	Influencer
J03	Public authorities	Local	yes	yes	yes	yes	yes	no	yes	4	5	6	Influencer
J04	Public authorities	Regional	no	yes	no	yes	no	yes	no	3	4	3	Ally
J05	Research organisations	National	no	yes	yes	yes	no	yes	no	3	5	4	Ally

In Jablonec nad Nisou, the stakeholder landscape (see Figure 3) is dominated by public authorities, complemented by a national research and education institution. J02 and J03 are central influencers, combining high power with active engagement across multiple roles including initiation, steering, implementation, and mediation. They are key drivers in decision-making and project coordination.

Other stakeholders, including J01, J04, and J05, act as allies, providing strong support, specialized expertise, or operational contributions. Their influence is moderate but their engagement ensures effective implementation and knowledge input. The bubble chart, together with the accompanying table, visualizes these relationships: bubble size reflects the number of roles, while position on the power-support axes indicates relative influence and support, highlighting strategic actors and potential engagement gaps within the city.

Key Stakeholder Groups

The key stakeholders identified in Jablonec nad Nisou include primarily **public authorities** and a **national research and education organization**. Stakeholders vary in the number and type of roles they perform, their thematic focus, and their expertise. Public authorities are engaged in multiple operational and coordination roles, while the research organization contributes specialized expertise. The accompanying table details each stakeholder's roles, topic focus, and expertise.

Stakeholder Power and Support Distribution

Stakeholders are positioned in the bubble chart according to **power** (X-axis) and **support** (Y-axis), with bubble size representing the **number of roles performed**. High-power actors J02 and J03 occupy central positions, reflecting strong influence in project decision-making and coordination. Other stakeholders such as J01, J04, and J05 exhibit moderate to high support, contributing actively to implementation and providing technical or thematic expertise.

Key Actors ("Influencers", "Allies", "Blockers", "Marginal Actors")

Based on power, support, and roles:

- **Influencers:** J02 and J03, high power and support, pivotal in initiation, steering, and coordination.
- **Allies:** J01, J04, and J05, moderate power but high support, contributing in specific roles or providing expertise.
- **Blockers / Marginal Actors:** No clear blockers are present; all stakeholders are engaged at least moderately in the project.

Interpretation

The combination of bubble charts and tables demonstrates the distribution of stakeholder influence, engagement, and expertise in Jablonec nad Nisou. Influencers are central to decision-making and coordination, while allies support implementation and provide specialized knowledge. The visual and tabular representation allows identification of strategic actors, engagement gaps, and potential areas for targeted stakeholder involvement.

3.2.2 Narrative Analysis of Stakeholer Dynamics

Jablonec nad Nisou – Stakeholder Landscape: Key Highlights

- **High political commitment enables strategic prioritisation of revitalisation,** with nature-based solutions embedded into urban development agendas and supported by resource mobilisation and inter-institutional negotiation.
- **Administrative capacity facilitates integration of ecological goals into planning,** yet implementation is constrained by fragmented ownership, infrastructure-related restrictions and reliance on external authorities holding regulatory and financial power.
- **Expert and regional actors provide strong professional support that shapes design quality,** but their influence remains largely indirect, reflecting limited institutional mandates and conservative sectoral cultures that slow systemic change.

Urban stream revitalisation in Jablonec nad Nisou is shaped by a governance environment characterised by unusually high political commitment, cross-sectoral professional engagement and strategic integration into municipal planning processes. Revitalisation is conceptualised not merely as an environmental measure, but as a tool for urban transformation supporting ecological restoration, climate adaptation and the improvement of public space. Watercourses are framed as structuring elements of the urban landscape, with potential to enhance microclimate, provide everyday recreational opportunities and strengthen local identity.

Administrative actors integrate revitalisation goals into strategic and spatial planning, mediating between multiple institutions and landowners. Their role is primarily coordinative, aiming to reduce barriers posed by fragmented ownership, technical infrastructure and regulatory constraints. Despite high motivation, their influence is limited by the distribution of decision-making authority, which remains dispersed across external institutions controlling key assets and approvals.

Political actors demonstrate explicit and sustained support for nature-based solutions, embedding river revitalisation into the local development agenda. Political ownership has translated into prioritisation of projects, mobilisation of resources and proactive negotiation with higher-level authorities. However, political capacity to implement is conditional on alignment with external actors, particularly in matters of financing, risk allocation and regulatory compliance.

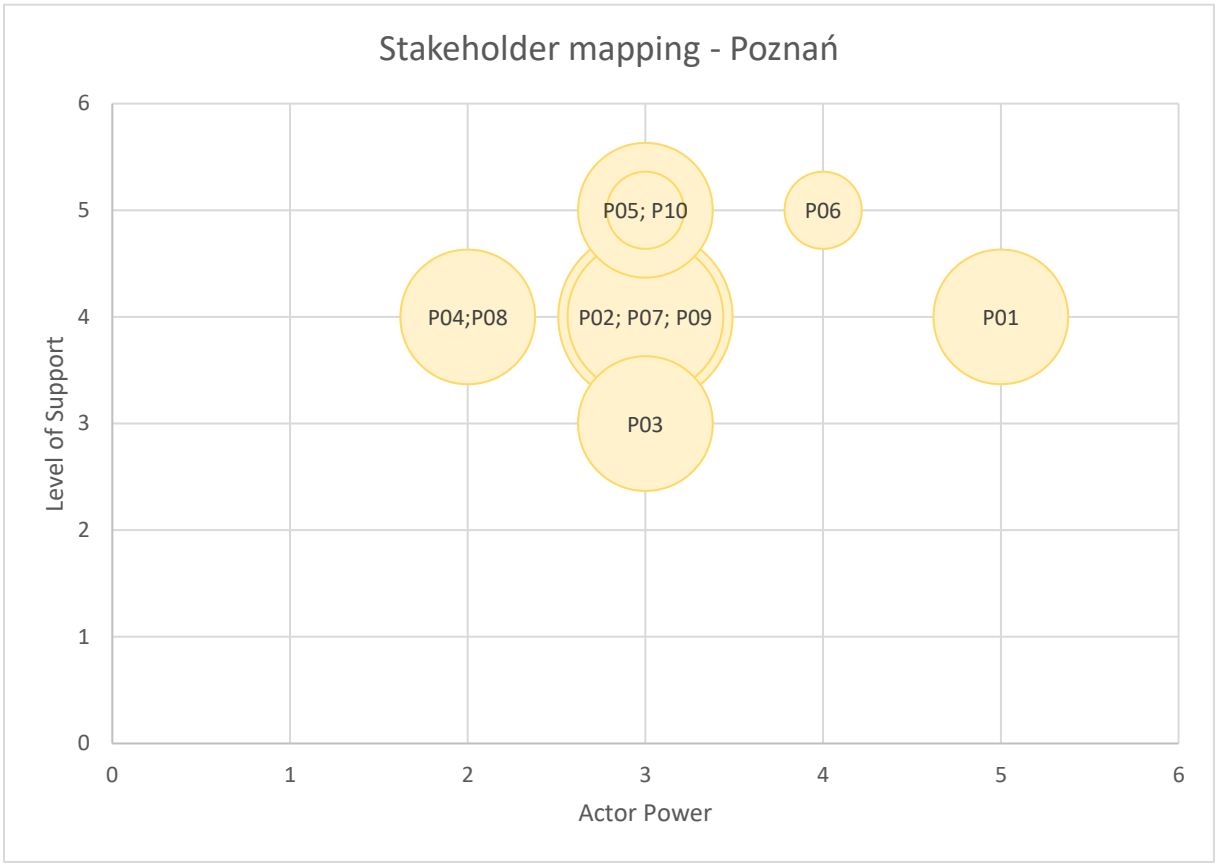
Regional environmental authorities and specialised professionals contribute expert knowledge that shapes design standards, ecological requirements and methodological development. Their influence is predominantly indirect, exercised through advisory processes, technical studies and professional capacity building. These actors perceive urban revitalisation as an opportunity to demonstrate best practice and stimulate wider uptake of nature-based approaches, yet face structural constraints stemming from limited institutional mandates and conservative professional cultures.

Overall, the governance landscape exhibits a strong convergence of ecological, social and spatial objectives, accompanied by a pragmatic recognition of institutional barriers. Progress relies on sustained cross-sectoral cooperation, strategic integration of ecological goals into urban planning and negotiated alignment between municipal ambition and external regulatory and ownership frameworks.

3.3 Poznań - Stakehodler Analysis

3.3.1 Stakeholder Mapping and Interpretation

Figure 3: Stakeholder mapping in Poznan and Interpretation Table



code	Type of stakeholder	Area of interest	Actor roles							POWER	SUPPORT	ROLE	Key Actor Group
			Initiating	Steering and coordination	Implementing	Mediating	Financially contributing	Specialist support	Land owner	Ability to influence decision making.	For urban stream revitalisation.	Total sum of roles.	
P01	Sectoral agencies	Local	no	yes	yes	no	no	yes	no	5	4	3	Influencer
P02	Interest groups, NGOs	Local	yes	no	yes	yes	no	yes	no	3	4	4	Ally
P03	Sectoral agencies	Local	no	yes	yes	no	no	yes	no	3	3	3	Influencer
P04	Individuals, general public	Local	yes	no	no	yes	no	yes	no	2	4	3	Marginal Actor (supportive)
P05	Interest groups, NGOs	Regional	no	no	no	yes	no	no	no	3	5	1	Ally
P06	Public authorities	Regional	no	yes	no	no	no	no	no	4	5	1	Influencer
P07	Public authorities	Local	no	no	no	no	no	no	no	3	4	0	Ally
P08	Public authorities	Local	no	no	no	no	no	no	no	2	4	0	Marginal Actor (supportive)
P09	Infrastructure and (public) service providers	Local	no	yes	yes	yes	yes	no	yes	3	4	5	Ally
P10	Interest groups, NGOs	Local	yes	no	no	no	yes	yes	no	3	5	3	Ally

The stakeholder landscape in Poznań is characterised by a combination of sectoral agencies, local and regional public authorities, civil-society organisations, infrastructure and service providers, and the general public. Public authorities and sectoral agencies hold the greatest decision-making power, particularly in strategic steering, coordination and planning, while NGOs contribute substantially to mediation, environmental issues, and community-based initiatives. Infrastructure and service providers play an important operational role, especially in implementing and maintaining built assets. The general public shows moderate influence but provides consistent support across socially and environmentally oriented topics.

