

Does Collaborative Governance Work?

A longitudinal, case-based study of how local governments adapt to collaborative governance, and with what effect.



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Declaration

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Summary of Methods and Findings

Methods: This study asks how do local governments implement and adapt to the collaborative governance arrangements required for nature-based solutions (NBS) and does collaborative governance work? To answer these questions, a comparative case study methodology was applied. Three local governments - Genk (Belgium), Glasgow (Scotland) and Poznan (Poland) - were studied over five-years as they designed and implemented collaborative governance regimes (CGRs) to deliver NBS addressing complex local challenges. The Emerson *et al.* Framework for Integrative Governance (2012) was applied to answer the first research question. Emerson and Nabatchi's Typology of CGRs (2015a) was used to characterise the early stage of formation of these regimes in case study cities. To answer the second research question on performance, Emerson and Nabatchi's Productivity Performance Matrix (2015b) was applied to data from the three case study cities. A final research question was added reviewing the contribution to theory and practice from application of these theoretical constructs.

Findings: Local Government Implementation and Adaptation to Collaborative Governance

The Emerson *et al.* Framework for Integrative Governance (2012) was found to be very relevant to understanding the contextual conditions influencing the formation and dynamics of CGRs in case study cities. Public resource conditions, socio-economic characteristics, previous history of engagement, policy and legal frameworks were seen to be highly relevant contextual factors influencing the formation of CGRs. One limitation of the Framework was the lack of attention given to public management models and administration cultures which were seen to be an important contextual factor. Regarding the drivers to formation of a CGR, the main driver in all three cities was the incentive of grant funding from an EU project. In the face of difficult public finance situations, collaboration on other grant funding applications for NBS remained an important driver of collaboration over the duration of the study period. In all three cities, the physical and spatial dimension of nature-based solutions was also seen to be a direct driver of collaboration – leading to the involvement of statutory agencies (land, water etc.) and citizen engagement (landowners and users). A limitation of the framework was the lack of attention given to barriers to collaboration. In Genk and Poznan, the main barriers were silo-working practices at an intra-organisational level. The Covid pandemic also presented an immediate and significant challenge to collaborative governance in all three cities.

Emerson and Nabatchi's Typology of CGRs (2015a) was applied to consider the conditions and characteristics of formation of CGRs in case study cities. The typology of 'externally directed' CGR was a good fit with the prevailing conditions of CGR formation in case study cities. However, the situation was less evident when it came to other characteristics suggesting that the characteristics of 'pre-set' CGRs are a bit more variegated than is proposed by the Emerson and Nabatchi categories.

Emerson and Nabatchi's guidance on collaboration dynamics (2015a) was found to be highly insightful in comparing the unfolding of the collaboration processes of principled engagement, shared motivation and capacity for joint action across all three cities. From the perspective of principled engagement, different approaches were observed from 'big and bold' approaches aiming to engage multiple stakeholders simultaneously to 'soft and gentle' approaches building informal awareness and support. Cultural and language challenges were observed in adapting NBS to local context with external experts seen to play an important role in providing clarity and credibility. A challenge observed was the difficulty 'unfreezing' entrenched processes to accommodate new collaborative governance approaches. From the perspective of shared motivation, a noticeable difference emerged between cities in relation to negative dynamics such as a lack of trust and mutual understanding with intra- and inter- organisational stakeholders. Local intermediaries with good knowledge of local dynamics were used effectively in all three cities to avoid or overcome conflict. Throughout the study period, joint funding opportunities were an important motivating factor for collaboration with

successful funding helping to secure legitimacy. In more traditional public management regimes, less emphasis was noted on performance measurement. From the perspective of capacity for joint action, intra-organisational challenges relating to public administration silos were evident again when it came to developing procedural and institutional arrangements for collaborative governance of NBS. Pilot projects were observed in all three cities to be an effective arrangement for testing new innovations and modes of governance at inter-organisational level. Initiating leadership was not seen to be a critical factor in success but building legitimacy among high level decision makers over time was seen to be of vital importance. An important limitation was the consideration of legitimacy from an internal perspective alone. External legitimacy was found to be equally important as a contributing factor to shared motivation. All three cities also put in place measures to support a transition from city-led governance to community co-governance during the study period. Another limitation of the framework was the lack of guidance given on analysis of actions. An updated version of the Emerson and Nabatchi framework was proposed to address these limitations. Major adaptations were proposed related to barriers, legitimacy and analysis of collaborative actions. Actions were differentiated firstly between productivity actions and process actions. The second modification applied temporal bracketing with actions coded under three time periods – the early stage of formation of CGRs, the development stage and the mature stage.

Findings on Performance

The application of Emerson and Nabatchi's Productivity Performance Matrix (2015) to evaluate outputs, outcomes and adaptation from collaborative governance was found to be a helpful starting point. For the first unit of analysis of the local government, the most relevant performance dimension was effectiveness of collaborative governance for the NBS team in the local government. Cities reported improved governance structures and processes for managing complex, boundary-spanning projects, the emergence of new innovations facilitating multi-stakeholder engagement on social innovation and increased access to shared knowledge and resource. For the second unit of analysis, the CGR, actions were seen to be clearly aligned with the target goals of NBS implementation. External legitimacy and recognition were found to be of critical importance in securing funding and resources to ensure the ongoing viability of CGR activities. For the third unit of analysis, performance was measured for target goals. Differences were seen in terms of outcomes on the ground. Poznan was the only city to have fully implemented their CGR activities and showed measurable outcomes from the perspective of environmental and social benefits. Glasgow and Genk showed good socio-economic outputs. These intermediate results were sufficient to gain the legitimacy of high-level stakeholders.

The most interesting findings emerged in relation to long term adaptation of CGR activity. In all three cities a proliferation of 'mini-CGR' type arrangements were seen to emerge, adding complexity to long term governance arrangements. In terms of the sustainability of CGR activities, despite clear and measurable outcomes on the ground for Poznan, in the context of a difficult political and financial environment they did not secure funding to continue CGR activities with existing stakeholders. At the end of the study period, they were pivoting to find alternative sources of funding to continue NBS implementation. In contrast, in Genk and Glasgow, despite only having intermediate outcomes, they succeeded in securing high level legitimacy leading to sustained funding and viability. In the case of Genk, despite sustained evidence of intra-organisational resistance at lower levels of the organisation, there was evidence of high-level commitment to expansion and replication of collaborative governance in other domains. In conclusion, findings show that collaborative governance worked for the implementation of NBS in this study and generated many benefits for local government organisations. However good outcomes are insufficient to ensure long term viability. Other contextual factors, from public management cultures to political and financial challenges can influence long term sustainability and adaptation.

Abstract

This study asks how do local governments implement and adapt to the collaborative governance arrangements required for nature-based solutions (NBS) and does collaborative governance work? A comparative case study methodology was applied to study three local governments in Genk (Belgium), Glasgow (Scotland) and Poznan (Poland) over 5 years as they implemented collaborative governance regimes (CGRs) to deliver NBS addressing complex local challenges. The Emerson et al. Framework for Integrative Governance (2012) and Emerson and Nabatchi's Typology of CGRs (2015a) were applied to answer the first research question. Emerson and Nabatchi's Productivity Performance Matrix (2015b) was applied to answer the second research question.

The Emerson et al. Framework for Integrative Governance (2012) was found to be highly relevant to understanding the contextual conditions influencing the formation and dynamics of CGRs in case study cities. Public resource conditions, socio-economic characteristics, previous history of engagement, policy and legal frameworks were seen to be highly relevant contextual factors. The main driver to formation of a CGR in all three cities was the incentive of grant funding. Collaboration to secure financing remained an important driver over the study period. In all three cities, the physical and spatial dimension of nature-based solutions was also seen to be a direct driver of collaboration. A limitation of the framework was the lack of attention given to barriers to collaboration. The Covid pandemic, public management models and cultures were found to be significant constraints.

Emerson and Nabatchi's Typology of CGRs (2015a) was found to be of limited usefulness in characterising the conditions and characteristics of formation of CGRs in case study cities.

In contrast, Emerson and Nabatchi's guidance on collaboration dynamics (2015a) was found to be highly insightful in comparing the unfolding of collaboration processes in cities. Intra-organisational challenges relating to public administration silos were evident in developing procedural and institutional arrangements for collaborative governance. Measures to support the transition from city-led governance to community co-governance were observed. A limitation however was the limited treatment of legitimacy and guidance on collaborative actions. Collaboration actions were seen to be split between process actions (58%) related to overall CGR activities and productivity actions (42%) related to achieving specific NBS target goals.

Emerson and Nabatchi's Productivity Performance Matrix (2015) provided insightful guidance on performance. Local governments reported improved governance structures and processes for managing complex, boundary-spanning projects, the emergence of new innovations facilitating multi-stakeholder engagement on social innovation and better access to shared knowledge and resources. At the level of the CGR, external legitimacy and recognition were found to be of critical importance in securing funding and resources to ensure the ongoing viability of CGR activities. In relation to the target goal of NBS implementation, Poznan had fully implemented city-wide NBS at the end of the study period, measuring clear environmental and social benefits. However, they failed to secure high level legitimacy and funding to continue CGR activities. Glasgow and Genk reported good intermediate socio-economic results. They achieved high-level legitimacy securing resources and support for ongoing activities. In all three cities, a proliferation of 'mini-CGR' type arrangements were seen to emerge adding complexity to long term governance arrangements. In conclusion, this study found that collaborative governance worked for the implementation of NBS and generated many benefits for local government organisations. However good outcomes on the ground were insufficient to ensure long term viability. Other contextual factors, from public management cultures to political and financial challenges were seen to impact on long term sustainability.

The most significant contributions to theory from this research are firstly, an adapted version of the Emerson and Nabatchi framework to address key limitations and secondly, proposed revisions of the performance dimensions of the Productivity Performance Matrix.

Dedication

This thesis is dedicated to my father
who always quoted his father in saying:
“Education is a light load to carry”.

Acknowledgements

*“One stitch, and then another and the longest rent is mended,
One step, and then another and the longest journey’s ended”
Bridget McNulty, my grandmother.*

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List of Abbreviations

ALEO:	Arms' Length External Organisations (a feature of NPM in Glasgow)
COP:	'Conference of the Parties' (meaning those countries who joined—are “party to,” in legal terms—the international treaty called the U.N. Framework Convention on Climate Change (UNFCCC))
CGR:	Collaborative governance regime is defined as “ <i>the particular mode of, or system for, public decision making in which cross-boundary collaboration represents the prevailing pattern of behaviour and activity</i> ” (Emerson et al. 2012, p. 6).
CSR:	Corporate Social Responsibility
CTP:	Critical Turning Point (key event in NBS implementation as observed by cities)
DLA:	Dynamic Learning Agenda (reflexive monitoring tool – list of critical turning points observed by cities)
EC:	European Commission (politically independent executive arm of the EU)
EU:	European Union (supranational political and economic union of 27 member states)
GCC:	Glasgow City Council local government organisation
LG:	Local Government
LS:	Learning Session (cities and academic partners meet to discuss DLA prepared by cities)
NBS:	Nature-Based Solution

NBE: Nature-Based Enterprise/Entrepreneurship (enterprises with a mission to work with and for nature)
NGO: Non-governmental organisation
NPG: New Public Governance
NPM: New Public Management
OSS: Open Space Strategy of Glasgow City Council
StadGenk: City of Genk local government organisation
SUDS: Sustainable Urban Drainage Systems (nature-based water management systems such as bioswales and rain gardens)

1. Introduction

1.1 Context

“A lot of people go straight from denial to despair without pausing in the middle and doing something about it” Al Gore.

Nature-based solutions (NBS) are accepted today as part of a broader systemic approach to address complex challenges such as climate change (UNEA, 2022). They flip the perception of nature as a cost or burden to tax-payers to nature as part of the solution to societal challenges. An opinion piece in the journal ‘Nature’ argues that the concept of NBS can be differentiated from other ecosystem-based approaches by their focus on delivering multi-faceted solutions:

“The concept it represents is of vital and urgent significance. As the grand challenges that face society continue to build, so does the need for multidisciplinary, evidence-based strategies to, for example, protect water supplies, address habitat loss and mitigate and adapt to climate change” (Cohen, 2017, p.134).

The benefits of nature are manifold. Nature can sequester carbon - in forests, in wetlands, in the ocean. Some studies suggest nature could provide up to 30% of the carbon mitigation required to stabilise global warming by 2030 (Seddon et al., 2020). It can support climate mitigation and adaptation - absorbing excess rainfall and providing shade from increasingly hot summers (Kabisch et al., 2016). Nature cleans the air and reduces noise. Nature can increase human health and wellbeing. It is increasingly being prescribed by health services as a solution to the stresses of modern living (White et al., 2019, Sarris et al., 2019, Robinson et al., 2020). Nature is vital for the economy, with approximately half of global GDP moderately or highly dependent on nature (WEF, 2020b, WEF, 2020a).

However the benefits of nature are not always valued and the destruction of nature is not always accounted for (Dasgupta, 2021). Nature for the most part provides a public good - it can be seen as non-rivalrous and non-excludable (Ostrom, 2005). However with pollution and over-exploitation, some natural resources such as forests and marine areas have become rivalrous and can now be considered common-pool resources (Ostrom, 2005, Croci et al., 2021). The most recent IPBES global assessment report finds that human-related activity is leading to a rapid deterioration in the nature, biodiversity and ecosystem services that are vital for human existence and quality of life. This report finds that 25% of species are now under threat with

around 1 million species facing extinction unless action is taken to stem this decline (IPBES, 2019, p.12).

The role of government

But who should take action? The debate on environmental governance has shifted seismically in the last century. In the 1960's, Hardin's work on the 'tragedy of the commons' made the case for state protection of the environment. He found that it is human nature to act in our own self-interest which inevitably leads to destruction of the commons (Hardin, 1968). However this approach was challenged by Elinor Ostrom's work from the 1980's which showed that self-governance of the commons was feasible if affected actors were involved in setting common rules and penalties for use (Ostrom, 1990). Ostrom's work inspired much further research and actions on multi-actor collaboration influencing seminal work in environmental governance (Lemos and Agrawal, 2006) and early frameworks of multi-stakeholder collaborative governance (Thomson and Perry, 2006). In the twenty-first century, the narrative has shifted again with many governments and stakeholders calling on the private sector to step up investment in nature (UNEP, 2021, WEF, 2020b, WEF, 2020a, EIB et al., 2023). The lack of meaningful response on the ground from the private sector suggests that there is a fundamental mismatch between the public good characteristics of nature and private sector goals and fiduciary responsibilities to seek a return on investment for shareholders (Crocì et al., 2021). The wheel has recently turned full circle with calls for the public sector once again to take the lead on urgent action needed to address biodiversity loss (Kedward et al., 2022). Traditional economic theory suggests that state intervention is needed when market failure is evident (Dasgupta, 2021, Crocì et al., 2021).

Some may suggest that governments are already stepping up but they are just not delivering. In 2022, COP 27 (on climate change) highlighted that national governments are still falling short on delivering the transformative change needed to achieve the goals of the Paris Agreement to keep global temperatures rise to under 2°C. COP CBD (on biodiversity and ecosystem loss) succeeded in securing the agreement of more than 200 countries to a Global Biodiversity Framework with an agreed "30×30 target" to conserve 30% of global land and ocean resources by 2030. However efforts to implement a watered down version of this framework in Europe (20% conservation by 2030 via the EU Nature Restoration Law) have met with fierce resistance at national level and polarised the environment debate in Europe to levels previously unseen. It appears the multiple benefits of nature for society, the economy and the environment are not well understood or accepted by all stakeholders.

Challenges at local government level

In the face of challenges at international and national level, the UN has highlighted the significant potential of city, state, and regional governments and non-state actors to step up and take action (UNEP, 2018). By 2050, it is forecast that around 68% of the global population will live in cities. Approximately two-thirds of metropolitan areas are already governed by their own institutionalised governance body (Habitat, 2022).

Increased urbanisation leads to many challenges and conflicts with sustainability goals. Cities account for just under 80% of global energy consumption and more than 60% of greenhouse gas emissions (Harris et al., 2020). On one hand, citizens are negatively impacted by increased levels of noise and air pollution and they are on the front-line when it comes to experiencing the impacts of climate change such as flash floods, heat stress and water shortages. On the other hand, cities are under pressure to meet the demands of industry, business and residential users for new infrastructure (Kabisch and Haase, 2014, Habitat, 2022). Path-dependencies on existing planning, land-use patterns and infrastructure solutions are common (Davies and Laforzezza, 2019), however the impacts of conventional planning and land-use approaches are increasingly detrimental for nature. The reduction in blue-green spaces threatens biodiversity due to fragmentation of species across isolated city sites and the lack of connecting corridors (Kabisch et al., 2022).

In this complex and contested arena, the potential of NBS has gained increased recognition in research and policy (EC, 2015, EC, 2018, EC, 2021b, EC, 2021a, IUCN, 2020, Habitat, 2022) (UNEA, 2022, Faivre et al., 2017, Raymond et al., 2017, Frantzeskaki, 2019, Seddon et al., 2020, Wendling and Dumitru, 2021). Challenges to NBS implementation have also been identified - many related to governance issues and potential conflicts with other policy and land-use priorities (Habitat, 2022). The success of NBS has been identified as contingent on multi-actor collaboration processes between local governments, the community and other stakeholders (Kabisch et al., 2016, Van der Jagt et al., 2017, Frantzeskaki, 2019).

Challenges within local government

NBS also require cooperation *within* the public sector - beyond the specific mandates of environmental agencies and environmental departments. It has been argued that responsibility for biodiversity should not be confined to the mandate of environmental agencies but rather be treated as a public good with responsibility shared across all of government and society (Rands et al., 2010). NBS seek to address social and economic challenges in addition to environmental

challenges thus providing multiple benefits and addressing multiple challenges simultaneously. Fiorino pointed out that in 1963 Lynton Caldwell identified the importance of overcoming 'segmental' thinking in public administration in relation to the environment. Nearly 50 years later, Fiorino lamented that little progress had been made in overcoming such silos (Fiorino, 2010). The most recent UN Habitat World Cities Report (2022) identifies that:

“Top-down and centralized forms of government, which are still prevalent, have significant limitations in their ability to address societal and governance challenges in complex urban systems” (Habitat, 2022, p.247).

Departmental silos are a characteristic of traditional public administration structures which are organised by function with clearly divided responsibilities and chains of command from the top-down. New public management reforms from the 1980's in some ways exacerbated departmental thinking, often pitting one department against another in the pursuit of increased cost efficiencies. Most recently, as the challenges faced by the public sector have become increasingly complex, departments are reaching out externally and entering into contractual relations and partnerships with private and third sector organisations. Managing these networks of partners to plan and deliver public policy and services is the hallmark of new public governance.

In the case of NBS, cross-departmental collaboration needs to happen at the same time as collaboration with communities, local businesses, investors and other government agencies and departments in order to align planning and implementation actions.

1.2 Research Question and Objective

The challenges encountered by local governments in addressing sustainability issues was a topic of some familiarity to the author arising from participation in previous research collaborations in the field of urban resilience and sustainability. The 'Transition towards Urban Resilience and Sustainability' (TURAS) EU funded research action from 2011 to 2016 involved 11 European local governments in exploring different ways to build bottom-up resilience to climate change and biodiversity loss in their cities and regions (Collier et al., 2013). Open innovation models, such as the quadruple helix approach, were experimented in TURAS as an approach to build collaboration between citizens, local governments, industry, research and innovation partners (Chesbrough, 2006, Carayannis et al., 2012). While the use of open innovation approaches was successful for

experimenting with innovation at a small pilot level, scaling up these concepts to city level presented challenges for local governments.

Early research proposition

This prompted the initial idea for the current research study i.e. to follow what happened when local governments involved in Connecting Nature, a new European-funded research action, were confronted with the challenge of implementing NBS at a city-wide scale. The initial research proposition for this study was that local governments would need to adapt their existing governance processes in some way to accommodate the level of multi-actor collaboration required.

Findings from TURAS research established that despite the many pressure on local governments to engage in collaboration, such arrangements presented many challenges in practice. This was particularly the case for local governments operating within the confines of highly departmentalised public sector organisations (Frantzeskaki et al., 2020, Davies et al., 2017, Sarabi et al., 2019). This stimulated a reflection on how such organisations would adapt to requirements for large-scale collaboration for NBS in different public sector environments? Would the outcomes from collaboration be different for public institutions with different types of public sector management models?

Early research question

Building on this research proposition, an initial two-part research question was formulated:

Initial Research Question: How do local governments adapt to the multi-actor collaboration required for the implementation of NBS and with what effect?

This research question was refined iteratively over the first 18 months of the study through a review of different fields of literature and on-site visits to the three case study cities involved. The updated research question is presented at the end of the literature review in Chapter 2.

Research objective

The findings from this study aim to contribute to both theory and practice. The principle theoretical contribution will be to public management theory where this study aims to provide new empirically-based evidence on how local governments adapt to collaborative governance in different public management settings. The findings will also be useful for practitioners, specifically local government organisations who find themselves in the position of implementing

collaborative governance processes. Findings on the actions and outcomes of such collaborative governance processes may provide some guidance on implementation in the field.

1.3 Structure of Thesis

This thesis is structured in seven chapters – beginning with this introductory chapter.

Chapter 2 Literature Review is divided into four main sections. First, the early literature informing the development of the research questions is presented. This is followed by a review of collaborative governance theory as the primary domain of knowledge and practice in which this study is situated. Thirdly, a review of literature relating to findings that emerged over the course of the research is discussed. Finally, a review of different collaborative governance frameworks is presented. This leads to a description of the rationale for selection and adaptation of the Emerson et al. Framework for Integrative Governance (Emerson et al., 2012, Emerson and Nabatchi, 2015a) as the research model for analysis of findings in Chapter 4 and 5. The selection of their Productivity Performance Matrix (Emerson and Nabatchi, 2015b) as the model for analysis of productivity performance in Chapter 6 is also described.

Chapter 3 Methodology is structured as follows. First, an overview is presented of research methodologies commonly used in collaborative governance theory. The fit between these methodologies and the researcher’s philosophical stance is discussed. Then, the research strategy is outlined and the different components of the research design are described. Thirdly, the approach to data collection and the specific methods used are presented. The fourth section provides an explanation of data analysis techniques and the coding process. The chapter concludes with a discussion on the interpretation of data and how bias was considered.

Chapter 4, 5 and 6 present the main findings from the research.

Chapter 4 Cities: Context and Drivers presents findings related to the system context and drivers for Collaborative Governance Regime (henceforth ‘CGR’) evident in each of the case study cities. The CGR is the focal point of the Emerson et al. (2012) Integrative Framework.

A Collaborative Governance Regime (CGR) is defined as:

“the particular mode of, or system for, public decision making in which cross-boundary collaboration represents the prevailing pattern of behaviour and activity”.

(Emerson et al., 2012, p.6).

Findings are presented individually for each case study city followed by a comparative analysis. The chapter concludes with an evaluation of the usefulness of the Emerson and Nabatchi framework in identifying relevant contextual factors and drivers for collaborative governance in case study cities.

Chapter 5 City NBS projects: CGR Formation and Collaboration Dynamics presents and discusses findings in relation to three different elements of the Emerson and Nabatchi integrative framework for collaborative governance (2012).

(i) *CGRs*: Emerson and Nabatchi's typology for CGRs (Emerson and Nabatchi, 2015a) is applied to case-study cities to better understand the process of formation of CGRs. The usefulness of this typology is discussed.

(ii) *Collaboration Dynamics*: findings related to the unfolding of the collaboration dynamics of principled engagement, shared motivation and capacity for joint action are presented for each case study city individually before a comparative analysis and key findings are discussed.

(iii) *Actions related to Collaboration Dynamics*: Process actions and outputs undertaken to support the different processes of principled engagement, shared motivation and capacity for joint action are analysed at different stages of development of CGRs in case study cities. The findings are summarised in a table classifying actions and outputs of collaboration dynamics across case-study cities.

Chapter 6 City NBS projects: Performance of CGRs: Emerson and Nabatchi's Productivity Performance Matrix (Emerson and Nabatchi, 2015b) is used in Chapter 6 to present findings from case study cities on the performance of CGRs from a productivity perspective. Productivity Actions/Outputs, Impacts/Outcomes and longer-term adaptation are considered for three units of analysis: (i) the case study city; (ii) the CGR itself; (iii) more broadly from a systems perspective.

Chapter 7 Conclusion: The final chapter is structured in three parts. Firstly, a summary of the key findings and discussion points from chapters 4, 5 and 6 are presented in relation to the research questions posed. Secondly, potential contributions to theory, practice and methodology are put forward. Finally, the limitations of the study are identified and directions for further research are suggested.

2. Literature Review

2.1 Introduction

This chapter is structured into four sections.

The first section introduces the findings from an early review of NBS, environmental governance literature, local government and public management reform literature. The objective of the early literature review was to understand environmental governance models used for NBS and to reconcile these with observations in the field of the public management models in evidence in local governments. A Key Actors Governance Framework was developed to illustrate the positioning of environmental governance models and public management models in relation to each other.

In the second section, the concept of collaborative governance (CG) is examined, differentiating it from other concepts such as collaborative public management, network governance, co-creation and co-production.

In the third section, the specific areas of focus in this research study are developed responding to both knowledge gaps identified in the CG literature and observations of important challenges in the field.

The final section of the chapter explains how the choice of research model for analysing the unfolding of collaborative governance in case study cities and reviewing performance was made. This section concludes with a review of literature on the temporal dimension of collaborative governance, considering how actions and outputs evolve over time. The integration of the temporal dimension into the research model is discussed.

2.2 Early studies: from NBS and Environmental Governance to Public Management Models

At the start of the study period, the research question was not well defined. Through the Connecting Nature research project, the researcher had access to three case study cities implementing NBS to address intertwined social, environmental and economic challenges at a local level. Given the complexity of both the challenges and solutions, it was evident that this process would be challenging so the initial research proposal was to follow the cities on this journey and observe the challenges encountered and solutions put in place. Before visiting the

case study cities, research began with a review of two fields of literature - NBS literature and environmental governance literature along with brief forays into a few other literature fields such as innovation policy. However innovation policy literature was found to be predominantly outward-looking and did not provide an adequate explanation for the myriad of internal barriers to collaboration that emerged when visits to case-study cities began. At this stage the focus of the literature review shifted towards other fields of literature such as NBS literature and public management literature which could provide a better explanation of what the researcher was observing in the field.

2.2.1 Nature-based Solutions (NBS)

NBS is sometimes considered an umbrella concept encompassing a wide range of activities aimed at improving ecosystems including Ecological Restoration; Ecological Engineering; Forest Landscape Restoration; Ecosystem-based Adaptation; Ecosystem-based Mitigation; Climate Adaptation Services; Ecosystem-based Disaster Risk Reduction; Natural Infrastructure; Green Infrastructure; Ecosystem-based Management; Area-based Conservation (Cohen-Shacham et al., 2019). However NBS have been differentiated from other ecosystem approaches in that they focus on the multi-functional benefits that nature can bring - not just for the environment but equally for citizens, wider society and even the economy (Nesshover et al., 2017, Dorst et al., 2019).

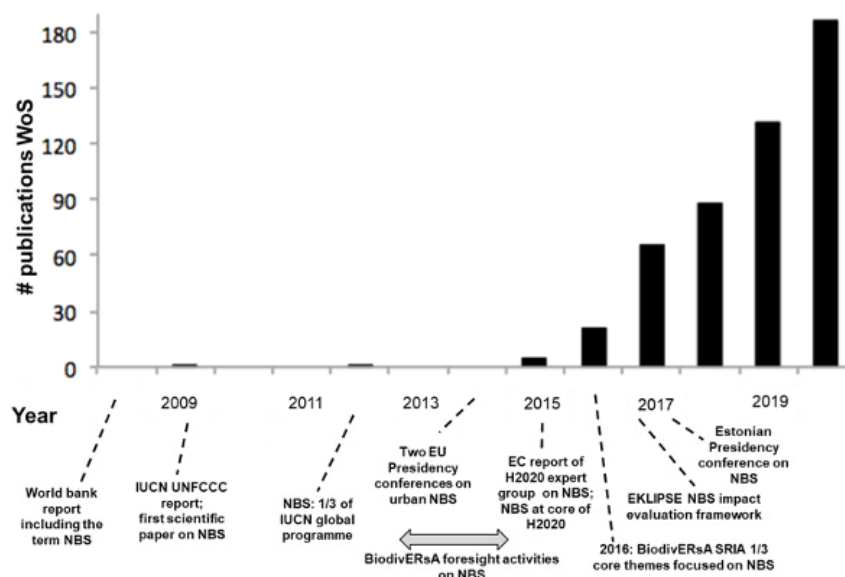
The International Union for Conservation of Nature (IUCN) was first to use the term NBS in the early 2000s when they identified that actions to protect, manage and restore nature could simultaneously generate wider benefits for human well-being and biodiversity (Eggermont et al., 2015, IUCN, 2012, IUCN, 2020). NBS, such as urban trees, green roofs and sustainable urban drainage systems (SUDS) have been shown to boost biodiversity, filter air and water pollution, mitigate against flooding, and increase health and well-being of urban residents amongst many other benefits (Kabisch et al., 2016, Nature, Balian E., 2014, Eggermont et al., 2015, Cohen-Shacham et al., 2016, Fink, 2016, Faivre et al., 2017, Kabisch et al., 2017, Maes and Jacobs, 2017).

Despite promising early evidence, the concept of NBS wasn't taken up in mainstream policy or publications until the European Commission (EC) integrated NBS as a policy priority for research and innovation from 2016 (EC, 2015) (see Figure 2.1). The EC saw the potential of NBS to contribute to overarching European policies towards a more sustainable future, most notably the European Green Deal goal to transition towards a net-zero, nature-positive and equitable economy by 2050 (EC, 2018, EC, 2019, EC, 2021a). They invested €282m in research funding

between 2016 and 2020 with the aim of understanding the potential impact of NBS in response to a range of socio-economic and environmental challenges. Over eighty local authorities in Europe were involved in a range of actions to scale-out NBS in their cities to gather more systematic evidence demonstrating the multifunctional benefits of NBS. The EC defines NBS to societal challenges as:

‘solutions that are inspired and supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help build resilience. Such solutions bring more, and more diverse, nature and natural features and processes into cities, landscapes and seascapes, through locally adapted, resource-efficient and systemic interventions’ (Faivre et al., 2017, p.510).

Figure 2.1 NBS Publications and Policy Development



Source: Wild et al., 2020, p. 6

In Europe, given the increased urbanisation of the EU population, the initial focus of research was on evaluating the potential of NBS in an urban context (Wild et al., 2020). Some scholars see NBS as novel forms of “ecological commons” with the capacity for urban transformation towards increased sustainability and resilience (McPhearson et al., 2023, Van der Jagt et al., 2017). This urban focus in Europe contrasts with the UNEP and IUCN positioning of NBS where the focus is more on the potential of NBS at landscape-scale, for example, the use of NBS in agro-ecological farming, ecosystem restoration, and afforestation (IUCN, 2020).

As the concept of NBS began to mainstream in environmental policy, criticism began to mount over greenwashing. Examples emerged of fossil fuel companies deflecting from sustained high carbon emission strategies by investing in large scale NBS designed for offsetting rather than biodiversity net gain (Chandrasekaran et al., 2021, Seddon et al., 2021). The negative impacts of poorly designed NBS, such as monoculture tree plantations, on biodiversity and community culture and rights was highlighted (Magretta, 2002, Fleischman et al., 2020). In Europe, there were concerns that NBS led to inequitable access to high quality green space and unintended consequences such as gentrification (Toxopeus et al., 2020). This led to a healthy discussion and debate in the wider NBS community leading to the development of the first global standard for NBS (IUCN, 2020) which include criteria relating to biodiversity net-gain, inclusive governance processes and consideration of trade-offs between outcomes and stakeholders.

These concerns were considered when a definition for NBS was agreed at the United Nations Environment Assembly (UNEA) in 2022 that bridges the EC and IUCN definitions. The accompanying resolution recognises the potential contribution of NBS to the UN Sustainable Development Goals and the three Rio Conventions but it recommends social and environmental safeguards are put in place to avoid future misuse of the concept. NBS are defined as:

“Actions to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems which address social, economic and environmental challenges effectively and adaptively, while simultaneously providing human well-being, ecosystem services, resilience and biodiversity benefits” UNEA resolution 5/5 (UNEA, 2022)

NBS and collaborative governance

Early reviews of NBS literature suggested that NBS require a collaborative multi-stakeholder, multi-level approach to implementation to achieve the multi-dimensional benefits associated with this concept and to mitigate against unintended negative consequences (Kabisch et al., 2016, Van der Jagt et al., 2017). The importance of the physical dimension of NBS has been highlighted:

“transforming the physical characteristics and appearance of public space is coupled with the perceived benefits people assign to it in the form of sense of place” (Frantzeskaki, 2019 p. 102).

Several scholars consider the creation of NBS akin to the creation of new urban commons in which they recommend citizens need to be involved (Frantzeskaki, 2019, Tozer et al., 2023,

McPhearson et al., 2023). Later literature drawing on empirical evidence from implementation of NBS on the ground confirmed the necessity for multi-actor collaboration and identified the importance of local and city governments in initiating and creating safe spaces for this collaboration to take place (Pereira et al., 2015, Ambrose-Oji et al., 2017, Buijs et al., 2016b, Buijs et al., 2016a).

2.2.2 Environmental governance

Given the origins of the NBS concept in the conservation of natural resources, the initial literature review included an overview of environmental governance literature. Environmental governance is described as:

“the set of regulatory processes, mechanisms and organizations through which political actors influence environmental actions and outcomes. Governance is not the same as government. It includes the actions of the state and, in addition, encompasses actors such as communities, businesses, and NGOs” (Lemos and Agrawal, 2006 p. 298).

In the US, environmental consciousness came to the foreground in popular culture with the first Earth Day protest in 1970 following public outrage after the Santa Barbara oil spill (Dunlap and Mertig, 2014). Since then, scholars generally acknowledge three waves of environmental governance, the main characteristics of which are summarised hereafter (Mazmanian and Kraft, 2009):

1. **Environmental protection and regulation:** Beginning in the 1970s, this era is characterised by the introduction, and strengthening, of existing legislation for environmental protection including regulation related to protection and conservation of natural resources. This period coincided with the publication in commons literature of Hardin’s work on the ‘Tragedy of the Commons’, the main premise of which is that the State had a moral duty to protect the commons as humans acted in their own self-interest leading to the destruction of the commons (Hardin, 1968). However, environmental protection regulations proved to be a blunt instrument with limited effectiveness. Continued increases in air and water pollution, combined with criticisms that such regulation was overly bureaucratic and anti-business, opened the way for a new approach.
2. **Efficiency-based regulatory reforms:** This era coincided in the 1980s with market-oriented New Public Management (NPM) reforms in public management which ushered in the epoch of ‘neo-liberal environmentalism’. This period focused on market behaviour introducing a ‘carrot and stick’ approach which included incentives for good behaviour and penalties for

harmful behaviour. Common regulatory instruments from this era, many of which are still used today, include 'cap and trade' systems, carbon taxes and voluntary disclosure systems.

3. **The Sustainability Movement:** The Brundtland Report (Brundtland, 1987) commissioned by the World Commission on Environment and Development (WCED) of the UN is often credited with introducing the term 'sustainable development'. Although criticised at the time (and by some today) for being too woolly and unworkable, today the principles of sustainable development are the foundation for the UN Sustainable Development Goals agreed by 193 countries as a *"shared blueprint for peace and prosperity for people and the planet, now and into the future"*¹. From an environmental governance perspective, participatory decision making is key to sustainable development with the objective being to arrive at a sense of common purpose for all pillars of society – public, private and third sector (Durant et al., 2004, Hempel, 2009). Importantly for this research on NBS, Paehlke and Torgeson qualify this definition of sustainability movements by adding that such movements happen within a geographically defined area and involve at least partial coordination between public, private and third sector actors (Paehlke and Torgerson, 2005). The sustainability movement coincided with a golden era in commons research crowned with the Nobel prize for Elinor Ostrom's work on the governance of the commons (Ostrom, 1990, Ostrom, 2005, Ostrom, 2009). Ostrom's work, some of which is discussed in more detail later in this chapter, demonstrated the capacity of communities to self-govern the commons by agreeing together a systems of rules and penalties.

The sustainability movement which began in the 1990s is still evolving today (Mazmanian and Kraft, 2009). Currently a patchwork of overlapping environmental governance policies are evident, not just in the US but in many countries worldwide (Durant et al., 2017). In Europe, similar trends in environmental governance could be seen. The European Commission (EC), the politically independent executive arm of the European Union (EU), plays an enormous role in setting, coordinating and regulating environmental policy across all member states. It has been suggested that over the past five decades the EU has evolved into one of the 'most legally and politically authoritative regional organisations in the world' wielding significant global influence on environmental and sustainable development policies (Selin and VanDeveer, 2015). Successive EC Environmental Action Programmes (EAPs) from the 1970s to the eighth EAP covering the

¹ UN Sustainable Development Goals <https://www.un.org/en/desa/sustainable-development-goals-sdgs>

period up to 2030 have seen environmental policy move from an idealistic start to the fulcrum of European policy today (Oberthür and Roche Kelly, 2008). Ursula von der Leyen, the president of the EC since 2019 made sustainability a central tenet of her incoming strategy with all member states (except Poland) signing up to the cross-cutting EU Green Deal in 2019 (Von der Leyen, 2019, Burns, 2021). The goal of the Green Deal is to transition in Europe to a net zero, nature-positive, equitable economy by 2050. This policy has been underpinned by a suite of new sustainability related actions underpinned by substantial budget provisions. However, support for some elements of the Green Deal is beginning to waver with increased political polarisation coming to the fore, as evidenced in the divisive debate on the European Restoration Law in 2023² (Arndt et al., 2023).

Moving from this general overview of environmental governance, a further literature review sought to elucidate different models of environmental governance in practice in the field. Lemos and Agrawal's seminal work was used as the starting point for this review (Lemos and Agrawal, 2006). In addition to the three 'pure' forms of governance led by government / state actors, market actors or community actors, Lemos and Agrawal identified three forms of bilateral hybrid governance between these actors - co-management (between government and community actors), social-private partnerships (between community and market actors) and public-private partnerships (between market actors and government).

Hybrid governance is a term also used to describe multi-actor collaborations involving policy makers, businesses, citizens and NGOs (Toxopeus et al., 2020). There is a rich vein of study on multi-actor collaborations in the literature on urban sustainability transitions and NBS (Frantzeskaki et al., 2016, Bulkeley et al., 2016, Wolfram et al., 2016, Frantzeskaki, 2019, Frantzeskaki et al., 2019, Loorbach et al., 2015). Another concept which appeared to be relevant in NBS literature was the concept of 'transboundary actors' who act as knowledge brokers or transaction consultants between other actors in multi-actor collaborations (Sarabi et al., 2019, Rhodes et al., 2021).