The distribution of power and support indicates a relatively cooperative governance environment. High-power actors (e.g., sectoral agencies and regional authorities) function as key influencers shaping project direction, whereas NGOs often act as allies who reinforce public acceptance and thematic expertise—particularly in environmental and social domains. Only a limited number of actors exhibit low power and low engagement, meaning that potential blockers are minimal; most low-power actors in Poznań fall into the category of marginal but supportive participants. Overall, stakeholder

dynamics in Poznań suggest favourable conditions for participatory planning and cross-sectoral collaboration.

Key Stakeholder Groups in Poznań

Poznań's stakeholder landscape consists of sectoral agencies, local and regional public authorities, NGOs and interest groups, infrastructure and service providers, and the general public. Public institutions hold core planning and regulatory responsibilities, NGOs provide environmental and social expertise, service providers influence infrastructure delivery, and citizens contribute local knowledge and community engagement.

Stakeholder Power and Support Distribution

Power is concentrated primarily among sectoral agencies and regional authorities, while NGOs, local authorities, and infrastructure providers hold medium power but consistently high support. Low-power actors, including the public, remain supportive and engaged. Overall, support levels are strong across groups, indicating a cooperative environment with minimal opposition to municipal initiatives.

Key Actor Categories

Sectoral agencies and regional authorities (P01, P03, P06) function as Influencers with the greatest strategic impact. NGOs, local authorities, and service providers (P02, P05, P07, P09, P10) act as Allies, offering expertise and implementation capacity. No actors fit the Blocker category, while the public and some local authorities (P04, P08) are Marginal Actors whose limited power is offset by strong support.

Interpretation

Overall, Poznań's stakeholder constellation suggests a highly collaborative governance environment in which strong institutional leadership is complemented by supportive civil-society and service actors. The absence of blockers and the prevalence of allied and supportive groups indicate favourable conditions for coordinated planning and community-oriented development.

3.3.2 Narrative Analysis of Stakeholer Dynamics

Poznań - Stakeholder Landscape: Key Highlights

- **Restoration is strongly supported across actor groups,** yet high formal authority is concentrated in regional agencies and municipal service providers, producing a structurally centralised decision-making environment.
- **Expert and NGO actors contribute substantial hydrological and ecological knowledge,** but operate through persuasion rather than authority, relying on evidence-based advocacy to influence planning and investment processes.
- **Neighbourhood-level actors and landholders shape on-the-ground feasibility,** mediating community acceptance and spatial constraints, and linking ecological objectives with social value, amenity and local identity.

The governance landscape surrounding urban stream restoration in Poznań is characterised by a multi-level configuration of regional water authorities, municipal service providers, private experts, civil-society organisations and community-based actors. Regional agencies hold the highest formal authority, particularly regarding permits, ownership and procedural control over water resources. They demonstrate strong support for restoration, but frame it primarily through hydrological regulation, retention and risk prevention, stressing that ecological ambitions are conditioned by urban constraints, resource limitations and statutory obligations.

At the municipal level, public companies operating in stormwater and blue-green infrastructure occupy influential positions due to their control over investment budgets, technical documentation and implementation processes. These actors combine high support with substantial capacity to shape priorities, scope and timing, and are notable for advancing nature-based solutions as legitimate responses to flooding, drought and urban liveability challenges. Their agenda is complemented by sectoral experts offering hydrological, ecological and engineering knowledge. While advisory rather than decisional, these actors provide evidence, modelling and international references that strengthen the legitimacy of restoration initiatives and broaden their strategic framing.

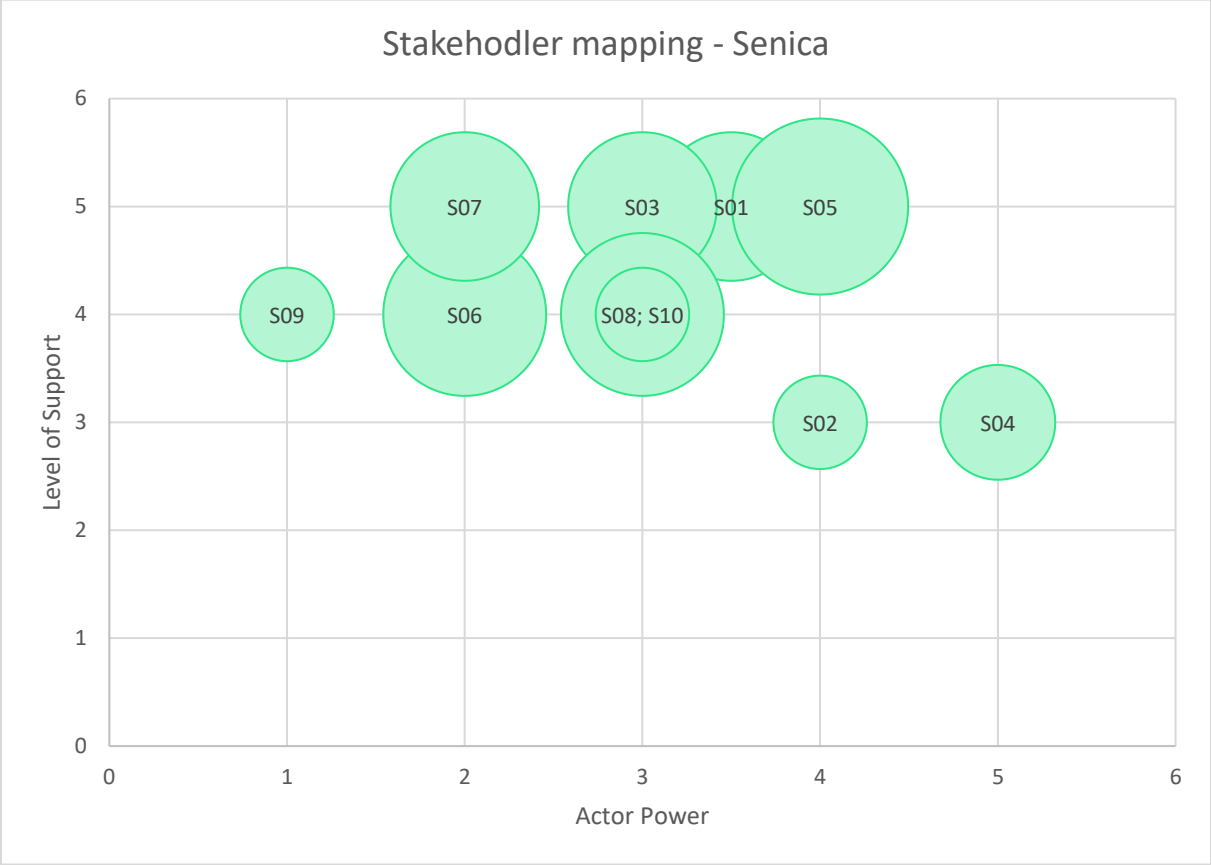
Local civil-society actors and neighbourhood representatives operate with low formal power, but high normative support. Their activities range from advocacy, public communication and participatory engagement to providing ecological knowledge and monitoring. They articulate restoration in social terms: well-being, microclimate, educational value; and act as intermediaries between expert agendas and everyday experience. Housing cooperatives and estate-level institutions play a particularly significant role due to their land ownership and managerial responsibilities, shaping feasibility at the site level and mediating resident concerns.

Overall, the governance landscape reveals a strong pro-restoration orientation but asymmetries between statutory authority, financial control, expertise and local commitment. Decision-making is concentrated in regional and municipal service providers, while civil society supplies motivation, public legitimacy and detailed ecological knowledge. Implementation potential depends on aligning these capacities, overcoming regulatory rigidity and integrating hydrological priorities with place-based community interests.

3.4 Senica – Stakehodler Analysis

3.4.1 Stakeholder Mapping and Interpretation

Figure 3: Stakeholder mapping in Senica and Interpretation Table



code	Type of stakeholder	Area of interest	Actor roles							POWER	SUPPORT	ROLE	Key Actor Group
			Initiating	Steering and coordination	Implementing	Mediating	Financially contributing	Specialist support	Land owner	Ability to influence decision making.	For urban stream revitalisation.	Total sum of roles.	
S01	Small and medium enterprises	International	yes	yes	yes	yes	no	yes	no	3,5	5	5	**Allies**
S02	Public authorities	Local	no	no	no	yes	no	yes	no	4	3	2	**Influencers**
S03	Research organisations	National	yes	yes	yes	yes	no	yes	no	3	5	5	**Allies**
S04	Public authorities	National	no	no	yes	no	no	yes	yes	5	3	3	**Influencers**
S05	Public authorities	Local	yes	yes	yes	yes	yes	yes	yes	4	5	7	**Influencers**
S06	Interest groups, NGOs	Local	yes	yes	yes	yes	no	yes	yes	2	4	6	**Allies**
S07	Interest groups, NGOs	Local	yes	yes	yes	yes	no	yes	no	2	5	5	**Allies**
S08	Public authorities	Local	yes	yes	yes	yes	no	yes	yes	3	4	2	**Allies**
S09	Research organisations	Local	no	no	yes	yes	no	no	no	1	4	2	**Marginal Actors**
S10	Public authorities	National	no	yes	no	no	no	yes	no	3	4	6	**Allies**

Based on their power–support profiles, national and local public authorities with strong formal competencies (S02, S04, S05) serve as the primary Influencers, shaping strategic agendas and regulatory frameworks. Medium-power but highly supportive actors—including SMEs, NGOs, and research institutions (S01, S03, S06, S07, S08, S10)—function as Allies, strengthening legitimacy, operational capacity, and expert knowledge within planning and environmental initiatives. No actors demonstrate the combination of high power and low support characteristic of Blockers, indicating low conflict potential. Low-power but supportive institutions such as S09 operate as Marginal Actors, contributing specialised input while exerting limited influence on decision-making. This distribution suggests a cooperative governance environment conducive to coordinated development in Senica.

Key Stakeholder Groups in Senica

Senica's stakeholder system comprises public authorities at local and national levels, small and medium enterprises, NGOs, research and educational institutions, and community organisations. Public authorities dominate statutory competencies in planning, regulation, and infrastructure, while SMEs contribute economic and innovative capacities. NGOs and research institutions provide thematic expertise, social advocacy, and knowledge-based support to environmental and community-oriented initiatives.