Early on-site visits confirmed that multi-stakeholder collaboration between the public, private and third sector was an important goal for cities with relations under-developed in most case studies. However, another dimension of governance complexity emerged as a priority from these early visits. Multiple layers of governance were observed within, and between, local government

² <https://www.theguardian.com/world/2023/jul/12/eu-passes-nature-restoration-law-vote-meps>

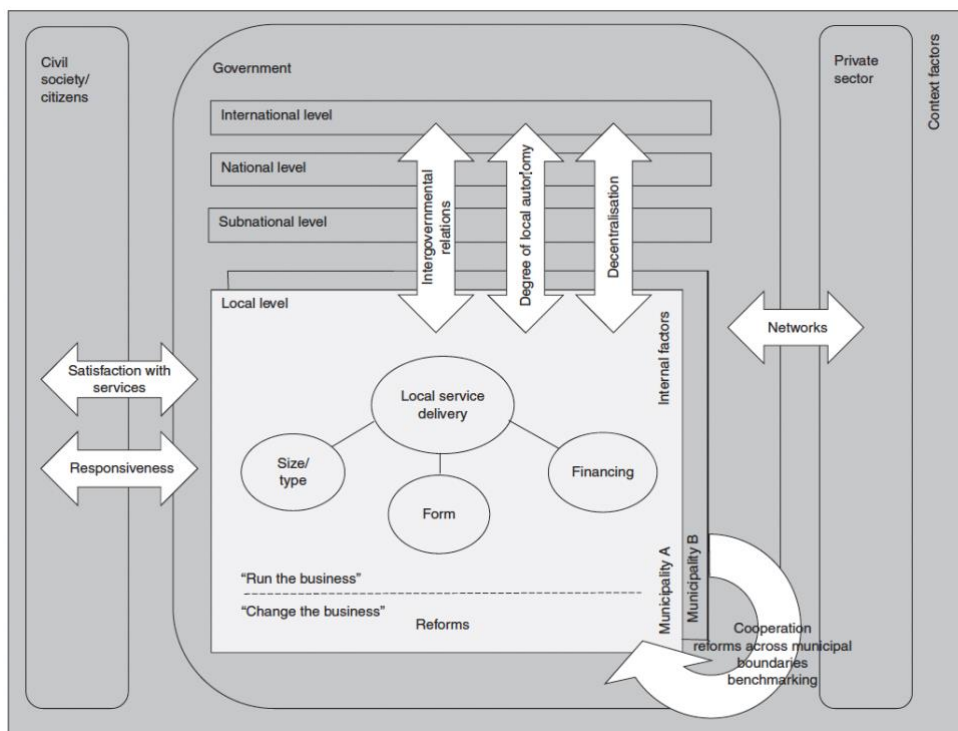
departments, with regional and national public agencies and with government departments. Navigating existing collaboration arrangements within the public sector was identified as an immediate challenge.

2.2.3 Local Government

After reviewing NBS and environmental governance literature, the first field visits clarified that the local government teams responsible for NBS implementation had many concerns over the scale and complexity of multi-actor collaboration required. Of highest concern was the perceived lack of understanding and buy-in to the concept of NBS within different departments of their own organisations. This prompted a return to the literature to better understand the specific drivers and barriers to collaboration within local government organisations.

Steiner et al.'s analytical framework for service delivery at the local level (Figure 2.2), appeared to capture well the complexities of collaboration from a local government perspective (Steiner et al., 2018).

Figure 2.2 Analytical framework of local service delivery in a multi-level context



Source: Steiner et al. 2018, p. 397

This framework highlights the positioning of local government within a multi-level government context and in the wider context of collaboration with civil society and the private sector. Within the local government organisation itself, internal factors influencing local service delivery were identified including the reform agenda which will be discussed in the next section 2.2.4

Drivers of collaboration:

Several drivers of collaboration at local government level emerged from the literature. These include:

- (i) **Decentralisation:** The increased decentralisation of public service provision from national to local levels of government has meant increased responsibility at local government levels. After the financial crisis of 2007/2008 governments entered the 'age of austerity' with increased pressure on public finances (Pollitt and Bouckaert, 2017). The added complexity of dealing with increased service provision combined with pressures on finances acted as a driver for local governments to engage with other stakeholders with knowledge or resources to support public service delivery (Steiner et al., 2018).
- (ii) **Increased empowerment and responsibility of citizens:** Literature reviewed on relational state theory makes the case for a change in relations between government, civil society and business organisations in response to societal challenges. Mendoza and Vernis argue for a move towards 'co-responsibility' or an equal sharing of responsibility between government and societal actors in responding to societal challenges (Mendoza and Vernis, 2008). They suggest that the role of government is to step back and facilitate greater engagement from societal actors through communication and support. Arguments for a reduced public sector role in response to societal challenges contrasts with other views from innovation policy which make the case that strong government leadership is needed to tackle complex challenges (Mazzucato, 2016, Mazzucato and Semieniuk, 2017).
- (iii) **Increased awareness of the importance of multi-stakeholder collaboration in environmental management:** Historically, government and public sector actors acted alone in the initiation and management of urban development, including urban greening initiatives (Sekulova and Anguelovski, 2017, Wilk et al., 2021). However several waves of public sector crises and reform efforts since the 1970s have led increasingly to the realisation that government can no longer act alone in the delivery of solutions to complex environmental challenges (Lemos and Agrawal, 2006, Driessen et al., 2012).

Challenges to NBS collaboration at local government level

While there is a strong case for collaboration in theory, implementing such concepts in practice present many concerns and challenges for local governments. It is widely agreed that siloed governance – where benefits and risks, roles and responsibilities are divided across organisational domains – is a significant challenge to NBS implementation and inhibits the realisation of co-benefits (Dorst et al., 2019, Fastenrath et al., 2020, Malekpour et al., 2021, Zingraff-Hamed et al., 2021, Egusquiza et al., 2019, Frantzeskaki, 2019).

Public procurement procedures, and legal and regulatory frameworks are other important barriers identified to collaborating in the NBS literature (Egusquiza et al., 2017, Van der Jagt et al., 2017, Toxopeus and Friedemann, 2017, Sekulova and Anguelovski, 2017, Mayor et al., 2021, Sarabi et al., 2019, Mačiulytė and Durieux, 2020). Further, the implementation of NBS is complicated due to the complex, long-term nature of these interventions which does not align with short electoral cycles and public policy decision making (Egusquiza et al., 2019). The long timeframes for NBS planning and implementation may necessitate different types and levels of stakeholder involvement at the different phases of NBS implementation from design and planning to delivery and long term management or stewardship (Vandergert et al., 2020, Hölscher et al., 2020).

2.2.4 Public Sector Management Models

The significance of challenges to collaboration at an intra-organisational level prompted a review of theory on public management models with a view to understanding how such models could impact on collaboration culture. Pollitt and Bouckaert's seminal work on public management reform was used as the basis for this review. They identify four dominant public sector management models - Traditional Public Administration, New Public Management, Neo-Weberian State and New Public Governance models (Pollitt and Bouckaert, 2011, Pollitt and Bouckaert, 2017). They add an important caveat to the use of the term 'dominant' recognising that in practice many public sector organisations exhibit characteristics of multiple public sector management models, potentially arising from several waves of public sector reforms. These models are briefly presented hereafter:

The **Traditional Public Administration (TPA)** model dominated public sector management approaches from the late 19th century (Wilson, 1887, Weber, 1922). Traditional Weberian-style models of public management are characterised by an emphasis on the rule of law, hierarchical structures, high-levels of bureaucracy and the expectation of officials to commit to life-long

careers in the public service (Hughes, 2003). Public services were usually delivered directly by the authorities responsible for them to ensure reliable, uniform and equitable service provision to all citizens (Greener, 2013).

New Public Management (NPM) reforms began to spread from the late 1970's/early 1980's in particular across the UK, US, Australia and New Zealand. They were driven by perceptions of inefficiencies with traditional approaches and increasing constraints on public finances. These reforms were often modelled on private sector business management approaches. NPM approaches focused on achieving results which were systematically evaluated through performance indicators such as cost reduction or productivity increases. Public sector officials became more 'managerial' with more devolved decision-making power. Competition was encouraged both within the public sector and with external actors to identify more cost-effective public service delivery channels (Hughes, 2003). NPM saw the rise of Public-Private-Partnerships (PPPs) and other forms of contract arrangements to manage the relationship between government and service delivery organisations. A wealth of literature has tracked the emergence of NPM reforms and the consequent impact of these reforms on the 'hollowing out' of government services through increased outsourcing of service delivery to external actors (Hood, 1991, Milward and Provan, 2000). Some scholars suggest that the NPM focus on efficiency and short-term results has reduced the capacity of systems to adapt to the long-term perspectives needed to address climate change (Inderberg et al., 2015).

New Public Governance (NPG): The most recent public sector management model to emerge is New Public Governance (NPG) which recognises that the reality today is that public services are being delivered by multiple interdependent actors and that multiple processes inform policy making (Osborne, 2006). NPG places an emphasis on co-design and co-production of services and outcomes with citizens and market players with the aim of increasing the efficiency of processes and outcomes from this network of actors. NPG sees the role of public sector actors as changing from 'command and control' type leaders in TPA to facilitators and communicators 'steering the boat instead of rowing' (Rhodes, 2008, Osborne, 1993).

Neo-Weberian State (NWS) model: Although a review of public management literature today might lead one to thinking that the traditional public administration model is largely irrelevant, Pollitt and Boukaert (2011, 2017) identified that many continental European countries did not embrace NPM models and instead introduced their own version of reforms. Indeed in post-Communist Central and Eastern European countries, there was some evidence that a Weberian-style public administration model was seen as a necessary precursor to implementation of any

type of NPM reforms (Drechsler and Kattel, 2008). Pollitt and Boukaert (2011, 2017) grouped together such reforms into the Neo-Weberian State (NWS) model and identified its key characteristics. Firstly, under NWS, governments still see themselves as the lead facilitator of solutions that address public needs including responses to complex environmental and societal challenges like climate change. Governments still retain their central role as the main provider of public services with the occasional use of market mechanisms to implement policy and deliver public services. Public sector culture can be seen as shifting somewhat towards achieving results, but the results being targeted tend to be improvements in quality and service rather than cost or productivity efficiencies as with NPM models. In line with the aim to better understand and meet citizen needs, a shift from internal to external orientation can be seen under NWS with some use of mechanisms like citizen consultations and citizen budgets to achieve this aim.

In contrast with Pollitt and Boukaert's positioning of the NWS model as an alternative reform model to NPM, a recent COCOPS study on public administration reforms in Europe identified NWS as a third wave of reform which *followed* NPM in Europe (Hammerschmid et al., 2016). The COCOPS study paints a complex picture of administration reforms across Europe with evidence of high-levels of take up of NPM in Northern Europe and the Netherlands contrasting with low levels in other parts of continental Europe, in particular Germany and France, which still retain many characteristics of traditional bureaucratic Weberian type public administration. They identified that the pace of reforms in Southern, Central and Eastern Europe was more difficult to characterise with some countries pushing ahead with comprehensive reforms while other countries show little appetite for change. This echoes the findings from an empirical review of NPM implementation across central and Eastern European states which showed a varying level of uptake of NPM reform (Dan and Pollitt, 2015).

To summarise, the role of government can be characterised as 'implementer' (under TPA/NWS) to 'manager' (under NPM) to trusted partner and collaborator (under NPG) (Greener, 2013; Osborne, 1993; Pollitt and Bouckaert, 2011, 2017 4e). When it comes to responding to climate change, a combination of these models may be optimal:

"We will need to better integrate a more assertive use of governmental authority with a more responsive model of public partnership to adequately address the climate change imperative"
(Emerson and Murchie, 2010, p.14).

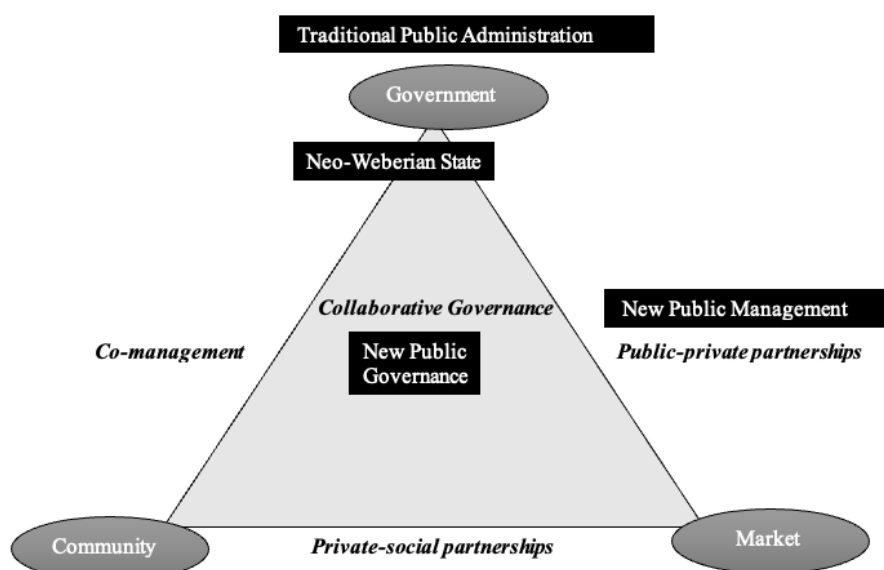
2.2.5 Bridging public management and environmental governance models

Bridging the disconnect between public management research and environmental governance research was the subject of an IRSPM 2019 panel on public management and the environment. This panel recognised that public management literature (Kooiman, 1999, Greener, 2013, Hughes, 2003, Osborne, 2006, Hood, 1991) offered limited insights into the governance issues arising from environmental challenges, while simultaneously environmental governance literature (Lemos and Agrawal, 2006, Walker and Salt, 2006, Folke et al., 2005) provided limited insights for public management trying to address such challenges. In response to this panel, the author co-authored a paper (subsequently published as a book chapter) proposing a Key Actors Governance Framework (KAGF) to clarify the commonalities and/or differences between public sector management models and environmental governance models (McQuaid et al., 2021).

Key Actors Governance Framework

Borrowing from welfare state literature (Esping-Andersen, 1990, Pestoff et al., 2006), Figure 2.3 shows a triangular representation of actors involved in public policy-making and service delivery. These include at the vertices of the triangle (i) state / government actors (ii) market or private sector actors and (iii) third sector actors (which encompass a 'loose and baggy' category of community, voluntary, non-profit and civil society actors (Brandsen and Pestoff, 2006)). For simplicity these are labelled government, market and community actors in the Key Actors Governance Framework' (KAGF) shown in Figure 2.3.

Figure 2.3 Key Actors Governance Framework (KAGF)



Adapted from Pollitt and Boukaert (2017) and Lemos and Agrawal (2006)

The KAGR shows the positioning of environmental governance models and public sector management models based on the locus of power. The term 'government' is broadly interpreted to encompass all levels of government i.e. national, regional, local or urban government structures including state agencies or semi-state organisations with a controlling public interest.

The model of New Public Management (NPM) is located between government and market actors showing a sharing of responsibility between actors, while acknowledging that contribution to policy development is limited in more contractual models of public-private partnership (PPP). The New Public Governance (NPG) model is positioned in the middle showing shared responsibility between multiple actors for policy development and service delivery.

The KAGF was then used to position environmental governance models showing responsibility for the same set of actors in relation to environmental actions and outcomes. In addition to environmental governance modes led by state, community or market actors, the three forms of hybrid governance identified earlier by Lemos and Agrawal (2006) are then positioned on the triangle. These are co-management governance models, social-private partnerships and public-private partnerships. The extent to which these hybrid arrangements appear in public management literature and NBS literature is now discussed.

Public-private partnerships are well described in public management literature and are often associated with NPM modes of governance. While the primary focus of public management studies relates to challenges, emerging innovations and the effectiveness of such partnerships, their potential contribution to sustainability has been more recently reviewed (Pinz et al., 2018). In theory, PPPs hold much promise for sustainability based on their definition as:

“cooperative arrangement[s] between the public and private sectors [that] involve . . . the sharing of resources, risks, responsibilities and rewards with others for the achievement of joint objectives (Kwak et al., 2009, p.52).

However, in practice a conflict of interest may arise between short-term commercial interests of private partners and the long-term nature of sustainability objectives (Koppenjan and Enserink, 2009). As with private-social partnerships, the creation of any new property rights in relation to natural resources including NBS is a subject of much debate and also raises questions of social equity (Toxopeus et al., 2020, Haase et al., 2017). More recently the concept of a new form of

‘People-first PPPs’ has emerged, actively supported by the UN in the context of the implementation of UN Sustainable Development Goals (Zapatrina, 2018).

Co-management is not a term widely used in public management literature but it has been defined in relation to more common concepts such as co-production (Pestoff et al., 2006, Pestoff, 2014, Kleinhans, 2017).

“Co-management refers to an arrangement, in which the third sector produces services in collaboration with the state. Co-production, refers to an arrangement where citizens produce their own services at least in part” (Pestoff et al., 2006, p.592).

Within the field of urban green space management, ‘mosaic governance’ is another recent concept which describes the more flexible and context-specific approach which governments need to take to enable more active citizen engagement in the management of urban green space (Buijs et al., 2016b). Mosaic governance considers the broad range of citizen initiatives and organisational forms which exist and also the diversity of urban green space.

Social-private partnerships: Social-private partnerships are not often discussed in public management literature, most likely as government actors are not involved. This mode of hybrid governance commonly identified in environmental governance literature relates to co-governance of environmental interventions by private sector or community organisations, or through joint community-private sector arrangements. Sustainable Local Enterprise Networks (SLEN) describe informal networks of cooperation that include businesses, community actors and NGOS. They can lead to an increase in social and ecological capital and are common in developing countries (Wheeler et al., 2005). With regard to community-led, rather than market-led, forms of governance, a study of 264 cases of ‘green’ self-governance in the Netherlands revealed that despite the growing interest and involvement of citizens in green space governance, government actors play an important role in supporting many of these practices in the long term. The author concluded that in many cases, self-governance is not entirely ‘self’ (Mattijssen et al., 2018).

Collaborative Governance: Moving from bi-actor partnerships to multi-actor interactions, collaborative governance is the final mode of governance mapped in the KAGF. While not specifically identified by Lemos and Agrawal (2006) as a model of environmental governance, this mode of governance is highly relevant to the research planned in this study as it recognises the specific and important role of public sector actors in multi-actor collaborations. The potential of collaborative governance to address the ‘wicked’ nature of societal challenges such as climate change is recognised by other scholars (Emerson and Murchie, 2010). The Ansell and Gash (2008)

definition of collaborative governance was used in the initial stages of this research study. They describe collaborative governance as:

“a governing arrangement where one or more public agencies directly engage non-state stakeholders in a collective decision-making process that is formal, consensus-oriented, and deliberative and that aims to make or implement public policy or manage public programs or assets (Ansell and Gash, 2008, p. 544).

From this definition it is evident that public agencies play a lead role in collaborative governance but any non-state actor may be involved in this process. For this reason collaborative governance is therefore placed in the centre of the KAGF.

Application of the KAGF to NBS

In an earlier study for a different EU research project, the KAGF Framework was applied to 56 NBS case-studies primarily from Europe (Egusquiza et al., 2019). The results showed that the governance modes of NBS can be mapped clearly against this framework (McQuaid et al., 2021).

Collaborative governance emerged as the dominant form of NBS collaboration in 45% of these 56 cases. This is consistent with NBS literature suggesting that collaborative governance is a requirement for successful NBS implementation (Wilk et al., 2021, Naumann et al., 2023). However, this study also showed that traditional top down public administration modes of NBS governance were still evident in 16% of cases. New public management models were also evident in 21% of cases. Co-management arrangements accounted for 14% of NBS while private-social governance modes only accounted for 5% of NBS studies. In this study it can be seen therefore that government actors play a role in the governance mode of 95% of NBS!

One of the limitations of this study however was that it only looked at NBS governance modes and did not consider the level of alignment between NBS governance modes and the prevailing public sector management model of the government actors involved. The review of public management literature from Europe suggests that the potential for a lack of alignment is high. Indeed in the conclusions, Egusquiza identifies:

‘the significant incidence of less suitable but more traditional governance models (of NBS), shows the high inertia that remains in urban planning’ (Egusquiza et al., 2019, p. 12).

This would suggest an uneasy relationship between collaborative governance modes required for NBS and local government contexts where more traditional, Neo-Weberian State or New Public Management modes of public sector management are evident. Given that many regions of

Europe have not fully embraced more open forms of network governance and that traditional hierarchical top-down public sector management practices remain prevalent, it is unsurprising that NBS literature identifies public management cultures as a key challenge in NBS implementation. In the findings presented in Chapter 4, the prevailing public sector management models of case study cities are identified.

Conclusion of early literature review

The review of public management models and environmental governance modes resulted in the development of a Key Actors Governance Framework (KAGF) which helped to visually illustrate the positioning of public sector management models with modes of environmental governance. The application of the KAGF to NBS case studies in an earlier study showed that while many different modes of governance were evident, collaborative governance was the dominant governance mode for NBS implementation. From this point in the research, collaborative governance became the focus of the literature review and analysis.

2.3 Collaborative governance

2.3.1 Unravelling the concept of Collaborative Governance

“Despite a widespread belief in the power of collaboration to solve society's ills, however, we know little about what collaborative governance is, how it works and whether it lives up to its promise.” (Gash, 2022, p. 497).

Collaborative governance is a confusing field of theory criss-crossing many disciplinary boundaries over the last 30+ years. Even within the discipline of public management, the boundaries between collaborative governance and other concepts are often blurred. Indeed, the lack of consensus on a common definition of collaborative governance and the lack of conceptual clarity around the concepts have been identified as a key challenge in advancing the field (Gash, 2022, Isett and Sowa, 2023, Amsler and O’Leary, 2017, O’Leary and Vij, 2012). In the 2023 IRSPM panel on Collaborative Governance, Kymberly Isett and Jessica Sowa argued that collaboration literature has been drifting in focus for several decades and that there is a need to return to basics

in differentiating between collaboration, collaboration governance, network governance and the many other concepts in this space³.

The next section is an attempt to return to basics and define the terms ‘collaboration’, ‘governance’ and ‘collaborative governance’ and how - as a form of governance - collaborative governance is different from other commonly used constructs in the field of NBS implementation such as co-creation/co-production, collaborative public management and network governance. This review is not exhaustive as there are many other concepts of interest in an ever expanding field. However, due to the limitations of this study, only those of most relevance to the setting of local government and implementation of NBS are reviewed here.

Collaboration

As shown in Figure 2.4, collaboration is sometimes seen as part of a continuum of mechanisms of organisational sharing (Bryson and Crosby, 2014).

Figure 2.4 Continuum of Organizational Sharing

What Is Shared	Mechanism for Sharing			
Authority				Merger
Power or capabilities			Collaboration	
Activities and resources		Coordination		
Information, good will, and good intentions (i.e., the absence of conflict)	Cooperation			
Nothing	None			

Source: Bryson and Crosby (2014) p. 56

³ *Losing my Collaboration: Twenty five years of collaboration literature and its focus drift*, 4th April 2023, IRSPM Conference, Budapest <https://irspm2023.exordo.com/programme/session/150>

It has been defined as:

“the linking or sharing of information, good will, and good intentions; resources; activities; and power or capabilities by organizations in two or more sectors to achieve jointly what could not be achieved by organizations in one sector separately” (Bryson and Crosby, 2014, p. 56, citing Himmelman 1996; Hubbard 1995).

While this definition of collaboration refers to cross-sectoral, inter-organisational collaboration, it is equally valid for cross-departmental collaboration in organisations characterised by high-levels of departmentalisation and silo-thinking where cross-departmental collaboration is required to solve challenges which cannot be solved by one department alone.

A review by Amsler and O’Leary (2017) of fifteen of the most common definitions of collaboration out of hundreds published identifies that the majority of these definitions consider collaboration as a *process* which has ‘*instrumental value as a means to an end*’ (Amsler and O’Leary (2017) p. 627). Several definitions incorporate *outcomes* as part of the definition of collaboration i.e. collaboration as an end in itself, such as for example acceptance of an agreement or decision. In some definitions, collaboration is defined also in terms of a *structure* or in terms of *participant engagement*.

Governance

Interest in governance has increased exponentially since the 1990s. In the recently published *Handbook on Theories of Governance* multiple forms of governance are identified:- co-production, democratic network governance, regulatory governance, network governance, collaborative governance, private governance, urban and regional governance, multi-level governance, EU and supranational governance, transnational economic governance, meta-governance, adaptive governance and experimentalist governance (Ansell and Torfing 2022). Needless to say, there are many synergies and differences between these different forms of governance but clarifying these and arriving at consensus in the field is a challenging task.

Governance is different from government and indeed Ansell and Torfing suggest that this differentiation is one of the reasons behind the surge in popularity of the concept. Governance signals a departure from government-centric power and policies and implies the involvement of non-government actors in policy making and power.

Ansell and Torfing review many definitions of governance, rejecting some as too focused on structures and institutions (World Bank definition) and others as conflating networks and governance (Kooiman 1993, Klijn 2008). At the most simplistic level they state that governance means “any pattern of ordered rule”. This resonates with other simplistic definitions of governance associating the term with joint agreement on rules. In early frameworks modelling the process of collaboration, governance is identified as a key element, but only one of many equally important elements in the collaboration process (Thomson and Perry, 2006). In such frameworks, governance relates to joint agreement on rules and acceptance of penalties for not adhering to such rules. This conceptualisation of governance harks back to Ostrom’s work on the governance of the commons where the importance of ‘rules-in-use’ was extensively researched (Ostrom, 1990).

Nevertheless, in this study, Emerson and Nabatchi’s broader definition of governance is used, drawing on Frederickson’s argument that governance should be as much about steering (policy) as rowing (administration) (Frederickson, 2007) . Governance is thus defined as:

“the act of governing, or how actors use processes and make decisions to exercise authority and control, grant power, take action, and ensure performance—all of which are guided by sets of principles, norms, roles, and procedures around which actors converge” (Emerson and Nabatchi 2015b, p. 15).

Collaborative Governance

Moving from definitions of collaboration and governance to a definition of collaborative governance is regrettably not as simple as merging the two concepts together. Ansell and Gash’s (2008) definition of collaborative governance is among the most widely used:

“A governing arrangement where one or more public agencies directly engage non-state stakeholders in a collective decision-making process that is formal, consensus-oriented, and deliberative and that aims to make or implement public policy or manage public programs or assets” (Ansell and Gash, 2008, p. 544).

This definition relates well to the definition of governance (as an outcome-oriented process involving multiple actors) but it goes further by clearly positioning the public agency as the lead actor engaging other non-state actors in a decision-making process, the subject of which is public policy-making or management. The nature of this collaboration is not specified (i.e., sharing of

information, good will, and good intentions; resources; activities; and power or capabilities as described by Bryson and Crosby above).

Ansell and Gash's definition of collaborative governance was originally used in this research as it relates well to the research context and aims. The unit of analysis for the first part of the research question is the local government. The local government is engaging other non-state actors in the process of making decisions on the planning, delivery and long term stewardship of NBS responding to multi-dimensional challenges in a local context. Isett and Sowa (2023) urge researchers to be clear about the goal of collaboration - is it aimed at policy, program delivery or client outcomes? In this research, the end goal is program delivery and client outcomes (on the understanding that nature is considered an equal 'client' in terms of outcomes as citizens). However in order to achieve program delivery and outcomes, collaboration is first needed to integrate NBS into policy and across organisations. So in this research, it is argued that collaboration can span multiple goals.

Following the first stage of data collection, the author became concerned that Ansell and Gash's definition was overly focused on collaboration between different sectors (public sector, private sector, third sector) and therefore this definition fell somewhat short in adequately capturing the multiple layers of collaboration evident within the public sector itself. Early data analysis in case study cities showed that collaboration within large public sector organisations at cross-departmental level was very important as was collaboration with different agencies and departments at regional and national levels of government. Collaboration at inter- and intra-organisational level within the public sector alone was as important, if not more important, to case study cities as collaboration with non-state actors such as citizens and businesses.

Following another return to the literature, the broader definition of collaborative governance proposed by Emerson et al. (2012) seemed to provide a better fit with the situation evident on the ground in the case study cities. This definition recognises the importance of engagement across public sector agencies and levels of government. For this reason the Emerson et al. (2012) definition was used in this thesis with one small adaptation (in bold below) which draws specific attention to the importance of internal, intra-organisational collaboration across government departments. The importance of such internal collaboration has been identified in different empirical studies as discussed later in this chapter but it does not seem to be clearly specified in existing definitions. Collaborative governance is thus defined as:

*“the processes and structures of public policy decision making and management that engage people constructively across the boundaries of public **departments and** agencies, levels of government, and/or the public, private and civic spheres in order to carry out a public purpose that could not otherwise be accomplished” (Adapted from Emerson et al. 2012, p.3).*

Thus the decision to use a slightly adapted version of the Emerson et al. definition arose from an iterative process of cycling between literature review and observations within the case studies.

The drivers for collaborative governance can be broadly summarised as (i) the need for innovative solutions in the face of complex new challenges that public sector actors can't solve alone; (ii) continuing pressure on public sector budgets; (iii) a sense that community empowerment and multi-actor consensus on policy decisions and implementation is simply the right thing to do (Voets et al., 2021, Mitchell et al., 2015).

Collaborative Public Management

Collaborative public management is another relevant concept. Ansell and Gash (2008) identify public policy making or management as the aim of collaborative governance while Emerson et al. (2012) identify collaborative governance as the process and structures of public policy decision making and management. The concepts are closely intertwined. Amsler and O'Leary (2017) define collaborative public management as:

“a concept that describes the process of facilitating and operating in multi-organizational arrangements to solve problems that cannot be solved or easily solved by single organizations. Collaborative means to co-labor, to achieve common goals, often working across boundaries and in multi-sector and multi-actor relationships. Collaboration is based on the value of reciprocity.” (Bingham and O'Leary, 2008; O'Leary and Bingham, 2009; Agranoff and McGuire, 2003; cited by Amsler and O'Leary, 2017, p. 629).

They draw on other literature to suggest that collaborative governance is a broader umbrella term than collaborative public management.

Network Governance

Network governance has been defined as:

“a group of goal-oriented interdependent but autonomous actors that come together to produce a collective output (tangible or intangible) that no one actor could produce on its own”

(Isett et al. 2011, p.161 drawing on Alter and Hage 1993; Isett and Provan 2005; Koppenjan and Klijn 2004).

Isett et al. (2011) identify three streams of network literature - literature relating to policy networks, collaborative networks and governance networks. Policy networks bring together cross-sectoral actors with an interdependent interest in a specific field of policy (Isett *et al.*, 2011). Collaborative networks bring together cross-sectoral actors to deliver a good or service, or solve a problem, that could not be addressed by a single organisation alone (Agranoff and McGuire, 2003). Finally, the literature on 'governance networks' has a rich history. It is important to distinguish between the first wave of network governance theory which focused on networks as mechanisms of governance - as opposed to market or state governance (Keast et al., 2006) and later waves which focused on how to improve the governance of networks (Provan and Kenis, 2007, Torfing, 2005, Sorensen and Torfing, 2009). Network governance is described as:

"public policy making and implementation through a web of relationships between government, business and civil society actors" (Klijn, 2008, p. 511).

It is clear therefore, that there are many overlaps and insights for collaborative governance from network governance theory. Achieving conceptual clarity, however, is far from straightforward as well described by O'Leary and Vij (2012):

"Although collaboration can be a feature of networks, it can also exist outside of networks. Similarly, networks too can extend beyond collaborative linkages. Since the terms are often used interchangeably, however, the incorrect impression is that all networks are collaborative and all collaborations happen in networks." (O'Leary and Vij, p.217).

While we draw on many insights from network governance in this research, collaborative governance is a better fit with the research goals given the more specific focus on public sector agencies and public policy goals.

Co-creation, Co-production and Co-governance

Moving from network literature to NBS literature, co-creation, co-production and co-governance are terms frequently found in this field of literature but which also have a specific meaning in public management literature. Co-creation and co-production have been conceptualised as forms of collaborative governance (Frantzeskaki and Kabisch, 2016, Frantzeskaki, 2019). While co-production is seen as having a specific end-goal in generating knowledge and solutions, co-

creation is seen as a more open, enabling process with the potential to contribute to a change in the governance modes of local governments (Frantzeskaki et al. 2018).

“Co-production describes the idea that cities are produced through the intersection of different actors and that service delivery benefits from forms of shared ownership and joint knowledge production” (UN Habitat, 2022, p. 255 citing Mitlin and Bartlett 2014).

Co-creation has been defined as a :

“systematic process of creating new solutions with people-not for them; involving citizens and communities in policy and service development” (Mahmoud and Morello, 2021, p.262).

Co-creation builds on participatory design processes (Frantzeskaki, 2019) and is differentiated from traditional, non-participative, top-down approaches to the design of services for citizens (Naumann et al. 2023). Co-governance in the NBS context is broader and describes:

“a collaborative approach to designing, implementing, maintaining or monitoring NBS, where the active involvement of the local community, including NGOs and other stakeholders such as private sector actors, is encouraged to empower individuals to develop a sense of ownership for their local environment and equip them with new capacities and knowledge” (Naumann et al. 2023, p. 6).

How does this compare with the understanding of co-creation and co-production in public management literature? Co-creation and co-production have emerged since the early 2000's as a growing field of interest. Early literature in this field responded to a perceived gap in public administration theory on the involvement of the third sector in the delivery of public services (Brandsen and Pestoff, 2006). A later systematic review of 122 articles on co-creation and co-production showed an important factor influencing the success of co-creation was the compatibility with public sector organisational structures, procedures and cultures (Voorberg et al., 2015). In general, the literature on co-creation and co-production in public administration theory was of limited use in this study as it is predominantly focused on bi-lateral relations between the public sector and the third sector from the perspective of service delivery. Co-creation theory in NBS literature, while also predominantly focused on the same bi-lateral relations, perceives such approaches as the gateway to a broader change towards multi-stakeholder collaborative governance.

2.3.2 Collaborative Governance and public management of NBS projects

The research question for this study asks how local governments implement and adapt to the requirement to deliver collaborative governance processes for NBS. In the next section, knowledge about collaborative governance in relation to public management is described in three main areas:

Impact of public management models on CGRs: A paradox well recognised in collaborative governance literature is the potential for conflict between the organisation and the wider collaboration network or regime (Emerson and Nabatchi, 2015a). But more specifically, what insights does the literature provide on the potential for misalignment of public management models of local governments with collaborative governance modes of NBS implementation?

Collaborative Governance at intra-organisational level: NBS literature and early field visits indicated the intra-organisational dimension of collaborative governance was of crucial importance to successful implementation of NBS. In this section, insights from NBS literature are contrasted with insights from public management literature and potential gaps in knowledge are identified.

Performance: The second part of the research question is concerned with the effects of collaborative governance. There are longstanding calls for more studies on the outcomes of collaborative governance. This question is particularly pertinent in light of increasing concerns being raised about the outcomes and impact of collaborative governance in relation to environmental governance (Xu and Wu, 2020, Baudoin and Gittins, 2021, Avoyan, 2022).

2.3.2.1 Impact of Public Management Models on Collaborative Governance

Within public management literature, public management models and reforms are sometimes seen as a different area of research to inter-organisational collaborations - spanning PPPs, network and collaborative governance (Kumar et al., 2020). Others argue that collaborative governance is an area where different streams of literature come together: education, organisational sociology, political science, conflict resolution and environmental governance (Emerson and Nabatchi, 2015a, Voets et al., 2021).

Recently highly relevant research has been published from New Zealand indicating the challenges that emerge when collaborative approaches are introduced into a New Public Management culture (Eppel and O'Leary, 2021). However there seems to be an absence of studies of a similar scale looking at compatibility between collaborative approaches and the Traditional Public

Administration models or Neo-Weberian State models of public management still commonly found in Europe and many other parts of the world (Peters, 2017, Hammerschmid et al., 2016, Pollitt and Bouckaert, 2011, Pollitt and Bouckaert, 2017). As shown previously, collaborative forms of governance are far from the norm in organising public administration in all parts of Europe and may be heavily influenced by contextual factors such as welfare state history or legal requirements (Merlin-Brogniart et al., 2022, Batory and Svensson, 2020). In Central and Eastern Europe, the lack of literature on compatibility of collaborative governance with post-communist administrations has been noted (Hajnal and Jeziorska, 2021). Beyond Europe, studies of collaborative governance from more authoritarian regimes in countries such as Korea and China suggest a lack of alignment of values and norms as a potential barrier to implementation of collaborative approaches (Choi and Pak, 2006, Liu and Xu, 2018). The term ‘captured collaboration’ has been used to describe tight vertical control of collaboration processes in a study of collaborative environmental governance under an authoritarian political regime in Vietnam (Bruun and Rubin, 2023). A Collaborative Governance Case Database involving researchers from around the world compiled 44 case-studies on collaborative governance. More than 60% came from three countries – the Netherlands, US and Australia (Douglas et al., 2020). Meanwhile the boundaries between New Public Governance literature and the network and collaborative governance literature remain quite blurred with the terms sometimes used interchangeably. Indeed, some scholars position collaborative governance as a successor to TPA and NPM, perhaps considering collaborative governance synonymous with NPG models of public management (Voets et al. 2021).

2.3.2.2 Intra-organisational Collaborative Governance

The review of collaborative governance literature for section 2.2 shows a strong focus on collaboration across sectors (public, private, third). Beyond cross-sector collaboration, some scholars, including Emerson and Nabatchi (2015a), consider collaboration more broadly and refer to concepts of ‘joined up’ government, i.e. joining up policies across public sector agencies (Hood 2005) and across local, regional, national and even international government levels.

Early observations from the field confirmed that while cross-sectoral and joined-up government are undoubtedly important for NBS implementation, internal cross-departmental collaboration is where the biggest challenge for NBS implementation was initially encountered. Early site visits showed that the concept of NBS was often pigeon-holed as an environmental concept and often

confused with other ecosystem-based concepts. The multi-functional dimensions of NBS were difficult to communicate to other departments where there was little history of collaboration. These kinds of inter-departmental challenges were found to be well documented in NBS literature (Pauleit et al., 2019, Zuniga-Teran et al., 2020, Wild et al., 2017)(Kabisch et al., 2016, Kabisch et al., 2017, Collier et al., 2017, Egusquiza et al., 2019, Frantzeskaki et al. 2020 etc). Most recently a comprehensive review of the status of collaboration in NBS argues for greater recognition of intra-organisational challenges as part of a wider move towards inter-organisational collaborative governance involving communities and other stakeholders (Naumann et al., 2023). This review highlights a lack of coherent policy frameworks at local government level and identifies that it is not unusual to see conflicting policy agendas relating to NBS evident in the same organisation. The authors suggest that to avoid confusing messages on NBS to external actors, local governments need to be aware of what different departments are doing both to support and to hinder NBS implementation. However, the report also states that developing intra-departmental collaboration along-side inter-organisational collaboration can be challenging. While different departments in local government might share an overall public service objective, the language and processes used in different departments can be a barrier to intra-organisational collaboration (Vandergert, 2022). The challenges of collaboration across departments in the public sector and between different agencies and levels of government are recognized as challenges in environmental governance (Emerson et al., 2017).

A return to public administration literature for insights on intra-organizational collaboration yielded a surprising dearth of studies when compared with studies on inter-organisational aspects of collaboration. Some studies have recognised that sustainability policy and actions at local government level require collaboration across departments within local governments level due to the intersecting nature of environmental, social and economic perspectives (Feiock et al., 2017). They acknowledge that such cross-departmental collaboration does not easily conform with the traditional functional hierarchy of many cities, an issue which has long been known within public administration.

Krause et al (2016) suggests that more research is needed on the effect administration structures have on the success of sustainability programmes. She suggests that factors such as placement of responsibility for sustainability programmes in horizontal versus line departments may have a bearing on outcomes. Other studies have identified the compatibility of organisational structures in public organisations as a key factor influencing collaborative approaches such as co-creation (Sørensen and Torfing, 2022, Voorberg et al., 2015, Mukhlis and Perdana, 2022). Feiock et al.

(2017) suggest the area of intra-jurisdictional authority has received far less attention than inter-jurisdictional arrangements in public management literature.

The apparent lack of focus on internal, intra-organisational collaboration in collaborative governance literature is somewhat surprising as in large-scale empirical studies in the US, internal collaboration is recognised as a distinct type of collaboration by public sector managers. An interesting contrast emerges between the importance of internal collaboration at local government and federal government level. Surveys of collaborative governance at local government level show that the majority of collaboration efforts were directed at inter-governmental level (75%) with internal collaborations only accounting for 4% (O'Leary and Gerard, 2014). In comparison, a survey of federal government managers showed that internal collaboration (31%) was the second most common type of collaboration after collaboration with other federal agencies (37%) (Mitchell and O'Leary, 2015). While it is difficult to make direct comparisons between the US and Europe, these findings suggest intra-organizational collaboration is an important factor to consider within the overall context of collaborative governance.

The importance of intra-organisational collaboration has been recognised in the field of public sector innovation (see Sørensen and Torfing 2009, 2015). Studies in the US have shown a substantial increase in public sector innovation stemming from both inter-organizational and intra-organisation collaboration (Sørensen and Torfing, 2015, citing Borins 2014). Sorensen and Torfing, who have done much work in this area, identify the importance of the internal cultural and institutional environment within the public sector in sustaining collaboration efforts. Emerson and Nabatchi find that:

'In general, the internal authority structure of collaborative institutions tends to be less hierarchical and stable, and more complex and fluid, than those found in traditional bureaucracies' (Emerson and Nabatchi, 2015b, p. 84).

The importance of cultivating collaboration skill-sets at an internal organisational level within the public sector are well recognised (O'Leary and Gerard, 2012). Less well developed in the literature are the challenges faced in building such skill sets in more traditional bureaucratic environments where collaboration internally or externally is not always widely accepted (Eppel and O'Leary, 2021). A recent study in the Netherlands found that in public administrations where Weberian-style administration cultures are more prevalent, public servants are more focused on internal collaboration whereas in more network-oriented administration cultures, the focus is more on

external collaboration (van der Meer, 2023). Conflicts may arise when individuals in some departments are following traditional, Weberian style rules and protocols while being asked simultaneously to innovate and collaborate with external parties (van der Meer et al., 2023). The authors conclude that public sector reforms have an important impact on collaborative behaviour (van der Meer, 2023). These findings are quite pertinent as the current study shows that in the countries from which the case studies for this research are drawn, traditional Weberian and neo-Weberian style administrations cultures remain prevalent.

2.3.2.3 Performance in Collaborative Governance

The second part of the research question deals with the effects of collaborative governance. Put simply, does collaborative governance work?

Barriers to Collaborative Governance: It is widely acknowledged that collaboration is not easy. In one of the most important empirical studies on the topic, in 2013, a survey of 1400 local government administrators in the US showed that 86% consider collaboration as an important strategy (O’Leary and Gerard, 2014). However, they also responded that collaboration can be time-consuming, stressful, a potential source of conflict and results are not guaranteed. These results were largely echoed in studies at federal government level in the US (Mitchell et al., 2015).

At local government level, the O’Leary and Gerard (2014) study found that political dynamics, ‘turf wars’ and difficulties securing buy-in to collaboration are among the most significant impediments. Interpersonal factors and organisational cultures may also present significant barriers. A more recent study on retro-fitting collaboration into NPM organisational cultures in New Zealand confirmed significant roadblocks such as confused conceptual understanding, silo-mentalities, financial challenges and risk aversion (Eppel and O’Leary, 2021). Given the myriad of challenges identified in these studies, it is not surprising that early scholars suggested that collaboration should be avoided if at all possible (Huxham and Vangen, 2000)! As Thomson and Perry captured so vividly in early research:

“Collaboration is like cottage cheese. It occasionally smells bad and separates easily”
(Thomson and Perry, 1998, p.409).

Given such findings, a valid question seems to be - are the benefits worth the effort?

Positive Results: In the same study by O’Leary and Gerard (2014) mentioned above, while a high number of respondents identified negative results from collaboration, an even higher number reported positive results. Positive results included better performance outcomes such as

economic benefits and efficiencies arising from the sharing of resources and improved synergies. Collaboration led to innovation (more and better ideas), improvements in the quality of work products and ultimately a better public service and mission accomplishment. Benefits were also observed in terms of relationship building, securing greater buy-in and organisational learning.

These contradictory findings about the challenges and benefits of collaboration have led to calls for deeper evaluation of collaboration on organisation performance (Park et al., 2019). Indeed questions over the performance of collaborative arrangements have been around almost as long as the concept itself. Outcomes from performance governance form an element of many of the governance frameworks reviewed in the next section (Ostrom, 2005, Ansell and Gash, 2008, Bryson et al., 2006, Bryson et al., 2015, Emerson et al., 2012). Notwithstanding the frequency of questions asked about collaborative performance, there is also recognition that there is much room for improvement in monitoring and evaluating the performance of collaborative governance:

“Often, collaborative networks fail to draw up indicators, only monitor progress informally, and have no clear evaluation strategy or culture” (Voets et al., 2021, p. 12).

A study of outcomes from 296 collaborative conservation groups in the US identified that only 16% published outcomes from their activities (Wilkins, 2021).

Challenges measuring performance

Rigorous performance measurement is a hallmark of new public management reforms. Often time-consuming and resource intensive, some suggest that performance management led to even more bureaucracy in practice (Eppel and O’Leary, 2012). Even though many countries have moved on from NPM models, public sector organisations continue to come under pressure to report on their performance. Some scholars suggest that public sector organisations are under even more pressure to report on performance than their private sector counterparts and such reporting can be highly scrutinised and used for political purposes (Campbell and O’Leary, 2015). Reporting in the public sector is often more complex than reporting in the private sector and reporting on process outcomes is particularly challenging. It is widely recognised that traditional measures of performance management in the public sector that typically focus on cost-benefit type analysis (Behn, 2003) may not adequately account for the importance of process variables and how they impact outcomes in networks (Mandell and Keast, 2008). Collaboration has been reported to have more influence on process outcomes than economic outcomes (Ulibarri, 2015a). While Bryson et al. (2015) suggest that progress has been made in later frameworks on

understanding process outcomes of collaborative governance, Emerson and Nabatchi (2015b) argue that in comparison there is less focus on measuring productivity outcomes i.e. did the CGR result in the target goals being achieved? Emerson and Nabatchi suggest that process performance lends itself to formative valuation approaches which take place as a process is happening. In contrast summative valuation approaches are best used at the end of a process to measure productivity results (Emerson and Nabatchi, 2015a).

Many scholars have identified challenges contributing to the difficulty of measuring the performance of collaboration. A commonly cited explanation is that collaborative governance deals with complex problems that one organisation alone cannot solve. Attributing causality for performance outcomes between the multiple organisations involved in collaboration is clearly challenging leading Emerson and Nabatchi (2015a) to posit that a clear identification of the unit of analysis in performance evaluation is needed.

Related to this issue is the difficulty of identifying outcomes in relation to complex public problems. Wicked problems by definition have no one correct or incorrect solution (Rittel and Webber, 1973, p. 155). Measuring solutions to super-wicked problems such as climate change and biodiversity loss are even more challenging as discussed in the next section (Lazarus, 2009, Levin et al., 2012).

Other challenges in performance management are related to issues previously discussed - the lack of clarity around the concept of collaborative governance, the long-term nature of collaborative governance, the need to evaluate performance at different stages of development complicated by methodological challenges around a lack of longitudinal data. Emerson and Nabatchi (2015a) report that post-hoc evaluation of case studies of collaborative governance tends to focus more on positive outcomes. Evaluation of failures are under-represented in research although some notable work has been done. A study from Andrews and Entwistle found a lack of efficiency gains from collaboration in public-private and public-non-profit arrangements (Andrews and Entwistle, 2010). More recently, Ulibarri et al (2020) showed that in a study of 39 collaboration networks, 40% don't make it to maturity. There is a need for further research to understand such high rates of failure and if this is related to performance or other issues.

Finally, Emerson and Nabatchi (2015a) contend that 'performance rhetoric' doesn't take context into account. The focus of performance evaluations in the public sector is on outputs. 'Input' factors such as context, drivers and the processes of collaboration themselves are inadequately

considered. They point out that process and productivity performance are often conflated and that while both are important, they must be clearly differentiated.

Performance of collaborative governance related to environmental management

Evaluating the performance of collaborative governance addressing environmental challenges is critically important (Koontz and Thomas, 2006). As indicated previously, increasing concerns are being raised over the long-term outcomes and impact from collaborative approaches to environmental management (Xu and Wu, 2020, Baudoin and Gittins, 2021, Avoyan, 2022). In recent years, some researchers have asked if the effort involved in establishing such collaborative arrangements is worth it if differences are negligible in the long term (Follador et al., 2022). Others have even suggested that network governance has hindered implementation on the ground of climate adaptation measures and that more top-down direction might be needed (Bednar et al., 2019, Feinberg and Ryan, 2020).

In addition to the challenges identified in the last section, attributing environmental change outcomes to collaborative processes is particularly difficult as the timescale for environmental change can be long and thus it is difficult to link environmental changes with outcomes from shorter policy and management cycles (Ulibarri, 2015b, Thomas and Koontz, 2011). High level commitment to using collaborative approaches to complex challenges such as climate change are limited by political and institutional challenges hindering implementation on the ground (Sørensen and Torfing, 2022, Dressel et al., 2021). Four common factors have been identified as important to facilitate collaborative governance arrangements. These include more flexible and less hierarchical institutional structures, leadership, openness to experimentation and adaptation and finally the commitment of resources to long term collaboration efforts (Emerson and Gerlak, 2014).

The challenges of measuring impact have also been well documented in NBS literature. Many argue that the inability to measure the effectiveness of NBS is a key factor limiting take up (Raymond et al., 2017, Sowińska-Świerkosz and García, 2021, Le Coent et al., 2021). Consequently a proliferation of NBS assessment frameworks have emerged in recent years. Two of the most important are the IUCN Global Standard and the EC Handbook for NBS performance assessment. Inclusive, transparent and empowering governance processes are a founding criteria of the IUCN Global Standard for NBS (IUCN, 2020). However guidance on how to measure such governance processes in this standard is under-developed. Indicators on participatory planning and governance are included in the EC handbook for NBS performance assessment (Wendling and

Dumitru, 2021). However recent studies suggest that the indicators for governance in this handbook do not adequately consider the different modes of governance from top down to community-led (van der Jagt et al., 2023).

2.3.2.4 Directions from literature for future research

As mentioned previously at IRSPM 2023, Isett and Sowa recognised sustained interest in collaboration in both research and practice but argued for more focus on what actually constitutes collaborative governance and what are other modes of collaboration. This resonates with the research gaps identified by Gash (2022) who suggest that collaborative governance has almost become business-as-usual for many practitioners crowding out other potentially more relevant modes of policy making and service delivery.

As this research specifically applies Emerson and Nabatchi's definition of collaborative governance, their recommendations for areas of further research are reviewed. These resonate with those of many other scholars in the field (Emerson et al., 2012, Emerson and Nabatchi, 2015 a, b) and include:

- Greater attention to **system context and drivers** (Emerson and Nabatchi, 2015a). There have been calls for a more systems thinking approach to collaborative public management (Amsler and O'Leary, 2017) and an improved understanding of the importance of contextual factors such as legal and institutional rules (Amsler and Vieilledent, 2021, Batory and Svensson, 2020).
- Emerson and Nabatchi recommendations on the need to understanding **implementation issues** resonates with Isett and Sowa's calls for more focus on operational issues (Isett and Sowa, 2023).
- Monitoring and measuring the **outcomes and performance** of collaborative governance has been an enduring topic of interest with a symposium on the topic organised at IRSPM 2013. Questions still remain 10 years later (Voets et al., 2021, Gash, 2022).
- Understanding **collaborative governance failures** (Voets et al., 2021).
- Lack of research on **collaborative capacity** including skill sets (Voets et al., 2021, Eppel and O'Leary, 2021, O'Leary and Gerard, 2014)

Finally many scholars reiterate the importance of practice-oriented research in applied fields such as public administration e.g., Minnowbrook series (O'Leary, 2011, Carboni et al., 2020). There is

a concern today that public administration research is out of touch with the reality of challenges that practitioners face in the field (Carboni et al., 2020, Isett and Sowa, 2023).

2.3.2.5 Summary

In summary, this section began with a clarification and differentiation of key concepts such as collaboration, governance, co-creation, co-production, collaborative public management and network governance before concluding that collaborative governance was the most appropriate frame of reference for this research. Subsequently, a review was undertaken of specific areas of collaborative governance literature of high relevance for this research. These included studies on the impact of public management models on collaborative governance arrangements, research on the dimensions of collaborative governance at intra-organisational level and finally a review of the many studies questioning the performance of collaborative governance. This review identified relevant insights but also remaining knowledge gaps to which this research aims to contribute. By bringing together the findings from the review of collaborative governance theory in this section and observations from case studies on the ground, this study aims to contribute to the knowledge base of collaborative governance in the following areas:

- Provide additional insights on the fit between collaborative modes of governance and more traditional or NWS models of public management. Consideration of the implications of this alignment for implementation of collaborative governance in practice;
- Improved understanding of the intra-organisational dimension of collaborative governance and the interaction between intra- and inter-organisational levels of collaboration;
- Increased knowledge on the immediate actions and outputs from collaborative governance arrangements and longer-term outcomes;
- Consideration of the impacts of different contexts on performance;
- Empirical data on the most important elements of collaboration processes for NBS.

2.4 Theorizing Collaborative Governance

2.4.1 Overview of frameworks and models

One of the early criticisms of collaborative governance literature was that it was heavy on case studies but light on theory. This lack of theory provided a limited basis for comparing case study findings and advancing the field. In response several different theoretical models and frameworks

have been proposed to capture the process of collaborative governance. Ostrom (2005) distinguishes between *frameworks* as depicting relationships between variables, *theories* as interpretations of frameworks suggesting how and why variables interact and finally *models* as more specific in making assumptions about how variables interact in order to establish causality. In practice however many of these terms seem to be used interchangeably. A critical decision for this research was to decide which framework, theory and/or model to use to collect data and analyse the unfolding of collaborative governance in case study cities and performance outcomes.

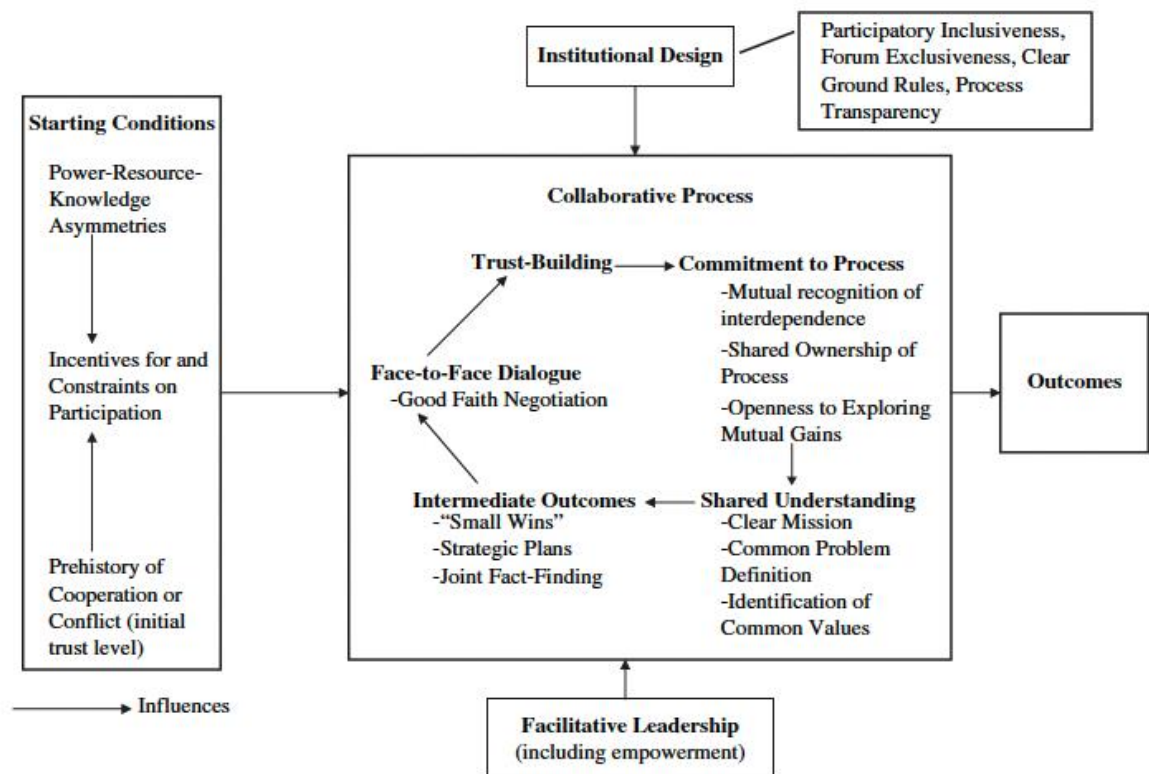
While many different theoretical approaches were reviewed (Bryson, Crosby, and Stone 2006, Thomson and Perry 2006, Lemos and Agrawal 2006); three frameworks were considered in more depth: Ansell and Gash's Model of Collaborative Governance (2008), Ostrom's IAD framework (2005) and Emerson and Nabatchi's Integrative Framework for Collaborative Governance (2012).

Ansell and Gash (2008)

As indicated in the review of collaborative governance, Ansell and Gash's (2008) definition of collaborative governance remains the most cited definition of collaborative governance used today and it was initially used to define collaborative governance in this research. Given the wide acceptance of their conceptualisation of collaborative governance, Ansell and Gash's model of collaborative governance was the first choice of framework for analysis. 127 cases of collaborative governance across multiple policy arenas were analysed in the development of this model of collaborative governance shown in Figure 2.5.

The model identifies a range of antecedent conditions, depicts in a cyclical construct the key components of the collaborative process and very briefly touches on outcomes. Institutional Design and Facilitative Leadership are identified as two important factors influencing the development of the collaborative process. While the elements of this framework are highly relevant to the unfolding of collaboration dynamics for the case study cities in this research, a decision was taken not to use this framework for two principal reasons. As mentioned previously, Ansell and Gash definition and conceptualisation of collaborative governance is more narrowly focused on formal cross-sectoral collaborations which does not fit with the situation on the ground in case study cities where intra-organisational collaboration and multi-level governance, both formal and informal, were important elements of collaborative governance. Secondly, in common with other early frameworks, little attention was paid to outcomes (Bryson, Crosby and Stone, 2015) which are a crucial element in this research.

Figure 2.5 A Model of Collaborative Governance

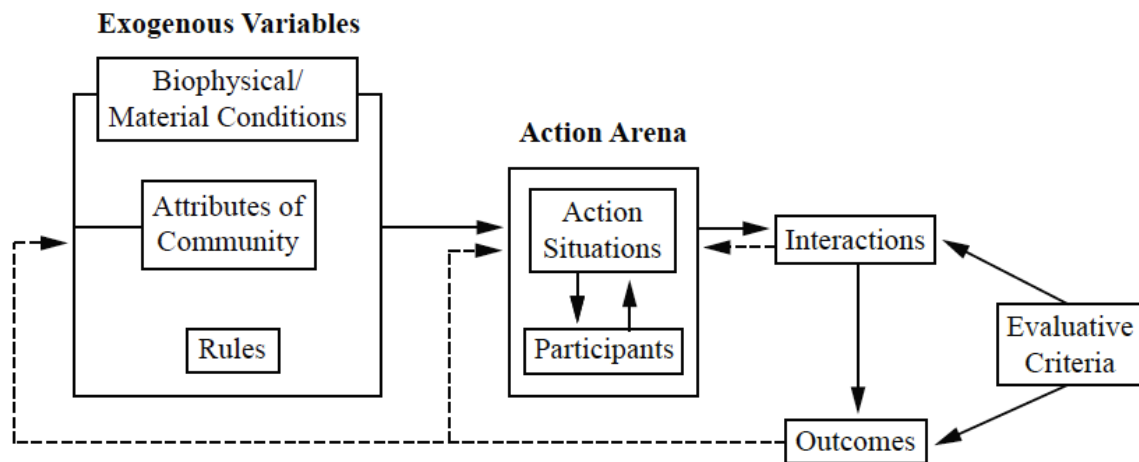


Source: Ansell and Gash, 2008, p. 550

Ostrom's Institutional Analysis and Development (IAD) framework (2005)

While situated firmly in the domain of institutional theory, many collaborative governance and environmental governance scholars recognise the importance of Ostrom's life work on governance of the commons which informed the development of the Institutional Analysis and Development (IAD) framework (Ostrom, 2005). Ostrom's IAD framework is often considered in the context of self-governance, but the IAD framework was designed to apply to any institutional setting where cooperation is required within and between different organisations (Ostrom, 2005). Thomson and Perry's (2006) work on one of the first collaborative governance frameworks drew heavily on Ostrom's work. The relevance of Ostrom to this research is multi-faceted. Many types of NBS have been identified as new examples of urban commons requiring multi-actor collaboration in both design and sustainability (McPhearson et al., 2021).

Figure 2.6 A Framework for Institutional Analysis (IAD Framework)



Source: Ostrom, 2005 p. 15

A closer examination of the IAD framework shows that the focal point is the action situation (Figure 2.6). This could be applied to the multi-actor collaboration required to implement NBS. Actors/participants are those in positions to make or influence decisions on different actions given the information and control they have over the situation. Actions are linked to potential outcomes, the net costs and benefits of which are considered in a broader context (McGinnis, 2011). Of particular interest in the IAD framework is the consideration of antecedents such as biophysical conditions which are highly relevant to the nature of NBS e.g. the extent to which a NBS could be considered a public or private good, a common pool resource or a toll good (Ostrom, 2005). The IAD framework also considers antecedents for collaboration such as ‘Attributes of Community’ which considers the general culture and history of interactions between different participants. Rules-in-Use are an important element of the IAD framework. Recently scholars have drawn renewed attention to the importance of the rule of law in collaborative governance (Epp et al., 2021, Amsler and Vieilledent, 2021). Amsler and Vieilledent (2021) critique Ansell and Gash’s model (2008) and Emerson and Nabatchi’s framework (2015a) for inadequately considering the importance of rules on paper (legal) or rules-in-use (informal) in collaboration settings and reference to the importance that Ostrom placed on such aspects of collaboration.

A particularly appealing element of the IAD framework is the way it captures the ‘interactions’ between outcomes of different ‘Action Situations’. Amsler and O’Leary (2017) interpret this in terms of local government being nested within the larger context of state government. While the interactions between local, regional and national governments were certainly an important

influencing factor on the case study cities in this research, in an early application of the IAD framework to historic NBS case studies in each city, there was also evidence of the impact of one action situation on another in a local context. For example, funding for a new NBS was contingent on successful outcomes from a previous NBS.

While the IAD framework was considered at length as a framework for analysis of case studies in this research and was applied by the author in other research papers, several factors worked against it as the primary research model for this work. Firstly, the focus of the IAD is on the Action Situation which considers the state of play between actors in a given setting, at a specific moment in time. While it does consider antecedents and interactions with other action situations, collaborative governance theory provides more insights on process dynamics i.e. how the process evolves over time. It was difficult to see how the IAD framework could be applied practically to answer the research question and follow the process of unfolding collaboration dynamics over a five-year time period. Secondly, the focus of collaborative governance theory is on public-sector initiated collaboration arrangements and while the IAD framework may be used to analyse such collaborations, it is not the specific focus. Finally, the primary contribution of this research is to public administration theory rather than institutional theory where Ostrom's IAD framework is primarily positioned.

Integrative Framework for Collaborative Governance (Emerson et al., 2012)

The final framework reviewed in detail was Emerson, Nabatchi and Balogh's (2012) Integrative Framework for Collaborative Governance. This framework has become one of the most widely applied frameworks in collaborative governance literature. Emerson et al., (2012) drew on a comprehensive review of frameworks from across many disciplines to develop this integrative framework. These included frameworks from collaborative planning, collaboration processes, network management and collaborative public management. The resulting framework as shown in Figure 2.7 below, is a general framework that could be applied in many different contexts to understanding the different components of cross-boundary governance systems. In a subsequent book, Emerson and Nabatchi (2015a) provided detailed guidance on how to apply this framework identifying a series of sub-components for each of the main framework elements. This guidance is invaluable for both practitioners and early-stage researchers in collaborative governance.

Following a comprehensive review of collaborative governance models and frameworks in public administration theory and the IAD framework in institutional theory, the decision was made to use the Emerson et al. Integrative Framework for Collaborative Governance (2012) for this

research for several reasons. Firstly, this framework builds on their definition of collaborative governance which encompasses dimensions of joined-up and multi-level governance which were not specified in other definitions but which reflects better the complexity of the governance situation on the ground in case study regions. This definition was expanded slightly to clarify the inclusion of intra-organisational collaboration as another important element to consider from a public sector perspective. Secondly, Emerson and Nabatchi have both published in the field of environmental governance which is highly relevant to this study (Emerson et al., 2009, Emerson and Murchie, 2010, Emerson, Nabatchi and O’Leary, 2017). In their guidance on application of the Integrative Framework they draw on many case studies in environmental governance for demonstration of this framework. From a practical perspective this was very helpful in making comparisons with this research in the field of NBS. Finally and most importantly this framework is used as the basis for their later publication on the performance of CGRs which is used in this research to respond to the second research question.

However some critiques of the Emerson and Nabatchi framework were also noted from the outset. Leadership is widely acknowledged to be an important success factor in collaborative governance literature and is identified as a stand-alone element in other frameworks. It is somewhat hidden under the third dynamic of capacities for joint action in the Emerson and Nabatchi framework. The inclusion of other important structural components of collaborative governance such as procedural and institutional arrangements as a sub-element of the process dynamic of capacity for joint actions also appeared initially somewhat incongruous.

Finally, Emerson and Nabatchi acknowledge that despite the importance of collaborative actions, they have not been well developed in research (Emerson and Nabatchi 2015a). To facilitate a separate analysis of actions and outputs related to processes and productivity, a slight modification of the Emerson and Nabatchi framework is proposed to make this difference clearer (see Figure 2.7 hereafter). The rationale for this minor adaptation is described under the section on performance aspects of the framework below where Actions, Impacts and Adaptation are discussed in more detail.

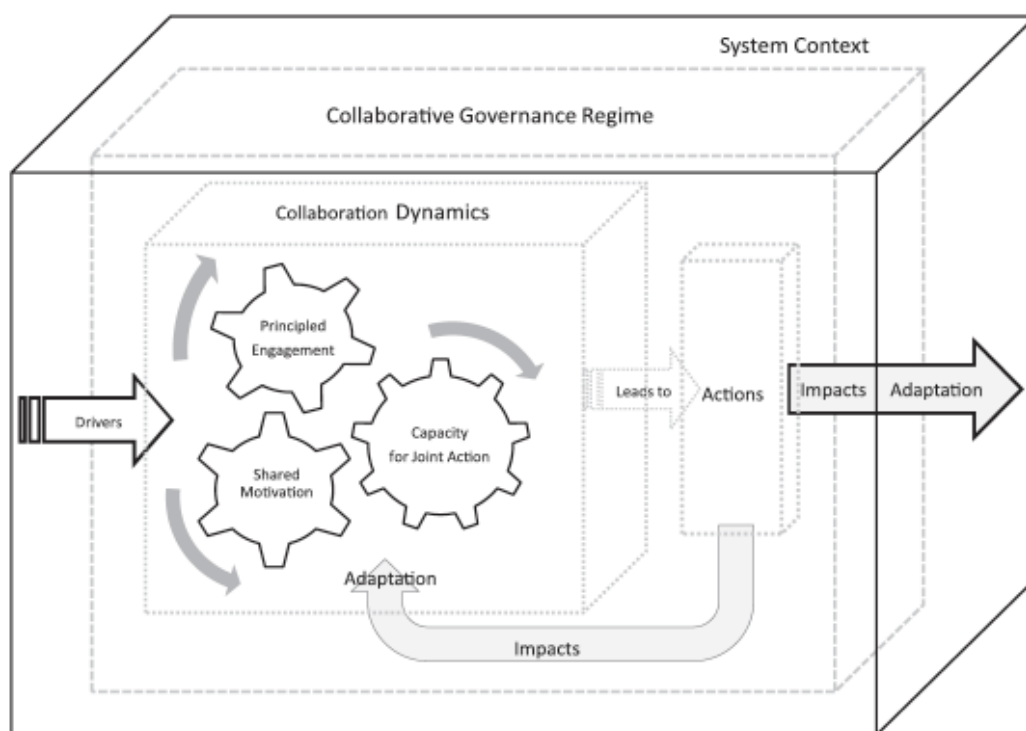
Overall and on balance, the Integrative Framework appeared to be the best choice for responding to both parts of the research question. It facilitates a processual analysis following the unfolding of collaboration dynamics over time and combined with the productivity performance matrix, it allows for an analysis of the outcomes of collaborative governance. The third and final part of the research question seeks to critique the usefulness of the framework itself in line with the research directions indicated by Emerson and Nabatchi (2015a).

2.4.2 Integrative Framework for Collaborative Governance

In the next section, the Integrative Framework for Collaborative Governance (reproduced in Figure 2.7) is introduced in three parts:

- (i) System context and drivers (used as the research model for Chapter 4)
- (ii) Typologies of CGRs and Collaboration Dynamics (applied in Chapter 5)
- (iii) Performance aspects: Actions, Impacts and Adaptation (used as part of research model in Chapter 6).

Figure 2.7 The Integrative Framework for Collaborative Governance



Source: Emerson et al., 2012, p.6.

2.4.2.1 System context and drivers

Most frameworks of collaborative governance specify the importance of taking antecedent conditions into account (Bryson et al., 2015). However taking a system approach means understanding how these antecedents interact with each other and influence the drivers of collaborative governance. A systems perspective also requires an understanding that the systems context and variables therein are highly fluid and changes are likely.

Emerson et al. (2012) identify seven interacting conditions in the systems context 1) Resource conditions, 2) Policy Legal Frameworks, 3) Socioeconomic/ Cultural Health and Diversity, 4) Network Connectedness, 5) Political Dynamics/Power Relations, 6) Prior Failure to Address Issues and 7) Levels of Conflict/Trust.

Unlike other frameworks, Emerson and Nabatchi differentiate between antecedent conditions and specific drivers that act as catalysts leading to the initial formation of CGRs. Four specific drivers are identified: uncertainty, interdependence, consequential incentives and initiating leadership. Emerson and Nabatchi (2015a) recommend that further research is needed to understand if these drivers are all relevant, to further explore interactions between them and to better understand the relationship between context, drivers and collaboration dynamics. Other research suggests that resource scarcity and dependency are particularly strong drivers of collaboration at local government level (Mitchell et al., 2015).

2.4.2.2 Typologies of CGRs

Emerson and Nabatchi (2015a) propose a typology of CGRs based on the premise that the conditions and characteristics of their formation will impact on their evolution over time. They identify three broad types of CGRs (see Table 2.1) depending on a combination of prevailing conditions and characteristics at the time of formation – self-initiated, independently-convened and externally-directed CGRs. Self-initiated CGRs are set up voluntarily by concerned stakeholders in response to a policy challenge that can be described as acute insofar as it only impacts on a well-defined and localised group of stakeholders. These stakeholders therefore have a clear self-interest and take a direct stake in setting up and evolution of the collaborative regime. As a self-organised group they have a high-level of autonomy in making and setting their own rules.

In contrast at the other end of the spectrum are externally directed CGRs. These are generally set up by an official body in response to a broad and recurring policy challenge. Emerson and Nabatchi identify that the official bodies responsible for initiation are generally established and command a high degree of respect and authority. As such they are able to either mandate or incentivise other participants to take part. Where similar policy situations have occurred in other contexts, a pre-set structure may be used and therefore the capacity to deviate from rules and structure is constrained.

In the middle, Emerson and Nabatchi suggest an independently convened CGR may be found. These are set up in response to complex challenges where a high degree of contention may be

evident between different stakeholders. As such an independent body, recognised and respected as impartial and fair, is required for CGR formation. The level of trust and respect for the initiating organisation is a key factor in inducing stakeholder involvement.

Table 2.1 Typologies of CGRs

<i>Formative Type</i>	<i>Self-Initiated</i>	<i>Independently Convened</i>	<i>Externally Directed</i>
<i>Prevailing Conditions</i>			
Policy challenge	Acute	Complex	Extensive
Determining authorities	Diffuse	Mixed	Concentrated
<i>Characteristics</i>			
Initiating leadership	Direct stake	Independent	Official stake
Initial structure	Ad hoc and emergent	Designed	Preset
Participant volition	Voluntary	Induced	Incentivized or mandated
Group autonomy	High autonomy	Assisted autonomy	Constrained autonomy
<i>Common Examples</i>	Community-based collaboratives, ad hoc working groups, planning committees, informal partnerships	Independent fact-finding commissions, community visioning processes, bipartisan policy coalitions, Policy Consensus Initiative's Public Solutions model	Federal advisory committees, grants requiring collaboration, regional planning or operating authorities, legislatively mandated collaborations

Source: Emerson and Nabatchi, 2015a, p.177

2.4.2.3 Collaboration Dynamics

Three Collaboration Dynamics of Principled Engagement, Shared Motivation and Capacity for Joint Action are described by Emerson et al. (2012). They point out that these dynamics should not be seen as a linear process but rather as interacting and iterative processes. The dynamic of Principled Engagement involves the elements of discovery, definition, deliberation and joint determination. The dynamic of Shared Motivation involves the elements of trust, mutual understanding, internal legitimacy and commitment. The dynamic of Capacity for Joint Action involves the elements of procedural and institutional arrangements, leadership, knowledge and

resources. These are defined and discussed in Chapter 5 where they are applied to the findings from case studies.

2.4.2.4 Performance aspects: Actions, Impacts and Adaptation

Returning to an overview of the Emerson et al. (2012) Integrative Framework for Collaborative Governance (Figure 2.7), under each of the framework components of system context, drivers and collaboration dynamics, Emerson et al. provide detailed insights on the elements which should be considered to gain a deeper understanding of the complexity of the collaborative governance environment. However there is noticeably less guidance provided on the performance outcomes from collaboration dynamics in terms of Actions, Impacts and Adaptation.

Actions are understood as the immediate results of collaboration dynamics. In a later publication, Emerson and Nabatchi (2015a) recognize that collaborative actions should be at the heart of any collaborative governance framework, but they have received limited attention and are often left unspecified (Koontz and Thomas, 2006). The temporal dimension of CGRs is cited as a challenge to the study of actions. CGRs take place over a long period of time, and it can be difficult to trace back and attribute outputs to collective actions rather than an individual participant in the CGR (Emerson et al., 2012). The long-term nature of CGRs may also lead to distortion in findings around actions if data are only analysed at the end of a long period of collaboration dynamics. This can lead to the 'halo effect' (Sabatier et al., 2005) and 'recall effect' (Issett et al., 2011). Both limitations can lead to inaccurate reviews of collaborative performance biased by final success or failure and short-term memory recall.

While recognising that actions are poorly understood, Emerson and Nabatchi (2015a) suggest several ways in which actions could be analysed. They could be considered from an operational perspective contributing to the development and sustainability of the CGR itself, or they could be related to networking aimed at building awareness and recognition of the CGR or yet again related to temporal dimensions – initial or intermediate actions.

The temporal dimension is also important in analysing performance outcomes. Outcomes may take the form of intermediate 'small wins' or end outcomes (Ansell and Gash, 2008). Impact may also be considered 'internally' at the level of the CGR itself, for example, to what extent did actions in the CGR lead to an improvement in collaboration dynamics such as increased trust

between participants. Or impact could be considered in terms of the broader outcomes of actions beyond the CGR, for example, in terms of achieving target goals from collaboration.

The final element considered is Adaptation which considers how impact leads to changes in a systems context. These may be incremental or radical changes and again may occur internally at the level of the CGR, or in the broader systems context considering the long-term sustainability of actions and impact in relation to target goals. The evolution of collaborative governance over time is another gap identified in the literature (Ansell and Gash, 2008, Ulibarri et al., 2020).

2.4.3 Adapting the Emerson and Nabatchi Framework for this study

2.4.3.1 Studying the temporal dimension of Collaborative Governance

The temporal dimension of collaborative governance process crops up time and again. While many of the collaborative governance frameworks studied applied a logic model clarifying relationships between inputs, processes and outputs, they provided limited insights into how these processes unfold from a temporal dimension. As this research follows how collaborative governance unfolds in real-time over a five-year period, collaborative governance literature was interrogated once again to see if insights could be gleaned from other empirical studies on how collaborative governance processes were differentiated over time

The temporal dimension of collaborative governance is addressed from multiple perspectives by Emerson et al. (2012). They highlight that collaborative governance processes take time to develop and don't happen in a vacuum. The context for collaborative governance is highly likely to change over time, which may in turn influence drivers for or against collaborative governance.