Stakeholder Power and Support Distribution

Power in Senica is concentrated within national and local public authorities (S02, S04, S05), followed by SMEs and research institutions with moderate influence (S01, S03, S08, S10). Support levels are generally high across all groups, with the strongest backing from SMEs, NGOs, and educational actors (S01, S03, S06, S07), and no significant opposition detectable. Even low-power actors such as S09 show strong support, indicating a cooperative and pro-development stakeholder climate.

Key Actor Categories

High-power, strategically influential actors—national and local authorities (S02, S04, S05)—constitute Senica's Influencers. SMEs, NGOs, and research institutions with medium power and high support (S01, S03, S06, S07, S08, S10) function as Allies that reinforce implementation, social legitimacy, and expert input. No stakeholders exhibit high power combined with low support, indicating the absence of Blockers. Low-power but supportive entities, including research bodies such as S09, serve as Marginal Actors.

Interpretation

Overall, the stakeholder configuration in Senica reflects a strongly collaborative governance environment in which public authorities provide strategic leadership, while SMEs, NGOs, and research organisations offer complementary expertise and broad community support. The consistent absence of blockers and the predominance of allied and supportive actors suggest favourable institutional conditions for cross-sectoral cooperation, participatory decision-making, and effective implementation of development initiatives across environmental, educational, and infrastructural domains.

3.4.2 Narrative Analysis of Stakeholer Dynamics

Senica – Stakeholder Landscape: Key Highlights

- **Urban stream revitalisation is strongly supported across municipal and national authorities,** yet formal decision-making power is concentrated in the city administration and state water management enterprises, creating a centralised governance environment.
- **Academic experts, consultancies, NGOs, and schools provide essential technical knowledge, advocacy, and educational input,** but influence project outcomes primarily through persuasion and evidence-based recommendations rather than formal authority.
- **Local residents, flood-protection officers, and landholders shape practical implementation,** negotiating spatial constraints, safety requirements, and community acceptance, while linking ecological goals with social benefits, recreation, and local identity.

The stakeholder landscape in Senica is characterised by a comparatively high degree of local institutional engagement, complemented by specialised national expertise and selective international inputs. Municipal actors occupy a structurally central position in agenda-setting, coordination and implementation, reflecting strong local ownership over revitalisation processes and the capacity to mobilise resources, negotiate regulatory procedures and shape project trajectories. Their roles are not merely administrative but strategically oriented towards integrating environmental, infrastructural and social objectives, supported by professionalised internal capacities in planning, flood protection and environmental management.

National public authorities form a parallel governance layer with substantial formal power over permitting, infrastructure management and safety regulation. Although their involvement is not typically initiatory, they are indispensable for project authorisation, technical feasibility and infrastructural maintenance. Their orientation towards risk management, hydraulic engineering and multi-level resource governance creates both enabling and constraining conditions: while they provide expertise and institutional authority, their mandates and procedural regimes can limit experimentation and temporally constrain implementation dynamics.

The presence of academic and specialist actors introduces knowledge-based support that shapes technical designs, navigates regulatory complexities and legitimises ecological objectives. Their contributions, however, remain advisory and episodic rather than structurally embedded, reflecting the limited institutionalised linkages between research and local planning systems. Civil society organisations add an advocacy-driven dimension, exerting pressure for ecological quality, accountability and participatory responsiveness, while educational institutions mobilise awareness-raising functions and long-term cultural change, albeit with minimal direct influence over formal decision-making.

Overall, Senica's stakeholder configuration can be described as a locally-driven governance system supported by national authorities and expert knowledge, but characterised by procedural fragmentation, differentiated power asymmetries and reliance on individual professional leadership. Notably, positive stakeholder attitudes indicate a favourable context for ecological interventions, yet

sustained progress depends on navigating institutional dependencies, infrastructural constraints and the limited formal authority of non-governmental and knowledge actors.

3.5 Cross-Case Stakeholder Comparison

Comparative overview of actor types

Across the four case cities, stakeholders can be broadly categorised into municipal authorities, national or regional regulatory agencies, technical and academic experts, private-sector consultants, civil society organisations, and local residents. Municipal actors consistently serve as central coordinators and implementers of urban stream revitalisation projects, combining strategic planning capacities, land ownership, and administrative authority. National and regional agencies, while less involved in day-to-day initiation, hold formal power over permitting, infrastructure management, and flood protection, thus functioning as critical enablers or constraints. Experts and consultancies provide technical knowledge and methodological guidance, whereas NGOs, educational institutions, and local activists contribute advocacy, awareness-raising, and community mobilisation. Across all cases, the distribution of actor types reflects a mix of formal authority, professional expertise, and socio-political influence.

Cross-case comparison of power

High formal power is concentrated in municipal authorities in Jablonec, Dresden, and Senica, whereas in Poznań regulatory agencies hold the strongest statutory authority over watercourses and permits. Technical and expert actors, including hydrologists, landscape architects, and academic researchers, generally possess medium to moderate power, reflecting their capacity to shape decisions indirectly through advisory roles rather than direct decision-making. Civil society and local residents typically occupy low-power positions, yet their ability to influence local acceptance, knowledge dissemination, and public support is critical for project success. The cross-case comparison shows that cities with strong municipal leadership (e.g., Jablonec, Senica) combine high local power with the capacity to coordinate multi-level governance actors, whereas cities dominated by statutory agencies (e.g., Poznań) rely on negotiation and advocacy to align municipal and expert priorities.

Cross-case comparison of support

Support for urban stream revitalisation is broadly positive across all actor groups and cities, with the highest levels of enthusiasm observed among municipal champions, technical experts, and engaged NGOs. In Jablonec and Dresden, key municipal actors demonstrate explicit, proactive support that directly drives project implementation. In Poznań and Senica, regulatory authorities maintain generally positive but more cautious or conditional support, balancing ecological objectives with procedural or safety constraints. Local residents and community-based actors consistently show high support, particularly where projects align with amenity, recreation, and social well-being goals.

Identification of stakeholder clusters

High-power/high-support (key allies): Municipal authorities in Jablonec, Dresden, and Senica; selected deputy mayors and municipal project coordinators; some national experts in Senica and Poznań who combine technical knowledge with decision-making influence.

High-power/low-support (potential blockers / conversion targets): National or regional agencies with formal permitting authority that may impose procedural constraints; in some cases, conservative institutional actors who prioritise flood protection or technical feasibility over ecological innovation.

Low-power/high-support (mobilizable advocates): NGOs, civil society groups, academic experts, local activists, and educational institutions across all four cities; they can generate public support, provide technical evidence, and facilitate participatory engagement.

Low-power/low-support (irrelevant): Actors with minimal engagement or interest in urban stream projects, often peripheral municipal staff, passive residents, or organisations whose remit does not intersect with watercourse management.

Interpretation and strategic implications

The comparative analysis highlights the importance of leveraging high-support actors to maximise project momentum, particularly by aligning municipal champions with technical experts and mobilizable advocates. Regulatory agencies represent both a critical enabler and a potential bottleneck; strategic engagement and early consultation can convert cautious authorities into active supporters. Low-power/high-support actors, including NGOs and educational stakeholders, should be systematically integrated into communication, co-design, and monitoring processes to maintain public legitimacy and social acceptance. Finally, the analysis underscores the need for multi-level coordination, balancing formal authority, expertise, and community engagement to navigate procedural constraints and ensure successful, sustainable urban stream revitalisation across differing governance landscapes.

4. INSTITUTIONAL ANALYSIS

4.1 Dresden - Institutional Analysis

Dresden – Institutional Analysis: Key Highlights

- **Barriers**
  - Long and complex administrative procedures (multi-level planning, water-law approvals) causing delays of years.
  - Land scarcity and fragmented ownership (e.g., Kaitzbach corridor blocked by private developments).
  - Unstable or insufficient funding, making even approved projects difficult to implement.
  - Secondary barriers: maintenance-driven cost minimisation, nature-conservation trade-offs, socio-cultural resistance.
- **Enablers**
  - Targeted funding (EU LIFE, state subsidies) and legislative changes (Saxon Water Act).
  - Community engagement, pilot projects, and clear communication of multi-benefit outcomes.

4.1.1 Barriers

4.1.1.1 Most significant barriers

Interviewees in Dresden consistently described three closely connected barriers that have the strongest impact on urban stream restoration: long and complex administrative procedures, competition for limited land within the urban fabric, and unstable or insufficient funding. Administrative processes-especially water-law approvals and multi-level planning requirements-were repeatedly characterised as excessively slow and unpredictable. Respondents explained that procedures often take many years, forcing repeated resubmissions and causing costly delays. As one interviewee put it, “the water law procedures… sometimes slow down renaturation measures by years” (D02), while another recalled that “planning, approval… 15 years” (D03). These prolonged processes increase project costs, for example when species reports expire or prices change during lengthy waiting periods, and they gradually drain organisational momentum.

Land scarcity and fragmented ownership add another decisive barrier. Several respondents referred to the Kaitzbach corridor as a clear illustration of this problem, where restoration has been repeatedly stalled by private developments, car parks and other urban uses that occupy the necessary space. One interviewee described the situation vividly: “private developers on the left and right… car park… no planning solution for the course” (D01, D06). Without sufficient physical space, even well-designed concepts for daylighting or extending naturalised sections cannot move forward.

Funding instability forms the third major constraint. Interviewees noted cuts to previous state programmes and the lack of long-term financial security, making even approved projects difficult to

deliver. One respondent pointed to the end of earlier Free State funding (D02), while another stressed the need for more resilient financing structures (D09). When combined, these barriers-administrative delays, land competition and financial uncertainty-reinforce one another, resulting in prolonged stalemates and lost opportunities for ecological improvement.

4.1.1.2 Additional, less frequent barriers

Several less dominant but still consequential barriers also emerged. One relates to maintenance logic and cost minimisation within responsible authorities. Because maintenance departments typically seek to reduce long-term labour and asset responsibilities, they may favour hardened channels over more complex naturalised forms, a tendency noted by interviewees such as D05. Another challenge involves nature-conservation trade-offs. Respondents explained that new water biotopes often require relocating or compensating existing species and habitats, a process that can be procedurally lengthy and expensive. As one interviewee noted, the mitigation steps in such cases are significant (D03).