Time is an important factor to consider in the processes of collaboration. Thomson and Perry (2006) came up with one of the first process frameworks for collaboration. They stressed, like Ansell and Gash (2008) and Emerson and Nabatchi (2015b) did later, that collaborative processes cannot be seen as linear. They must be understood as iterative and cyclical to take into account that collaborations evolve over time. Important elements of collaboration such as trust and motivation take time to build and institutional structures may evolve from informal to formal over time. Thomson and Perry (2006) draw on game theory to explain that the collaboration process itself is likely to change due to interactions, trial and errors before arriving at a structure that works.

Unfortunately, as previously described, the long timeframe for unfolding of collaboration dynamics is one of the factors making it difficult to evaluate outcome and unravel causal patterns between collaborative processes and outcomes. A lack of longitudinal data makes it difficult to report on long-term impacts and adaptation processes (Emerson and Nabatchi 2015b). Emerson and Nabatchi suggest that one way of overcoming this challenge would be to assess performance at different stages in the evolution of collaboration. They advise that:

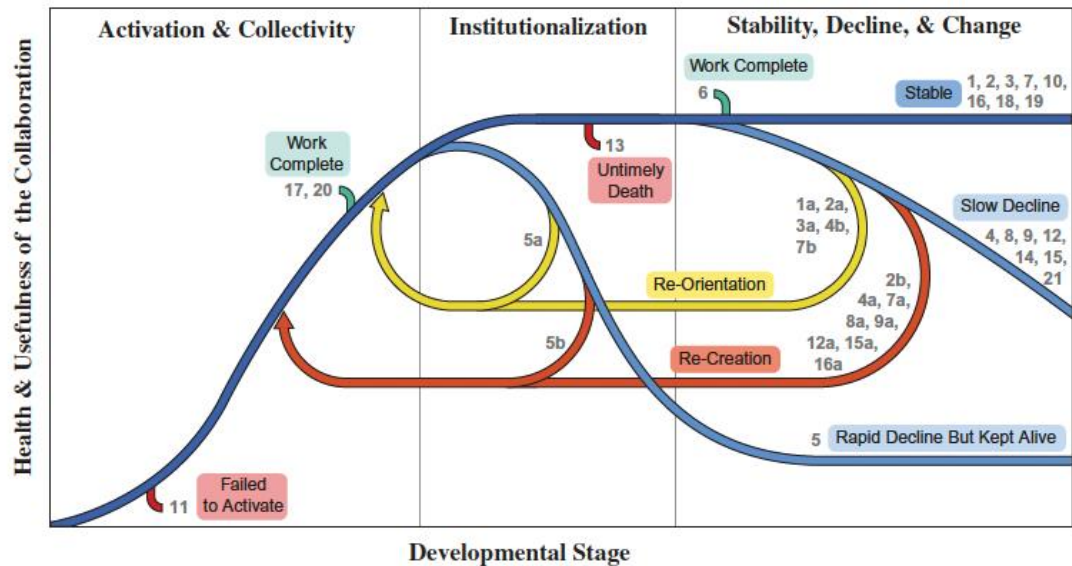
“CGR managers and researchers should be aware of the CGR’s developmental stage when analyzing and interpreting performance findings” (Emerson and Nabatchi, 2015a, p. 201)

Mandell and Keast (2008) drew heavily on network literature (Sydow, 2004) to theorise on the stages of collaborative development. They suggest that at the first stage of **network formation** collaboration actions are primarily about building relationships and agreeing on a common goal. Once relationships are established, and the network begins to **stabilise**, the next phase of the work is about taking actions towards achieving the common goal. Sydow (2004) argues that building legitimacy among network members is important at this stage so that they accept and get on with the work agreed by the network as a whole. Human and Provan have identified that legitimacy is a critical success factor influencing the outcomes of networks (Human and Provan, 2000). Aligning with government policies or securing support or financing helps to build legitimacy at this stage. Mandell and Keast (2008) identify that developing the capacity to sustain network operations is another key activity of networks at this stage. Over time as stability is reached the network becomes **‘routinised’**. Rules, both formal and informal, and norms of interaction become more established. Mandell and Keast suggest that this stage may take up to 3-5 years of interaction to reach. New members joining at this time accept that the rules of the game are established. **Extension** is the final stage identified by Mandell and Keast (2008). This stage is characterised by viability. Networks may also gain confidence in building collaborations with other networks. However it is also a time when many networks fall apart if results are not seen after all the time and effort invested to get to this point. External recognition and legitimacy continue to be very important at this stage. Emerson and Nabatchi (2015a) suggest a fifth stage is added to these four stages related to **adaptation** where network participants respond to the outcomes that emerge from a mature network.

Building on Mandell and Keast and other studies, some network scholars have drawn on organisational theory to propose lifecycle models (see Figure 2.8) to characterise the development of networks over time (Imperial et al., 2016, Ulibarri et al., 2020). While the earlier stages of formation, growth and stabilisation/routinisation are broadly similar to those described

by Mandell and Keast, in the final stage, several different paths emerge - from decline (slow or rapid) which is the norm in organisational theory to alternative paths such as re-orientation or re-creation. Continued stability is another alternative.

Figure 2.8 Lifecycle Stages and 'End-Points' of 39 collaborative governance cases



Source: Ulibarri et al. 2020, p.621.

Figure 2.8 suggests that a linear progression between collaborative governance phases is not always the norm. Sometimes challenges or opportunities arise which may lead to iterative cycling between stages.

It is interesting to contrast this life cycle analysis with the lifecycles stages described for NBS which are (i) design and planning (ii) delivery and (iii) long term management or stewardship (Vandergert et al., 2020, Hölscher et al., 2020a, Hölscher et al., 2020b, Mayor et al 2020). NBS literature concurs with collaborative governance literature in finding that collaboration processes change over time (Frantzeskaki, 2019, Wilk et al., 2021, Naumann et al., 2023).

In this study correlation between the processes of collaboration dynamics and the lifecycle phases of collaborative governance are considered. Three phases in the development of a CGR are considered (i) early stage, (ii) development and (iii) maturity. These phases correspond with the 'start', 'middle' and 'end' time points used in the Collaborative Governance Case Database which takes into account the work of scholars on the temporal dimension of collaborative governance (Ulibarri et al., 2020). The early stage phase is related to CGR formation and actions to build cohesion among members and consensus on target goals. In the development stage, the

CGR is established and the focus of action shifts towards achieving target goals. In the mature stage, target goals are either achieved or well underway and the focus shift towards long term planning. As shown by Ulibarri et al. (2020) many alternatives may emerge in this final stage from expanding CGR activities to re-directing or simply wrapping up as the job is done.

2.4.3.2 Separating Process and Productivity Performance

Another aspect of the Emerson et al. Integrative Framework (2012) that merits deeper reflection is the separation of process and productivity performance. Emerson and Nabatchi recommend separating performance measurement in relation to processes (collaboration dynamics) and productivity (outcomes of collaboration dynamics) but they also recognise that it is often difficult to do this (Emerson and Nabatchi, 2015a). For example, agreement on the goals of a CGR is a process output but the extent of achievement of these goals is a productivity output. While much performance literature has focused on the processes of collaborative governance and outcomes in terms of increased trust or motivation among participants, less research has looked at outcomes from a productivity perspective.

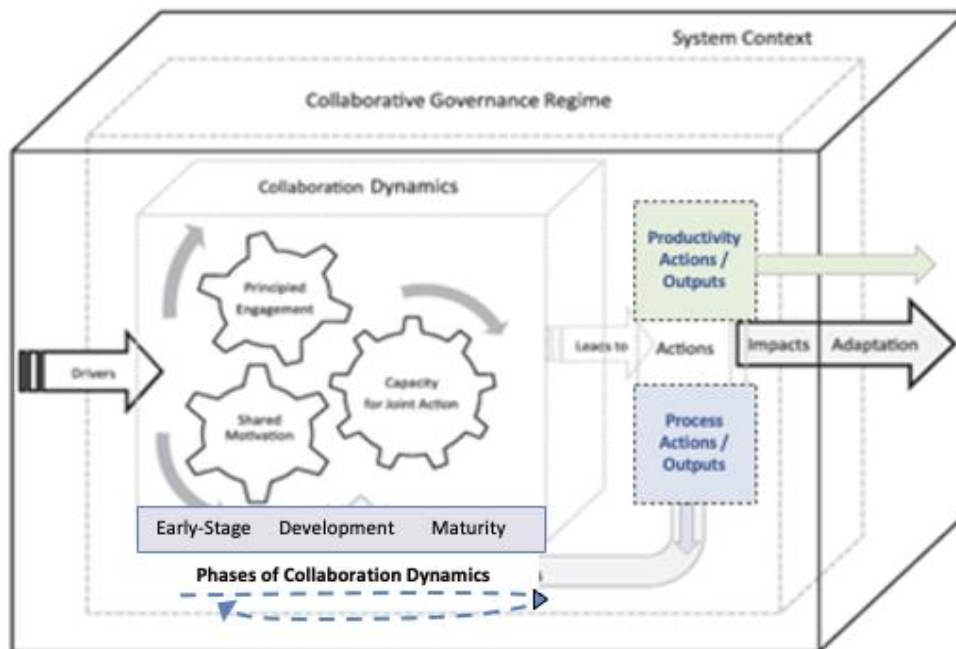
Process performance is described *“as the level of functioning of collaboration dynamics that emerges from the combined interactions of principled engagement, shared motivation, and the capacity for joint action”* while productivity performance is defined as *“the actions (or outputs) of the CGR and the resulting outcomes and adaptation they generate”* (Emerson and Nabatchi, 2015b, p. 199).

In the Integrative Framework for Collaborative Governance, actions emerge from collaboration dynamics that contribute to both process performance and productivity performance. With the objective of supporting a clear differentiation between process performance and productivity performance, a first modification to the Emerson and Nabatchi framework has been proposed to facilitate the application of this framework as the research model for this study (see Figure 2.9). The difference between process and productivity actions and outputs is evident from the direction of the two sets of arrows relating to performance used by Emerson et al. in this figure. The first set of arrows points to actions, outputs, impact/outcomes and adaptation relating to collaboration dynamics (highlighted in blue in Figure 2.9). The second set of arrows points to performance outcomes (actions, outputs, impact/outcomes and adaptation) extending beyond the CGR at system context level (highlighted in green in Figure 2.9).

In Chapter 5 which deals with the interweaving processes of Collaboration Dynamics, process actions are analysed. A temporal dimension is applied in Chapter 5 to the analysis of actions and outputs related to collaboration dynamics (as shown by the purple box in Figure 2.9). Three phases are considered which broadly follow the ‘start’, ‘middle’ and ‘end’ timepoints used in the Collaborative Governance Case Database (Douglas et al., 2020).

In Chapter 6, which deals with productivity performance, the focus is on productivity actions and outcomes.

Figure 2.9 First adaptation of Integrative Framework for Collaborative Governance



Source: Adapted from Emerson et al. 2012, p.6.

2.4.4 Emerson and Nabatchi Productivity Performance Matrix

Following a dedicated session on Collaboration and Performance at the 2013 IRPSM conference, Emerson and Nabatchi proposed a productivity performance matrix to evaluate the performance of CGRs (Emerson and Nabatchi, 2015b).

This matrix is based on the logic model and performance levels identified in the Emerson et al. Integrative Framework for Collaborative Governance (2012). There is only one noticeable

difference between the terminology used in the framework and the productivity performance matrix. The term ‘Impact’ is used in the 2012 framework but described as ‘Outcomes’ in the productivity performance matrix (Emerson and Nabatchi, 2015a). Emerson and Nabatchi explain that this change was made to adhere more clearly with the terminology used in performance measurement and management literature (Emerson and Nabatchi, 2015a, p. 742). In the following section the different dimensions of this performance matrix are presented and then some initial challenges are discussed.

Table 2.2 displays the three units of analysis for performance measurement used in this productivity performance matrix. These are the participants involved in the CGR, the CGR itself and finally the target goals of the collaborative governance. These target goals describe the desired outcomes from collaboration and are usually agreed by participants in a formal or informal ‘Theory of Change’ established through collaboration dynamics.

Table 2.2 Productivity Performance Matrix

<i>Performance Level</i>	<i>Unit of Analysis</i>		
	<i>Participant Organization</i>	<i>Collaborative Governance Regime</i>	<i>Target Goals</i>
Level one: actions/ outputs (intermediate and end outputs)	Efficiency	Efficacy	Equity
Level two: outcomes (intermediate or end outcomes)	Effectiveness	External Legitimacy	Effectiveness
Level three: adaptation (responses to outcomes)	Equilibrium	Viability	Sustainability

Source: Emerson and Nabatchi, 2015a, p. 214

For each unit of analysis, three different levels of performance are considered – resulting in nine separate categories of results to assess in order to understand how the governance regime has performed. To avoid repetition, these nine categories are presented at the start of chapter 6 where they provide the basis for analysis of findings in relation to case study cities in this chapter.

2.4.4.1 Separating Actions and Outputs

One important distinction is made here. While Emerson and Nabatchi use the terms actions and outputs interchangeably and do not differentiate between actions and outputs in either the Integrative Framework or Productivity Performance Matrix, in the analysis of findings for case study cities, actions and outputs are considered separately. Actions are defined as '*the process of doing something*' whereas outputs are the measurable results '*the amount of something produced*' (Oxford dictionary).

Two types of actions are identified:

- (i) process actions related to the formation and unfolding of the CGR. The outputs from these actions produce impacts and adaptations relating to the CGR.
- (ii) productivity actions relate to achieving the goals of the CGR. The output from these productivity actions will produce outcomes which will be felt outside of the CGR, at a system wide level. This may lead to systemic changes or adaptations which may in turn impact on the drivers influencing the CGR.

A detailed analysis of process actions was undertaken in Chapter 5. In Chapter 6, process and productivity outputs, outcomes and adaptations are summarised for each city.

2.5 Summary

The literature review in this study was completed through iterative cycling between theory and observations on the ground. Three major phases of literature review can be broadly distinguished. The initial literature review consisted of a review of NBS and environmental governance literature. This led to a good understanding of the different forms of multi-actor collaboration evident in environmental interventions. Observations from early site visits however highlighted the challenges faced on the ground with the implementation of these theoretical models of environmental governance. This prompted a return to literature to better understand the factors influencing collaboration at a local government level from a review of local government and public management reform literature. To bridge the disconnect between environmental governance modes and the public sector management models evident in local government, a Key Actors Governance Framework (KAGF) was developed to position these modes of governance in relation to each other. The conclusion from the initial literature review was that collaborative governance was the optimal mode of governance for NBS implementation.

The second phase of the literature review began with a deep dive into the concept of collaborative governance to unpick the relationship between this concept and other relevant concepts such as network governance. When some level of conceptual clarity was reached, collaborative governance literature was interrogated for insights into specific dimensions of collaborative governance relevant to NBS implementation on the ground. These included a review of literature exploring the impact of public management models on collaborative governance arrangements in particular at intra-organisational level. This phase of the literature review concluded that despite some excellent empirical studies on the dynamics between NPM and collaborative governance, knowledge gaps remained regarding the dynamics between collaborative governance and more traditional models of public management. A comparison of NBS literature, public management literature and collaborative governance literature showed a predominant focus on inter-organisational factors in collaborative governance literature and a limited focus on intra-organisational factors. In comparison, NBS literature identified the importance of intra-organisational factors as a potential barrier to NBS implementation. Such intra-organisations barriers are well theorised in public management literature. This outward-facing focus of collaborative governance literature and lack of attention to internal factors was identified as a potential limitation in this field of literature.

Questions about the performance of collaborative governance were a recurrent theme in collaborative governance literature.

The final phase of the literature review presents the process and rationale behind the selection of the theoretical framework applied as the principal research model in this study. The dimensions of the Emerson et al. (2012) Integrative Framework and Emerson and Nabatchi (2015b) Productivity Performance Matrix are outlined. Attention is drawn to the importance of differentiating clearly between process and productivity actions and outputs in this framework to better analyse performance results. Finally, literature relating to the temporal dimension of collaboration dynamics is reviewed leading to the proposal to consider such dimensions in the analysis of collaboration dynamics. A first adaptation of the Emerson and Nabatchi framework is proposed in Figure 2.9 as the research model applied in this study.

2.5.1 Final Research Questions

Based on the review of literature, and the cycling between literature and the site observations, an updated version of the research questions is presented below:

Final Research Questions (RQ):

RQ1: How do local governments implement and adapt over time to the collaborative governance arrangements required for NBS?

RQ2: Does collaborative governance work for local governments, for CGRs and for the target goal of implementing NBS?

RQ3: Do the Emerson et al. (2012) Framework for Integrative Governance, Typology of CGRs (Emerson and Nabatchi, 2015a) and Productivity Performance Matrix (Emerson and Nabatchi, 2015b) help to advance theory and practice in the implementation of collaborative governance at local government level.

3. Methodology

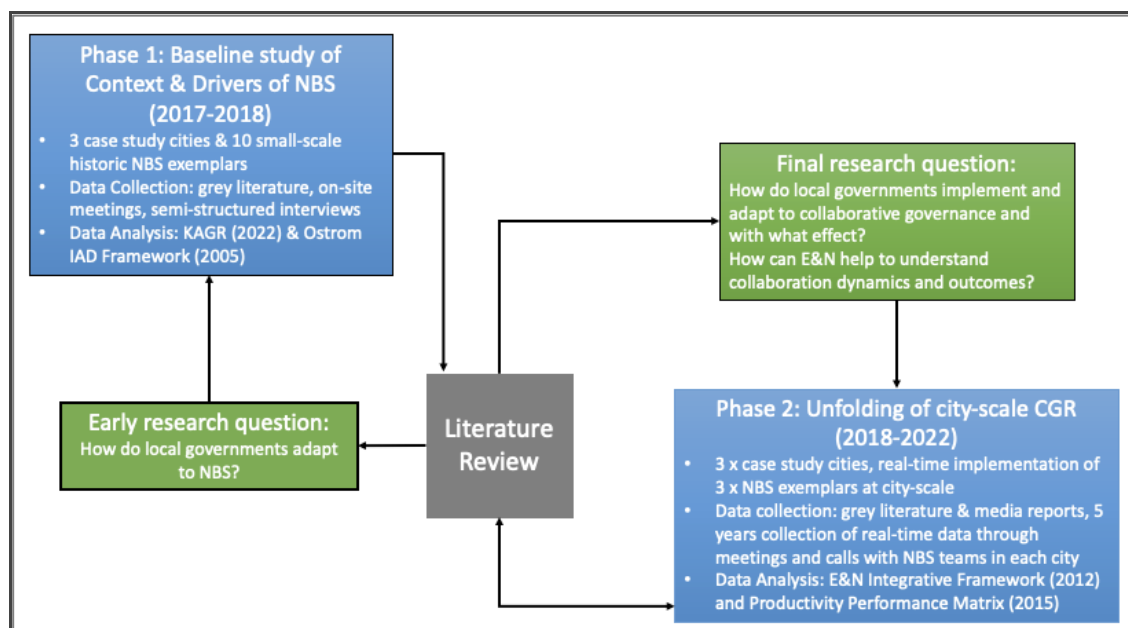
3.1 Introduction

This chapter is structured as follows. Firstly, an overview is presented of research methodologies in collaborative governance theory. This provides context for the selection of a case study methodology as the principal methodology for this study. The fit between this methodological approach and the researcher's philosophical stance is considered.

In the second part of the chapter, a review of relevant case study methodologies is presented and the results are applied to the research design employed in this study. The rationale for selection of the three case study cities is elaborated.

The data collection strategy and ethics considerations are set out in part three of this chapter. Two phases of data collection take place as summarised in Figure 3.1. Figure 3.1 also highlights the continual recursive interplay between data collection, findings and ongoing literature review.

Figure 3.1 Overview of Methodological Approach



In the fourth part of this chapter, the techniques used for data analysis are described drawing attention to three important phases of data reduction, data display and data interpretation. Coding templates and steps followed as part of data reduction techniques are described in detail.

The chapter concludes with a discussion of how issues of validity and bias might be raised in relation to the research design and how these were mitigated.

3.2 Research approach

3.2.1 Methodologies in Collaborative Governance Theory

As described in the previous chapter, since the 1990s, there has been a significant increase in research on collaboration across many disciplines from public administration to conflict resolution and environmental management. Isett and Sowa (2023) suggest that in public management, theory on collaboration began from an operational/implementation approach, then network theory took off and most recently there has been a proliferation of studies on collaboration from a constitutional or governance perspective. Different methodological approaches are associated with these different types of theory development. In network theory for example common methodological approaches include network analysis and design (Hanneman and Riddle, 2014). In collaborative governance theory, case studies are the dominant methodological approach (Douglas et al., 2020, Emerson and Nabatchi, 2015a). Case studies have also been identified as a helpful research design in natural resource management. They can provide rich insights which help to explain the complex interactions between stakeholders and context which impact on outcomes (Thomas and Koontz 2011). However the limitations of case study methodologies have been long recognised. In 2008, Ansell and Gash decried “the untidy nature of the literature” on collaborative governance, identifying that much early theory arose from an empirical evidence base of single case studies addressing single sector issues with very few studies evaluating governance outcomes (Ansell and Gash, 2008). This situation was still evident in 2020 when researchers came together to form the Collaborative Governance Case Database collating 44 case studies of collaborative governance using a standardized approach (Douglas et al., 2020).

The selection of the Emerson et al. Integrative Framework as the research model for this study influenced the choice of methodology. Emerson et al. (2012) suggest that the depth of this framework lends itself to the thick descriptions required for case study research. In their original paper they invited further research at the level of the framework suggesting that critical application of the framework to case studies of collaborative governance may identify strengths, weaknesses and limitations. Such empirical research may also shed light on the parts of the framework that are of most or least relevance to practitioners. At a theoretical level they suggest case study research is needed to test the assumptions underpinning the framework, to explain the causal mechanisms driving CGRs and to explore factors influencing outcomes and sustainability.

In response to this invitation to test the framework in empirical studies, there has been a significant response from researchers. In August 2023, Scopus/Web of Science document 1000+ citations of this paper, many involving applications to case studies. Isett and Sowa (2023) suggest that this framework has come to dominate empirical studies of collaborative governance. However scholars are increasingly questioning what contribution to theory has arisen from such applications. While case studies provide rich descriptive insights on the processes of establishing CGRs, some scholars argue that they provide limited insights on outcomes. Criticisms of methodological approaches focusing on single case studies echo earlier comments from Ansell and Gash (Thomas and Koontz 2011, Emerson and Nabatchi 2015b, Amsler and O’Leary 2014, Douglas et al., 2020). Indeed eminent scholars suggest that after decades of research little is still known about what collaborative governance is and if it works (Gash, 2022). Multiple reasons have been suggested for the lack of knowledge on performance outcomes from collaborative governance, as documented in Chapter 2. Some of these are related to methodology such as the lack of longitudinal studies in the field. In their later paper proposing a productivity performance matrix to evaluate outcomes, Emerson and Nabatchi (2015a, p. 206) call for more use of “*multiple cases, longitudinal studies and multiple units of analysis*” to advance knowledge on collaboration dynamics and performance. To assess performance, they suggest that additional methods of analysis – beyond the case study approach - may be useful including network analysis, narrative analysis, process tracing, and statistical testing. Each of these were considered for this study, but the research questions, scale, and resource limitations led back to a multiple case study approach. Process tracing was ruled out due to resource limitations relating to the cross-case comparison scale. Network analysis was ruled out as it would not provide the rich detail required to address the research question of how local governments respond to the perceived need for collaborative governance. Narrative analysis was rejected primarily because the study deals with multiple sources of information related to collaborative governance from an organisational rather than a personal perspective. Finally, statistical analysis was deemed inconsistent with the research question and philosophy – not to mention the multitude of variables in the Emerson et al. framework many of which were difficult to quantify.

The choice of a comparative case study methodology for this research study reflects both the criticisms of single case study approaches limited in temporal scale and the specific recommendations for comparative case study approaches from eminent scholars in the field (Bryson et al., 2015, Emerson and Nabatchi 2015a).

3.2.2 Research Philosophy: Critical Realism

This section discusses the philosophical underpinnings informing the research and why they are appropriate for answering the questions posed.

What is critical realism?

Ontology is concerned with the nature and form of reality (Guba and Lincoln, 1994). Critical realism fits with a realist ontology in that it acknowledges that reality exists independent of the researcher. It also fits with interpretivist paradigms in that it accepts that perceptions of reality are subjective. In this way critical realism can address both philosophical assumptions about reality (what should be) and about what actually happens in real life. It also addresses the question of relevance by looking at what happens in the real world.

For critical realists the social world is as real as the natural world. Even though the social world cannot always be perceived in terms of the physical senses, it can still be explained and measured. Indeed, the critical realist seeks to make the implicit explicit so that it can be analysed and better understood. Thus the critical realist does not have to choose between the subjective and objective truths, the critical realist can equally consider both (Mingers et al., 2013). The critical realist accepts that multiple possible explanations could contribute to any possible phenomena. Reality is only ever “imperfectly apprehendable” (Guba and Lincoln 1994). Therefore a researcher has to use ‘judgemental rationality’ to decide which phenomenon they will assess and what theories or concepts will be used to create the boundaries of the phenomenon being studied. The central tenet of critical realism is that whatever truth claim is being made, whether related to explicit or implicit phenomena, it must stand up to critical analysis (Sayer, 2012).

A central tenet of critical realism is the concept of stratified reality. Critical realism allows for an exploration of the ‘bigger picture’ through a stratified approach beginning with the ‘empirical’ view of reality, then exploring the ‘actual’ and the ‘real’ (Bhaskar, 2008). This ontological position works well with this research study as it allows the researcher to gather first-hand and second-hand observations on what “appears to happen” as local governments engage in the planning and implementation of governance of NBS in their cities, e.g. a local government publishes an action plan for NBS (empirical reality), what actually happens, e.g., parts of the action plan are implemented and others are not (the ‘actual’), and an exploration of the underlying explanation, e.g. why parts of the action plan are implemented and others are not (the ‘real’).

Epistemology is concerned with “assumptions about the grounds of knowledge - about how one might begin to understand the world and communicate this as knowledge to fellow human beings” (Burrell and Morgan, 1979). Bhaskar uses the term ‘epistemic fallacy’ to reject the idea that ‘being’ should be analysed in terms of ‘our knowledge of being’ i.e. “statements about being can be reduced to or analysed in terms of statements about knowledge.” Notwithstanding Bhaskar's reservations, critical realists are often seen as pragmatic and action-oriented “what is important is not just to explain the world but also to change it” (Alvesson and Sköldberg, 2009, Denzin, 2010). For this reason this research is considered to follow a pragmatic epistemology aligned with Stephen Fuchs’s classification of epistemological ideologies (Fuchs, 1993).

“Three epistemologies—pragmatism, positivism, and hermeneutics—are sociologically explained as the ideologies of different groups doing various kinds of scientific work. These ideologies are shaped by the material conditions and social structures of scientific work in different areas of the sciences. Pragmatism is the ideology of research fronts that constantly produce change and innovation; positivism is the ideology of normal science with its routinized practices and high task certainty; hermeneutics is the philosophy of choice in loosely coupled textual fields with a high-level of decentralization.” (Fuchs 1993, p. 135)

Explanation rather than prediction is the means that critical realists use to communicate knowledge. Causality is of central importance to critical realists as they seek to explain phenomena and why they have occurred. However critical realists do not seek to make causal predictions in the positivist sense of “if-then” statements.

While the critical realist takes an objective stance, reporting closely on data as is, this could be perceived as the first level of stratified reality i.e. the empirical reality of what is presented as fact by the participant. However in their quest to uncover the other layers of reality and understand the reason for this factual information, the critical realist fits more closely with Van Maanen’s analogy of a questioning detective rather than a factual reporter (Van Maanen, 1979).

Methodology is concerned with how the researcher finds out about what they believe can be known (Guba and Lincoln 1994). As critical realists seek to provide an explanation of events, positivist lab-type controlled experiments are not consistent with their ontological / epistemological stance which seeks to understand why phenomena occur in the real world. To discover the truth behind the stratified perception of reality, a critical realist must dig beneath the obvious (empirical) and immerse themselves in field data to seek an explanation of the mechanisms leading to phenomena occurring. Qualitative methods such as case study

methodologies are consistent with a critical realist stance. Case studies can provide rich data to understand and explain phenomena. Retrodution is an important element of critical realist methodologies:

“take some unexplained phenomenon and propose hypothetical mechanisms that, if they existed, would generate or cause that which is to be explained,” (Mingers, 2004, p94-95)

As a mode of inference, retrodution is largely a creative process for the researcher. A range of data analysis techniques can help to draw theory from data (Eisenhardt, 1989, Pettigrew, 1997, Glaser et al., 1968, Glaser and Strauss, 2017, Miles and Huberman, 1994, Corbin and Strauss, 1990, Yin, 1994). Those applied to this research study are discussed later in the chapter.

Axiology: From a values perspective, the objectivity of the researcher is seen as essential for critical realists. The voice of the critical realist has been construed as that of the ‘disinterested scientist’ and as such their unbiased thinking can help to inform decision making in policy and practice (Guba and Lincoln 1994). Maintaining this objective perspective can be difficult in lengthy case studies. In this study, there were prolonged exchanges between the researcher and the subjects of the research over five-years. It was important in the research design to reflect and recognise how any findings could be value-mediated and to put in place mechanisms to test objectivity (Sminia, 2009). This is discussed under research design.

Why is critical realism the research philosophy of the researcher?

As a researcher in the trans-disciplinary Connecting Nature project, the researcher had the opportunity to work closely with researchers from many different research philosophies. At the beginning of Connecting Nature, much of the knowledge base about NBS came from natural sciences and from researchers following largely positivist research philosophies and methodologies. While such research has undoubtedly contributed to current state of the art and evidence of the positive impacts of NBS have been proven in experimental and field settings, the low level of take-up of such solutions in the real world to address the climate and biodiversity crisis suggest other more social constructivist research philosophies and methodologies are needed to provide deeper insights into the reasons hindering implementation.

3.3 Research strategy

3.3.1 Case study methodology

Yin states that a case study methodology is a good fit for a research study if three conditions are met (i) the main research question asks 'how' or 'why' questions (ii) the researcher cannot control behavioural events (iii) the study focuses on contemporary rather than historic phenomena (Yin, 2014). These three conditions are met for this research study. The first part of the research question asks how local organisations adapt to the introduction of CGRs. Regarding the second condition, all three local government organisations were part of the Connecting Nature project and received identical guidance on implementation of NBS. As the case study data will show local governments used this guidance in widely different ways with no control evident on the part of the researcher. Finally, in response to the third question, this study focuses on data collected in real-time rather than historic data. Historic and contextual data collected during the baseline study however are taken into account as context and drivers potentially influencing the phenomenon being studied i.e. the unfolding of CGRs in different local government organisations.

Comparative case study methodology

As indicated earlier, in collaborative governance theory, the dominance of single case study research has been often criticised. A similar situation is evident in related fields such as co-production where exploratory, single case study research also appears to be the norm. Scholars point to the lack of comparative research and meta-analysis and identify that international comparative research is almost non-existent (Nabatchi et al., 2017, Brandsen and Honingh, 2016, Voorberg et al., 2015, Jo and Nabatchi, 2016).

While single-case studies may provide rich insights on a particular phenomenon, it is generally recognised that multiple case studies provide a better foundation for theory building (Eisenhardt and Graebner, 2007, Douglas et al., 2020, Yin, 1994). Multiple cases allow for comparisons to verify if an emerging finding is only evident in one case or appears across multiple cases. As such they increase the transferability of findings (Lincoln and Guba 1985). When a pattern does emerge across multiple cases, it is more robust given the different contextual settings. Eisenhardt and Graebner summarise the argument in favour of multiple case studies:

“theory building from multiple cases typically yields more robust, generalizable, and testable theory than single-case research” (Eisenhardt and Graebner, 2007, p.27).

Down-sides are also evident, not least the added complexity of cross-case comparisons from a data collection and data analysis perspective. Furthermore, whereas single case studies can be selected because of a unique phenomenon, multiple case studies are more likely to be selected because of the potential to contribute to theory building from replication and testing of alternative explanations (Yin 1994).

Longitudinal case-study methodology

The lack of longitudinal case studies in collaborative governance has been identified as one of the reasons for sustained knowledge gaps around performance (Thomas and Koontz 2011, Emerson and Nabatchi 2015a). Longitudinal case studies are useful in capturing multi-dimensional change over time (Aaboen et al., 2012, Dansereau et al., 1999, Townley, 2002). They allow for the discovery of temporal patterns which may contribute to theory development (Blazejewski, 2011). Processual research is the classical domain of longitudinal studies where they are used to analyse multiple cycles or distinct periods of change (Pettigrew, 1997, Schneiberg and Clemens, 2006). Indeed processual research was initially considered as a research methodology for this study but was ruled out due to the focus in processual research on generating theory from patterns observed over an identifiable sequence of events (Pettigrew, 1990). This study focuses on processes and actions related to collaboration dynamics which may or may not occur in sequential order.

Another area where longitudinal research design has proven useful is in practice research which seeks to understand and explain the behaviour of actors in organisations. Blazejewski (2011) suggests that longitudinal studies can provide rich insights on 'actual' behavioural patterns rather than expected behavioural patterns following the introduction of a new policy. In-depth observations from longer term field studies can help to provide rich insights on the 'how' and 'why' of adaptation patterns within organisations. This perspective is particularly relevant to this research study which seeks to understand how organisations adapt to the introduction of CGRs to implement NBS.

Figure 3.2 Four Temporal Dimensions of Case-Study Research

		Research perspective	
		Simultaneous	Expost
Data perspective	Real-time	e.g. 'classical' ethnographic field study, participant observation, repeated interviews	e.g. recorded interviews, emails or meeting notes produced at the time of events under study
	Retrospective	e.g. documents and narratives about previous events which relate to the events under study	e.g. annual reports, historical accounts, retrospective interviewing

Source: Blazejewski, 2011, p. 257

Figure 3.2 shows the different type of data required for longitudinal studies. In this research, the most significant source of data used was from real-time observations which were analysed ex-post. To increase validity this was combined with retrospective data available in the public domain such as media reports, public policies, project deliverable reports etc. The use of real-time data mitigates against recall bias and difficulties connecting cause-and effect retrospectively. However real-time data collection may lead to other types of bias such as distortion or concealment.

3.3.2 Research Design

'A case study should be more than an exercise in storytelling or an opinion piece; it should adhere to certain rules of procedure' (Benbasat et al., 1987, p.383)

A research design allows the reader to follow the logical procedure followed from research question through to data collection and analysis to the conclusions and contributions derived from data analysis. Yin (2014) identifies the following essential components of research design:

- Research question: The research question is essential in deciding on the selection of appropriate research methodologies. 'How' and 'why' research questions are commonly answered by case-study methodologies.
- Propositions are needed to provide direction or purpose to the study and state the *"criteria by which an exploration will be judged successful or not"* (Yin, 2014, p. 30).
- Units of analysis are of crucial importance as they define the boundaries of what is being studied. The units of analysis selected should be capable of producing sufficiently rich data to allow the research question to be answered. In selecting a unit of analysis, consideration should be given to the generalisability of findings and relevance within the field of study.

- Logic linking data to propositions and criteria for interpretation: it is important to consider what data will be collected to ensure that appropriate data analytic techniques can be applied in order to answer the data propositions.

3.3.2.1 Research Questions

As described in Chapter 2, the research questions were developed iteratively over the first 18 months of this study (2017-2018) informed by literature and a first phase of baseline study of data in the field.

Phase 1: A baseline study was undertaken in each of the three case study cities to better understand the context, challenges and drivers of NBS implementation using data from 10 small-scale NBS exemplars already planned or implemented in these cities. Data was collected through on-site meetings and semi-structured interviews with a range of stakeholders involved. The Key Actors Governance Framework (KAGF) and Ostrom's Institutional Analysis and Development (IAD) framework were used for data analysis (McQuaid et al., 2021, Ostrom, 2005, McGinnis, 2011). Findings (presented in Chapter 4) showed a range of governance modes of NBS emerged in response to various drivers and context and also a range of public management models were evident in case study cities. Findings are summarised in Appendix 8.1.

Refinement of research question: While these findings from historic examples of NBS from Phase 1 research provided clarity on historic modes of NBS governance, they did not explain fully how initiation and adaptation occurred or analyse outcomes. This led to the evolution of the first two research question used in this study i.e. How do local governments implement and adapt to the collaborative governance required for NBS and with what effect?

This question was applied in the case study cities to study in real-time how the local government organisations went about initiating a CGR for a city-scale nature-based solution.

The 'how' and 'why' nature of this research question guided the choice of comparative case-study research methodology. In the second phase of the research study, the real-time data gathered over the five-year study period allowed for rich data to be gathered and compared across cities on the process of establishing collaboration dynamics. The choice of the Emerson et al. Integrative Framework and Emerson and Nabatchi productivity performance matrix to analyse findings led to the final research question exploring the usefulness of these theories in understanding findings on the ground.

3.3.2.2 Propositions

Given the research questions, the research propositions for this study were quite straightforward. The researcher proposes that local governments will adapt in some way to the requirement to deploy collaborative governance, that their mode of adaptation will be observable and measurable and that the effects of this adaptation will also be observable and measurable.

3.3.2.3 Units of analysis: Case Study Cities

The local government is the unit of analysis used to respond to the first research question i.e. how do local governments implement and adapt to the collaborative governance arrangements required for the implementation of NBS?

To respond to the second research question i.e. what is the effect of local government collaborative governance implementation and adaptation, three units of analysis are used as proposed by Emerson and Nabatchi in their productivity performance matrix. These are: (i) the local government; (ii) the CGR that has been formed to facilitate cross-boundary decision-making on NBS implementation; and (iii) the target goals of the CGR.

As the third research question enquires to the usefulness of the Emerson et al. (2012) Framework for Integrative Governance (2012) and Emerson and Nabatchi's Typologies for CGR Formation and Productivity Performance Matrix (2015a, 2015b) in advancing theory and practice, the structure and elements of this framework and matrix are the units of analysis for this research question.

The next section explains why these units of analysis were chosen and how due consideration was given to the generalisability of findings and relevance within the field of study.

Local government: The local governments of the three cities of Genk (Belgium), Glasgow (Scotland) and Poznan (Poland) were selected as the primary unit of analysis (see Figure 3.3).

Figure 3.3 Case Study Cities of Genk, Glasgow and Poznan



Genk is a small city of some 66,000 urban inhabitants located in the Flanders (Flemish-speaking) region of Belgium. It is often characterised by its mining past which led to the current highly multicultural population mix. It has high unemployment rates and a predominantly low skilled workforce.

The Stierner Valley: The NBS proposed in Genk is to transform a polluted 8km stream running adjacent to the city centre of Genk into an attractive, multi-functional linear park. The NBS involves using natural approaches to flood management and developing cycle pathways as an alternative to car transport to connect the city. In addition to resolution of the environmental challenges, the city hopes the Stierner Valley NBS will help to improve the connection between citizens with the Stierner Valley for a myriad of functions from education to health and wellbeing. They also want to explore the potential of the Stierner Valley to generate social innovation and entrepreneurship.

Glasgow is the largest city in Scotland with a population of approximately 630,000 urban inhabitants. Once an industrial powerhouse in the UK, since the 1960s the city has been in decline. Today Glasgow suffers from many socio-economic challenges with a higher proportion of citizens registered on the 'Scottish index of multiple deprivations' than most cities in the UK.

The Open Space Strategy: There are hundreds of open spaces (parks, allotments, rivers, vacant and derelict spaces) around Glasgow. The Open Space Strategy (OSS) aims to integrate multi-functional NBS as a planning requirement for open space development in the city. The ultimate goal of the OSS is to ensure that every citizen of Glasgow has access, within 400m of their home, to good quality open space leading to improved health, liveability and resilience.

Poznan is the fifth-largest city in Poland with an urban population of approximately 530,000 inhabitants. Poznan is a thriving city economically and culturally. It is also an important centre of education with about 130,000 students and a growing tourism industry based on the rich cultural heritage of the city.

Network of small green spaces: Unlike the other two cities, Poznan suffers from a shortage of green space in the dense city centre and any space available is under pressure for competing land uses such as housing. The plan for NBS in Poznan is to create a network of small green spaces in the city centre through transformation of existing spaces into multi-functional NBS. The goal is to increase access to green space for people living in the city centre, leading to increased quality of life and multiple benefits for the environment in terms of reduced air pollution, mitigating the heat island effect etc.

Genk, Glasgow and Poznan were selected as case study cities based on the following rationale:

- **Accessibility:** these three cities participated as ‘front runner cities’ in ‘Connecting Nature’, a five-year research study funded by the Horizon 2020 EU programme for research and innovation (2017-2022). As front-runner cities, they shared two common variables (i) prior experience in deploying small-scale NBS which provided important baseline data on context and background; (ii) a common commitment to establishing collaborative governance processes as an integral part of the implementation process of NBS. Knowledge and procedures for NBS implementation were not imposed on any city. Rather the Connecting Nature consortium adopted a co-production methodology which worked as follows. All three cities were provided with identical guidance on the overall process and steps involved in implementing NBS (Collier et al., 2023). Cities then decided how to operationalise this guidance in their local context.
- **Representativeness (geographical):** Thomas and Koontz (2011) advise against picking case studies based on perceived success or failure but rather to choose cases either ‘typical of the phenomena’ being studied or which may provide increased insights due to access to stakeholders involved. Accessibility has been explained in the last point. Representativeness was another important rationale for the selection of Genk, Poznan and Glasgow as front-runner cities in Connecting Nature. It is well recognised that across the countries of Europe there are significant variations in political, cultural, economic and also environmental contexts, not least related to the historic and geographical location of cities and countries. The selection of front-runner cities for this study deliberately aimed for variation in order to better understand commonalities and differences which may arise from the implementation

of NBS in different contexts. Where patterns in findings do emerge across different settings, as stated in previous sections, theory building is more generalisable (Eisenhardt and Graebner 2007). A regrettable limitation in this study was the lack of inclusion of a front-runner city from Southern Europe due to resource limitations. Data collected by other Connecting Nature researchers on the deployment of collaborative governance mechanisms for NBS in the so-called 'fast-follower' cities in Southern and South-East Europe (Italy, Spain, Greece, Cyprus, Bulgaria and Bosnia and Herzegovina) suggest considerable challenges. The lack of case study research on the deployment of collaborative governance in the many countries of the world which still retain traditional or authoritarian public administration is addressed in the final chapter under future research recommendations.

- **Representativeness (size):** In addition to contextual factors, the three front-runner cities were selected as representative of different sizes of city. As large cities, Glasgow (population 627,000) and Poznan (population 540,000) had large local and complex government organisation structures. Glasgow City Council has 22,000 employees (including 5000+ teachers) and many arms-length external organisations (ALEOs). In contrast, Genk is a small city (population 67,000) and the city council, StadGenk had a proportionately smaller number of employees (1,586). While the city of Poznan is similar in size to Glasgow and has 313 municipal organisation units, they report employing only 1700 people but this excludes teachers and other public sector workers.

Emerson and Nabatchi (2015a, 2015b) suggest three units of analysis to evaluate the productivity performance of CGRs. The first unit of analysis is the participant organisation. While it would have been optimal to study all participant organisations involved throughout the different stages of development of the CGR, due to time and resource limitations, this study was limited in exploring performance from the perspective of the local government organisation as a participant organisation in the CGR. As the local government took on the role of initial formation and played a significant role throughout, it is arguably the most important participant organisation to study.

The second two units of analysis proposed by Emerson and Nabatchi are (ii) the CGR; and (iii) the Target Goals of the CGR. The boundaries of these units of analysis were identified during the research study.

The CGR: describes the overall system for decision-making on NBS implementation in which multi-actor collaboration is the norm. Emerson and Nabatchi (2015a) propose a typology of CGRs that facilitate the identification of key characteristics. This typology was applied to the CGRs that were formed in each case study city during the research period. Characteristics identify initiating

leadership, initial structure, participant volition and group autonomy. While it is acknowledged that units of analysis should ideally be time-bound phenomena (Seawright and Gerring, 2008, Gerring, 2004), due to the fluid and often informal nature of the formation of CGRs in the case study cities, it is not possible to pin down an exact date of formation. Considering that the CGRs for NBS deployment did not exist at the start of the study period but did exist at the end and that the characteristics can be ascertained in relation to an established typology, it is argued therefore that it is clear that they were established during the study period.

Target goals: Emerson and Nabatchi (2015a) specify that a target goal is the collective purpose of the CGR. All three cities share a common target goal associated with their involvement in Connecting Nature, i.e. the implementation of NBS at a city-wide scale. Beyond this overarching goal, clearly identifiable sub-goals and action plans to achieve them were established in each city. These are clearly written down and documented in official reports and publications, e.g. Connecting Nature reports for each city, Glasgow City Council policy documents, online websites (see Appendix 8.5).

3.3.2.4 Linking Data to Propositions

Yin (2014) advises in the research design that it is important to consider what data will be collected to ensure that appropriate data analytic techniques can be applied in order to answer the data propositions. Data collection is presented in detail in the next section of this chapter.

3.3.2.5 Criteria for interpreting findings

The criteria and techniques used for interpretation of findings are also presented in detail in a later section of this chapter (Section 3.5).

3.4 Data collection

3.4.1 Data on System context, drivers and analysis of CGR formation

Emerson and Nabatchi (2015a) provide exhaustive guidance on potential sources of data for all elements of the Integrative Framework (see Appendix 8.2). For system context, drivers and analysis of CGR formation, they suggest sustainable data sources could include: (i) archival data and documentation; (ii) interviews with key parties/researchers, survey data; (iii) network analysis and mapping geographic information system tools; (iv) direct observation.

A baseline study conducted from mid-June to the end of 2018 provided the primary source of data on context and drivers. Data were collected from three principal sources corresponding to the recommendations of Emerson and Nabatchi. These included:

- **Archival data and documentation:** A comprehensive review of publicly available documentation and online data about each city e.g. policy and planning documents, financial and other reports published by the local government organisations, published case studies and reports from other EU projects, detailed reports from interviews and on-site meetings conducted by other Connecting Nature project partners (i.e. Osmos reports).
- **Interviews with key parties/researchers:** 17 semi-structured interviews were undertaken with a range of stakeholders from local government departments (8) and external stakeholders (8) broken down as follows: planning dept (3), finance dept (2), environment dept (1), economics/regeneration dept (2), parks dept (2), land development regional government agency (1), independent project management consultant (1), academic stakeholders (1), investment platform/philanthropists (2), NGOs (1) and citizens (1).
- **Direct observation:** Three on-site visits were undertaken to each city in the period 2017 - 2018. These involved formal and informal meetings and site-visits as part of the Connecting Nature project. These visits provided an invaluable opportunity to observe dynamics between NBS team members, between the NBS team and other departments and stakeholders. Site visits to previous NBS exemplars and the sites of planned NBS helped to bring to life archival descriptions of resource conditions.

Findings from this baseline study describing the public administration context in each city and the governance model of historic NBS exemplars were presented at an IRSPM conferences in 2019 and subsequently published in a book chapter (McQuaid et al, 2021). Chapter 4, which introduces the system context and drivers in the case study cities draws heavily on the findings reported in the Conference Paper / Book Chapter.

3.4.2 Data on Formation of CGR and Collaboration Dynamics

For the collaboration dynamics of principled engagement, shared motivation and capacity for joint action, three types of data source are proposed by Emerson and Nabatchi (2015a): (i) archival data e.g. meeting minutes, case documentation, charters and references to participant organisation commitment to the CGR; (ii) surveys, interviews, focus groups with participants; (iii) direct observation at meetings and/or other formal and informal conversations with the CGR participants. In accordance with these recommendations, the following data was collected:

- **Archival data:** Data included general policy documentation relating to urban greening strategies of the city e.g. [Poznan City Development Strategy](#), official published policy documentation specific to the NBS exemplars e.g. Glasgow [Open Space Strategy policy](#) available on Glasgow City Council website, dedicated city website on NBS exemplars ([Stiemer Vallei, Genk](#)) case studies of NBS exemplars on EU websites (Oppla), GIS maps (Glasgow), organisation charts for the cities, other regional and EU case study reports, documentation from Connecting Nature project meetings and official reports from 2017 to 2022.
- **Surveys, interviews, focus groups with participants:** Real-time data were collected from the NBS teams in case study cities using two methods: a reflexive monitoring process and direct one-to-one interviews:

Reflexive Monitoring (RM) was used in the Connecting Nature project as a method of city-led learning leading to changes in understanding and behaviour (Beers and Van Mierlo, 2017, Sol et al., 2018). At city level, NBS teams set up a process of reflexive monitoring by which they documented on a monthly basis critical turning points in the implementation of NBS in their city. For each critical turning point, the NBS teams documented challenges and opportunities and formulated actions to overcome roadblocks and seize opportunities. Academic partners, including this researcher, played the role of independent observers. They were invited to review the documents in advance and submit questions for clarification which NBS teams responded to in regular (monthly/bimonthly) meetings chaired by DRIFT, a Connecting Nature project partner. These meetings provided a rich vein of insights into the unfolding of collaborative governance in cities. They also removed the potential for a sympathetic interviewer eliciting in a semi-structured interview the type of answers they wanted to hear (Rapley, 2011, Silverman, 2017). Separate notes from reflexive monitoring meetings were taken by the facilitator (DRIFT research institute) and by the researcher. This permitted triangulation of observations. The reflexive monitoring process started at the end of 2018 and continued until 2021.

Direct one-to-one interviews: while the reflexive monitoring meetings were very helpful in providing an overview of critical turning points, in order to gather more specific information related to this study, the researcher also organised a series of bi-monthly one-to-one meetings with NBS teams in each city. These meetings were less formal and structured than the reflexive monitoring meetings and more dialogic in style facilitating a more open and in-depth discussion of key issues concerning the city. One-to-one meetings began in 2019 and continued until the end of 2021.

- **Direct observation** at meetings and/or other formal and informal conversations with the CGR participants: there were many opportunities for formal and informal observation at Connecting Nature meetings and events. In-person meetings were planned bi-annually for the five-year duration of the project. Unfortunately, due to Covid, in-person meetings were suspended from March 2020 until April 2022 but these were replaced with more frequent on-line meetings during this timeframe. Peer-to-peer learning exchanges between the cities permitted a fruitful opportunity for observation.

3.4.3 Ethics

Before conducting interviews in case study cities, an application for Research Ethics Approval was submitted and approved by the Trinity Business School Research Ethics Committee. An informed consent form was approved explaining the research process, details of data analysis, publication and storage (see Appendix 8.7). This form stipulated that responses would be anonymised but drew attention to the small size of the sample, leading to a risk that the participants in the research could be identified. To minimise the risk to research participants, direct quotations are anonymised even in this thesis and will not be made available in an open-source format or published without the permission of the interviewees.

3.4.4 Data on Productivity Performance

For performance related to actions, outcomes and adaptation, Emerson and Nabatchi (2015a) suggest different types of data are collected for different units of analysis. The types of data collected in this study for different units of analysis is presented hereafter:

At the level of participant organisations, Emerson and Nabatchi (2015a) recommend data on performance can be captured from organisational records and perceptions of reported gains, benefits and resilience can be captured through surveys or interviews.

In this study, due to time and resource limitations data on perceptions of performance were captured only for the focal participant organisation, i.e. the local government organisation. Data on performance from the perception of the NBS team were triangulated with data on perceptions from high-level officials and external stakeholders captured from quotations and presentations at events and in the media.

At the level of the CGR as a whole: Emerson and Nabatchi (2015a) suggest data on the performance of the CGR can be collected from meeting minutes and work plans. These can be triangulated with external confirmation of implemented actions and outcomes e.g. in the media.

Evidence of repeat and new funding are also data sources for outcomes. In terms of long term adaptation, suggested data sources include evidence of incorporation into strategic plans and financial reports.

In this study, data was captured for CGR outcomes primarily from interviews with the NBS team. Data on funding successes and integration of NBS into official documents at local level were captured in the minutes of meetings/interviews with the NBS team but they were also reported in official documentation submitted to the EC and in presentations to external reviewers. Data on external legitimacy was captured for high-level stakeholders in public events and in the dissemination reports of other Connecting Nature partners.

At the level of Target Goals of the CGR: Finally at the level of target goals, suggested data sources include surveys or interviews to assess perceptions and judgements among CGR participants and third parties. Data can also be captured in response to criteria set for objective measurement of attainment of target goals.

In this study, data on perceptions/judgements on the implementation of NBS were collected from the minutes of meetings/interviews with the NBS teams. Independent reports on the measurable impacts from NBS implementation were completed by a university partner (AMU) in Poznan. Baseline data was collected on NBS for the cities of Genk and Glasgow, but no official verifiable data were available at the end of the study period due to the stage of development of activities.

3.4.4 Summary

In total 260 documents were collected of which 17 direct interviews were conducted and transcribed by the researcher for phase 1 research and 109 meetings were recorded by the researcher in phase 2 research. All documents were uploaded for analysis to NVivo 12, a software tool designed to facilitate qualitative data analysis. A full breakdown of data source by city, by year and by type (archival, interview/focus group minutes) is included in a detailed table in Appendix 8.3.

3.5 Data analysis

3.5.1 Data Analysis Technique

“Words are fatter than numbers and usually have multiple meanings” (Miles and Huberman, 1994, p. 56).

This research study uses qualitative data analysis techniques associated with case study methodologies. Qualitative data, in the most simple terms, are data in the form of words rather than numbers (Miles and Huberman 1994). The reliability and validity of qualitative data findings has long been called into question, not least given the subjectivity of findings depending on the interpretation of the researcher. For this reason, and also given the quantity of data being analysed, considerable thought was given to data analysis techniques.

At an overarching level, the data analysis used in this research follows the three stages set out by Miles and Huberman (1994) of data reduction, data display and data interpretation. The first phase of data analysis is data reduction i.e. the process of selecting, simplifying, abstracting and transforming the most relevant data. Different approaches may be used to decide on the relevance of data. These include, for example, Framework analysis (Ritchie et al., 2003), Thematic Analysis (Braun and Clarke, 2006), Interpretative phenomenological analysis (Smith and Fieldsend, 2021) and constructivist grounded theory (Charmaz, 2006). This research study uses a combination of framework analysis and thematic analysis as explained hereafter.

3.5.2 Data Reduction

As the Emerson et al. Integrative Framework for Collaborative Governance (2012) was used as the primary framework for this study, the first phase of data analysis involved data reduction i.e. comparing data collected against this framework. Data that was deemed relevant was included in the study, data that was not deemed relevant to the framework was not included. In their 2015 publication, Emerson and Nabatchi provided detailed guidance on the different components of the framework which was very helpful in deciding on the relevance of data. The first step of data analysis was completed using template analysis, a method of thematic analysis widely used in organisational and management research (King, 2012, King et al., 2018). There has been much debate lately about the use of templates in qualitative research (Gioia et al., 2022, Gioia et al., 2013). Much of this debate surrounds the use of templates to interpret data in the generation of theory (Langley and Abdallah, 2011). Two epistemological orientations are often pitted against each other - the naturalist orientation and that of hermeneutics.

Gioia (2013) is widely considered to have popularised the 'template' approach as a way of overcoming concerns about the quality of qualitative research, more specifically about how to overcome the subjectivity of the researcher in interpreting data. Gioia proposes two levels of coding - at the first level, codes are applied in a bottom-up way based on field data so that the voice of the research subject come to the fore. At the second level, the researcher sorts and

groups these first level headings using their own scientific knowledge. This rigorous approach has been very popular but more recently there has been mounting criticism from scholars proposing a more hermeneutical approach to data interpretation. While critics acknowledge that the template approach produces rigorous procedures for data analysis, they argue that this doesn't necessarily lead to better interpretation of data (Mees-Buss et al., 2022). Indeed they suggest that hermeneutical approaches probe the researchers to think more deeply and consider multiple alternative theories thus leading to more rigorous interpretation than a simple template.

Hermeneutical approaches are sometimes suggested as more relevant to the building of new theory in emergent research fields rather than the testing of well-established theory. The field of collaborative governance theory could not be considered emergent. Indeed, the Emerson et al. research framework was developed in response to the multiplicity of unconnected theory emerging from individual case studies. The aim of this study is not to propose a radical departure from existing theory using empirical data, but rather to examine the boundaries and limitations of existing theory and enhance existing theory or contribute new theory where gaps are identified.

The use of template analysis in this study differs from the approach proposed by Gioia (2013) in that an existing theoretical framework was used for the first round of data analysis. This is a significant departure from the normal approaches to first level and second level coding proposed by both the Gioia and hermeneutics approach. While there are many metaphors and analogies around the use of templates from 'freedom with fences' (Gioia 2022) to 'disciplined imagination' (Weick, 1989), this researcher remains mindful that the use of any kind of template will limit the sort of conclusions that can be drawn (Cornelissen, 2017). The limitations of a framework approach were not seen as a barrier to theory development in this study, but rather as a feature that helped manage the considerable scope of the research, provide concrete evidence for truth claims and enable the researcher to make valuable insights and theoretical contributions to a vast literature. In second and subsequent rounds of analysis, there was scope to capture and explore aspects arising from the first round that presented interesting or novel insights.

'Actions' was one aspect of the Emerson and Nabatchi framework which the researcher found was not very well developed in theory. As described below, different types of data analysis and interpretation processes were experimented with as a method of theory development in this case. In summary, the approach to data analysis in this study could be described as a 'bricolage' of existing approaches rather than a rigid adherence to one particular method (Gioia 2022).

3.5.3 Coding Process

3.5.3.1 First Round Coding: Emerson and Nabatchi Integrative Framework

Template analysis involved setting up an initial template for coding using the top level components of the Emerson et al. Integrative Framework. Based on this framework, 7 top level codes from Emerson et al. were originally set up as nodes in NVivo 12. Template analysis facilitates the adaptation of the original template to capture additional codes emerging during coding. Only 1 additional top level coding node was added (Node 3 Barriers to collaboration). The 8 top level nodes are shown in Table 3.1

Table 3.1 shows that 5189 references were coded for the three cities. 76% of references were classified as ‘direct’ references i.e. voiced directly by the NBS team and captured through minutes of reflexive monitoring or transcripts from one-to-one meetings or interviews. 24% were considered ‘indirect’ references i.e. sourced from third party reports and documents. These indirect references are important in terms of triangulation of findings.

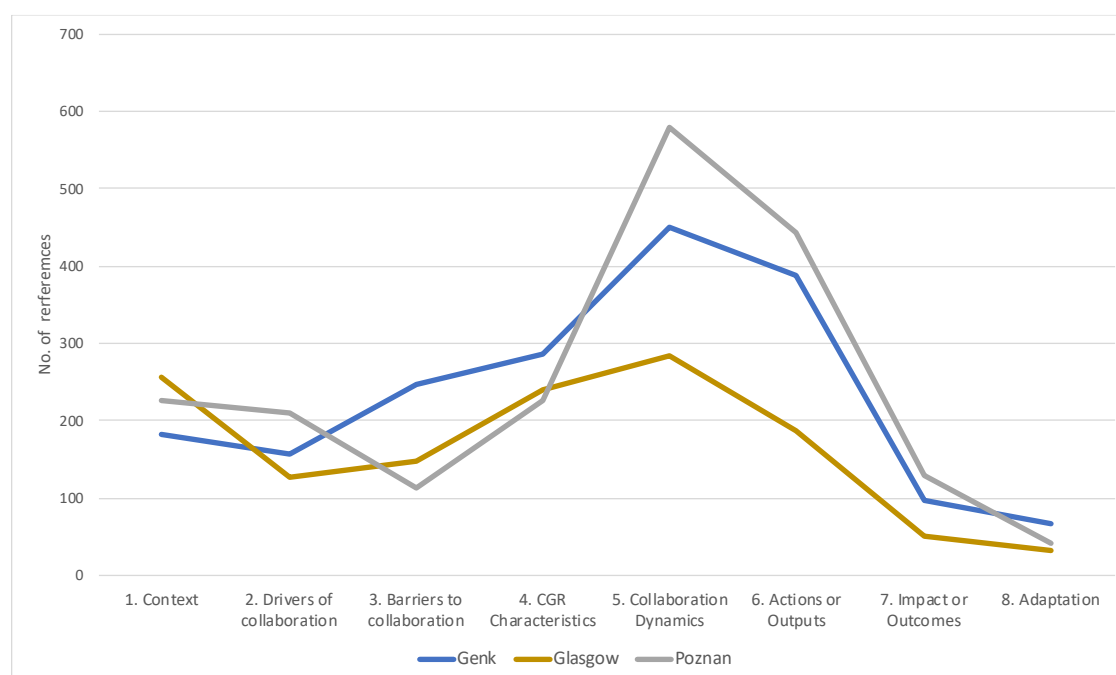
It should be noted that references are not always coded exclusively to one node. In many cases a reference may be relevant to more than one condition. In the following example, the reference sheds light on the rigid departmental processes that hinder NBS implementation (code 3 barriers). Actions to address this challenge are evident as are outputs in terms of decisions (code 6). So one reference may be coded to multiple top level nodes.

“The Treehouse saga continues. Our own colleagues who are supposed to execute the same policy as we are – send us this message that our application was ‘incomplete’. We asked this department to join the first meeting 2 years ago to tell us what was needed in terms of permits etc. The decision was made by a new person in this department who didn’t know the history. She took out her rule book and just said ‘no’. They’re very strict. They follow all the rules and forget the overall policy context.” (Genk 2020 Reflexive Monitoring SMQ notes).

Table 3.1 Data Table: Summary of All References

Top-Level and Sub-Nodes	Genk	Glasgow	Poznan	Total
1. Context	182	255	226	663
2. Drivers of collaboration	157	128	211	496
3. Barriers to collaboration	246	148	112	506
4. CGR Characteristics	287	241	227	755
5. Collaboration Dynamics	450	283	580	1313
5.1 Principled Engagement	126	99	223	448
5.2 Shared Motivation	186	59	161	406
5.3 Capacity - Joint Action	138	125	196	459
6. Actions or Outputs	387	186	444	1017
7. Impact or Outcomes	97	52	129	278
8. Adaptation	67	33	41	141
Total	1873	1326	1970	5169

Figure 3.4 Data Analysis: All References for all Cities



Under each of the 8 top level codes shown in Table 3.1, 22 further sub-codes were added straight away. These relate to sub-headings specified directly in Emerson and Nabatchi publications (2012, 2015a ,2015b). For example, under the collaboration dynamic of principled engagement, sub-codes were added for the four elements of discovery, definition, deliberation and determination specified by Emerson and Nabatchi. In total, Emerson and Nabatchi specified 6 sub-headings under system context, 4 sub-headings under drivers and 4 under each of the three collaboration dynamics. Where possible, data was coded under a sub-heading rather than a main-heading in order to facilitate data interpretation at the next stage of analysis. Each of the 260 documents was coded city by city, document by document, line by line against these 8 top level codes and 22 sub-level codes. As shown in Figure 3.4, the highest volume of data relates to collaboration dynamics and actions.

Additional codes unrelated to Emerson and Nabatchi

As data was being coded, other sub-nodes emerged organically in a bottom up-way. These were added in NVivo as they emerged city by city starting with Genk, then checked to see if they were relevant to Glasgow and finally checked for Poznan. Sometimes nodes added were only relevant to one city, sometimes they were relevant to two or more cities. For example, under Drivers of Collaboration, the importance of the spatial dimension of NBS as a driver of collaboration was noted early on in Genk. This was added as a sub-node which was then found to be relevant also in Glasgow and in Poznan.

In total only 1 new sub-code (Spatial Transformation) was added to Drivers, 13 new sub-codes were identified under barriers to collaboration and 1 new sub-code was added under Shared Motivation (local partner, local language). Under the sub-element of Principled Engagement related to Determinations, a further sub-category was set up to capture references to Target Goals. This proved to be extremely important for later evaluation of performance outcomes against target goals.

Research Memos A daily research memo diary was kept through all stages of coding, data interpretation and write-up. Memos are recognised as an essential tool to keep track of changes in coding and the thinking behind them (Mohajan and Mohajan, 2022):

“a memo is the theorizing write-up of ideas about codes and their relationships as they strike the analyst while coding...it can be a sentence, a paragraph or a few pages...it exhausts the analysts’ momentary ideation based on data with perhaps a little conceptual elaboration (Glaser, 1978, p.83-84).

As indicated by Glaser, early thoughts on possible patterns were also noted in these memos. These were not acted on during coding but were helpful to refer back to during the data interpretation stage.

3.5.3.2 Second Round Coding: Temporal Bracketing and Performance Criteria

At the end of the first full round of coding, if there were more than 50 references under any code or sub-code a further round of data reduction via sub-coding was considered to further draw out patterns and themes. The number of 50 references was set by the researcher as an approximate limit for data interpretation. While 50 references may seem quite high, in many cases data was triangulated between the researcher's notes and reports from other Connecting Nature researchers. These documents were coded separately so it was only when it came to data interpretation that these multiple perspectives on the same sub-code became evident. In most cases, differences were negligible as both researchers were transcribing notes from the same meeting. Differences usually took the form of one researcher capturing more detail on a specific reference than another researcher. However this form of triangulation helped to provide reassurance that the researcher's notes and observations from the meeting were accurate.

Due to the detailed guidance provided by Emerson and Nabatchi (2015a), most categories of sub-coding had 50 or fewer references. The exception were the components related to performance criteria i.e. Actions (Code 6), Impact (Code 7) or Adaptation (Code 8). Unlike the other components of the framework, Emerson and Nabatchi (2015a) provided little guidance on sub-level codes related to these elements. Over 1000 references were coded related to actions alone. In identifying actions, the researcher followed a similar principle to that of Pettigrew i.e. identifying actions through the use of action verbs, rather than nouns, which Pettigrew considered were more likely to relate to inputs and outcomes than processes (Pettigrew et al., 2001). Unsurprisingly, five-years of activity in the field produced many actions across cities.

In comparison with the level of detail Emerson et al. (2012) provide on collaboration *dynamics* in their Integrative Framework for Collaborative Governance (2012) i.e., 4 sub-criteria to consider for each of the three collaboration dynamics, there is relatively little guidance on the sub-criteria to consider when examining the *actions* emerging from these collaboration dynamics. A list of examples of possible actions is provided but it is noted that these may vary depending on context i.e.,

“securing endorsements, educating constituents or the public, enacting policy measures (new laws or regulations), marshalling external resources, deploying staff, siting and permitting facilities, building or cleaning up, carrying out new management practices, monitoring implementation, and enforcing compliance.” Emerson et al., 2012.

This guidance was not very helpful in analysing and categorising the 1000+ examples of actions emerging from collaboration governance regimes across the three cities in this research study.

A top level review of data in this study showed that many actions related to the processes of collaboration dynamics. In the following reference, the action relates to the principled engagement sub-element of discovery i.e. the NBS team organised and participated in an event to raise awareness among potential stakeholders about NBS and to discuss more informally their interests and concerns:

“Organizing and participation in local conference entitled “Education for the Public Space: and discussion about natural playgrounds in preschools” 2018 Poznan, Dynamic Learning Agenda.

It should be noted however that not all data captured under collaboration dynamics relates to actions. Some references relate to reflections and observations of the NBS Team. For example, under the element of leadership, the following reference relates to technical leadership but there is no evidence of an associated action.

“The selected contractor is one of the few experts on the national arena, who has great knowledge and many years of experience in designing preschools gardens. It is a great opportunity for the city of Poznań” 2018 Poznan, Dynamic Learning Agenda.

Application of the Productivity Performance Matrix

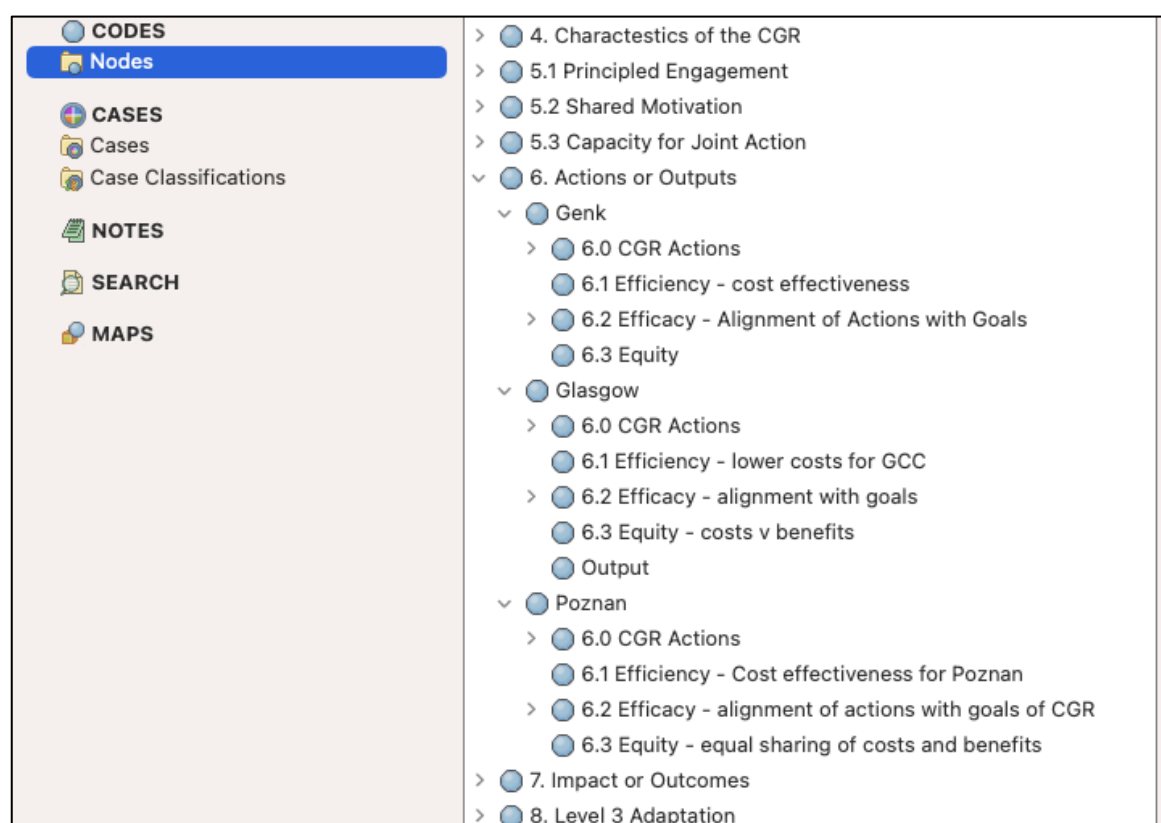
Initially, the researcher tried several bottom-up approaches to coding, but the quantity of data was overwhelming within the context of the wider study (approximately one-fifth of all data). This prompted a return to the literature on performance on collaborative governance where a re-examination of the Emerson and Nabatchi (2015a) paper led to application of the productivity performance matrix criteria for evaluation of outputs.

Coding of Actions

This led to the addition under the heading of Actions of three further sub-heading for each city (see Figure 3.5) related to the criteria for performance evaluation i.e. 6.1 **Efficiency** of actions for

the participant organisation; 6.2 **Efficacy** i.e. alignment of actions with target goals; and 6.3 **Equity** of target goals in terms of distribution of costs and benefits among participants.

Figure 3.5 Coding Headings in NVivo for Actions



Initially this seemed to work well especially for Efficacy as target goals were clearly identified under Principled Engagement e.g. 4 pilot projects of Stiemer Valley in Genk. Therefore it was relatively easy to code actions related to any of these target goals under a sub-heading for each goal to get a sense of how well aligned actions were with different goals. However, as the analysis progressed, the researcher observed that a large number of actions could not be related to a specific goal e.g. one of the four pilot projects of the Stiemer Valley. Many actions could be considered overarching and related to the CGR as a whole e.g. setting up an over-arching governance structure or discovery-type actions aimed at raising general NBS awareness among multiple stakeholders. A new category was captured for such actions which was called '**6.0 CGR Process Actions**'. At the end of this round of coding, up to half of all references were captured under this category of actions related to CGR activities.

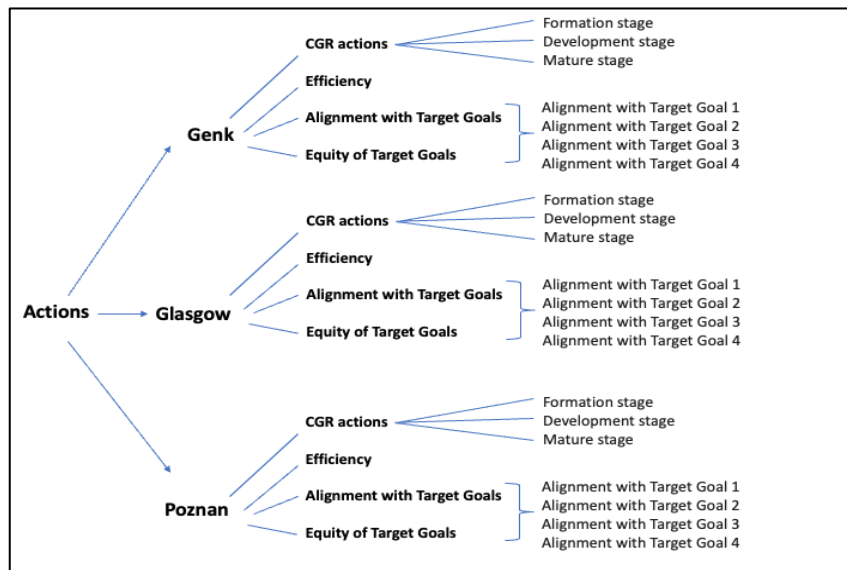
Temporal Bracketing: As there were more than 50 references under the new category of CGR Process Actions for each city, the researcher decided that a further mode of analysis was needed.

Again a return to the literature prompted another round of cycling between data and theory, inductive and deductive theory-testing, to explore possible ways of understanding this data (Ketokivi and Mantere, 2010). Several possible explanations were tried out in line with Yin's recommendations that multiple 'rival' explanations be considered (Yin, 2014). Eventually, a conceptual leap occurred between theory and data after a review of the literature on the temporal dimension of collaborative development (Mandell and Keast, 2008, Imperial et al., 2016, Ulibarri et al. 2020). The data were re-visited to see if references fitted with a temporal bracketing strategy where data were divided into discrete phases related to the stages of development of the CGR. Three broad phases were identified: (i) **early-stage actions** related to the formation of the CGR and initial engagement with different stakeholders; (ii) **development stage** captured actions aimed at progressing the agenda of the CGR e.g. working on budgets or actions plans; and finally (iii) at the **mature stage** actions could be observed that were more oriented towards the long term such as negotiating changes in longer-term governance arrangements. While some overlaps and iterative cycles were observed in line with theory, overall a good fit was observed. Three sub-categories related to these temporal stages of CGR actions were then set up as codes and data was coded under these headings for each city.

In summary, under the component of Actions, data were sub-coded at multiple sub-levels as shown in Figure 3.6:

- first at city level (3 sub-codes),
- then at the next sub-coding level of criteria for performance evaluation related to target goals (3 subcodes) or related to CGR actions (1 subcode)
- under codes related to CGR actions there were a further 3 subcodes related to formation, development and mature stage of a CGR (3 sub codes)
- additional sub-level related to target goals for each city

Figure 3.6 Multi-level coding of Actions



Coding Outcomes and Adaptation

Coding under the other two Emerson and Nabatchi productivity performance headings of Impact/Outcomes and Adaptation was undertaken in a similar way. However there was considerably less data for these two components headings (<50 references) and therefore coding progressed more quickly.

3.5.4 Data Display

After the phase of data reduction, Miles and Huberman (1994) suggest the next two phases are data display (organised, compressed, assembly of information), which allows the researcher to see what's happening, and the final phase of conclusion drawing and verification.

Findings by city

Following successive rounds of coding, data were broken down into 'bite-sized' chunks of 50 references or less for the sub-codes as described in the last section.

Figure 3.7 Data Display - Heat Map of Sub-Codes

Poznan Section 1 overview			
Nodes	Poznan Indirect	Poznan Direct	Total
1. Context	0	0	0
Public service & resources	17	21	38
Policy, legal & administrative	34	24	58
Political & Power Dynamics	7	20	27
Network characteristics	15	11	26
Socio-economic & cultural	12	16	28
History	24	24	48
Total	109	116	225

For each sub-code, a heat-map was produced using NVivo to highlight areas where there was a large quantity of data and from what type of source.

While the heat-map was a useful visual tool, volume of data was considered indicative only. For example, the high number of references captured for each city under the sub-code of history of success or failure reflects the quantity of data collected from the baseline study on previous NBS exemplars. This does not mean that previous history was a more important sub-code than public service and resource conditions, for example. Each unit of data was considered in its own right and a findings document was initially prepared interpreting data for every sub-code independently.

3.5.5 Data Interpretation: Conclusion drawing and verification

Miles and Huberman (1994) suggest that ‘conclusion drawing and verification’ does not occur in a linear way - a sudden conceptual leap at the end of the data analysis process. They suggest that conclusions are likely to emerge in an organic way from the start of data collection as patterns and possible causalities are noted in research memos. Yin (2014) goes even further, suggesting that forming early propositions on possible outcomes should form part of research design as it helps to clarify the units of analysis required. Along with most other scholars, however, they caution that early theories should be held open for scepticism and multiple alternative or rival explanations should always be considered. Weick (1979) advises attention to accuracy (close fit to data), simplicity and generality in data interpretation.