Socio-cultural challenges also appeared in some districts. Interviewees described resident scepticism, safety concerns and language or cultural barriers as obstacles to inclusive engagement. This was particularly evident in neighbourhoods with lower public participation, where processes risk becoming dominated by expert groups. One respondent warned about “process driven by elitist people…” (D10), while another highlighted language and cultural obstacles (D07). Although these barriers are less frequent, they influence acceptance and can delay or derail projects if not addressed early.

4.1.1.3 Illustrative Cases of Barrier Impact

Respondents offered concrete examples where barriers had a decisive impact on restoration efforts. The most frequently mentioned was the Kaitzbach corridor in the city centre. Interviewees described decades-long discussions repeatedly stalled by land ownership conflicts, competing urban functions and the absence of strong political backing. This case stands as a persistent demonstration of how spatial constraints and planning inertia combine to block daylighting and prevent continuation toward the Elbe (D01, D03, D06).

Another example concerned the Ehrlichbach near the airport and industrial site. Here, a promising opportunity to expose a piped stream was lost when investor timelines demanded rapid site clearance. As one interviewee recounted, political and investor speed ultimately outweighed ecological opportunities, leading to a pragmatic but environmentally limiting relocation of the pipe (D05).

A further illustration comes from the lower reaches of the Priessnitz, where a project was hampered by the regional directorate’s prolonged completeness checks. One respondent described how four years passed without a “completeness” decision, stalling implementation (D04). These cases demonstrate how administrative lag increases costs and reduces the feasibility of projects, while land competition and investor pressures eliminate physical possibilities even when approval processes might eventually succeed.

4.1.1.4 Potential Mitigation Strategies

Interviewees proposed several overlapping strategies for overcoming these barriers. Many stressed the need to streamline administrative procedures and clarify the boundary between maintenance and renaturation. Several respondents called for clearer rules to distinguish necessary ecological development from expansion, arguing that this would enable faster permissions. As one said, “I would

like to see more development and renaturation being allowed in waterway maintenance in order to avoid this" (D02, D03).

Others emphasised the importance of stable and resilient funding mechanisms. Several interviewees recommended reintroducing or securing multi-year funds at state or federal level, supplemented where possible by targeted EU instruments, to provide the planning certainty needed for projects that require long-term investment (D02, D09). Addressing land-access issues was also identified as essential. Respondents suggested that negotiated exchanges, compensation mechanisms and integrated planning-such as linking renaturation with transport or road budgets-could help unlock constrained corridors (D06).

Finally, respondents highlighted the value of participatory and benefit-sharing approaches. They argued that offering residents tangible co-benefits, such as recreational paths or improved accessibility, can build public acceptance, while involving local multipliers and community groups early helps demonstrate positive outcomes and prevent resistance (D01, D07). Interviewees agreed that these measures must be understood as interconnected solutions addressing legal, financial and social dimensions simultaneously.

4.1.2 Enablers

4.1.2.1 Key Supporting Factors

Despite the challenges, respondents identified several enabling factors that support restoration. Targeted funding programmes and EU projects-such as LIFE or earlier state subsidies-were seen as key drivers that provided the financial and political momentum needed to initiate projects. Legislative changes, including the adjustment of the Saxon Water Act, were mentioned as helpful because they place water development alongside maintenance, broaden the mandate for renaturation and improve access to funding (D02). Communication strategies that highlight multiple benefits beyond ecology-such as flood mitigation, recreation or climate adaptation-were described as effective in generating public and investor buy-in (D04, D06). Smaller community-led actions and pilot projects also emerged as important enablers. Respondents noted that weekend student projects or low-barrier maintenance-led activities can produce visible improvements and generate social proof (D03, D01).

4.1.2.2 Examples of good practice

Interviewees pointed to a combination of small, rapid interventions and larger funded projects as useful models. Smaller, maintenance-led improvements along waterways such as the Maltengraben or Leubnitzer Mittelgraben demonstrated the ability to achieve noticeable public impact within short timeframes using existing budgets (D02, D03). On a larger scale, projects supported by external funding programmes, such as Blaues Band or ReBioClim, showcased the value of coordinated, multi-stakeholder approaches. Respondents noted that where strong communication accompanied funding, acceptance increased and institutions built valuable experience (D03, D04). These examples suggest two complementary strategies: using maintenance-compatible measures to generate early momentum and leveraging larger pilots to develop institutional routines and broader visibility.

4.1.2.3 Replicability

Respondents agreed replication is possible but conditional. Key preconditions: (1) adaptation to local context (space/ownership/infrastructure), (2) stable funding and (3) engagement strategies tailored

to local social dynamics. A small pilot that matches local governance capacities and offers tangible resident benefits is more readily replicable than a large daylighting scheme transplanted wholesale from a different urban context (D03, D06).

4.1.2.4 Accelerating and Facilitating Restoration

To accelerate restoration, respondents recommended several measures that together create a more supportive process. Permanent and predictable funding lines were seen as essential for enabling municipalities to manage multi-year projects without interruption (D09). Simplifying administrative procedures for smaller measures-particularly by clarifying the distinction between maintenance and expansion-and improving coordination between municipal departments and approval authorities were viewed as effective ways to shorten waiting times (D02, D04). In addition, interviewees pointed to structured participatory tools and digital engagement platforms, such as Smart City interfaces or neighbourhood mapping, as means to broaden public involvement, reduce reliance on elite-driven processes and build local acceptance (D10, D03).

4.1.3 Conclusion

The analysis of urban stream restoration in Dresden reveals a complex interplay of administrative, spatial and financial constraints that frequently slow or obstruct progress. Lengthy approval procedures, land scarcity and unstable funding emerged as the most significant barriers, often reinforcing one another and resulting in stalled initiatives, rising costs and missed ecological opportunities. Additional obstacles, including maintenance-driven cost minimisation, nature-conservation trade-offs and socio-cultural resistance, further complicate implementation, particularly where engagement is low.

At the same time, the interviews highlight several enablers that offer meaningful pathways forward. Targeted funding programmes, supportive legislative changes, strong communication of multi-benefit outcomes and strategically designed pilot projects can all help build momentum and acceptance. Respondents stressed that accelerating restoration requires systemic, coordinated approaches-streamlined procedures, predictable financing, negotiated land access and genuine participatory engagement-embedded within stable governance structures. Only through such integration can restoration efforts in Dresden become more consistent, scalable and resilient over time.

4.2 Jablonec nad Nisou - Institutional Analysis

Jablonec nad Nisou – Institutional Analysis: Key Highlights

- **Barriers**
  - Property-rights and fragmented land ownership, consistently blocking projects.
  - Dense technical infrastructure limiting space for naturalised channels.
  - Administrative rigidity and conservative river management focused on flood safety over ecology.
  - Secondary: financial limits, nature-protection conflicts, low public awareness, limited interdisciplinary planning.
- **Enablers**
  - Strong municipal leadership and planning capacity, with early spatial reservation.
  - National environmental funds and methodological support (e.g., AOPK).
  - Replicable good practices in smaller towns (e.g., Chrudim, Olomouc, Jesenice).

4.2.1 Barriers

4.2.1.1 Most Significant Barriers

Across the interviews, three major barriers clearly emerged as the dominant constraints to implementing urban stream restorations: (1) property-rights and land-ownership conflicts, (2) technical infrastructure, and (3) administrative rigidity and institutional misalignment, particularly involving River basin authority (the river basin authority).

The **property-rights barrier** appears as the strongest and most consistently cited obstacle. Respondents repeatedly emphasised that revitalisation projects most frequently collapse once they reach the stage of land acquisition or ownership negotiations. As one expert argued, “If any planned revitalisation fails, it is usually because of property-law complications” (J05). J01 provided multiple examples where objections from private owners prevented the city from widening or relocating the channel: “a private owner disagreed and the city could not proceed” (J01). J04 similarly underlined that “negotiations with landowners are always a major obstacle” (J04).

Closely linked is the barrier of **technical infrastructure**, especially dense underground networks typical of urban environments. J01 highlighted that utilities were the decisive limiting factor in multiple projects: “the most important obstacles are technical infrastructure and ownership relations” (J01). Underground systems often restrict available space for naturalised channel forms, and utility managers may resist relocation due to cost, risk, or organisational habits.

A third key barrier is **administrative conservatism and institutional fragmentation**. Respondents described River basin authority as a necessary yet challenging stakeholder, whose mandate is primarily oriented toward flood safety and risk avoidance rather than ecological restoration. According to J02, “administrative barriers formulated especially by River basin authority are systemic” (J02). J05 described technical conservatism among water engineers-although decreasing-as an additional barrier: “The conservative part of the engineering profession is still cautious” (J05). J04 emphasised the lack of awareness and prioritisation on the part of river managers, who “have

other tasks than revitalisation and justify their decisions by stating that their job is to drain water" (J04).

Together, these barriers form a mutually reinforcing system: the physical constraints of infrastructure and property boundaries are amplified by institutional processes that are slow, risk-averse, and insufficiently aligned with restoration objectives.

4.2.1.2 Additional, Less Frequent Barriers

A smaller but noteworthy set of secondary barriers also emerged. The first is financial and budgetary limitations, especially at the early planning stages. J04 observed that "financing can also be an obstacle" (J04), although funding was generally not considered the primary constraint by most interviewees. J05, for instance, felt that in recent years financing has become more accessible through national environmental funds.

Another secondary barrier concerns nature protection regulations, particularly in cases where the presence of protected species complicates permitting. J05 explained that "nature protection sometimes blocks revitalisation even though the long-term biodiversity outcome would be positive" (J05).

In addition, several respondents criticised a lack of professional capacity in urban planning, especially the absence of interdisciplinary teams capable of integrating hydrology, ecology, landscape architecture and urban design. J05 explained that inadequate, generic urban plans often fail to reserve spatial corridors for future restoration: "poor-quality planning blocks revitalisation because the space is not prepared" (J05).

Finally, public awareness and community understanding surfaced as occasional obstacles. J04 described insufficient public demand due to low familiarity with the benefits of ecological restoration: "there is no demand, because people do not perceive it as something positive" (J04).

4.2.1.3 Illustrative Cases of Barrier Impact

Several respondents provided concrete examples in which the above barriers directly prevented or significantly limited restoration efforts.

The case of the Nisa River in Liberec was cited by both J01 and J04 as a clear example where technical infrastructure and property issues stalled or reduced the scale of restoration. J01 explained: "The revitalisation was not realised to the extent possible because the relocation of infrastructure was impossible under buildings, and owners disagreed" (J01). J04 added that the project continues to face zoning and utility constraints: "It keeps running into zoning and the relocation of networks" (J04).