In this study, the use of an established and well explained theoretical framework as a template for analysis made it easier both to see findings and patterns that fitted well with the framework and to identify and examine findings that didn’t. Multiple opportunities arose for reflections on early data with other researchers. This opened up insights and possible explanations from other

disciplinary fields. As the study progressed, conclusions were honed down in a gradual way with constant cycling back to the literature to see if similar findings had been found in other studies or to see if different explanations for findings made sense. In the final phases of data interpretation, the PhD supervisor played an essential role in sense-checking the plausibility of conclusions and testing alternative theories.

In summary different strategies for sense-making from literature were considered (Langley, 1999, Langley and Abdallah, 2011). Some of the more relevant included the following:

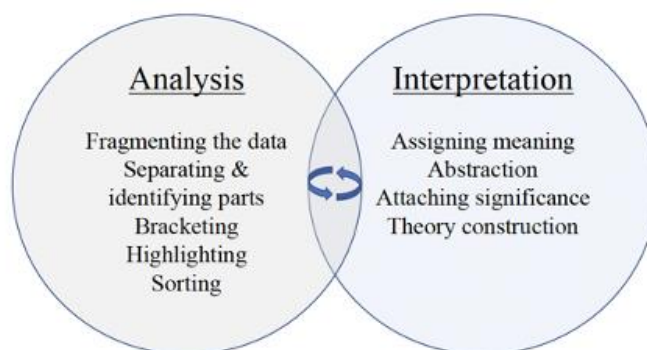
1. A narrative strategy as exemplified by Chandler (Chandler Jr, 1969) and Pettigrew (1985) involves making sense of data by turning it into a story. Rich data means such sense-making is high in accuracy but such an approach can only be used in a small number of cases where extensive data are available. The unfolding of a CGR in each case study city could fit with a narrative strategy in that there was a beginning of the story (context and drivers leading to the initiation of a CGR), a middle (where all the action happened between different actors) and the end of the story where the consequences of actions can be seen. Looking at the unfolding of the CGR through the lens of story-telling helps to identify inconsistencies in story lines and the impacts of twists and turns on the final ending.
2. Visual mapping (Miles and Huberman 1994) involves the visual presentation of complex data in the form of charts, diagrams, graphs, flowcharts etc. Langley suggests this approach is good for synthesising large amounts of complex data. As indicated previously, 'heat-mapping' as a form of visual mapping was used throughout data analysis as an indicative analytic tool rather than for accurate theory building.
3. Temporal bracketing strategy (Denis et al., 1996) involves shaping masses of process data into discrete phases which may or may not be linked temporally. As indicated previously, temporal bracketing was used to make sense of data references under sub-codes such as Actions where there was little guidance from theoretical frameworks. A combination of temporal bracketing, visual bracketing and narrative theory was used in Chapter 6 to make sense of performance data.

Comparative analysis

Comparative analysis between the three case study cities and between different sub-coding headings was the most important element of theory building. The identification of similarities and differences allowed for the testing of different explanatory theories (Eisenhardt 1989). Sub-codes were often related to each other, e.g., references to hierarchical public administration structures appeared under context, under barriers, under collaboration dynamics and under

actions. When a potential explanation emerged (hypothesis building in Eisenhardt terminology), to make sense of one reference, in such cases it had to be considered against other sub-headings to check for plausibility. This process compares well with the ‘*thought trials*’ that Weick (1989) suggests researchers need to undertake to work through different scenarios (hypothetical mechanisms) that might explain events or mechanisms. Fit to data, as suggested by Weick, was an important consideration. Direct quotations are drawn on extensively in the findings chapters to substantiate data interpretation. Figure 3.8 below highlights well the recursive interplay between analysis and interpretation.

Figure 3.8 Recursive Interplay between Analysis and Interpretation



Adapted from (Wolcott, 1994) and Dowling (2019)

3.6 Research Validity and Bias

3.6.1 Research validity

Researchers should consider three elements to increase the validity of qualitative research: research design, measurement and inferential validity (Venkatesh et al., 2013). In the next section, the steps taken to increase validity are set out.

- (i) **Design** i.e. construction of research design to optimise the identification .The decision to use the well-established Emerson and Nabatchi Integrative Framework as the main research model for this study greatly helps to increase validity in research design. The well-cited application of this framework in multiple empirical settings provides reassurance as to the causal relationships (internal validity) between the different components. The generalisation of results (external validity) from use of a case study methodology is always challenging but

again the use of an established framework provides a solid initial basis for comparison of results of causality (internal validity) and the generalisation of results (external validity).

- (ii) **Measurement** i.e. will the research design allow for the measurement of relevant data for the subject of the inquiry. Will the data provide dependable, consistent and plausible findings? As regards measurement of relevant data, again this is assured by the use of the Emerson and Nabatchi Framework as considerable guidance is provided on the data to be measured as well as relevant indicators and sources.
- (iii) **Inferential validity** i.e. how can the research design provide assurances as to the quality of interpretation and inference of data. This is possibly the most difficult to defend. A detailed explanation of the steps taken and strategies deployed to interpret data has been described in the last section. The potential for researcher bias in interpretation must however be recognised and is considered in the next section.

3.6.2 Bias

Researcher bias: Miles and Huberman (1994) suggest three common biases that correspond with judgmental heuristics. These include the 'holistic fallacy' where more patterns and congruences are interpreted than actually exist. This may emerge from blocking out conflicting data or as Miles and Huberman (1994) put it, "lopping off the many loose ends of which social life is made". The risk of this bias is present in this study but low in comparison with other biases given the extended period of the study and the multiple sources of reinforcing data references built up over time. Elite bias, where the importance of data from high-level stakeholders is overweighted in comparison with data from lower status informants is unlikely in this study. The NBS team who provided the majority of direct data references were of a similar level of status.

The final bias of 'going native' is undoubtedly the most likely to occur. This involves losing an objective perspective and succumbing to the perceptions and explanations of local interviewees. Such a lack of objectivity is inconsistent with the critical research philosophical stance of the researcher. "Inquiry from the outside" calls for detachment on the part of the researcher, who typically gathers data according to *a priori* analytical categories and aims to uncover knowledge that can be generalised to many situations (Evered and Louis, 1981). On the other hand, schools of thought on naturalistic enquiry argue that a closer relationship between the researcher and the subject of the research could be advantageous in that it could lead to more openness of subjects, better understanding of social cues and ultimately more effective interpretation (Guba and Lincoln, 1994). As part of the Trinity College Dublin research team, the

researcher developed a close working relationship with the individuals interviewed in each case study organisation over the five years of this research study. This relationship facilitated a high-level of trust between researcher and participants leading to open and honest remarks and a more nuanced understanding of context built up over time

To mitigate against the risk of 'going native', the researcher took the following steps to manage their own subjectivity in line with good practice (Lincoln and Guba, 1985). Firstly, equal weighting was given to the researcher's own interview data and notes on reflexive monitoring meetings as those notes captured by other researchers. As reflexive monitoring data made up approximately one-third of all data sources, this 'check and balance' system helped to reflect on any emerging bias as well as to triangulate findings. Secondly, the researcher did not begin to analyse research data until after the Connecting Nature research project had ended. A deliberate 'breather' of several months was taken between the end of the research project in May 2022 and the analysis of data in Autumn 2022. This helped to provide distance and perspective between the researcher and local government organisations. During this timeframe the researcher re-immersed in literature with the objective of finding a rigorous research model against which data could be coded. The level of direction provided by Emerson and Nabatchi on most sub-elements was another mitigating factor against bias. Finally, interactions with other academics not as familiar with the subject of the research (notably the PhD supervisor) prompted regular consideration of alternative explanations for interpretation of findings (hermeneutic or 'devil's advocate' reasoning). This was balanced with recommendations towards the selection of findings most well supported by evidence rather than researcher interpretation.

Interviewee Bias: Another important consideration was the level of bias of NBS teams leading to the risk of over-simplistic or naive induction of findings (Mees-Buss et al., 2022). Actions to mitigate against this bias, in particular as regards performance outcomes, included efforts to triangulate NBS team data with other sources of data i.e. reports and documents prepared outside the NBS teams such as official announcements of funding decisions and reports by other organisations. Data analysis of indirect sources was given equal weighting as direct sources. The researcher also argues that risk is also somewhat diminished due to the contextualisation of references facilitated by the Emerson and Nabatchi framework (2015a). An in-depth analysis of systems context and drivers were studied as part of the baseline study and such findings were taken into account in analysis of findings. This understanding of the context was further developed by the long-term nature of the study, which allowed for the observations of participants to change over time. A particularly memorable example was in the city of Genk

where the NBS team initially reported a very negative response to their efforts to engage in budgetary processes. Fast forward some weeks later when the results of the budgetary process emerged and it turned out that their efforts were actually highly successful. This unexpected turn of events prompted the participants themselves to reflect on why their earlier observations appeared to be incorrect.

Notwithstanding the limitation and risk of over-reliance on data from one participant organisation in the CGR, the researcher believes that the choice of the local government organisation as the unit of analysis for this study of collaborative governance was the most relevant choice given the research question and objective to contribute to theory in public administration.

3.7 Conclusion

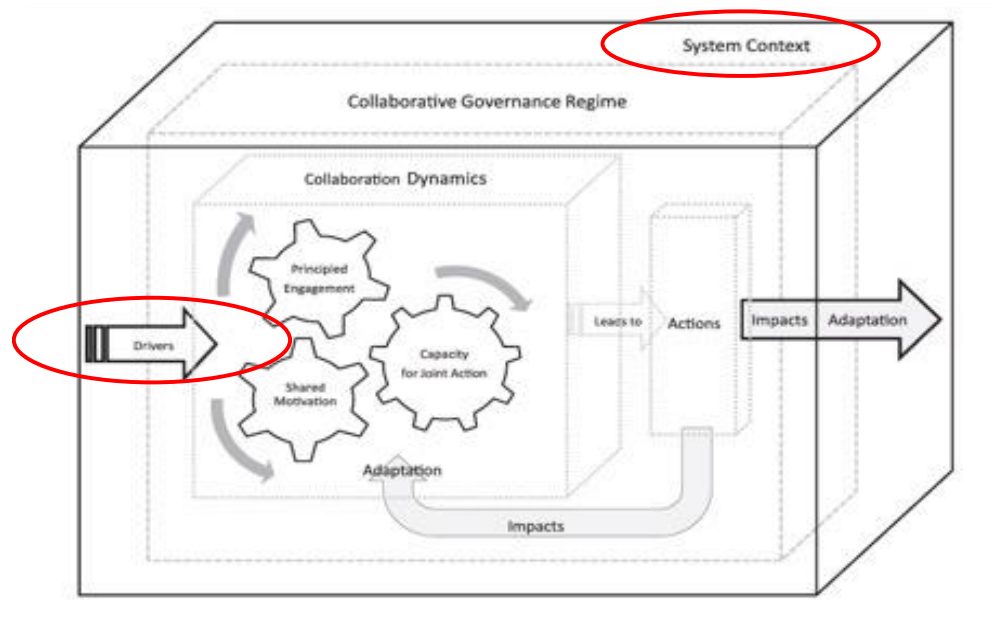
The conclusion of this chapter is that the choice of comparative case study methodology for this research is consistent with research approaches in the field. The use of detailed Emerson and Nabatchi guidance (2015a) on sources of data collection and for template analysis in Nvivo helped to increase validity in interpretation of results. The volume of data collected over time and triangulation across sources also helped to increase research validity.

4. Case study cities: context, drivers and barriers to collaboration

4.1 Structure of chapter

As an introduction to case study cities, this chapter begins with a presentation of the system context and drivers for collaborative governance as shown in Figure 4.1.

Figure 4.1 Focus of Chapter 4 on System Context and Drivers



Source: Emerson et al., 2012, p. 6.

The Emerson et al. (2012) Integrative Framework for Collaborative Governance is used as the basis for analysis of the broader system context. Under this framework seven conditions are identified that influence the evolution and performance of CGRs: 1) Resource conditions; 2) Policy and Legal Frameworks; 3) Socioeconomic/Cultural Health and Diversity; 4) Network Connectedness; 5) Political Dynamics/Power Relation; 6) Prior Failure to Address Issues and 7) Levels of Conflict/Trust. In a later publication by Emerson and Nabatchi (2015a), these seven conditions were condensed into six, with the last two conditions merged into one category - 'History of Conflict.' In the data analysis for this study, a simplified category of 'History' was used to capture history of both conflict and success. This decision was based on the extensive data captured in the first phase of baseline research on 10 pre-existing exemplars of NBS. This study of pre-existing NBS cases provided a good understanding of the dynamics of collaboration and

knowledge of NBS prior to the formation of the specific CGR for large-scale NBS implemented as part of this study.

This chapter begins with a presentation of findings for each city for these six contextual conditions starting with **socio-economic and cultural characteristics**. Factors such as levels of unemployment and education in a city may influence both the challenges to be tackled by a CGR and the capacity of individuals to participate in a CGR in response. **Public service and public resource conditions** is the next contextual condition reviewed. Emerson and Nabatchi (2015a) observe that a decline in natural resources or public service provision often provides the context for collaborative governance to emerge. In each city the challenges that local government organisations hope that NBS will address are identified. This may include challenges relating to the environment such as urban pollution or the quality of green spaces in cities or opportunities to improve public services, for example, relating to improved quality of life, health and wellbeing. This is an important contextual factor in shaping the goals of the CGR relating to NBS implementation. The third category of **Policy and legal frameworks** is a broad-ranging condition covering everything from legal and regulatory conditions to public administration systems and policies. In this research, particular attention is paid to public management models and reforms as the first research question explores how cities adapt their own governance modes to the collaborative governance models required for NBS. A description of dominant public management models in each city is provided under the updated heading of **‘Policy, Legal and Administrative’** conditions. Closely related to policy, legal and administrative conditions, the fourth contextual condition reviewed is **political dynamics and power relations**. This factor is considered firstly at an *intra*-organisational level i.e., dynamics and power relations within public sector organisations that may help or hinder collaborative governance towards NBS implementation. Then political dynamics and power relations are considered at an *inter*-organisational level i.e. power relations between the NBS team in local governments and other organisations who may have a role to play in NBS delivery. Under the fifth condition of **Network characteristics**, the characteristics and level of engagement of different types of stakeholders in NBS deployment are described. This includes, for example, other public sector agencies and levels of government, businesses, community and NGO organisations. Finally as previously mentioned **‘History’** considers how both negative and positive experiences of collaboration potentially influence the establishment of a new CGR in the context of this study.

While these contextual conditions may create a generally favourable or unfavourable environment for CGRs, Emerson and Nabatchi posit that more specific drivers are required as a

catalyst for the initial formation of a CGR. In the next section of this chapter the four specific drivers proposed by Emerson and Nabatchi (2015a) of uncertainty, interdependence, consequential incentives and initiating leadership are considered for each city.

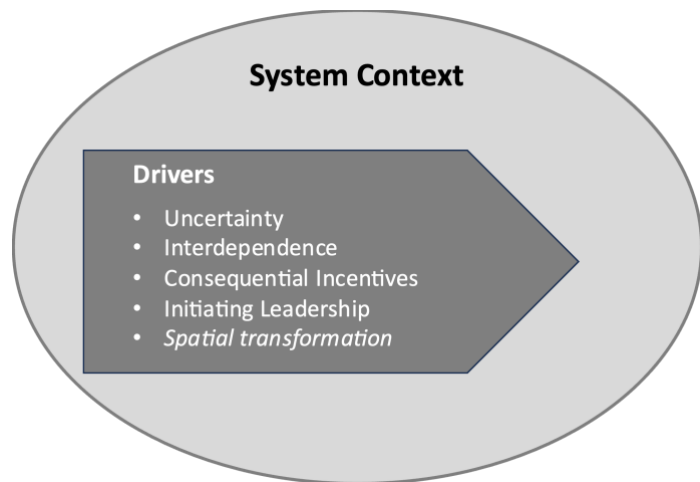
Uncertainty can be a driver of collaborative governance when complex challenges or wicked problems arise (Rittel and Weber, 1973, Levin et al, 2012). In such scenarios, organisations may collaborate to share knowledge and reduce risk. However they may also compete advocating different solutions to address complex challenges.

Interdependence relates to the need for organisations to collaborate as they cannot tackle a challenge by themselves - due to budgetary or knowledge constraints or often both. This has sometimes been described as ‘failing into

collaboration’ (Bryson, Crosby and Stone, 2006). **Consequential incentives** can be an important driver providing the motivation for different organisations to come together. Incentives may be mandated and the result of a long process of development e.g., a new law or regulation, or they may emerge quickly and spontaneously e.g., response to an extreme event. Incentives may also be positive such as for example, grants or funding opportunities. The final driver Emerson et al. (2012) propose is **initiating leadership** which they consider essential to the formation of a CGR. Indeed the role of leadership in CGRs has been widely recognised in literature. Initiating leaders must have the capacity to leverage other drivers and contextual conditions and provide the ‘motivational force’ to bring participating organisations together. A new driver of collaboration emerged in this study related to the **spatial transformation** dimension of NBS implementation. Findings on this dimension are reported for all cities and the relevance discussed at the end of the chapter.

As the analysis of contextual factors and drivers for each city progressed, many barriers to collaboration became evident. Given the volume of data on barriers, a new category for **barriers** was set up in NVivo (as explained in Chapter 3). Data was analysed for each city to see under this new category to see if this could provide additional insights on the factors influencing the

Figure 4.2 Drivers of CGR Formation



unfolding of collaboration dynamics in each city. The relevance of barriers to the overall Emerson et al. (2012) framework are discussed at the end of the chapter.

4.2 Findings

4.2.1 Genk

4.2.1.1 Context



Table 4.1 presents a summary of the data references to contextual conditions coded in NVivo for the city of Genk. This table shows that the six conditions suggested by Emerson and Nabatchi (2015a) are all relevant.

Table 4.1 Genk: References to Contextual Conditions

Context	No of References
Socio-economic & cultural	33
Public service & resources	26
Policy, legal & administrative	28
Political & Power Dynamics	24
Network characteristics	13
History	19
- Existing NBS (sub-heading of History)	39
Total	182

A high volume of references was captured for ‘History’ of NBS from the baseline study of existing NBS in Genk. A sub-heading was added for references to existing NBS to illustrate this data source. A high number of references was also captured for socio-economic and cultural characteristics and policy, legal and administrative conditions. As noted in the methodology section references

are not always coded exclusively to one condition as they may be relevant to more than one condition.

Socio-economic and cultural characteristics

In this section the content of the 33 data references on socio-economic and cultural characteristics from Table 4.1 are summarised. Genk is a former mining town with many socio-economic challenges mentioned such as a low skilled workforce and high unemployment rates.

“The general negative image of Genk is as grey, poor, too ethnically diverse in the eyes of many Flemish people” Osmos report, 2017.

Observations from data show important social cohesion issues in the city. Perceptions were noted among interviewees of segregation and a brain drain away from the city.

“The schools in Genk are segregated in terms of “white” and “black”, where the latter ones are not perceived as being good ones ... Ethnic and racial segregation at schools is a main priority and challenge.” 2018, Genk workshop.

Data showed the city invests strongly in community development with a large team of neighbourhood managers in place and an emphasis on engagement, recognition and collaboration at a neighbourhood level. The mayor is vocal on policy initiatives towards a rebranding of Genk as a green city. However while ‘greening Genk’ and inclusive engagement might be a high priority for policy makers and the NBS team, other city officials note a lack of interest among citizens to engage in NBS.

“The Genk dream is to activate citizens – the poorer in Genk’s community struggle to survive and are therefore difficult to engage as their focus is on working and surviving, consequently they lack awareness of NBS. Genk is the greenest city in Flanders but the population does not value or see this. Their priority is getting a job or diploma.” 2018, Genk Workshop.

Interviews with economic officials in Genk revealed a lack of optimism on the economic outlook for the city. Genk is trying to transition from their mining past and recover from the closure of major manufacturing plants such as Ford (2014) by diversifying into new areas like sustainable energy and creative industries. Vacant space and incentives are being used to attract energy companies and institutes into big flagship projects such as the Thor Park energy hub. The deteriorating economic situation is reported to have knock-on effects in terms of increased pressure on public finances in Genk. Consequently cuts in public expenditure were expected.

Public service and public resource conditions

In this section the content of the 26 data references on public service and resource conditions from Table 4.1 are summarised. City officials identified NBS initially as a solution to environmental challenges in the Stiemer Valley, a polluted 8km stream running adjacent to the city centre and connecting the city centre with residential, industrial and cultural areas.

“Even during moderate rainfall, wastewater mixed with rainwater flows into the Stiemer, with a negative impact on the water, the environment and the neighbouring people. The accelerated and massive discharge of rainwater from the valley also causes flooding and drying of the valley ecosystem.” 2019, Genk Framework Report.

The challenges with poor water quality, flooding and wastewater pollution was reported to have led to a decline in social use with historical socio-cultural centres of interest along the Stiemer falling into disuse and closing. For example, Slagmolen, in the Stiemer Valley, played an important role in the city for centuries - initially as a mill during the industrialisation of the city but then as a social venue for hosting wedding and family events. It had been closed for ten years at the start of the study period.

Figure 4.3 Slagmolen Pilot Project



The Stiemer Valley forms part of the wider ‘De Wijers’ regional ecosystem:

“It’s important to know that the project of the Stiemerbeek Valley is really as we see it as part of De Wijers regional projects because it’s one of the four main valleys in the project ... it’s also quite special as there’s lots of Natura 2000 areas very near to the industries and city centres, the heart of the province of Limburg.” 2018, Genk interview with regional land agency.

Pollution in the Stiemer Valley therefore presents downstream threats for these protected nature reserves.

In terms of collaborative governance, the development of the Stiemer Valley has been on the city agenda since the 1990’s. In 2010, the city collaborated with the regional land development agency on a wider development plan for the whole De Wijers region. In 2016, the city contracted a large engineering company to develop an overall spatial master plan for the Stiemer Valley. This

master planning process involved multiple stakeholder consultation on spatial issues related to ecosystem service provision - water and sewage management, ecology, recreation.

Policy, legal and administrative

In this section the content of the 28 data references in Table 4.1 on policy, legal and administrative conditions which impact on the formation of CGRs in the city of Genk are summarised. From the perspective of overall city policy Genk is trying to reinvent itself as a 'green city' with significant investments in flagship renewable energy projects.

"Policy theme - Ecological city: Genk, together with the inhabitants and other actors, focuses on nature and experience green. The ecological network is anchored in spatial planning and a master plan for nature and experience green ..." 2018, Genk City Strategic Plan.

There was evidence of legal requirements and incentives in place in support of this overarching policy objective. For example, every industrial site was required to allocate 15% of its footprint to 'green' space; household subsidies were offered to incentivise rainwater harvesting etc. At a regional level, attractive land development subsidies are in place to support nature conservation.

Public Management Model

From a public administration perspective, the baseline study suggested that public management culture was an important contextual factor influencing attitudes to collaboration in the local government of Genk. This prompted a review of literature relating to public management culture and reforms in Belgium, the results of which are presented in Box 4.1. This data are then contextualised to the characteristics of public sector management models found in Genk.

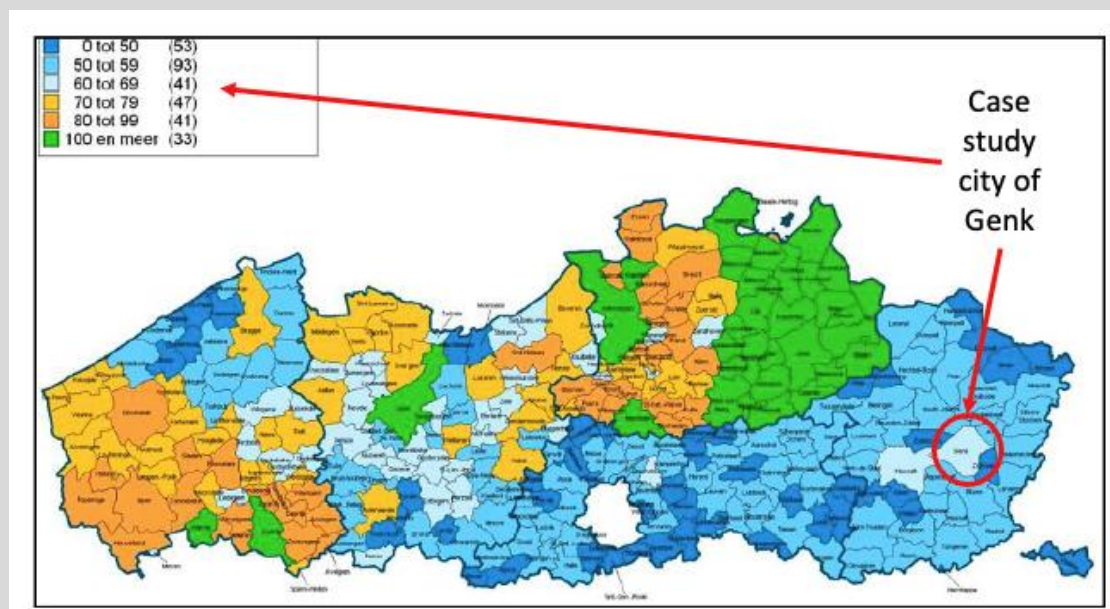
Box 1: Public Management Reform in Belgium

Pollitt and Bouckaert (2011, 2017) identified that the Flemish government in Belgium was influenced by new public management principles. They launched a number of reform actions aimed at making the public sector more efficient, effective and responsive to citizens in the late 1990's and early 2000s. Many reforms seem to have been introduced on an ad-hoc basis with some standing the test of time while others have been abandoned. Overall the pace of reforms has been low-key and diluted by the dwindling power of the federal government and a simultaneous increase in the power and responsibility of local and regional government. As

a highly decentralised federal state, regional governments have considerable responsibility for setting their own policies, deciding on their own reforms and managing their own budgets.

Notwithstanding the uneven take up of reforms across different municipalities, the legal environment for collaborative governance is seen as positive in particular as regards collaboration between the multiple layers of government and at sector-specific level (Batory and Svensson, 2020). An empirical study of collaborative governance confirms that there is strong evidence of vertical regional governance structures in Flanders (Temmerman et al., 2012). The municipality of Genk was positioned in the lower-mid category of regions in terms of cooperation structures as shown in Figure 4.3 and surrounded by regions with an even lower level of cooperation structures in place.

Figure 4.4 Average Number of Cooperation Structures per Municipality in Flanders, Belgium.



(Temmerman et al., 2012, p.8)

One public sector reform in Belgium which has had a clear impact in Genk is the sustained trend in decentralisation to sub-national government with sub-national (state and local) government spending equal to central government expenditure in 2019. This budgetary situation provides regional and local governments with considerable responsibility to implement their own policy agendas. There was evidence of good multi-level governance relations between the local government in Genk and regional agencies. National government was not frequently referenced.

Despite the positive conditions for public management reforms, early interviews, workshops and site visits to Genk revealed that the city demonstrates strong characteristics of a traditional public sector administrative model with a highly bureaucratic and hierarchical culture.

“The river crosses the entire city, therefore there are other projects related to the same space, but with different plans, objectives and agendas that are totally different and affect each other. No department involved in these other projects is willing to adapt to one another, everyone wants their project to run” 2018, Genk workshop.

A highly compartmentalised public service provides input into policy but decision-making is firmly in the hands of elected politicians. There is little measurement of the impact of public policies or evidence of other NPM-type reforms.

“I also talked with X about monitoring indicators but they don’t have a tradition like that in VLM (regional agency) to work like that in projects – to really measure the impact in projects and we neither if I’m being honest ... We don’t have numbers ... if the politicians hear from the people it’s nice and we enjoy it, then it seems fine for now.” 2018, Genk NBS team.

Combining the traditional top-down hierarchical culture of Genk with some evidence of reforms to build a more responsive public sector and community engagement policies, the dominant public administration culture in Genk in this study is characterised as that of Neo-Weberian State (NWS).

Political dynamics and power relations

In this section, the 28 references coded under this heading in Table 4.1 are summarised. A differentiation is made between political and power relations at intra-organisational and inter-organisation level.

Political dynamics and power relations at intra-organisational level: The NBS team is located in the Department of Environment and Sustainability in the local government organisation of ‘StadGenk’. Given the small size of the city and city administration, there are short lines of communication and decision making. The head of department, who is also the head of the NBS team, has open and direct relations with the mayor and other council members with decision-making authority. Notwithstanding this direct line of communication and evidence of high-level support from the mayor, strong departmental divides and resistance to intra-organisational collaboration were evident at lower levels in the city of Genk (related to previous point).

“There is a lack of shared ownership for the Stiemerbeek Valley. You can bring other teams in, but the sustainability team has no mandate over them. Good will is the only mechanism for horizontal working” 2018, Genk Notes from Connecting Nature Meeting.

Political dynamics and power relation at inter-organisational level:

Political environment: The political environment in Genk is quite stable. The current mayor, has been a member of the City council for almost 30 years. He was mayor for 8 years at the start of the study period and was re-elected during the study period, albeit in a tough election which pitted middle class ‘green’ agendas against socio-economic issues such as child poverty.

Multi-level governance: there is a good relationship between the mayor of Genk, regional and national governments. The mayor is well-connected, good at lobbying and this has led to success in securing funding for the local government.

“I think we have a very strong mayor who has good contacts at Flemish level. He’s a good lobbyist at that level and also he’s very credible. He’s good at that for sure.” 2018, Genk Interviews.

Power relations with citizens and NGOs: The power of the citizen voice in Genk is mixed. Naaturpunt, a powerful NGO, which owns and manages many green spaces across Flanders in collaboration with local volunteers has noted there aren’t as many active members in Genk as in other parts of Flanders. The city reports difficulties in activating the citizen voice of less affluent and ethnically diverse citizens on environmental issues. Tension is evident between the social agenda of the city (green for people) and the environmental agenda of the NGO (green for nature):

“It was an interesting discussion – often when we started talking too much about people, these nature organisations told us you are thinking too much about people you have to think about the animals and nature too...Naaturpunt is white, middle class, very much” 2018, Genk Interviews.

Network characteristics

The 13 references coded under Table 4.1 are summarised hereafter. As noted in previous sections, there is a strong history of collaboration between city and regional governments and related bodies (roads, water, waste etc) on projects relating to spatial development. There is also a long history and established relations between these public sector actors and one specific NGO

on conservation related issues (Natuurpunt). Collaboration with all these partners in relation to new spatial planning developments is complex:

“The responsibility for the management of the Stiemerbeek is very challenging and falls directly under a number of organisations: 1. The embankments beside the stream are owned and managed by the City. 2. The green areas beside the Stiemerbeek, those are owned by the city but are managed by Natuurpunt, a volunteer-run environmental organisation. 3. The stream itself is managed by the province (Limburg). 4. The sewage pipes are managed by the regional agency, Infrax. 5. Other partners include private land-owners and the regional agencies managing roads.” 2017, Genk Osmos report.

With regard to citizens and communities, as previously noted, the city has invested in neighbourhood managers to cultivate social cohesion among the multi-cultural population and has tried, albeit with limited success in socially deprived areas, to engage citizens in spatial planning. It was observed that the NBS team, located in the environment department, have a lack of experience and skills in engaging with the private sector, beyond their statutory legal remit.

History

Table 4.1 shows a large number of references (19+39=58) related to the history of collaborative projects and NBS in Genk. This provides a rich insight into previous successes and failures.

Genk has a lot of experience of collaboration with the public in previous spatial projects. A baseline study of previous NBS showed that many previous projects were not labelled as NBS at the time as the concept was not well-known. They also tended to be smaller-scale projects and limited in terms of multi-functional design but they provide useful feedback on the prior experience of the city in collaborative governance.

Prior success in collaboration: Genk has prior experience of engagement with ‘city-makers’ on various small scale urban projects (HeemPark, Bee plan, Molenvijver Park, Garden of Betty etc) These positive experiences highlighted the potential of community led collaboration to generate high social returns.

Prior failure / conflicts: Genk also understands from experience how difficult it is to secure community interest in social engagement in particular among ethnic diversities. Beyond the initial engagement Genk has experienced the challenges in sustaining community involvement in urban sustainability projects and the need for ongoing council support and resources (ref.

LaBiomista/Kolenspoor). Previous community objections to tree cover also revealed a lack of understanding and valuation of nature/green space among some citizen demographics.

How past experience influenced collaborative governance in this study? The city council's past experiences of citizen engagement demonstrated the value of such approaches but equally raised awareness of the difficulties in securing equitable and meaningful citizen engagement in the context of a challenging socio-economic environment.

4.2.1.2 Drivers

Following the overview of the systems context for collaborative governance, in Table 4.2 a summary is presented on data references relating to the specific drivers that Emerson and Nabatchi suggest are important in leading to actual initiation of a CGR. This table shows that the four conditions suggested by Emerson and Nabatchi (2015a) are all somewhat relevant.

Table 4.2 Genk: References to Drivers

Drivers	No of References
Uncertainty - Complexity	7
Interdependencies	23
Incentives to collaborate	82
Initiating Leadership	28
Spatial transformation	17
Total	157

Most references relate to incentives to collaborate. Initiating leadership and interdependencies are also relevant. Uncertainty seemed to be a less relevant category. Spatial transformation emerged as a new category which is discussed hereafter. Findings from each category of references are summarised in the next section.

Uncertainty

In this section, the 7 direct data references to uncertainty are summarised. Emerson and Nabatchi (2015a) relate the driver of uncertainty to the concept of wicked problems. Uncertainty arises when there is a lack of certainty regarding how to define a problem and even less certainty on how to address it. While few direct references to uncertainty were coded for Genk this is not surprising as uncertainty is a rather abstract concept. However the level of uncertainty as regards

the multi-functionality of NBS and their capacity to address multiple issues presented challenges to the existing way of thinking about and doing projects in Genk.

“We as a city – our solution would normally be to think of a spatial solution – upgrade this space with NBS, trees etc to help up solve some of the issues there. On the other hand the value proposition also on the social and economic part – we didn’t really know how to deal with that. We thought it’s a co-benefit of nature because nature with its ecosystem services also provide other services but do they just come by themselves? Can we just hope for them – if we plant trees do we then also benefit from the social and economic benefits? We thought no – we also need to split this term solutions into two parts – one part is spatial transformation but the other side is a solution that focuses on this social and economic transformation and that concept is our Stiemer Deals” 2020, NBS Team.

Consequential Incentives to Collaborate:

In this section, the 82 data references to incentives to collaborate are summarised. NBS to address complex challenges often take the form of public or common goods e.g. parks and waterways and therefore NBS financing in general comes predominantly from the public sector. In all three cities, pressures on public sector financing led to the NBS teams dedicating a significant proportion of their time to identifying new sources of financing.

“We (NBS team) asked them which of the strategic projects is highest priority but no reaction or steering from them. Always redirected focus to financing of projects. “We have very little money so whatever you find money for we will do that.” 2019, Genk NBS Team.

The Connecting Nature EU funded project contractually required each city to follow a co-production approach to NBS implementation and provided funding and guidance on implementing such collaborative approaches so this could be considered a direct incentive for collaborative governance. However Connecting Nature did not contribute to the capital costs of NBS development and in Genk, nature-based water management solutions were not eligible for conventional water management funding at regional scale at the start of the project. This led the team to submit further applications for EU funding for pilot studies on nature-based water management in Genk. To secure such funding required securing ‘buy-in’ to new NBS approaches from existing water management partners who had to be convinced of the merits of new approaches to water management. This in turn required the NBS team to initiate contact with regional and national experts to help convince existing partners about NBS. The deadline for funding proposals was a catalyst in initiating collaborative governance arrangements ultimately

resulting in an agreed action plan for implementation. While initially this first funding application was unsuccessful, the consortium took on a life of its own and other partners took the lead on applying for alternative sources of funding which were ultimately successful. In some cases this required bringing in more new partners and so the CGR continued to grow and evolve over the lifetime of the study period. Consortium partners also worked together and lobbied other cities in the region to change regional funding rules to allow for funding of NBS water pilots. In summary, it is evident that grant applications for regional, national and EU funding are an important driver of collaboration dynamics bringing together city councils, public sector water agencies and academic partners across the Flanders region and across the EU.

Initiating leadership:

In this section, the 23 data references to initiating leadership are summarised. The mayor of Genk emerged as a passionate advocate for 'Green Genk', perceiving natural resources as important for creating an alternative image of Genk as a good place to live and work. He is an important decision maker. Internally, he supports the NBS team in overcoming resistance to collaborative working and externally, he plays an active role in building relationships and lobbying for funding.

"Our mayor was there to present Stiemer. SUDS was a prominent part of our presentation. Always more noticed when politician gives presentation. X reports that this came across as a very strong story – also because it shows strong political support." 2019, Genk RM.

Interdependence:

In this section, the 23 data references to interdependencies are summarised. Interdependencies emerge when one individual or organisation cannot achieve an important goal on their own. NBS by virtue of their multi-functionality often mean that few teams have all the skills and expertise necessary to achieve these multiple benefits and therefore they need to reach out to others for complementary knowledge. In Genk, the NBS team had good knowledge of environmental challenges and protection mechanisms but less knowledge on how nature could be designed and planned as a solution to address multiple problems simultaneously. They had strong interest in the potential of sustainable urban drainage systems (SUDS) to address multiple challenges in the Stiemervallei but they had limited practical knowledge or experience of SUDS.

"Fertility always comes from outside." With the group we have we don't have the knowledge internally so we need to look externally." 2019, Genk Team.

Beyond conventional environmental planning solutions they had limited knowledge of how to achieve social or economic benefits in a systematic way.

“The reason why we never talked to business is because they seemed to talk another language than us. They really think in another way” 2018, NBS team interviews.

The realisation of these knowledge deficits was a driver of proactive outreach to multiple new collaborations with other departments at an intra-organisational level and at an inter-organisational, with local research institutions.

Spatial Transformation

In this section, the 17 data references to spatial transformation are summarised. The existing complexity of governance of physical spaces may be exacerbated by new NBS approaches leading to spatial transformation. NBS often involves by default mandated interdependencies and interactions with multiple other actors:

“What’s special to the Stiemerbeek is that we’re not the main investor in this kind of projects – we do not own our sewage system – we have Inter-aqua, an entity on a regional level – they do the main investments, and they receive directly Flemish subsidies for this....” 2018, Interview StadGenk.

The dimension of Spatial Transformation also included voluntary rather than mandated collaboration. Stakeholders directly impacted in the Stiemervallei wanted to be involved e.g. private households and landowners, community park users, NGOs managing nature reserve etc. Engaging citizens to avoid future problems was a priority.