Similarly, J01 discussed an instance in **Nové Město pod Smrkem**, where an outdated accounting procedure at River basin authority demanded that the municipality pay the original 40-year-old construction cost for concrete channel structures: "they wanted to charge €8 million… negotiations took 4–5 years" (J01). Although eventually resolved, the delay illustrates how institutional rigidity can obstruct even well-prepared local initiatives.

J04 described the non-realisation of a project in **Mníšek**, where the municipality withdrew after being informed that post-project maintenance would become its full responsibility: "the river manager frightened the municipality by transferring responsibility for care" (J04). This case shows how management responsibilities-not only construction feasibility-can deter municipalities.

Taken together, these examples demonstrate that multiple barrier types often converge in practice: technical, property, financial, institutional, and managerial concerns interact in ways that amplify complexity and uncertainty.

4.2.1.4 Potential Mitigation Strategies

Despite the significant barriers identified, respondents also offered clear strategies for reducing these obstacles. One consistent theme is the importance of **interdisciplinary planning and early spatial preparation**. J05 stressed that "the most crucial factor is high-quality planning… where cities reserve the necessary space" (J05). Respondents argued that landscape architects, ecologists, and hydrologists must collaborate from the earliest stages, ensuring that revitalisation corridors are integrated into urban plans long before detailed projects begin.

Another frequently mentioned strategy is **public education and stakeholder engagement**. J05 described the need for long-term environmental education, public participation, and transparent communication: "Participation and education of the public are key" (J05). J04 similarly emphasised positive examples and storytelling: "Good examples and showing the before-after history can persuade politicians and citizens" (J04).

A third strategy involves **improved collaboration with river authorities**. J02 proposed that revitalisation should be a co-led process with River basin authority rather than a municipal burden-"I would expect systematic support from River basin authority" (J02). J04 criticised the "alibi" of some river managers and suggested clearer rules for distinguishing between technical safety requirements and nature-friendly solutions.

Finally, several respondents suggested **regulatory and procedural reforms**, such as revising infrastructure protection zones (J01), clarifying responsibility for post-restoration maintenance (J04), and harmonising nature protection with ecological restoration goals (J05).

4.2.2 Enablers

4.2.2.1 Key Supporting Factors

Respondents identified several supportive conditions that facilitate successful restoration. The strongest theme is the role of **skilled municipal leadership and planning capacity**. J05 praised cities where planning teams intentionally create space for ecological functions: "All successful intravilan projects happened because the city prepared the space" (J05).

Another key enabler is the availability of **financial instruments**, particularly national environmental funds. J05 observed that "in recent years financing has become easier through the State Environmental Fund" (J05).

Respondents also noted the importance of **professional standards and methodologies**, especially from organisations like AOPK. J05 mentioned that AOPK's guidelines help municipalities understand how to manage naturalised channels.

Finally, there is a growing base of **public and political support**. J02 stated that revitalisation aligns with the city's political agenda: "Turning attention to watercourses is our political programme" (J02).

4.2.2.2 Examples of Good Practice

Several respondents highlighted exemplary projects demonstrating that high-quality restoration is both feasible and beneficial.

Chrudim was repeatedly mentioned as a strong example (J04, J05). J05 described it as "a fully realised intravilan restoration, well maintained and gradually improved" (J05). Chrudim demonstrates that even small municipalities with limited resources can implement and sustain complex projects.

Other positive cases include **Olomouc**, where respondents praised the creation of a river island (J05), and **Jesenice**, where a newly completed restoration is supported by management guidelines: "a good approach, supported by a maintenance manual for municipal services" (J05).

J02 also highlighted examples where rivers were successfully integrated into public space, showing alternative urban design approaches and multifunctional benefits.

4.2.2.3 Replicability

Respondents generally agreed that successful examples of urban restoration are widely replicable, with some exceptions. J01 stated: "It is applicable almost everywhere, unless extreme contamination prevents any intervention" (J01). J05 agreed, arguing that most spatial and ecological principles transfer well across cities, though scale and complexity vary.

Barriers to replication primarily relate to local constraints-especially property structures, existing infrastructure, and institutional cultures. Nonetheless, many respondents stressed that the conceptual aspects of good practice-interdisciplinary planning, good maintenance, public involvement-are universally relevant.

4.2.2.4 Accelerating and Facilitating Restoration

Interviewees provided multiple ideas on how to streamline and accelerate restoration processes. A frequent suggestion was **reducing the protection zones of technical infrastructure**, which J01 argued are outdated given modern surveying technologies: "the zones no longer make sense when networks can be mapped to centimetres" (J01).

Respondents also recommended **greater institutional support** from River basin authority, including joint project leadership, clearer communication, and more flexibility in assessing ecological measures (J02, J04).

Further ideas included **professional facilitation of public participation**, dedicated planning teams, early spatial reservation in land-use plans (J05), and better public awareness activities.

Overall, respondents believe that acceleration depends on aligning administrative, spatial, and political systems with the ecological objectives of restoration, as well as reducing institutional fear of risk.

4.2.3 Conclusion

The interviews collectively paint a picture of urban stream restoration as a process heavily constrained by physical and institutional structures. The most significant barriers-property rights, technical infrastructure, and administrative rigidity-are deeply embedded in the urban fabric and the

governance system. Secondary barriers, such as limited public awareness or nature-protection conflicts, further complicate implementation.

At the same time, respondents described a set of clear enabling factors: strong municipal leadership, interdisciplinary planning, public participation, and accessible funding. Examples from Chrudim, Olomouc, and Jesenice demonstrate that high-quality revitalisation is achievable, and most respondents believe such examples are widely replicable.

Mitigation strategies focus on better planning, improved cooperation with river authorities, regulatory adjustments, and long-term education. By combining these measures with political commitment and institutional coordination, cities can accelerate and expand restoration efforts, transforming watercourses into ecological, social, and aesthetic assets within the urban landscape.

4.3 Poznań - Institutional Analysis

Poznań – Institutional Analysis: Key Highlights

- **Barriers**
  - Fragmented land ownership along urban streams; one owner can block long stretches.
  - Institutional fragmentation across departments, water authorities, utilities, and planning.
  - Administrative/legal constraints and unclear restoration definitions.
  - Urban spatial constraints: buried streams, historical canalisation, dense infrastructure.
  - Financial limitations and socio-cultural concerns (mosquitoes, safety).
- **Enablers**
  - External funding (EU LIFE, Horizon) and engaged institutions like Aquanet Retencja.
  - Public participation and scientific expertise (hydrological modelling).
  - Successful projects as demonstrations: Mleczna River and Obrzyca stream.

4.3.1 Barriers

4.3.1.1 Most significant barriers

Across the interviews, respondents consistently identified land ownership and institutional fragmentation as the two most fundamental obstacles to urban river restoration in Poznań. These barriers form a structural bottleneck that affects nearly every phase of planning and implementation. The fragmentation of land parcels along urban streams was mentioned repeatedly as the single most recurrent challenge. Restoration requires spatial continuity-space to widen channels, create meanders or introduce riparian buffers-yet plots are often tiny, fenced, and privately owned. As one respondent observed, “one owner can block 10 km of investment” (P01). This extreme subdivision makes integrated hydromorphological work nearly impossible, especially where streams run through dense urban fabric. Several interviewees compared the situation to flood-protection legislation, pointing out that compensation-based land access exists in that domain but not for restoration, leaving ecological improvements without the tools needed to overcome fragmented ownership.

Equally significant is the fragmentation of responsibilities across municipal departments, water authorities, environmental agencies and infrastructure managers. Respondents stressed that departments operate in silos: transportation, planning, green spaces and water utilities each pursue their own agendas, often without coordination. One interviewee explained that “a lack of understanding… and the fragmentation of decision-making between different entities” (P02) leads to conflicting plans, duplicated efforts and stalled approvals. In this environment, even motivated actors struggle to advance restoration because competing priorities-such as cycle paths or parking spaces planned directly over potential restoration sites-override ecological aims (P02, P06).

Administrative and legal constraints further slow progress. Several interviewees pointed to the duration and burden of administrative procedures, particularly permitting under the Water Law, environmental assessments and construction law. According to P03, “lengthy administrative proceedings” make large-scale restoration “difficult to carry out,” often delaying implementation for

years. Respondents also emphasised the absence of a clear legal definition of restoration, which produces inconsistent requirements and uncertainty for planners and investors alike (P05).

Urban spatial constraints compound these difficulties. Historical canalisation and dense urban development mean that many streams are buried, sometimes as deep as 3 metres underground in stormwater systems, making daylighting both technically challenging and expensive (P06). In numerous locations, roads, tram lines, and buildings were constructed directly over former channels, leaving almost no physical room for restoration. As one respondent put it, “urban land is fully utilized” (P07), and only small or isolated fragments remain realistically restorable.

Financial constraints were also repeatedly mentioned. Restoration requires significant upfront investment and long-term maintenance resources. As P04 explained, “the largest financial outlay will be for uncovering the stream, but then there is also the maintenance.” Without stable financial mechanisms, municipalities hesitate to initiate projects that may quickly exceed available budgets or be vulnerable to shifting political cycles.

4.3.1.2 Additional, less frequent barriers

Some barriers were mentioned less frequently but still meaningfully shape restoration prospects. Several interviewees highlighted water-quality issues, particularly polluted stormwater inflows that would immediately degrade restored sections. As P04 noted, polluted discharges from roads require managers to “check the oil separators” before restoration can begin. Socio-cultural concerns also emerged: residents in some districts worried that restored streams would bring mosquitoes, wild vegetation or decreased safety. In one case, residents expressed fear that the area would become “wild and less safe” (P08), while others voiced concerns about basement flooding or damage to nearby infrastructure (P09).

A further barrier relates to political and development pressures. According to P10, political cycles and intensive development interests strongly influence the possibilities for restoration. Valleys such as Górczynka or Główna face threats from new industrial or residential projects, creating what P10 described as a “race” between urbanisation and nature-based solutions. These pressures can accelerate sealing and construction long before restoration proposals reach maturity.

4.3.1.3 Illustrative Cases of Barrier Impact

Respondents provided multiple concrete examples where barriers decisively hindered restoration. Some of the clearest cases relate to conflicts between proposed restoration and other urban projects. P02 and P06 described a situation in which planners prioritised a cycle path over a possible daylighting of a stream. As P02 observed, adherence to the spatial plan meant that “renaturation once again takes a back seat.” This example illustrates how, in the absence of coordinated decision-making, transportation goals override ecological priorities.

Other examples came from the Wierzbak and Junikowski streams. According to P01, long stretches of the Wierzbak are bordered by fences and private gardens extending directly to the stream corridor, making physical restoration impossible. Similar conditions along Junikowski reflect decades of urban development that have effectively closed off any opportunities for ecological improvement.

In Park Rataje, planned restoration along the Piaśnica watercourse ran into direct conflict with pedestrian and bicycle path designs. P06 explained that the route “conflicted with the planned stream restoration,” demonstrating again how sectoral planning can obstruct ecological projects. Polluted inflows also caused delays: in several streams, contaminated stormwater required upstream interventions, such as separator maintenance, before daylighting could proceed (P04). Community resistance further hindered progress in some areas. For example, residents near the Piaśnica expressed concerns about safety and mosquitoes, which stalled project momentum (P08).

4.3.1.4 Potential Mitigation Strategies

Respondents suggested several ways to mitigate the barriers identified. A recurring theme was the need for legislative and administrative reforms, particularly mechanisms allowing compensation-based land access modelled on flood-protection legislation. P01 explicitly argued for such tools to overcome fragmented property structures. Simplifying procedures, clarifying definitions of restoration, and establishing planning rules that elevate ecological considerations were also highlighted as essential for reducing uncertainty.

Many interviewees called for better coordination and integrated planning. The absence of a central coordinating body was seen as a major obstacle, and several respondents proposed catchment-based planning approaches. P03 suggested starting with smaller watercourses and scaling up, while P02 noted that integrating restoration into biodiversity planning helps "gain new allies."

Public engagement and communication were identified as key strategies for reducing socio-cultural barriers. Respondents stressed that early dialogue with residents can transform sceptical communities into partners and that openness to public feedback is crucial. As P09 explained, dialogue allows the investor "to listen to diverse opinions" and adjust designs accordingly.

Finally, several respondents emphasised technical and preparatory measures. In locations with polluted inflows, restoration must begin with pre-cleaning works, such as repairing separators. Interviewees with technical backgrounds, including P05, stressed the importance of hydrological modelling and scientific expertise in building an evidence base that can persuade decision makers.

4.3.2 Enablers

4.3.2.1 Key Supporting Factors

Despite the many barriers, respondents identified several factors that positively influence restoration efforts. External funding-particularly from LIFE, Horizon and other EU programmes-was repeatedly cited as a decisive enabler. The Mleczna River project in Radom, financed under LIFE, was mentioned frequently as evidence that urban stream restoration is feasible in Poland (P07). Respondents emphasised that such projects would not be possible without external funds.

Engaged institutions also play a significant role. Aquanet S.A. and Aquanet Retencja were repeatedly described as key actors capable of co-financing and implementing nature-based solutions. As P06 noted, "the commitment of Aquanet… allocates funds for these investments," making them critical partners in enabling action.

Public support and community engagement were likewise understood as important enablers. Respondents described how grassroots involvement, inventories led by local groups and participatory approaches build legitimacy and reduce the risk of conflict. Scientific expertise, especially advanced hydrological modelling, was also viewed as influential. As P05 explained, modelling techniques used in Sweden and Denmark have helped demonstrate measurable benefits, increasing acceptance among engineers and financiers.

4.3.2.2 Examples of good practice

Respondents pointed to several examples that illustrate these enabling factors in practice. The restoration of a 600-metre segment of the Mleczna River under the LIFE programme was repeatedly cited by P07 as a successful demonstration of urban restoration in Poland. With adequate funding and political support, the project delivered ecological improvements and strengthened municipal confidence in pursuing similar work.

Within Poznań, the emerging restoration of the Obrzyca stream was highlighted as an important local milestone. P06 described it as a significant achievement: the tender was completed, a contractor selected and the project is now moving forward. Although not yet finished, it is widely seen as a precedent capable of reshaping attitudes and building institutional knowledge.

Respondents also noted passive restoration processes, particularly beaver activity, as unplanned but effective examples of natural hydrological improvement (P07). International cases-such as Singapore, Los Angeles or projects in Scandinavia-were mentioned by P10 as influential inspirations that show what is possible when cities adopt bold approaches to re-naturalising waterways.

4.3.2.3 Replicability

Interviewees largely agreed that good practices can be replicated, but only when adapted to local physical, institutional and social contexts. Dense urban fabric limits what can be transferred from cities with more space or less historical canalisation (P07, P06). Successful replication also requires coordinated authorities, consistent funding and integration into broader strategies. Without these conditions, projects risk remaining isolated "PR activities," as P03 cautioned. Where communities are supportive, replication is far easier; in contested spaces, even strong examples may not translate well. Respondents thus saw replication as possible but conditional, requiring adaptive design, careful communication and supportive policy frameworks.

4.3.2.4 Accelerating and Facilitating Restoration

Interviewees identified several strategies to accelerate restoration processes. A recurring suggestion was the creation of a legal mechanism enabling easier land access, preferably through compensation rather than full buyouts, to overcome the fragmentation of property (P01). Respondents also called for streamlined administrative procedures, clearer legal definitions and planning policies that more explicitly prioritise ecological outcomes. Stronger financial support, particularly from national programmes and EU sources, was viewed as essential, with several respondents emphasising the need for funding lines that explicitly support urban nature-based solutions (P07).

Better coordination across municipal departments, water authorities and stakeholders was another commonly mentioned measure. Some respondents advocated for a dedicated coordinating body or project office to bridge institutional divides (P03). Enhanced public communication and transparent dialogue-through participatory budgeting, community meetings and open information sharing-were highlighted as ways to build legitimacy and prevent conflict (P08, P09). Finally, several respondents stressed the importance of pilot projects such as Obrzyca, noting that successful early projects can serve as "lessons learned" for future restorations (P06).

4.3.3 Conclusion

This qualitative analysis shows that the restoration of urban watercourses in Poznań faces a combination of structural, technical and socio-cultural barriers. Fragmented land ownership, institutional silos, administrative burdens, urban spatial constraints and limited financial resources all make restoration difficult. Yet respondents demonstrated a clear understanding of what needs to change: legislative tools enabling access to land, improved coordination among institutions, stable funding mechanisms and early engagement with communities. Examples such as the Mleczna and the emerging Obrzyca project show that successful restoration is possible and can create momentum for broader systemic change-provided that the right enabling conditions are established and maintained over time.

4.4 Senica - Institutional Analysis

Senica – Institutional Analysis: Key Highlights

- **Barriers**
  - Financial constraints and limited municipal/ Slovak Water Management Enterprise capacity.
  - Fragmented land ownership blocking continuity of restoration stretches.
  - Administrative complexity: multi-layered permits, multiple authorities, conservation regulations.
  - Secondary: low public awareness, operational weaknesses, balancing ecology with human use.
- **Enablers**
  - Legislative amendments (Water Act changes) and EU-funded projects (LIFE, ReBioClim).
  - Slovak Water Management Enterprise implementation capacity where resources allow.
  - Community engagement through volunteer initiatives and educational campaigns.
  - Replicable pilot projects demonstrating tangible ecological and social benefits.

4.4.1 Barriers

4.4.1.1 Most Significant Barriers

Interviews in Senica consistently identified several high-impact barriers that slow or hinder urban stream restoration. The most frequently mentioned barriers were **financial constraints, fragmented land ownership, and administrative complexity**. Many respondents highlighted that **municipalities and the Slovak Water Management Enterprise (SVP)** lack sufficient funding and resources to implement restoration measures. S05 emphasized, “The first one is probably financing… SVP also faces limitations related to finances, personnel and machinery,” illustrating how constrained budgets and staff capacity restrict both planning and implementation.

Fragmented **land ownership** further complicates efforts, particularly in urban stretches where multiple private owners block continuity. S03 explained, “…revitalisation is basically impossible due to the property situation,” demonstrating that even technically feasible interventions may fail when spatial continuity cannot be secured. These constraints are often intertwined with **administrative and regulatory hurdles**, including complex permitting processes, multiple approval authorities, and conservation requirements. S02 noted, “Obstacles… permitting processes… property rights… building permit… notification requires the consent of the watercourse manager,” underscoring the multi-layered procedural challenges.

4.4.1.2 Additional, Less Frequent Barriers

Beyond these primary obstacles, respondents mentioned other less dominant barriers. Ecological sensitivity and the need to balance human use with habitat protection were recurring concerns (S07: “…intervention should respect biological, ecological relationships”). Furthermore, low public awareness and communication gaps limited citizen engagement (S09: “I had no idea that something

was being prepared…"), reducing social pressure to advance projects. Operational weaknesses within SVP, particularly in sections lacking funding, were also noted as limiting the practical delivery of revitalization efforts (S06: "Even here in Senica, we have many examples where there is no funding and the SVP does not function effectively").

4.4.1.3 Illustrative Cases of Barrier Impact

Several examples illustrate how these barriers collectively block or slow restoration. In stretches of the Rudava and downstream sections, property fragmentation and private ownership rendered planned interventions practically impossible (S03). Flood-prone sections highlighted limited municipal capacity: volunteer clean-ups addressed immediate access issues but could not replace formal restoration efforts (S08: "…if we don't clean it up, we can't even get there in case of an emergency"). Financial gaps prevented implementation of planned measures, leaving streams in degraded states (S10: "The overall condition… is… how the lack of financial resources is reflected").

4.4.1.4 Potential Mitigation Strategies

Respondents proposed multiple strategies to mitigate these barriers. **Financial solutions** include securing multi-year, predictable funding and integrating stream restoration into broader landscape or land-consolidation plans (S10). **Administrative simplifications** such as streamlined permitting procedures (§26a notifications) were cited as effective for accelerating small-scale projects (S02). Coordination between SVP and municipalities, with clearly defined responsibilities, was also emphasized (S05: "The only solution is an agreement between the Slovak Water Management Enterprise and towns and municipalities"). Finally, community engagement and educational campaigns were suggested to build local support and awareness, ensuring projects gain public legitimacy (S09: "…public pressure… would speed it up").