“People are going to the media all the time, or are against cutting trees so yeah, stakeholder involvement is really an important issue for us and it’s a big problem... public support which decreases or increases political engagement.... These problems are bigger than the financing.” 2018, Interview Regional Agency

Managing these interdependencies harmoniously was a key driver of collaborative governance.

4.2.1.3 Barriers

Emerson and Nabatchi (2012, 2015 a, 2015b) do not explicitly identify barriers to collaboration in the integrative framework. However many challenges to implementation of collaborative governance were identified in the monthly reflexive monitoring calls with front runner cities.

There did not appear to be an adequate way of capturing the quantity and impact of these barriers under the existing headings of the Emerson et al. framework. Some barriers relate to contextual factors such as hierarchical public administration models but these also present challenges for collaboration dynamics. A top level node was created to facilitate analysis of barriers from a stand-alone perspective as well as considering how they fit with other elements of the Integrative Framework. 'Barriers' was the only top level node added in this study. Table 4.3 shows in the order in which they appeared in the data the number of references to different types of barriers in Genk data.

Table 4.3 Genk: references to Barriers

Barriers	No of References
Communications	45
Covid	20
Culture of organisation	1
Developer conflict	0
Inter-departmental silos	71
Interpersonal issues	11
Knowledge gaps	13
Lack of awareness	19
Lack of capacity	10
Lack of ownership	13
Multi-level governance	10
Processes	33
Restructuring	0
Total	246

Table 4.3 shows that the most important barriers reported in Genk relate to inter-departmental silos. The existence of inter-departmental conflict has been noted already under Context relating to internal political and power dynamics. These departmental tensions may also be related to the contextual condition of Policy, Legal and Administrative conditions where 'silo-working' was identified as a well-known characteristic of departmentalisation often associated with more traditional public management administration systems. However given the volume of references which appeared over the course of the study and the challenges that this condition created for the city of Genk a separate category was created to capture the details of the challenge faced.

As previously noted, while there was a high-level of buy-in among the NBS team and the mayor towards achieving the multiple benefits of NBS and an understanding of the importance of cross-departmental collaboration, at lower-levels of the organisation there was a high-level of resistance from many internal departments.

“The partners (sewage) are very used to work together in infrastructure projects, but they are not used to cocreation. They don’t see the added value. So it will be challenging to motivate them for cocreation” 2019, Genk NBS team.

A historic lack of trust was noted with other departments with the environment department tending to play a defensive role in protection of the environment which brought them into conflict with other powerful departments focused on development:

“They consider my department to be the dark green forest people – like very traditional because like the manager before me had an image like that and I still have the legacy of that now” 2018, Genk Interviews.

Related to silos were problems with processes and in particular procurement processes (33 references in Table 4.3).

“There’s not a lot of room for uncertainty and openness in the tender process whereas from our perspective the vision means that not everything is well defined – it could be the result of a process... Different languages we speak. Some frustration but we are getting closer”. 2019 Genk Interviews

Other important challenges include communications between the NBS team and different stakeholders (45 references in Table 4.3). Finally, Covid (20 references) was another significant barrier which arose during the study period (2017-2022). The impact on collaboration dynamics was significant and immediate. On the ground collaboration activities ground to a halt. Over time solutions were developed and these arguably produced some long term benefits e.g. online activities more easily accessed and attracting wider audiences.

4.2.1.4 Summary

The most important contextual conditions influencing the need for a multi-actor NBS solution in Genk are as follows. Firstly, from a public service and public resource perspective, long-standing issues with poor water quality, flooding and wastewater pollution in the Stiemer Valley are leading to increased threats for connected and protected nature reserves and cultural heritage.

This environmental pollution is leading to a decrease in social use generating a lost opportunity to leverage nature for increased health and wellbeing and social cohesion among multicultural communities.

From a socio-economic and cultural perspective, nature is not a high priority for many of Genk's citizens who are struggling in difficult economic circumstances. This leads to a low appreciation and prioritisation of investment in nature and low levels of engagement in volunteering and other environmental protection activities. The pollution of the Stierner Valley further perpetuates negative perceptions of the city as industrial and economically deprived with a low quality of life making it more difficult to attract people and businesses. While the mayor sees the opportunity to reinvent Genk as a green city and is introducing policies and incentives to this effect, more pressing issues such as child poverty are making this a difficult policy agenda to push.

From a collaboration perspective, there is good evidence of collaboration with external actors particularly at regional government level. There is also a history of collaboration on previous projects with nature conservation NGOs and with citizens, albeit through a different department with a team of community managers. Due to social issues, the local government struggles in general to engage citizens from lower socio-economic groups in collaboration although there have been some successes.

The incentive of Connecting Nature was the tipping point for formation of a CGR for NBS implementation in Genk. Water pollution issues in the Stierner Valley had been on the city agenda for many years but the budget required to address this in a conventional way was prohibitive. NBS seemed like a more cost-effective solution but there were a lot of unknowns. When the opportunity to get involved in Connecting Nature arose, the mayor seized the opportunity, not just to get access to financing as no capital costs were covered, but equally importantly to get access to knowledge. In addition to technical knowledge on NBS to address water quality, the local government in Genk were also open to new approaches to engage communities with nature and to explore opportunities for social innovation through the Stierner Valley. Finally another important driver for CGR formation was the spatial scale and complexity of the Stierner Valley which stimulated the involvement of a wider range of regional agencies, NGOs, citizens and landowners.

The most significant barriers identified in Genk relate to inter-departmental silos. Despite high-level support from the mayor, the silo structure of the local government and entrenched working practices are not conducive to the horizontal intra-organisational work practices needed for NBS.

The NBS team is positioned vertically within the Environment Department which historically had a defensive relationship with other departments. Related to this are challenges securing buy-in, lack of ownership and resistance to changing internal processes such as procurement to accommodate new arrangements such as co-creation needed for NBS. Communications is another challenge as the concept of NBS is new for many stakeholders internally and externally.

4.2.2 Glasgow

4.2.2.1 Context

Table 4.4 presents a summary of the data references that were coded in NVivo for the city of Glasgow related to contextual conditions influencing collaborative governance. This table shows that the six conditions suggested by Emerson and Nabatchi (2015b) are all relevant for Glasgow,. As described in the methodology section, the number of references shouldn't always be considered as an indication of the importance of that contextual condition. For example, Table 4.4 shows relatively few references in Glasgow to network characteristics. However, findings from this small number of references do not indicate any deficit in network characteristics. The qualitative description of findings is therefore more important than the quantitative number of references.

Table 4.4 Glasgow: references to Contextual Conditions

Context	No of References
Socio-economic & cultural	29
Public service & resources	31
Policy, legal & administrative	118
Political & Power Dynamics	14
Network characteristics	14
History	34
- Existing NBS (sub-heading of History)	12
Total	252

Socio-economic and cultural characteristics



In this section the content of the 29 data references on socio-economic and cultural characteristics from Table 4.4 is summarised. In the past Glasgow, situated on the river Clyde, was the second largest city in the UK, an industrial powerhouse and a leading city for shipbuilding and other heavy industries. The decline in the city's population and economic success mirrors the decline of these industry sectors. The city is struggling to reinvent itself but deep divides remain. The so-called 'Glasgow Effect' highlights the difference in life expectancy between more affluent and poorer regions of the city (Reid, 2011). Similarly there are significant divides in education levels.

"The context of post-industrial employment conditions, particularly for the disadvantaged, is to blame where in the past entrepreneurship was not encouraged (or necessary) for a significant portion of the population. Changing the entrepreneurship DNA for the disadvantaged may require a long-term support." 2017, Osmos report.

High unemployment, child poverty and anti-social behaviour are common challenges in the poorer regions of the city. The relationship with the council is complex. On one hand there is a high-level of dependency on the council for planning, management and maintenance of green space but there is also a lack of trust in the council and resistance to the involvement of the private sector in public spaces. It was noted that:

'People don't realise they have a voice' and 'Citizens do not necessarily see the benefit of green/blue solutions' and see investment in green infrastructure as 'decoration or a waste of space'. 2018, Glasgow workshops

Public service and public resource conditions

In this section the content of the 31 data references from Table 4.4 are summarised. Public service and public resource conditions in Glasgow are highly interconnected with other contextual conditions in particular socio-economic and cultural characteristics. As a result of its industrial past, Glasgow has hundreds of vacant and derelict sites often located in deprived neighbourhoods, prone to flooding and victim to a vicious circle of anti-social behaviour such as fly tipping leading to further deterioration of both these sites and the surrounding communities. Findings show a high degree of technical awareness of flooding issues in Glasgow City Council, good engineering knowledge and some experience in implementing SUDS. Good policy conditions are in place to support SUDS on private developments.

“An interesting and important point for the management and maintenance of SUDS-related infrastructure is that if it is made to Scottish Water standard, they will maintain it (on private spaces)” 2017, Glasgow Osmos report.

However, in the face of ongoing budget cuts, recurring concerns were raised over long-term maintenance costs of NBS for the council on public spaces or housing developments. Beyond SUDS there was little knowledge of the multi-functional benefits of NBS and community engagement aspects were underdeveloped.

“While Glasgow has a strong track record of experimenting and implementing technical opportunities across the city, there is a serious need to focus on mainstreaming the interventions and exploring ways for communities to not only value the importance of NBS but also to be part of both the long-term advocacy for and maintenance of them.” 2017, Glasgow Osmos report.

While the Community Empowerment Act (2015)⁴ envisages a more active involvement of citizens in governance, a lack of both interest and governance capacity was reported in deprived communities.

Policy, legal and administrative frameworks

In the phase 1 baseline study there appeared to be strong evidence of a New Public Management culture in Glasgow City Council. This prompted a review of literature relating to public

⁴ Community Empowerment Act (2015) <https://www.legislation.gov.uk/asp/2015/6/contents/enacted>

management culture and reforms in Scotland, a summary of which is presented in Box 4.2. After Box 4.2, this data are then contextualised to the characteristics of public sector management models found in Glasgow drawing on the references in Table 4.4.

Box 4.2 Public Management Models in Scotland

The UK is often recognised as the home of NPM reforms with widespread take-up of such reforms across the country. Notwithstanding devolution from Westminster in 1998, the Scottish political and public administration system retains many of the characteristics of the UK system. Decision-making and control is highly centralised at a Scottish national level and a commitment to the culture of managerialism and performance management is evident in the delivery of public services. The low-level of decentralisation is illustrated in the 80:20 split between central and sub-national government financing (in comparison with a 50:50 split in Belgium⁵).

Since 2007 when the Scottish National Party came to power, the characteristic NPM focus on public value and outcomes (as evidenced in the SNP Government's National Performance Framework) has been combined with an equally vocal commitment to community empowerment. Some scholars consider this as a rather haphazard approach to transition towards network governance (Connolly and Pyper, 2020). The perceived lack of networking skills among public administration leaders along with conflicts between reform narratives from the top and operational culture on the ground have been identified as factors hindering transitions towards network governance.

The high-level objective in Scotland to transition from NPM towards more collaborative forms of governance offers an interesting contrast with other countries like New Zealand which also have a strong culture of NPM but where there appears to be little appetite for collaborative governance (Eppel and O'Leary 2021). In New Zealand, collaboration happened despite the system and 'below the radar' whereas in Scotland it was encouraged from the top but hit operational roadblocks along the way. A common challenge in Scotland and New Zealand was the lack of collaborative skill sets in the public sector to bridge departmental silos.

Policy setting: The centralised public management model means local governments like Glasgow City Council have considerably less scope for policy setting. However some new government policies can be seen to indirectly generate opportunities for collaboration. For example, outdoor learning was identified as a key priority. This opened up discussion between education

⁵ Source: <https://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do>

departments, schools and the council on how open spaces close to nurseries could be developed as outdoor learning spaces to meet both NBS and education policy objectives.

Arms' Length External Organisations ("ALEOs"): In response to pressure to reduce local government budgets and the NPM emphasis on delivery of services 'in partnership' with other actors (Pollitt and Bouckaert, 2011), the Glasgow City Council 'Family' includes a network of wholly and partially owned ALEOs which provide services to, and on behalf of, the Council. Relations with ALEOs are quite unique with many employees, in particular at senior level, being former employees of the city council and therefore quite attuned to council goals and processes. The policy situation in Glasgow is very complex with over one hundred policies to be considered in terms of positioning of NBS.

"The organization = City Council Family. We're going to change again, but it's not yet clear what all the 105 strategic plans mean. It becomes very complex." 2018, Glasgow Workshop.

Despite the complexity of city council dynamics and some evidence of a lack of alignment between departments and agencies, in general a high-level of trust was noted from the outset with '*less friction amongst colleagues*' and '*a genuine interest in capturing multiple benefits*'. Cross-departmental challenges arose when collaborating on schemes where the costs and benefits were owned by different individuals in different departments with different budgets.

There was a noticeably high emphasis on managerialism in Glasgow City Council. Requirements to build 'business cases' for investment in NBS are illustrative of this approach.

"In terms of the business case they are looking at it from a surface water management perspective so the types of intervention we are talking about are daylighting a stream, creating SUDS, creating new green space, creating green infrastructure so that it can help unlock development sites so it's helping prevent flooding for housing and also unlocking development sites. There is a calculation on how much development sites we're unlocking by creating extra capacity within the drainage network for that." 2018, GCC interviews.

At the time of this study the details of Scotland's open government action plan (2018-2020) were being transformed into actions aimed at improving community participation in policy making and service delivery. This would suggest an ambition to move towards more New Public Governance (NPG) approaches that are well aligned with collaborative governance. There was a strong imperative for collaboration stemming from the Community Empowerment Act (2015).

“There are several inspiring Scottish policies for grass-roots projects, including: ‘Community Asset Transfer’ and the ‘Stalled Spaces Initiative’. We were told that neither has been heavily subscribed, but they are proof that the government is looking for innovative solutions driven by the community.” 2017, Glasgow Osmos report.

Despite the well-signalled intentions to move towards community empowerment, this study found that the public sector management model in Glasgow City Council still displays clear characteristics of a NPM mode highly focused on performance indicators and managerialism.

Political dynamics, Power relations and Network characteristics

In this section the 14 points coded under this heading in Table 4.4 are summarised. This study differentiates between political and power relations at intra-organisational and inter-organisation level.

Political dynamics and power relations at intra-organisational level: At the start of the study period the NBS team in charge of implementing NBS as part of the Open Space Strategy (OSS) was located in the Department of Development and Regenerative Services (DRS) of Glasgow City Council. During the research period, there was no top level director in place and the decision was made not to appoint a replacement due to plans for internal restructuring. Unfortunately Covid hit in the middle of the restructuring process resulting in significant delays. These issues occurred at a time when the NBS team were trying to get top level buy-in on a cross departmental governance structure for the OSS that would have budget implications for other departments. The team initially relied heavily on informal relations in the absence of formal agreed structures

“Rather than having an agreed consistent structure at a senior level, X and I sometimes have to go begging for information, which can be uncomfortable.” 2021, April NBS team.

Political dynamics, power relations and network characteristics at inter-organisational level:

Political dynamics: Glasgow was adjusting to significant changes in political leadership at the beginning of the research period. For 37 years until 2017 the left-wing Labour party had single party control over Glasgow City Council. In the 2017 election, the centrist Scottish National Party became the largest party in the council but were just short of an overall majority and formed a minority administration.

“Glasgow has gone through enormous organization change. Changing from one party leadership to multiple party leadership. There are very new politicians in the council and a difference in how services react to politicians....Politicians want to deliver to the people, they

value the relations with the departments that work closer to the ground. Our department is more conceptual and strategic, this is not what fits with the political cycle.” 2018, Glasgow city workshop.

In some ways this change has led to new external collaborations. Several interviewees pointed to the tendency of new politicians to seek external opinions rather than rely on the knowledge of internal staff. This has negative consequences in terms of staff morale but potentially positive consequences in terms of acquiring new knowledge. Collaboration priorities are also driven by political goals.

“We’re starting by focusing on community spaces - this is high on the political agenda at the moment, so we want to strike while the iron is hot” 2020, NBS Team.

Beyond the ALEO’s mentioned in the previous section, a close relationship existed with other agencies such as Scottish Natural Heritage, Scottish Water and networks such as the Central Scotland Green Network (CSGN) which bring together many councils and other stakeholders across Scotland.

Private sector: In the environment and natural resources space, there was little evidence of meaningful relationships with the private sector beyond limited sources of philanthropic funding from large organisations and regulatory-led links with developers in relation to new building developments. This would not be typical of a NPM regime where public-private partnerships are the norm. However it may reflect the limited opportunities of the left-leaning political history, or the lack of opportunities for public-private partnerships in the natural environment. Opportunities may be limited due to legal protection of natural heritage and evidence of community resistance to private development on public spaces.

NGOs: There is evidence of a close relationship between Glasgow City Council (GCC) and Greenspace Scotland, a social enterprise and charity leading on the development of parks and green spaces in particular in urban environments. GCC also have a relationship with many other community organisations in particular through the long running Stalled Spaces programmes but this is more of a contractual ‘grants-oriented’ relationship than a partnership.

Citizens/Communities: As reported in other sections, current government policy is seeking to develop more citizen engagement in government and citizen led initiatives but this is challenging in the context of a significant under-educated and deprived population with little history or capacity for engaging in governance. Initiatives like Stalled Spaces were important in developing

community spaces but illustrated the lack of capacity for long term governance with a prevalence of grant-dependency culture.

History of conflict and success

The baseline study provided a high number of references to previous collaborative projects and rich insights into previous successes and failures.

Prior success: A baseline study of previous NBS projects in Glasgow showed a range of both small-scale and large-scale NBS projects. Of particular note was the large-scale Commonwealth Athletes Village NBS project which was used as a technical pilot to demonstrate SUDS, permeable paving and other NBS technical solutions. This was successful in showcasing the environmental potential of NBS. However, the low-level of awareness of social benefits and lack of community engagement in this project led to community resistance and unexpected negative consequences. This project highlighted that the relationship of the NBS Team in Glasgow with the general public was quite formal, indirect and structured.

Prior failure/ conflict: The long history of dependency of socially deprived communities on the council combined with a lack of trust has generated a difficult environment for community collaboration.

“The Council employees do not normally feel trusted by the citizens and this usually leads them (citizens) to behave differently.”2017 Glasgow City workshop

Some communities showed a lack of understanding and value of investment in green spaces while other communities were active in voicing opposition to private intervention in public spaces.

How past experience influenced collaborative governance in this study: the difficult historic relationship between the council and communities was one factor contributing to a lack of council experience and know-how in direct community engagement. Their more recent experiences of NBS however showed that it was vital to build awareness and buy-in to NBS, to empower communities to engage in the design and stewardship of NBS and to build the capacities of communities for co-governance.

4.2.2.2 Drivers

Following the overview of the systems context for collaborative governance in Glasgow, in Table 4.5 a summary is presented of data references relating to the specific drivers towards formation of a CGR. This table shows that three of the four conditions suggested by Emerson and Nabatchi

(2015a) are relevant. There were less references relating to initiating leadership which might be attributed to the leadership vacuum that was identified under contextual conditions

Table 4.5 Glasgow: References to Drivers of CGR Formation

Drivers	No of References
Uncertainty - Complexity	11
Interdependencies	33
Incentives to collaborate	59
Initiating Leadership	7
Spatial transformation	18
Total	128

Similar to Genk, the importance of incentives to collaborate emerged as a clear driver in Glasgow with interdependencies also important. Spatial transformation emerged as a relevant category echoing findings from Genk. Findings from each category of drivers are summarised hereafter.

Uncertainty:

In this section, the 11 data references to uncertainty are summarised. While there were only a small number of references coded under this heading, they are sufficient to confirm the complexity of the challenges being addressed in Glasgow and thus the need for multi-stakeholder collaboration.

“Well managed, designed and located open space can help enhance: the health of Glasgow’s inhabitants; the liveability of the City, increasing its attractiveness for people and investment; and the resilience of the City to threats such as existing flood risk and climate change. The (OSS) strategy recognises the wider benefits that open space can bring to the City and its inhabitants. A new perspective on how it is funded and maintained is required to ensure these benefits are realised” 2019, Glasgow OSS Draft Strategy.

To what extent is uncertainty a driver of collaboration in Glasgow? To answer this question it is worth reflecting first on where there is uncertainty in Glasgow City Council. On one hand the council can be seen as a front-runner city in terms of their policy, technical and engineering competencies to support planning and implementation of NBS such as SUDS and Stalled Spaces. However the limited success and acceptance of these solutions by communities highlights the

lack of knowledge of the Council in collaborating with communities to ensure acceptance of these solutions .

“Criticisms being fed in by local politicians is that people were complaining that these artist installations weren’t including local communities. They had very little knowledge of what was going on. There wasn’t anything in it for them.” 2019, Glasgow NBS Team.

Another failure is the lack of ownership of communities of such solutions and thus dependency on the council for ongoing maintenance. These failures highlight both the complexity of NBS and the need for the NBS team to collaborate with communities to achieve better outcomes.

Interdependencies

In this section, the 33 data references to interdependencies are summarised. Interdependencies are seen to emerge as a driver of collaboration in Glasgow at both inter and intra-organisational levels.

Co-creation and inter-organisational collaboration: Political ‘open government’ strategies combined with a loss of 40-50% of staff up in the five-years up to 2017 means that councils were increasingly dependent on collaboration with non-public bodies for the development and long term maintenance of open spaces.

“We think it is a good thing to get the third sector to work with communities – they will give communities tools and training to get started. Could be lower cost to start as they have their own equipment.” 2020, Glasgow NBS Team.

The NBS team engaged in collaboration beyond the council and communities with other policy agencies such as Scottish National Heritage, Scottish Land Agency, Forestry etc to influence funding coming out of these agencies which could potentially be directed towards open spaces.

“We’re aiming to tell them some of the stuff we’re doing...see can they contribute...some of the projects we’re working on – food growing, Pollok, unlocking vacant space. This is on all their agendas as well. We want to make sure we’re all on the same page.” 2019, Glasgow RM.

Intra-organisational dependencies: Within the NBS team, there was a recognition that other departments were both beneficiaries of NBS in open spaces and also essential contributors in terms of knowledge, funding and resources. This realisation drove ‘internal’ cross-departmental collaboration efforts throughout the project to align governance with action plans and resources both formally and informally.

“We’re trying to get different departments to take responsibility – it can’t be just our responsibility in the (NBS) team. We need to have support from managers at a much higher level.” 2020, Glasgow NBS Team

Consequential incentives

In this section, the 59 data references to consequential incentives are summarised. As described in the previous section, the significant decrease in council funding led to increased dependency on other organisations to take on the long-term stewardship of public spaces. It also led to pressure to find alternative sources of funding. Like Genk, the Connecting Nature grant funding was serendipitous in its timing. While the grant did not provide funding for capital costs of NBS, it provided funding for personnel to build awareness and consensus for expanding NBS implementation beyond technical SUDS solutions and integrating it as part of a longer term, city wide Open Space Strategy.

Initiating leadership

In this section, the 7 data references to initiating leadership are summarised. Despite the low number of references, it is clear from these references and observations throughout the study period that there was a very clear initiating leader within the council i.e. the NBS team manager. Despite not having access to high-level decision makers, the NBS team manager showed considered persuasiveness and tenacity in building awareness and support for NBS at all levels throughout the organisation. She looked for opportunities to engage with senior directors in other departments and sought out high-level political support using the organisation of a high profile Connecting Nature Glasgow Summit effectively to secure this. Beyond securing internal cross departmental support and political backing, the NBS Team lead was adept at identifying other potential strategic partners and reaching out to them.

“(We need to) connect in with policy communities – Scottish National Heritage, Scottish land Agency, Forestry etc. They can help to spread some of our ideas into these organisations which will allow us to influence the funding coming from these agencies. CSGN can help us to have that wider conversation about how to influence funding streams. I led a workshop at their conference the other week on how to use NBS to unlock vacant and derelict sites.” 2019, Glasgow NBS Team Lead

Spatial Transformation

In this section, the 18 data references to spatial transformation as a driver of collaborative governance are summarised. Similar to Genk, the availability of underutilised space in Glasgow was perceived as a driver of transformation. In Glasgow, socio-economic challenges in regions with large areas of vacant and derelict space were the primary driver of transformation. NBS was integrated in an open space strategy which aimed at biodiversity restoration alongside socio-economic gains.

“(We) view Glasgow open space as a key asset rather than a liability/cost. (We need to) take advantage of what is available: build on existing underused assets such as vacant spaces, contaminated land and large open spaces.” 2017 Glasgow Osmos

However, while seemingly ideal for NBS, development of many open spaces in collaboration with local citizens was complicated by multiple issues such as unclear ownership, soil contamination, local distrust in council development plans among other factors.

4.2.2.3 Barriers to collaboration

A significant number of barriers to collaboration were captured in the regular meetings with the NBS Team in Glasgow as shown in Table 4.6.

Table 4.6 Glasgow: References to Barriers

Barriers	No of References
Communications	10
Covid	20
Culture of organisation	23
Developer conflict	0
Inter-departmental silos	30
Interpersonal issues	0
Knowledge gaps	22
Lack of awareness	0
Lack of capacity	15
Lack of ownership	0
Multi-level governance	0
Processes	17
Restructuring	11
Total	148

In Glasgow while inter-departmental silos still presented a challenge to collaboration, it wasn't as significant a challenge as in Genk. There was evidence of good collaboration with some departments and poor collaboration with others.

"We missed input from both financing and city scale economics. We also missed input from social or community services which may have offered more insight into engagement with local community groups." 2017, Glasgow interviews.

Organisational culture was identified as a major barrier in Glasgow. This included both the culture of Glasgow City Council and the culture in community organisations.

"Not talking face to face has become a cultural thing in the City. Glasgow wants to be a City Council 'family'. How to achieve this with outside organisations (ALEOs) which are managed differently?" 2018, Glasgow workshop.

Similar to Genk, Covid emerged as an important challenge to collaboration. The organisation was not set up for remote working and council staff were deployed to different departments to deal with the early stages of the crisis so this created delays in collaboration activities.

Knowledge gaps and communication challenges around NBS, challenges in processes, internal restructuring and lack of capacity because of staff reductions were other challenges to collaboration.

4.2.2.4 Summary

Public services and resources conditions combined with socio-economic factors were important contextual factors in Glasgow. Owing to their industrial past, Glasgow has hundreds of vacant and derelict sites often located in deprived neighbourhoods, prone to flooding and a source of anti-social behaviour leading to further deterioration of both these sites and the surrounding communities. Recent upheavals in the political, regulatory and policy landscape saw the introduction of new policies such as the Community Empowerment Act (2015) which aimed for a more active involvement of citizens in the governance of public space.

From an intra-organisational perspective, the NBS team is located in the planning department with a horizontal remit and generally relations are good with other departments. Significant staff cuts and budget shortages are simultaneously driving intra-organisational collaboration to share skills and align resources. However, sometimes financial pressures lead to conflicts over

competition for funds. NPM characteristics are evident in the emphasis on business case development and impact measurement.

The most important driver towards formation of a CGR for NBS implementation was serendipitous timing with the Connecting Nature proposal arriving at a time when the Open Space Strategy was at an early stage of development, the Community Empowerment Act was creating the right policy environment and high profile events like COP26 were casting the spotlight on environmental issues. Connecting Nature offered an opportunity for funding but also shared learning with other cities on how to address knowledge gaps around community collaboration.

The most significant barrier to collaboration was the historic political culture of public management (*'the council will take care of everything'*). This led to both a lack of interest and governance capacity in deprived communities and a fraught relationship with local communities. Intra-organisationally, staff cuts, internal restructuring and changing relationships with ALEOs were important contextual factors.

4.2.3 Poznan

4.2.3.1 Context

Table 4.7 presents a summary of the data references that were coded in NVivo related to contextual conditions influencing collaborative governance. This table shows that the six conditions suggested by Emerson and Nabatchi (2012, 2015a) are all relevant for Poznan.

Table 4.7 References to Contextual Conditions in Poznan

Context	No of References
Socio-economic & cultural	28
Public service & resources	38
Policy, legal & administrative	58
Political & Power Dynamics	27
Network characteristics	26
History	48
- Existing NBS (sub-heading of History)	1
Total	226

In Poznan, policy, legal and administrative conditions were highly relevant as was the previous history of success and failure and public service and resource conditions.

Socio-economic and cultural characteristics



In this section, the content of the 28 data references on socio-economic and cultural characteristics from Table 4.7 are summarised.

Poznan is a thriving city and an important centre of trade and industry in Poland. In their development strategy for 2020-2030, the city shows a high-level awareness of awareness of the importance of quality of life in the continued attractiveness of the city for people and business.

“One of the manifestations of significance the citizen in cities’ strategies worldwide is the growing significance of the quality of life as the final and key determinant of a city status.”
2018, Development Strategy for the City of Poznan 2020+.

The importance of green spaces and community gardens in contributing to social cohesion and quality of life permeates city strategies .

“The interviewees insisted that the function of social gardens is to activate the neighbourhoods; they have an influence on the city’s development. Most of them are more about making social connections than the production of food”. 2018, Osmos report.

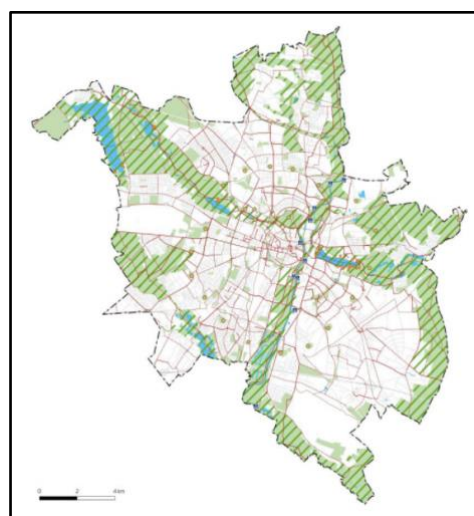
Interviews with various stakeholders at the start of the Connecting Nature project revealed an awareness of the pressures from developers to rezone green space and concern over the risk of gentrification from urban greening.

Public service and public resource conditions

In this section the content of the 38 data from Table 4.7 are summarised.

Poznan is one of Poland's greenest cities. Their 'green wedge' system of urban planning is recognised among citizens and European planners as an example of good practice in incorporating green corridors in urban planning. Designed in the 1930's, the green wedge system of Poznan (shown in Figure 4.5) facilitates high proximity to nature for most citizens in the wider Poznan area. Biodiversity is protected and ecosystem services supported through these green corridors. There are also 19,000 individual allotment gardens in the city, many situated along the Warta river.

Figure 4.5 Green Wedge System in Poznan



“Almost all interviewees spontaneously referred to the Czarnecki (green wedge) system and commented positively on its value and function for the city of Poznan. There also seems to be a strong awareness among the general population about the value of this system.” 2018, Osmos report.

The green wedge system however does not extend into the dense city centre which suffers from a shortage of green spaces. In the winter there is frequent flooding and in the summer high-levels of heat stress.

Policy, legal and administrative frameworks

As with the other two cities, a review of literature relating to public management culture and reforms in Poland was undertaken, a summary of which is presented in Box 4.3. This national data are then contextualised to the characteristics of public sector management models found in Poznan drawing on the references in Table 4.7.

Box 4.3: Public Management Models in Poland

Regarding public sector management reforms in Poland, Hammerschmid et al. (2016) show a considerable variation in the choice of public sector management models introduced across central and Eastern European countries. Countries in Northern Europe have shown a strong appetite for NPM-type approaches to public administration while others in Eastern Europe have been slower to introduce public management reforms and have established highly bureaucratic public administrations. Poland has largely fallen into the latter category (Zybala, 2017). Public administration in Poland is characterised by a high-level of decentralisation and fragmentation of

public service delivery. Approximately 40% of budget is allocated to sub-national governments. There is general consensus among scholars that public sector reform has not been high on the political agenda (Zybala, 2017). Some reforms since the late 1990's have aimed at improving the quality of public service and better engagement with the public but reform has been unevenly implemented across the country.

A study by Hungarian scholars on implementation of collaborative governance approaches in Central and Eastern European countries finds a paucity of literature on the topic, a gap they attribute to a lack of take-up in practice (Hajnal and Jeziorska, 2021). The legacy of communism is blamed for a culture of cronyism in setting policy objectives, the centralised provision of services and the weaker influence of NGOs and civil society. More recently a trend towards illiberalism in countries such as Hungary and Poland has raised concerns that this could further inhibit collaboration with NGOs and civil society actors (Lührmann and Lindberg, 2019). However, despite a deteriorating political environment in these countries, resistance to collaboration appears limited to specific policy areas associated with the agenda of right-wing political parties e.g. rescinding of abortion and LGBT rights in Poland.

Poznan City Hall is typical of highly bureaucratic Polish local government administrations. Politicians still play a deciding role in setting policy and budget priorities at all levels.

"The priorities are set by the mayor and it's very political. When the mayor wins an election, he makes a promise to the audience and we follow through. So he promised trams, roads..."
2018, Poznan City Council interviews.

Decisions are implemented through a strongly departmentalised hierarchical structure making it difficult for lower levels of the administration to reach the mayor directly. An emphasis on adherence to legal requirements, rules and regulations was very evident in the data. Sometimes strict adherence to legal requirements is beneficial, for example, the 147 provisions in Environmental Protection Programmes relating to the creation of new green areas or transformation of existing green spaces. However sometimes it can be restrictive as shown in this next response to questions about the potential for public-private partnerships.

"But also the regulations within which we need to operate are very complicated and there's always some kind of risk involved and then we would have to bear the responsibility and the procedural cost involved" 2018. Poznan interviews.

It would be fair to say that collaboration happened despite of the system and not because of it. Informal ‘below the radar’ approaches to collaboration found in other countries with non-collaborative cultures were evident in Poznan (Eppel and O’Leary 2021).

“It was not a smooth cooperation between the city hall, bottom-up artist and the district councils as there was no legal law for this kind of project, so they created their own rules” 2018, Poznan workshop notes.

Some reforms such as civic budgets have proved very popular.

“After the elections in 2014, the participatory process was strengthened, giving more voice to the people through civic budgets. Inhabitants of Poznan are interested in nature (civic projects are about this).” 2018, Osmos report.

Based on the volume of findings regarding to legal and bureaucratic restrictions, this study finds that Poznan fits with the characterisation of a more Traditional Public Administration (TPA) model.

Political dynamics, Power relations and Network characteristics

In this section the 27 references coded in Table 4.7 are summarised. The research study differentiates between political and power relations at intra-organisational and inter-organisation level.

Political dynamics, power relations and network characteristics at intra-organisational level

The NBS team is located in the Project Coordination and Urban Regeneration Office in Poznań City Hall. Responsibilities for different aspects of green infrastructure are spread across different departments in the city. The Poznan team reported that departmentalisation was a key challenge.

“We identified many barriers like very official and stiff organisational structure in city hall and strong departmentalization which is linked with vertical work and rigid schemes and processes. These block results from the structure of city hall and departmentalization: no informal means of communication, no smooth flow of information between different departments and units within city hall Each department has its own tasks and competences. Often the competences of some departments overlap with the competences of the others, which often causes misunderstandings.” 2019, Poznan Deliverable 5c.

Political dynamics, power relations and network characteristics at inter-organisational level

Political dynamics: The study period between 2017 and 2021 was a period of great conflict between the local government of Poznan and the national government. As a liberal urban city, the elected government of Poznan came into direct conflict with the election of the right-wing, conservative, populist 'Law and Order' party. Over the duration of the study period increasing responsibilities were assigned to local government but budgets were not commensurately increased. This impacted on financing available for 'discretionary' actions such as NBS compared with essential actions such as education. This was a direct driver of the NBS team seeking other sources of financing in collaboration with other actors.

"The central government is giving more duties to the cities but they cut taxes so the cities have less income. Budgets from the central to local government are decreased. All extra activities have to be cut. That's why we want to reformulate our current financial scheme and look for other funding." 2019, Poznan RM.

Strong network characteristics: network relationships appear to be relatively dense in the environment space with good knowledge and relations between different actors.

"NGOs are important actors in Poland that contribute to and often initiate environmental protection. ... in Poznań NGOs are highly engaged in the protection of green wedges" 2018, Poznan Connecting Nature workshop.

There is a good relationship between the public sector and the third sector in relation to the environment while the private sector are sometimes positioned as the 'enemy'.

"After the communism era businesses started growing enormously. They often are very powerful and get things done" 2018 Osmos report.

Increasing citizen power: There appears to be an ongoing shift in political dynamics and power relations.

"The role of civil movements is quite substantial in Poznan, because recently non-governmental actors have become powerful in opposing certain development decisions and projects." 2015, Green Surge profile of Poznan.

The citizen voice continues to grow stronger and the political administration is listening. This has directly impacted public decisions on spatial planning for example

“Around 2010, there was a general atmosphere in the city to go back to the river. Popular slogans that appeared in the media were “Poznan forgot about the river” or “The city turned its back on the river”. This was partly meant as an accusation against the city administration. There was a perceived need by Poznanians for recreation in a green environment, close to the city. ...There are petitions against changing zoning rules and for keeping green zones.” 2018, Connecting Nature Poznan Interviews Osmos.

History of conflict and success

The large number of references (49) coded under this heading in Table 4.7 provide a robust understanding of the experience of Poznan with previous collaborative projects and NBS.

Prior success: Citizens of Poznan in general had a higher level of awareness and placed higher value on their green infrastructure than in Genk or Glasgow. Despite the TPA model evident in the ‘internal’ local government structure of Poznan, the emergence of citizen-led co-governance initiatives were not inhibited.

Prior failure / conflict: Existing high-levels of awareness of green spaces was heightened during Covid and led to increased citizen activism to protect natural resources.

“There are lots of scandals linked to cutting down big old trees. I've never seen such a public outrage concerning cutting down trees” 2019, Poznan RM.

On a more practical level, although there was support for multiple small scale projects via the civic budget, Poznan City Hall was aware of the challenge in sustaining community enthusiasm in the long term. There was evidence of the failure of some small scale initiatives and ultimately a dependency on public budgets for funding.

“Right now everyone is very supportive and right now everyone can't wait to get into the garden and start working. But we'll see what happens next year... I have been watching the culture of the social projects for many years and I know that once the funding is over, the projects are over” 2018, Poznan NGO interview.

How past experience influenced collaborative governance in this study: Poznan benefited from a high-level of citizen demand for urban green space but suffered from insufficient public finances to meet this demand. This oriented their approach to collaborative governance and towards building long term sustainable business models for co-operation.

4.2.3.2 Drivers

In Table 4.8 a summary is presented of data references relating to the specific drivers leading to formation of a CGR for NBS in Poznan. This table shows that the four conditions suggested by Emerson and Nabatchi (2012, 2015a) are all relevant.