4.4.2 Enablers

4.4.2.1 Key Supporting Factors

Despite the challenges, several enablers facilitate urban stream restoration in Senica. Legislative amendments, such as Water Act modifications and notification procedures, allow faster project approvals (S01, S02). EU-funded projects (e.g., LIFE, Recovery Plan, ReBioClim) provide essential financial and technical support (S03, S05). Institutional actors such as SVP can implement larger-scale projects where capacity and funding permit (S04: "…Revitalisation is now underway… specifically of the Morava River…"). Citizen engagement initiatives, including volunteer brigades and school projects, support maintenance and build social awareness (S08, S09).

4.4.2.2 Examples of Good Practice

Respondents highlighted several successful projects. **ReBioClim** in Senica demonstrates how targeted funding and pilot-scale interventions can generate visible ecological and social benefits (S05: "…I believe that the city of Senica will manage it and that Senica will become a good example"). Volunteer-driven clean-ups and educational initiatives (S08, S09) also show that community involvement can complement municipal and SVP efforts, maintaining streams in the absence of full-scale funding. External inspirations, such as the **Isar River in Munich** or **Židlochovice flood-protection park**, illustrate how multi-benefit interventions combining ecology, recreation, and flood mitigation can be replicated in different contexts (S01, S10).

4.4.2.3 Replicability

Replication of these approaches is widely considered feasible but conditional. Factors for successful transfer include **local adaptation to stream morphology, availability of contiguous land, and guaranteed funding**. Pilot projects like ReBioClim are most easily replicated because they offer tangible benefits for residents and demonstrate success in a manageable scope (S05, S06). Larger interventions require institutional coordination and legislative alignment, alongside social engagement to ensure public acceptance (S07, S09).

4.4.2.4 Accelerating and Facilitating Restoration

To speed up restoration, respondents suggest several complementary strategies. **Financial stability** through multi-year funding lines is crucial (S10). **Administrative simplification**, particularly for small-scale maintenance-compatible measures, can reduce delays (S02). Structured **participatory frameworks and public engagement**, including school programmes, art initiatives, and volunteer brigades, can increase social acceptance and create local advocacy for projects (S08, S09). Finally, integrating stream restoration into **broader land management and territorial planning** provides both legal and practical frameworks to overcome space constraints (S10).

4.4.3 Conclusion

Taken together, the findings portray a governance environment in which river revitalisation remains significantly constrained by structural and systemic impediments. Persistent deficits in financial resources, institutional capacity, and administrative flexibility, alongside complex regulatory frameworks and fragmented responsibility, limit both the feasibility and scale of intervention. These interconnected barriers operate not merely as procedural hindrances, but as constitutive features of a system oriented towards incremental maintenance and reactive management, rather than proactive, ecologically oriented planning. Consequently, revitalisation efforts tend to be circumscribed by short-term priorities, limited organisational mandates, and risk-averse institutional cultures.

Conversely, the presence of emergent enabling mechanisms indicates the gradual formation of more supportive conditions. Targeted funding schemes, regulatory simplification, and pilot projects provide opportunities for experimentation, learning, and public legitimisation of ecological approaches, although their effects remain uneven and contingent upon local institutional capacities and resource availability. While these enablers demonstrate potential pathways for change, the interviews emphasise that substantive progress requires structural reform, including stable financing arrangements, improved cross-institutional coordination, and the integration of revitalisation objectives into broader spatial and landscape planning frameworks. The findings therefore suggest a governance system characterised by both persistent constraint and emergent transition, wherein the possibilities for transformative practice depend on the extent to which enabling mechanisms evolve from episodic interventions into stable, systemic supports for ecological restoration.

5. CROSS-CASE INSTITUTIONAL COMPARISON

5.1 Main Structural Barriers to Urban Stream Restoration

Structural Barriers to Urban Stream Restoration - Key Highlights

- **Land availability and ownership fragmentation**
  - Most decisive barrier across all cities.
  - Private parcels and competing land use block continuous restoration space.
  - Examples: Kaitzbach in Dresden, single owner blocking 10 km in Poznań, property conflicts in Jablonec and Senica.
- **Institutional fragmentation and administrative rigidity**
  - Manifests differently across governance systems:
  - Dresden & Poznań: overlapping mandates between municipal, water, and planning authorities.
  - Jablonec: conservative engineering culture, risk-averse river managers.
  - Senica: limited coordination between municipalities and SVP, constrained by funding and staff.
- **Infrastructural and technical constraints**
  - Dense underground utilities and historical urban structures limit morphological interventions.
  - Poznań: buried streams make daylighting complex or impossible.
  - Senica: technical capacity of SVP is limited by outdated equipment and staff shortages.
- **Financial constraints**
  - Funding instability affects all cities, but severity varies:
  - Dresden & Poznań: vulnerable to political cycles and subsidy changes.
  - Senica: very limited municipal and SVP resources.
  - Jablonec: funding more accessible through national environmental programmes.
- **Secondary barriers**
  - Nature-protection conflicts (Dresden, Jablonec)
  - Water-quality limitations (Poznań)
  - Socio-cultural scepticism and low public awareness (multiple cities)

A comparison of institutional conditions across the four case cities of Dresden, Jablonec nad Nisou, Poznań and Senica reveals a set of deeply structural barriers that shape the feasibility, pace and scale of urban stream restoration. Although each city operates within its own national legislative and historical context, the interviews show striking similarities in how restoration ambitions encounter administrative inertia, fragmented land ownership, and entrenched infrastructural constraints. At the same time, the cases collectively demonstrate emerging pathways toward more enabling governance-

a gradual shift that hinges on political will, institutional alignment and the presence of stable funding instruments.

Across all cities, the challenge of **land availability and ownership fragmentation** appears as the most universal and decisive barrier. Dresden and Poznań face the most extreme forms of this fragmentation in densely built urban corridors, where private parcels, fenced gardens and competing land uses repeatedly block the creation of continuous restoration space. Interviewees in Dresden described the Kaitzbach corridor as emblematic of a decades-long impasse caused by private development, while respondents in Poznań stressed that "one owner can block 10 km of investment" (P01), underscoring how a single landholder can paralyse an entire catchment. In Jablonec, the barrier is equally acute: property-rights conflicts consistently derail projects once negotiations begin, and respondents emphasised that planned revitalisations most often fail "because of property-law complications" (J05). Senica faces similar constraints, particularly in urban stretches of the Rudava, where restoration is "basically impossible due to the property situation" (S03). Despite contextual variations, the consequences are shared: spatial discontinuity prevents the use of naturalised morphological designs and favours continued reliance on narrow, technically confined channels.

A second cross-cutting barrier concerns **institutional fragmentation and administrative rigidity**, although this manifests differently across governance systems. In Dresden and Poznań, fragmentation between municipal departments, water authorities and planning bodies generates overlapping mandates and contradictory priorities. Respondents in Poznań highlighted that siloed departments routinely design infrastructure projects-cycle paths, parking areas, tram lines-directly over potential restoration corridors, with the result that "renaturation once again takes a back seat" (P02). Dresden interviewees similarly described protracted approval processes, where multi-level planning and water-law procedures delay projects by years and repeatedly demand resubmission. In Jablonec, institutional rigidity takes the form of conservative engineering cultures and risk-averse river managers whose mandates prioritise drainage and flood safety above ecological design. Respondents criticised river authorities for hiding behind regulatory "alibis" (J04), producing a governance environment resistant to innovation. Senica, by contrast, displays a different configuration of fragmentation-one marked by limited coordination between municipalities and the Slovak Water Management Enterprise (SVP), whose responsibilities are legally defined but often operationally constrained by insufficient funding and personnel.

Infrastructural and technical constraints represent a third major theme, though their intensity varies. In Dresden and Jablonec, dense underground utilities severely restrict opportunities for morphological widening, often determining the feasible scope of projects more strongly than ecological ambitions. Jablonec respondents repeatedly characterised utilities as the decisive limiting factor, and Dresden interviewees noted the difficulty of adjusting infrastructure in historical urban cores. Poznań faces similar constraints, compounded by the fact that many streams are buried several metres deep beneath roads, stormwater systems and transport corridors; daylighting is therefore technically complex, expensive and sometimes impossible. Senica's constraints are less related to buried infrastructure and more to the limited technical capacity of SVP, which struggles with outdated equipment, understaffing and restricted budgets.

Financial constraints cut across all four cities but vary in severity. In both Dresden and Poznań, the instability of long-term funding was identified as a key barrier, with projects left vulnerable to political cycles, shifts in subsidy schemes and unexpected cost inflation linked to delayed approvals. In Senica, the financial barrier is even more fundamental: lack of resources is one of the most frequently mentioned obstacles, limiting both municipal efforts and SVP's ability to implement or maintain restorations. Jablonec presents a more mixed picture. While financial limitations exist-particularly in early planning-respondents generally saw funding as increasingly accessible through national environmental programmes, making it a less dominant constraint than property rights or institutional rigidity.

The cases also present a set of **additional but recurring secondary barriers**, including nature-protection conflicts (Dresden, Jablonec), water-quality limitations (Poznań), socio-cultural scepticism (Dresden, Poznań, Senica) and insufficient public awareness (Jablonec, Senica). These barriers are rarely decisive on their own, but they exacerbate existing institutional and spatial challenges. For example, Dresden interviewees described language and cultural barriers leading to elite-driven processes that fail to build local support, while Poznań respondents noted concerns about mosquitoes and safety that stalled specific projects such as Piaśnica. In Senica, weak communication created situations where residents "had no idea something was being prepared" (S09), reducing opportunities for community-based support.

5.2 Enabling Conditions & Pathways

Enabling Conditions & Pathways - Key Highlights

- **External funding**
  - EU LIFE programmes, national environmental funds, and municipal support facilitate projects.
  - Examples: Mleczna project in Poznań, Blaues Band in Dresden.
- **Institutional and political commitment**
  - Proactive planning teams, legislative adjustments, engaged water utilities.
  - Examples: Saxon Water Act (Dresden), pilot projects like ReBioClim (Senica).
- **Good practice examples**
  - Small-scale interventions and large pilots catalyse institutional change.
  - Principles transferable: interdisciplinary planning, early spatial reservation, stable funding, strong communication.

Despite this landscape of constraints, all four cities exhibit important **enabling conditions** that suggest pathways for progress. Access to external funding-particularly EU programmes such as LIFE-emerged as the strongest enabling factor in Dresden, Poznań and Senica, providing both financial capital and political momentum. Poznań's Mleczna project illustrates how such funding can catalyse institutional learning, while Dresden's experience with programmes such as Blaues Band shows how strategic funding can build interdepartmental cooperation. In Jablonec, national environmental funds and methodological support from organisations like AOPK function as key enablers, complemented by strong municipal leadership that proactively reserves space for restoration.

Institutional and political commitment also distinguishes cities where restoration progresses from those where it remains stalled. In Jablonec, interviewees repeatedly emphasised the role of proactive planning teams. In Dresden, legislative adjustments to the Saxon Water Act expanded the mandate for renaturation, helping shift restoration closer to mainstream practice. Poznań benefits from the involvement of an engaged water utility, Aquanet Retencja, whose willingness to co-finance projects introduces an influential institutional ally. In Senica, pilot projects such as ReBioClim demonstrate how new legislative tools and coordinated funding can create ecological and social benefits even in resource-constrained contexts.

The four cases show that **examples of good practice**-whether small maintenance-based interventions or large externally funded pilots-serve as critical catalysts for institutional change. They provide visible results, generate political legitimacy and offer templates for replication. However, replication

is consistently described as conditional, requiring adaptation to local spatial constraints, institutional cultures and community dynamics. Cities with dense and historically canalised structures, such as Poznań or central Dresden, face inherent limitations that cannot be overcome through institutional reforms alone. Nevertheless, respondents across all cases agree that the conceptual principles of good practice-interdisciplinary planning, early spatial reservation, stable financing, and strong communication-are broadly transferable.

5.3 Overall Conclusion

Cross-Case Institutional Comparison - Key Highlights

- Urban stream restoration is technically feasible but structurally constrained by fragmented ownership, institutional misalignment, financial instability, and competing land uses.
- Governance systems tend toward risk avoidance and sectoral planning.
- Signs of transition exist: new funding streams, legislative adjustments, pilot projects, community engagement.
- Future success depends on consolidating enabling factors into stable governance structures for long-term restoration.

Taken together, the four cases suggest a shared governance environment in which restoration is technically feasible but structurally constrained by fragmented ownership, institutional misalignment, financial uncertainty and competing land uses. The systems appear to be oriented toward risk avoidance, incremental maintenance and sectoral planning, making ecological restoration difficult to prioritise or coordinate. Yet they also show clear signs of transition, marked by the emergence of enabling mechanisms-new funding streams, legislative adjustments, pilot projects, community engagement and improved scientific support.

The comparative analysis thus points toward a nuanced conclusion: urban stream restoration in Central European cities remains heavily shaped by historical spatial configurations and traditional administrative systems, but the foundations for more transformative practice are gradually forming. Realising this potential, however, depends on consolidating enabling factors into stable governance structures capable of overcoming entrenched institutional fragmentation and securing long-term spatial, financial and political support for restoration.

6. RECOMMENDATIONS AND STRATEGIC GUIDELINES

6.1 Recommendations for Local Governments

- **Secure and protect spatial corridors:** Integrate restoration needs into urban planning early, reserving space for stream daylighting and naturalised sections.

- **Streamline administrative procedures:** Reduce multi-level approval delays, clarify the boundary between maintenance and restoration, and provide simplified permitting for small-scale interventions.
- **Stabilize funding mechanisms:** Establish multi-year municipal budgets and co-financing structures, leveraging EU programmes or national environmental funds for long-term project continuity.
- **Foster political commitment:** Embed restoration priorities into strategic municipal agendas, linking ecological, recreational, and climate adaptation benefits.
- **Encourage cross-departmental coordination:** Create interdepartmental teams for water management, urban planning, and infrastructure to reduce siloed decision-making.

6.2 Recommendations for River Basin Authorities

- **Adopt co-leadership roles:** Actively participate in restoration projects, providing technical guidance and sharing responsibilities with municipalities.
- **Balance risk with ecological ambition:** Revise conservative engineering mandates to allow for innovative, ecologically sensitive designs while maintaining safety standards.
- **Facilitate land and infrastructure negotiations:** Support municipalities in resolving fragmented ownership and utility conflicts through mediation or regulatory guidance.
- **Provide clear regulatory frameworks:** Harmonise water-law and nature-protection requirements to reduce procedural uncertainty.

6.3 Recommendations for NGOs and Public Engagement

- **Raise awareness and build support:** Conduct educational campaigns highlighting multiple benefits of urban stream restoration (flood mitigation, recreation, biodiversity).
- **Foster community participation:** Involve residents, schools, and volunteers in small-scale interventions, monitoring, or maintenance projects to build legitimacy and local ownership.
- **Promote storytelling and demonstration projects:** Showcase successful restorations to generate political and social support, ensuring lessons learned are widely shared.

6.4 Recommendations for Project Designers / Consultants

- **Adopt interdisciplinary planning approaches:** Integrate hydrology, ecology, landscape architecture, and urban design from early project stages.
- **Tailor designs to local constraints:** Adapt concepts to urban density, land fragmentation, buried infrastructure, and socio-cultural context.
- **Use pilot projects strategically:** Implement small, rapid interventions to demonstrate feasibility and generate institutional learning before scaling up.
- **Incorporate multi-benefit solutions:** Design projects that combine ecological, recreational, flood-protection, and climate-resilience goals.

6.5 Mechanisms for Enabling Change

- **Funding instruments:** Establish stable multi-year funding streams at municipal, regional, or national level; leverage EU programmes (e.g., LIFE, Horizon Europe).
- **Legislative adjustments:** Update water management laws to explicitly support renaturation, define responsibilities, and simplify permitting.

- **Institutional coordination platforms:** Create joint steering committees or project offices to align municipalities, river authorities, and utilities.
- **Knowledge sharing and capacity building:** Develop guidelines, training modules, and digital platforms to disseminate best practices and technical expertise.
- **Community and stakeholder engagement frameworks:** Use structured participation, digital mapping, and co-benefit approaches to reduce opposition and build support.

6.6 Priority Actions per City

City	Priority Actions
Dresden	Streamline multi-level administrative approvals; secure land along urban corridors (Kaitzbach, Priessnitz); maintain funding stability; expand interdepartmental coordination; pilot small-scale visible interventions for public engagement.
Jablonec nad Nisou	Resolve property-rights conflicts; address dense underground utilities; strengthen municipal planning teams; coordinate proactively with River Basin Authority; leverage national environmental funds for pilot projects.
Poznań	Implement legal mechanisms for compensation-based land access; reduce institutional fragmentation via integrated catchment planning; increase coordination among municipal departments, utilities, and environmental agencies; support pilot projects like Mleczna/Obrzyca for learning and replication.
Senica	Ensure multi-year financing; clarify SVP-municipal responsibilities; simplify permitting procedures; integrate stream restoration into broader land-management plans; strengthen community engagement and education programs; replicate small-scale pilots such as ReBioClim.

7. CONLCUSION

The cross-case comparison of Dresden, Jablonec nad Nisou, Poznań and Senica demonstrates that urban stream restoration in Central Europe is shaped by a shared configuration of structural barriers and emerging institutional opportunities. Across all four cities, land-ownership fragmentation and narrow, infrastructure-dominated corridors constitute the most decisive spatial constraints, repeatedly preventing the creation of continuous restoration space. These spatial factors are reinforced by institutional fragmentation, rigid administrative cultures and the predominance of flood-protection mandates, which collectively limit the adoption of more ecological design approaches. Despite these obstacles, all cities show evidence of shifting governance practices, where coordinated political leadership, strategic use of external funding, early spatial reservation and examples of successful pilot projects gradually expand the institutional space for restoration.

The findings illustrate that effective restoration is not only a technical endeavour but a governance challenge requiring multi-level coordination, regulatory alignment and long-term political commitment. Municipal authorities emerge as pivotal actors, particularly in cities such as Jablonec and Senica, where strong local leadership can compensate for limited financial or technical capacity. Conversely, cities where statutory agencies dominate river management, such as Poznań, rely more heavily on negotiated collaboration among municipal, expert and regulatory stakeholders. By

clarifying these governance dynamics, the study contributes to practice by identifying strategies that can be generalised across contexts: strengthening interdepartmental cooperation, integrating restoration objectives into spatial planning, improving communication with residents, and leveraging external funding to create momentum. For research, the comparative perspective provides new empirical insights into how socio-institutional variables mediate restoration outcomes in different Central European governance systems.

Future research should investigate how specific governance reforms—such as integrated watershed planning, adaptive permitting procedures, or new funding architectures—could mitigate the structural constraints identified in all four cities. More work is needed to understand how municipal actors can institutionalise early spatial reservation and how property-rights conflicts can be addressed through new negotiation mechanisms or compensation schemes. Comparative studies that include additional cities, particularly outside Central Europe, would help test the generalisability of the identified barriers and enablers. Finally, longitudinal analyses of pilot projects and community-engagement strategies could clarify how institutional learning and public support evolve over time, offering practical guidance for scaling up restoration initiatives within increasingly complex urban environments.

REFERENCES

Blázquez, L., García, J. A., & Bodoque, J. M. (2021). Stakeholder analysis: Mapping the river networks for integrated flood risk management. Environmental Science & Policy, 124, 506–516. https://doi.org/10.1016/j.envsci.2021.07.024

HENDL, J. (2005). Kvalitativní výzkum: základní metody a aplikace. Praha: Portál.

Nugroho, A. W., & Sari, U. K. (2023). Stakeholder Identification for Collaborative Management of Ecotourism and Proboscis Conservation. International Journal of Conservation Science, 14(2), 713–730. https://doi.org/10.36868/IJCS.2023.02.23

Reed, M. S., Graves, A., Dandy, N., Posthumus, H., Hubacek, K., Morris, J., Prell, C., Quinn, C. H., & Stringer, L. C. (2009). Who's in and why? A typology of stakeholder analysis methods for natural resource management. Journal of Environmental Management, 90(5), 1933–1949. https://doi.org/10.1016/j.jenvman.2009.01.001

Siddiki, S., & Goel, S. (2015). A stakeholder analysis of U.S. marine aquaculture partnerships. Marine Policy, 57, 93–102. https://doi.org/10.1016/j.marpol.2015.03.006

Tsang, E. M., Barnes, J. C., & Dayer, A. A. (2021). A Web-Based Approach to Stakeholder Analysis for Identifying and Understanding Broader Constituencies in Wildlife Conservation. Society & Natural Resources, 34(8), 1133–1146. https://doi.org/10.1080/08941920.2021.1921319