Table 4.8 References to Drivers in Poznan

Drivers	No of References
Uncertainty - Complexity	23
Interdependencies	50
Incentives to collaborate	75
Initiating Leadership	31
Spatial transformation	32
Total	211

As with the other two cities, incentives to collaborate were a key driver of collaboration. Spatial transformation also emerged as an important driver.

Uncertainty

In this section, the 23 data references to uncertainty are summarised. Poznan is a thriving city economically but this growth presents complex challenges from an urban planning perspective. Challenges include how to support urban growth and housing needs without exacerbating urban sprawl, increased traffic, air and noise pollution in city centres and losing green space contributing to quality of life.

“More worrisome is that powerful economic players – such as real estate developers – are considered by many interviewees as opponents rather than partners. This is all the more problematic as Poznan’s success as one of Poland’s fastest developing and most prosperous cities, is chiefly an economic one... But Poznan’s historic achievement of maintaining a fully-fledged nature-based solution – the system of green wedges and rings – over such a long timespan could become a victim of the city’s economic expansion.” 2018, Poznan Interview Report Osmos.

While the complexity of challenges faced is clear from the data, what is less clear is to what extent this could be considered a driver for the formation of a CGR.

Interdependencies

In this section, the 50 data references to interdependencies are summarised. As with the other cities, interdependencies were related to knowledge deficits in leveraging NBS to tackle environmental, social and economic challenges. The NBS team in Poznan had good environmental expertise in-house but their limited knowledge on technical design led to collaboration with landscape architects from the private sector. Due to their prior experience in other EU projects, they had a good knowledge on how to collaborate with social partners to achieve social benefits. Similar to the other cities, they struggled with an understanding of how NBS could generate economic dimensions and also how to measure different types of impact. This led to close collaboration with local universities.

Consequential incentives

In this section, the 75 data references to consequential incentives are summarised. Financing emerged as a key driver. Poland is heavily dependent on EU funding. This level of dependency on EU funding is often a direct driver for cities to get involved in both international collaboration and local stakeholder engagement (often required by EU policies).

“We have to wait for the EU level to specify the funding, so that it can trickle down to the local level. Structural fund; European regional development fund, if you apply you need to fulfil the benefits of the European Union.” 2019, Poznan RM.

Following the election of the right-wing ‘Law and Order’ party to government in 2015, a protracted dispute arose with the EU which led to a withholding of over €100 billion in EU funds to the country (to put this in proportion the total annual budget of Poland in 2022 was €129 billion). This significant cut in national government revenue has led to significant onward pressures on local government financing.

“Budgets from the central to local government are decreased. All extra activities have to be cut. That’s why we want to reformulate our current financial scheme and look for other funding.” 2019, Poznan RM

Consequently Poznan was arguably in the worst position of all three cities in terms of pressure on public sector budgets and the pressure to find new sources of funding.

“No consultation with parents or pupils about TORPOL (private sector) financing. We talked with the head manager of school. He was so happy he said, “I will sign with two hands even if

one hand is broken'. Funds are so badly needed that opportunities are just grabbed." 2021, Poznan RM.

Pressure on financing was a key driver in opening the mindset of the NBS team to new collaborations with the private sector.

"If someone offers us money and it makes us possible to do some good things our budget is so minimised we are of course very interested. We have this expression "Don't look a gift-horse in the mouth." 2020 Poznan RM

Participatory budgets aimed at supporting citizen projects were also targeted for small-scale NBS. These budgets incentivised increased collaboration between the district councils administering the budgets and community projects eligible to apply. The NBS team provided support for example to kindergartens to apply for civic budget for natural playgrounds.

Initiating leadership

In this section, the 31 data references to initiating leadership are summarised. There are multiple examples throughout the data of individual citizens, community groups or NGOs initiating leadership. In general, such initiatives are favourably viewed by the local government. This level of citizen activism (not evident in either of the other two front runner cities) may be related to Poznan's strong post-communism entrepreneurial culture.

"Citizens in Poznań are more and more actively involved in creating green ecosystem in Poznań. They vote for NBS in Participatory Budget, organise community garden and food cooperatives, take part in public debate on the creation of public space and the presence of nature there." 2019, Poznan Framework Report Deliverable 5 C3

The civic budget managed by the District Councils at a very local level of government helps to facilitate local leadership.

Spatial Transformation

In this section, the 32 data references to spatial transformation are summarised. The lack of green spaces in the city centre created environmental challenges such as heat stress and flash flooding which in turn created social problems and economic challenges. The uneven distribution of green space is a driver of spatial transformation in the city centre.

"It should be noted that greenspace is not evenly distributed throughout the entire area of Poznan: there is more greenspace in peri-urban areas compared to the old city centre. This is

possibly a result of the green wedge system (i.e., wedges get narrower the closer one moves to the centre). The relative lack of green space in the city centre seems to drive the perceived need to insert green pockets back into the dense centre where many of challenges/issues are exacerbated by the lack of greenspace.” 2018, Poznan Osmos Report.

The lack of green space in the city centre and competing pressures for development drove the NBS team to seek novel forms of collaboration in order to convert existing grey space such as concrete playgrounds in schools to green spaces. This requires consultation with existing schools and the wider community. Community engagement on regeneration plans and community activation as ‘leaders’ of small-scale projects is a standard approach. As many such regeneration activities are funded by EU projects, it could be cynically suggested that such collaboration is a mandatory requirement. Irrespective of the driver, collaborative governance approaches are clearly standard practice in the spatial transformation department.

“Regenerate the district: This is the base, a starting point and motivation of why we set-up cocreation – to involve different sectors to bring in different experiences and opinions.” 2018 Poznan April workshop notes.

4.2.3.3 Barriers to Collaboration

Table 4.9 References for Barriers to Collaboration in Poznan

Barriers	No of References
Communications	3
Covid	27
Culture of organisation	5
Developer conflict	15
Inter-departmental silos	26
Interpersonal issues	0
Knowledge gaps	11
Lack of awareness	12
Lack of capacity	1
Lack of ownership	0
Multi-level governance	6
Processes	6
Restructuring	0
Total	112

Table 4.9 on barriers to collaboration in Poznan shows that Covid caused the most significant disruption to collaboration activities. This is unsurprising as Poznan's exemplar involved collaboration with schools and kindergartens which were largely closed during this period. Like the other cities, inter-departmental silos were an important challenge with high-levels of hierarchical departmentalisation creating clear lines of demarcation. Regarding green infrastructure, findings show different departments responsible for different aspects e.g. roadside greenery was managed in one department, parks in another and green urban regeneration in another. There was little collaboration with everyone respecting the boundaries.

Conflict with developers cropped up as a challenge in Poznan but did not arise in Genk or Glasgow. This is possibly because the pressures for development of land for housing and business weren't as high in Genk or Glasgow due to the abundance of space.

Other challenges encountered included knowledge gaps and challenges communicating NBS to different audiences as part of the collaboration process.

4.2.3.4 Summary

As with the other two cities, public resource conditions are an important background context factor in Poznan. The city benefits from the historical legacy of a 'green wedge system' providing access to high quality green space for many peri-urban citizens. The green wedges however do not extend into the city centre where green spaces are limited. Climate change is exacerbating impacts such as the heat island effect and flash flooding which are experienced more intensely in the city centre due to lack of vegetation. There are also competing demands for green spaces land-use. Poznan is a thriving city economically with a growing population and stakeholders report sustained pressure from developers to find space for housing and development.

From an intra-organisational perspective, Poznan exhibits characteristics of rigid traditional public management with strict hierarchies and divisions of responsibility. The responsibility for green infrastructure is spread across many departments. The NBS team are located in the department with responsibility for urban regeneration so they have a history of collaborative working with other departments and relations are generally good as long as the rules are respected. From an inter-organisational perspective, political changes since 2014 are resulting in more openness to citizen participation and measures such as the participatory civic budget are very popular. There is a strong and active movement of NGOs raising citizen and political

awareness of environmental issues. However due to political conflicts, the public sector financing situation in Poznan can only be described as dire.

Pressure to find alternative sources of funding is undoubtedly the single most important driver of collaboration for NBS implementation in Poznan. This pressure to collaborate on funding extends beyond Connecting Nature grant funding to collaboration with other departments, with communities and with the private sector. Knowledge gaps, interdependencies and uncertainty were not as important a driver as in other cities. Spatial transformation was the second most important driver. Due to the restrictions on available land in the city centre, the NBS team had to collaborate with owners of land (schools) to implement NBS.

The most significant barrier to collaboration after Covid was the lack of prioritisation of NBS in a difficult and highly fragmented organisational environment.

4.3 Comparative Analysis

4.3.1 Comparative analysis of Contextual Conditions influencing CGR development

Table 4.10 summarises the most highest number of references to contextual conditions across all three cities.

Table 4.10 Comparative Analysis of Contextual Conditions Data References

Context	Genk	Glasgow	Poznan	Total
Socio-economic & cultural	33	29	28	90
Public service & resources	26	31	38	95
Policy, legal & administrative	28	118	58	204
Political & Power Dynamics	24	14	27	65
Network characteristics	13	14	26	53
History	19	34	48	101
- Existing NBS (sub-heading of History)	39	12	1	52
Total	182	252	226	660

Socio-economic conditions

From a socio-economic perspective there are some similarities and differences between the three case study cities. Genk and Glasgow are former industrial cities with high-levels of unemployment and low skilled populations. There is a history of dependency rather than collaboration between citizens and local government in these cities. More deprived populations

seem to place a lower value on green infrastructure and lack the interest or capacity to contribute to the design, stewardship or governance of these spaces. Poznan in contrast is a thriving city socially, culturally and economically. A high value is placed on nature which is considered part of the cultural heritage of the city. Poznan has a highly mobilised, aware and actively engaged population.

Public service and public resource conditions

Across all three cities, NBS were perceived as a response to different public resource conditions. At the start of the study period, the main priority of Genk was to address environmental (water pollution and flooding) challenges in the Stiemer Valley. In Poznan, the initial goal was to address the shortage of green space in the city centre which was adversely impacting the quality of life of citizens, not least through the heightened impacts of heat stress and flash flooding. In Glasgow the open space strategy aimed to provide citizens with access to high quality public spaces in the context of an industrial legacy of open and derelict sites across the cities. As the understanding of NBS teams about the multi-functionality of NBS solutions increased through participation in Connecting Nature, their goals expanded to consider NBS as a solution to address multiple environmental, social and economic challenges simultaneously.

Policy, legal and administrative frameworks

From a public administrative perspective, the research found departmentalised public management structures in all three cities. The situation was worst in Poznan where the dominant public sector model was that of Traditional Public Administration (TPA). From an intra-organisational collaboration perspective, legal and regulatory conditions were rigid and restricted with strict hierarchies and separation of activities in place. However, in terms of outward-facing public collaboration, recent political change just before the start of the study period saw more openness to participatory governance and a civic budget was popular. In Genk, similar top-down hierarchical structures were in place at an intra-organisational level creating multiple problems with silo-working. However, the mayor who had been in situ for several terms recognised the need for, and benefits of, horizontal working. He was also committed to increased citizen engagement. The Genk public administration model was characterised as Neo-Weberian State (NWS). Finally in Glasgow, while there was a clear vertical organisational structure in place, there was also an established culture of horizontal working with other departments and externally with Arm's Length External Organisations (ALEOs). In general, relations were good intra- and inter-organisationally and there was openness to collaboration and sharing of skills and resources. This

was in part driven by severe cuts in personnel. New laws in Scotland were focusing increased attention on participatory governance. The public administration model in Glasgow was characterised as New Public Management (NPM) with aspirations to move towards New Public Governance (NPG).

Political Dynamics, Power Relations and Network Characteristics

There is some overlap between this section and the previous. At an intra-organisational organisational level, the strict hierarchies of traditional bureaucracies have an impact on power relations as does the size of the organisation. The smaller or flatter an organisation structure, the easier it is to communicate with decision makers.

From an inter-organisational perspective, while the political environment in Genk was relatively stable during the study period, Glasgow was experiencing a period of major political turbulence accompanied by legislation aimed at increasing community empowerment. In Poznan, a similar transition towards community engagement was also happening following political change just before the start of the study period. A key difference between cities was that citizens in Poznan were generally educated, empowered and politically active on environmental issues whereas in Glasgow and Genk, the opposite was true. In the multiple deprived areas of these two cities, citizens did not have the capacities or interest to engage in collaborative governance on environmental issues.

In all three cities, network characteristics were promising. Cities had prior engagement with a wide range of stakeholders from statutory actors, to NGOs and community organisations, albeit somewhat limited to their own areas of expertise and comfort zones.

History

As explained in the methodological section, one of the reasons for selection of these three cases studies was due to their prior experience of NBS (or earlier versions of the concept) and their openness to collaborative governance. However, a study of previous small-scale pilots of NBS at the start of the research showed a lack of knowledge and understanding in cities about the multi-functionality of NBS. Cities tended to focus on one benefit of NBS rather than multiple benefits simultaneously. In Poznan and Genk, the focus of previous NBS on urban parks and gardens was driven by perceptions of social benefits rather than environmental or economic benefits. In Glasgow there was good knowledge of the environmental benefits. Baseline data showed that collaboration in relation to NBS was generally limited in scope to the competencies and 'comfort

zones' of NBS team staff. Overall there was little evidence in any of the cities of knowledge or experience in dealing with the economic potential of NBS e.g. the potential for job creation, social innovation or entrepreneurship.

All three cities learned a lot from previous piloting of small-scale experiments in collaborative governance of green or urban spaces. All understood from experience the difficulties in securing engagement across different socio-economic groups and sustaining engagement in the long term.

4.3.1.1 Summary of Contextual Conditions

Overall the six contextual conditions proposed by Emerson and Nabatchi were very useful to understand the context for collaborative governance for NBS in cities. The only exception was the lack of attention Emerson and Nabatchi give to public management and intra-organisational conditions. These conditions were found to be of high importance in all cities related to the need for cross-departmental collaboration to implement NBS. In terms of findings, overall the contextual conditions were mixed for collaborative governance across the case study cities. Public resource conditions presented many opportunities to reap the benefits of multi-functional NBS solutions in all cities. However top down traditional public management practices and silo-working in Genk and Poznan presented clear barriers. Despite these intra-organisational barriers, at inter-organisational level, all three cities were moving towards open government with policies and programmes such as participatory budgets in place to support citizen engagement. Historical challenges in Glasgow and Poznan and low-skilled populations could hinder interest in co-governance.

4.3.2 Comparative analysis of Drivers

Table 4.11 shows the highest number of references related to drivers to CGR formation across all three cities.

Table 4.11 Comparative Analysis of Drivers

Drivers	Genk	Glasgow	Poznan	Total
Uncertainty - Complexity	7	11	23	41
Interdependencies	23	33	50	106
Incentives to collaborate	82	59	75	216
Initiating Leadership	28	7	31	66
Spatial transformation	17	18	32	67
Total	157	128	211	496

It was difficult at times to differentiate between contextual conditions and drivers as described by Emerson and Nabatchi. Drivers were interpreted as the specific factors or combination of factors which lead to clear and intentional actions to establish a CGR at a specific point in time. Another way of differentiating between drivers and contextual factors, would be to ask if a CGR would have formed if these drivers to initiation did not occur? Factors such as uncertainty were found to be more contextual in nature rather than a specific factor leading to CGR formation at a specific moment in time. Given this interpretation, consequential incentives and interdependencies were undoubtedly the most important drivers in all three case study cities.

Consequential incentives in the form of grant funding: For all three cities, funding from the EU Connecting Nature project was a critical turning point in advancing from small-scale to large-scale NBS implementation. Collaborative governance was a prerequisite for Connecting Nature partnership. It is evident that funding incentives remains a key driver for sustaining and expanding collaboration throughout the research period. In Poznan, large scale URBACT funding was secured during the study period further driving the expansion of intra-organisational collaborative governance. In Genk, large scale regional funding secured the continuation of Stiemer Deals, a form of intra-organisational collaborative governance. What would have happened without grant financing? It's difficult to predict in hindsight, but it seems most likely that small-scale collaborative governance initiatives would have continued. The pressures on public sector financing in all three cities was a major driver to collaborate with different organisations. This collaboration also helped to secure funding for technical assistance.

Interdependencies: In all three cities, recognition of interdependencies was another key driver of collaborative governance. The NBS teams in each city were small and recognised that they did not have the knowledge to deal with the multi-functionality of implementing NBS. Sometimes this knowledge led to collaboration with other departments, other times it led to collaboration beyond the local government. Interdependencies also arose from legal and statutory conditions e.g. planning regulations required engagement, and resource conditions i.e., dependency on funding from other departments or organisations.

Initiating leadership: Emerson and Nabatchi suggest that initiating leadership is a key driver in getting CGRs off the ground. This research shows that leadership was more of a contextual condition than a driver. For example, in Genk the mayor provided clear leadership and support for the NBS team from the beginning to the end of the study period. However, without the specific driver of funding as a motivational incentive, this leadership alone would not have led to the formation of the CGR for large-scale NBS implementation. In Glasgow, the impetus for

formation of a CGR came from national and EU planning directives (PAN 65) as a contextual condition rather than a specific champion within the organisation. Leadership however was very important in implementation rather than initiation of the CGR. In Poznan, there was no clearly identifiable champion leading formation of the CGR. Bottom-up community demand for NBS could be seen as a driver. This demand was however ably orchestrated by the Poznan NBS team. It is unclear if communities would have led to CGR formation on their own.

Uncertainty: Emerson and Nabatchi relate uncertainty to managing 'wicked problems'. In the case study cities, uncertainty is more of a contextual condition. It was insufficient alone to be considered a driver to formation of a CGR.

Spatial Transformation: a new driver was added related to spatial transformation. There was evidence in all three cities that a decision to proceed with a spatial transformation project was a tipping point for collaboration. In many cases collaboration was directly mandated, for example, through the involvement of other agencies with responsibility for public resources in this space such as water or roads. Equally stakeholders in the immediate vicinity of the spatial transformation needed to be engaged at some level.

4.3.2.1 Summary of Drivers

This study found the driver of consequential incentives most relevant to CGR formation. The pressure to collaborate to secure funding could be described more as an imperative than an incentive. Interdependencies were found to be an important driver related to the novelty and multi-functionality of the NBS concept. Leadership and uncertainties were important but more contextual factors than direct tipping points for CGR formation. A new driver of spatial transformation was found to be relevant for physical interventions such as NBS.

4.3.3 Comparative Analysis of Barriers

Table 4.12 Comparative Analysis of Barriers

Barriers	Genk	Glasgow	Poznan	Total
Communications	45	10	3	58
Covid	20	20	27	67
Culture of organisation	1	23	5	29
Developer conflict	0	0	15	15
Inter-departmental silos	71	30	26	127
Interpersonal issues	11	0	0	11
Knowledge gaps	13	22	11	46
Lack of awareness	19	0	12	31
Lack of capacity	10	15	1	26
Lack of ownership	13	0	0	13
Multi-level governance	10	0	6	16
Processes	33	17	6	56
Restructuring	0	11	0	11
Total	246	148	112	506

Table 4.12 shows that the most significant shared barrier to collaborative governance relates to interdepartmental challenges or silos. Other barriers to collaborative governance such as the culture of the organisation, challenges around adapting processes to collaborative practices also indirectly relate to silos. This was particularly the case for Genk, who experienced greater challenges than the other two cities.

The next most important barrier which emerged was Covid which appeared to equally impact all three cities. Other barriers included communications with different types of stakeholders and related to this lack of knowledge, awareness etc. These are more closely related to the collaboration dynamics of principled engagement, e.g., challenges in communicating technical concepts to citizens, difficulties in managing expectations etc. Such challenges were not well addressed in Emerson and Nabatchi.

4.4 Discussion

4.4.1 Limitations of Emerson et al. Framework (2012)

Three limitations of the Emerson and Nabatchi framework (2012) were noted from the findings in this study (i) lack of clarity on barriers to collaboration, (ii) limited consideration of the importance of public management systems, and (iii) consideration of spatial transformation as a driver. These are discussed hereafter.

4.4.4.1 Barriers to Collaboration

Barriers to collaboration was the only top level node added to the analysis of Contextual Conditions in the Emerson and Nabatchi Framework. While it could be argued that barriers could be captured under any of the existing contextual headings in this framework, the volume of data captured for barriers (approximately 500 references) suggests that this topic is worthy of consideration in its own right. Barriers to collaboration have been presented separately in other studies and differentiated from factors enabling collaboration (O’Leary and Gerard 2014, Mitchell, O’Leary and Gerard 2015, Eppel and O’Leary 2021). Two types of barriers were found in this study:

(i) Barriers in the external organisational environment: Covid was identified as a major barrier to collaboration for all cities in this study. Such crises were difficult to accommodate in the Emerson and Nabatchi framework. Covid could not be considered a background contextual condition or a driver of collaboration. It had an immediate and high-level impact on collaboration dynamics, initially stopping much on-the-ground collaboration immediately but later stimulating the emergence of a different type of online collaboration dynamic. While Covid may be considered a once-in-a lifetime event, public management crises continue to happen (e.g., Ukraine war, severe weather events, global financial crises, etc). It is feasible to suggest that these can have a major impact on local government capacity to initiate or sustain collaboration activities. There is some consideration of crises as a driver of collaboration dynamics under consequential incentives, but it is difficult to see how to position such disruptors of the dynamics of collaboration at an overarching level in the Emerson and Nabatchi framework.

(ii) Barriers in the internal organisational environment: Inter-departmental silos were a significant barrier identified across all cities. Related barriers included the culture of the organisation, resistance to change in processes, lack of ownership and buy-in. Such factors were seen to impede both the formation of CGRs and their effective operations. While Emerson and Nabatchi (2015a) acknowledge that collaboration dynamics work at two levels (i) directly at an interpersonal level and (ii) indirectly, between organisations, there is little specific consideration given to collaboration dynamics at an intra-organisational level i.e., indirectly between departments of the same organisation. This study found that intra-organisational dynamics are of particular importance in large public sector organisations who are leading the formation of

CGRs. In theory, such departments, being part of the same organisation should share the same motivations but in practice this study found that this was not always the case. The intra-organisational v inter-organisational dimension is fleetingly addressed in Collaboration Dynamics by Emerson and Nabatchi (2012, 2015b) under 'Procedural and Institutional Arrangements'. In summary, the findings suggest that intra-organisational barriers merits more attention than it is currently given in Emerson and Nabatchi's description of framework dynamics.

4.4.4.2 Importance of Intra-organisational Factors

Related to the previous point, intra-organisational factors could be considered both a barrier and a driver of collaboration. This study suggested that public management systems and reforms were an important factor impacting both the formation of CGRs and their implementation. For example in Poznan, despite the barriers to intra-organisational collaboration that were evident, reforms such as participatory budgets were a driver of collaboration. As noted in the literature review in the previous chapter, publications on collaborative governance are predominantly focused on multi-level and multi-sector relations. There is comparatively less attention on intra-organisational factors or the dynamics between intra and inter-organisational conditions for collaboration. The importance of such intra-organisational collaboration has been recognised for sustainability actions (Feiock et al. 2017). This may be a highly relevant area for future research.

4.4.4.3 Spatial transformation as a driver

Spatial transformation emerged from this research as an additional driver of collaborative governance for NBS. NBS are tangible, physical responses to complex challenges faced in a specific geographical location. This dimension of Spatial Transformation is partially addressed in the Emerson and Nabatchi framework under the contextual factor of public resource conditions which includes *"the state of depletion, pollution, or extraction potential of environmental and natural resources."* (Emerson and Nabatchi, 2015a, p.55). Biophysical conditions are also recognised in Ostrom's IAD framework (2005) as an important contextual variable influencing governance dynamics.

This research asserts that the difference between a contextual factor and a driver is related to clear and intentional actions to establish a CGR to address a particular challenge or set of challenges at a specific point in time. For example, while increasing discontentment around the pollution of a river in Genk can be considered a contextual factor, the decision to co-create a

spatial transformation plan to address this challenge can be considered a specific driver of collaborative governance. Findings showed three dimensions of spatial transformation acted as a driver of collaboration:

- **Legal mandate:** The implementation of new NBS often involves by default interdependencies and interactions with multiple other actors. Planned changes in land use in relation to physical space may require consensus from a wide range of stakeholders who have an official mandate in relation to this physical space. This type of mandate would align with Emerson and Nabatchi typology of an externally directed CGR where actors have an official stake in the outcomes (Emerson and Nabatchi, 2015a). Proposed changes to land use were also found to be of high interest to stakeholders in the immediate vicinity, particularly those in adjacent properties. Planning requirements in all cities required public consultation on new spatial developments.
- **Competing land use propositions:** As a physical space, proposals for new NBS or adaptation of existing spaces to become NBS impact on existing or potential uses and users of this space. In Poznan there was strong evidence of competing demands for land use. Ensuring that all stakeholders have an equal voice in land use discussions and decisions is a key driver of collaboration (UN Habitat 2022, Davies and Laforteza, 2019, Kabisch et al. 2022).
- **Urban commons creation:** in NBS literature, creating new urban NBS is compared with the creation of new urban commons (Frantzeskaki, 2019, Tozer et al. 2023, McPhearson et al. 2023). Drawing on commons literature, NBS authors argue that creation of such spaces needs to involve citizens in co-design and co-governance to ensure long term buy-in and use. The example of the implementation of NBS for water management in the Commonwealth Village in Glasgow highlights the importance of community engagement at an early stage. As the community weren't informed about their purpose or involved in design, they rejected the open swales and rainwater ponds as too dangerous and filled them with rubbish. Ensuring the 'place-connectedness' of NBS is of important to ensure acceptability of urban NBS (Frantzeskaki 2019).

4.5 Chapter conclusion

In this chapter, findings from case study cities on the contextual conditions, drivers and barriers influencing the formation and implementation of CGRs were presented. A summary of the most influential factors for each city is provided in section 4.2. Similarities and differences across cities are then presented and summarised in section 4.3. To avoid repetition, Table 4.12 overleaf hereafter presents a visual summary of key findings.

The discussion in this chapter showed that overall, the Emerson and Nabatchi framework was useful and highly relevant to develop an understanding of the contextual conditions and drivers leading to formation of a CGR in all three case study cities.

Three limitations were noted. Firstly, a high volume of findings related to barriers to collaboration. From both a theoretical and practical perspective the study suggests that it would be useful to consider barriers as distinct from other influencing factors.

Secondly, some limitations of the Emerson and Nabatchi framework were noted, in particular around the lack of attention paid to intra-organisational factors compared with inter-organisational factors (2012, 2015b). Intra-organisational factors were found to be of considerable importance in the implementation of NBS as collaboration was required across multiple departments in the local government to deliver the multi-functionality of this solution.

Finally, one additional driver of collaboration was proposed related to spatial transformation.

Table 4.13 Summary of Context, Drivers and Barriers across Cities

City	Genk	Glasgow	Poznan
Most important contextual factors	Public resource conditions: flooding & water pollution Socio-economic: low community interest in NBS in deprived areas Policy, Legal & Admin: Policy to reinvent Genk as a green city. Team of Community managers. NWS – Silo-mentalities History: good collaboration - multi-level governance & large NGOs	Public resource conditions: open space & derelict land Socio-economic: low community interest in deprived areas. Policy, Legal & Admin: Policy of community Empowerment. NPM – contracts, targets & business case focused. History: good intra-organisational collaboration. Poor community relations.	Public resource conditions lack of green space, land use competing pressures. Socio-economic: affluent, environmentally active population Policy, Legal & Admin: Policy – sustained growth. Civic budgets. TPA environment – rigid, regulated, bureaucratic. History: Good community collaboration. Very difficult multi-level governance relations.
Most important drivers	Consequential Incentive & Interdependencies (Connecting Nature & SUDS expertise)	Consequential Incentive & Interdependencies (Connecting Nature & Community Empowerment)	Consequential Incentive (Connecting Nature & other sources of financing)
Most important barriers	Intra-organisationally (departmental silos)	Inter-organisationally (citizen engagement) Intra-organisationally (restructuring/leadership)	Intra-organisationally (NBS not a priority)

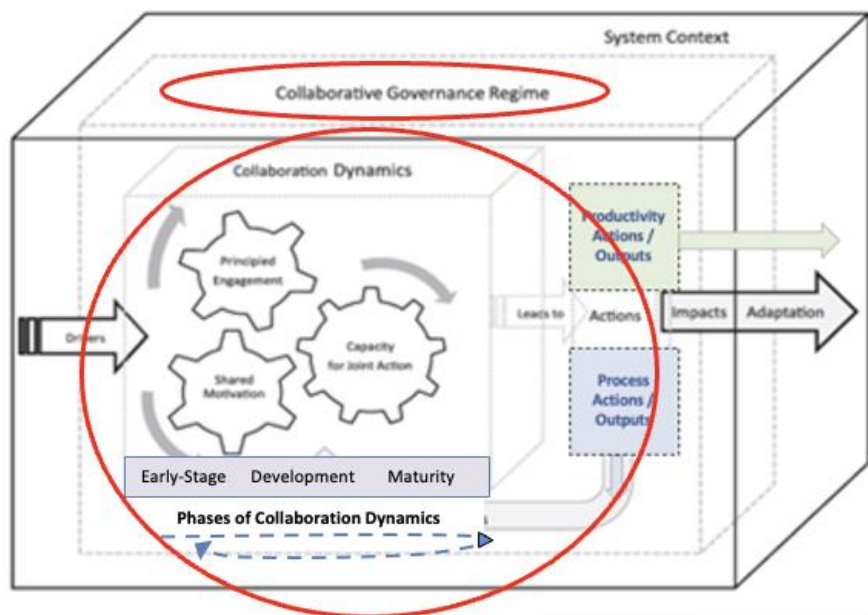
5. CGR Formation and Collaboration Dynamics

5.1 Introduction

Building from chapter 4 which presented the contextual conditions, drivers and barriers influencing CGR development in each case study city, in this chapter, the focus shifts to CGR formation and the unfolding of collaboration dynamics over time (see Figure 5.1). This chapter relates to the first part of the research question i.e., how do local governments implement and adapt to the collaborative governance arrangements required for NBS? To answer this research question, this chapter is divided into two parts.

In the first part, Emerson and Nabatchi's typology for CGRs (2015b) is applied to case-study cities to better understand the process of formation of CGRs. Emerson and Nabatchi identify three types of CGR based on prevailing conditions and characteristics of formation. The relevance of this typology for the formation of CGRs in case study cities is discussed.

Figure 5.1 Chapter 5 Focus on CGR Formation and Collaboration Dynamics



In the second half of the chapter, the focus shifts to collaboration dynamics. The Emerson et al. Integrative Framework (2012) is applied to study how the collaboration dynamics of principled engagement, shared motivation and capacity for joint action unfold in each case study city over time. To capture the temporal dimension, actions related to collaboration dynamics are

considered at three stages of development of the CGR (i) early-stage (ii) development (iii) maturity.

Findings for each dynamic and actions related to each dynamic are presented individually for each case study city. While collaboration dynamics are the subject of many case studies, the review of literature in Chapter 2 highlighted that collaborative actions remain to some extent the ‘black box’ of collaborative governance theory (Koontz and Thomas 2006, Emerson and Nabatchi 2015b). The extensive data collected on collaboration dynamics in this research (>1000 references across the three cities over five-years) facilitated a deeper analysis of actions undertaken by different cities as part of the processes of building principled engagement, shared motivation and capacities for joint action.

Following the individual analysis of findings at city level, a comparative analysis looks for patterns across cities in the unfolding of collaboration dynamics and the type of actions evident at each stage of CGR development. A discussion then follows for each dynamic identifying potential contributions to knowledge.

The chapter concludes with a summary of findings and contribution to theory.

5.2 Formation of CGRs

5.2.1 Introduction

Emerson and Nabatchi assert that:

“the way in which CGRs are formed influences their composition and their collaboration dynamics as they evolve over time” (Emerson and Nabatchi ,2015a, p.177).

They propose that CGRs can be one of three types (Table 5.1):

1. **self-initiated** where participants come together voluntarily of their own volition,
2. **independently convened** where an objective third party facilitates the initiation and activities of the CGR,
3. **externally directed** where one entity with credible authority brings together other participants.

To arrive at a typology, Emerson and Nabatchi suggest a number of prevailing conditions and characteristics should be taken into consideration (see Table 5.1). Prevailing conditions describe the nature of the policy challenge being addressed by the CGR and the determining authorities

in a position to make decisions on the CGR. Characteristics of a CGR include initiating leadership, initial structure, participant volition and group autonomy.

Table 5.1 Typologies of CGRs

<i>Formative Type</i>	<i>Self-Initiated</i>	<i>Independently Convened</i>	<i>Externally Directed</i>
<i>Prevailing Conditions</i>			
Policy challenge	Acute	Complex	Extensive
Determining authorities	Diffuse	Mixed	Concentrated
<i>Characteristics</i>			
Initiating leadership	Direct stake	Independent	Official stake
Initial structure	Ad hoc and emergent	Designed	Preset
Participant volition	Voluntary	Induced	Incentivized or mandated
Group autonomy	High autonomy	Assisted autonomy	Constrained autonomy

Source: Emerson and Nabatchi 2015b, p. 178

5.2.2 Findings

5.2.2.1 Prevailing conditions

Policy challenge is the first condition considered under prevailing conditions. Emerson and Nabatchi describe these policy challenges as follows:

- *“Acute policy challenges affect a narrow or localized set of diverse stakeholders in extreme or severe ways.*
- *Complex policy challenges are felt more broadly and with **more contention** between stakeholders about their interests and preferences for needs or solutions.*
- *Extensive policy challenges are recurring situations across multiple settings or contexts that warrant similar approaches for policy and governance.” (Emerson and Nabatchi, 2015a, p.180)*

Drawing on the contextual findings presented in Chapter 4 for the policy environment, public resource conditions and drivers of NBS, it was difficult to decide if the policy challenge was best described as complex or extensive for case study cities. The challenges faced in terms of quality and quantity of public space in all cities are significant, particularly with regard to spatial scale and citizen impact. Challenges faced are complex and interwoven. The situation leading to

formation of the CGRs has evolved over decades, recurs (or has not been resolved) and a policy response at city scale has been documented. However, while there was some evidence of contention between stakeholders in Poznan and Genk as to the use of space and collaborative arrangements, inter-organisational contention was not a defining feature. Therefore, extensive best describes the policy challenges for case studies in this study.

Determining authorities refers to the locus of decision-making power in relation to the CGR.

- *Diffuse authorities are characterised by ‘multiple, disconnected or fragmented authorities with limited or uncertain decision making roles.*
- *Concentrated authorities describe the situation ‘where one or a small set of coordinated authorities are clearly the responsible decision makers.*
- *Mixed authorities are somewhere in between referring to “a pattern that includes both diffuse and concentrated authorities” (Emerson and Nabatchi, 2015a, p.180)*

If determining authority is considered only in relation to the formation of the CGR, it is clear for case study cities that authority is **concentrated** in the hands of the local government institutions who are contractual partners in Connecting Nature. As partners in this consortium, they took on responsibility for initial formation of a CGR to deliver NBS at city scale and they determined the initial characteristics of this CGR. If the condition of determining authorities is considered over time, the situation becomes less clear-cut with other participants emerging as key decision makers in Genk and Poznan.

5.2.2.2 Characteristics

Characteristics are described for the formative stage of development of CGRs in case study cities as these characteristics may change over time (Ulibarri et al., 2020).

Initiating leadership: Emerson et al. (2012) identify initiating leadership as one of the key drivers of action leading to the formation of CGRs. Within the three different typologies of CGRs, they suggest three different types of initiating leadership are evident:

- *Direct stake:* Leaders of ‘self-initiated’ CGRs are characterised as having ‘skin in the game’ i.e., they have a direct stake in the outcomes of a CGR e.g., live in directly impacted areas.
- *Independent:* The leaders of ‘independently convened’ CGRs hold an impartial position as they do not have a direct stake in the outcomes.

- Official stake: the leaders of ‘externally directed’ CGRs ‘are initiated by entities with an official stake in the outcomes...sometimes, this official stake is indirect and removed from the immediate locus of action; other times, this stake is direct and connected with jurisdictional, oversight or other responsibilities.’ (Emerson and Nabatchi, 2015a, p.181).

In all three cities findings show that a team was appointed in each local government with clear responsibility for setting up a CGR to deliver NBS. As public sector employees with an official remit for policy, planning and stewardship of public space as part of their public service remit, ‘**official stake**’ is the most appropriate classification. This fits with the characteristics of an externally directed CGR.

Initial structure: is characterised as ‘*ad hoc* and emergent’, ‘designed’ or ‘pre-set’ aligned with the three typologies identified by Emerson and Nabatchi.

Findings show that the CGRs formed to implement NBS did not begin in an ad-hoc manner. It is less clear however if the initial structure would be best described as pre-set or designed.

CGR formation was a pre-set requirement of the Connecting Nature project. However, the structure of the CGR was not pre-set to align with a formal existing structure, process or format for that was contextualised to local conditions. It is concluded that the mandate for a CGR was **pre-set**, but the initial structure was **designed** and did not follow an existing format.

Participant volition: describes how participants first become involved in the CGR. They can either engage *voluntarily* based on their own self-interest, they can get involved because of *inducements* or they can become involved because they have an official *mandate* which means they must get involved.

Classification under this heading is also not clear-cut. In all three cities, stakeholders with an official mandate relating to public space were invited to participate in the CGR for NBS, e.g., departments / agencies responsible for urban planning, nature conservation, water or land management.

“Once the Open Space Strategy has been adopted, the council is obliged to make sure people are undertaking this work” 2021, Glasgow NBS Team.

These participants were often compelled to engage due to their statutory role, so this fits well with the characteristics of an externally directed CGR. The goal of the CGR was to secure the commitment of these bodies to a transition from ‘business as usual’ to a novel NBS approach. In some cases, positive incentives were offered to encourage engagement e.g., offers of free NBS

design services for NBS in preschools (Poznan) or involvement in grant funding proposals (Genk and Poznan). Again, this fits with the characteristics of an externally directed CGR. In Genk, private landowners were individually contacted to understand what incentives would be required to get them on board. However, there was also evidence of *voluntary* and *induced* participant volition consistent with other typologies. Community involvement can be described as voluntary and was facilitated by networks such as 'Friends of' groups in Glasgow and Genk. Business involvement was also voluntary.

"(We) met with the person responsible for CSR and with the green officer – this is a new position in the company – she is trying to build a portfolio of green activities It was good to meet her at the beginning to show possibilities for collaboration with City Hall" 2020, Poznan NBS team.

Yet another form of volition was a 'Fear of Missing Out (FOMO)'. This was more prevalent in Genk with intra-organisational stakeholders in other departments afraid that if they weren't present at NBS meetings a decision might be taken which would affect them detrimentally.

So overall given the complexity of stakeholders involved and breadth of motivations, there was no one clear model for participant volition. All three were present in all three cities.

Group autonomy: describes 'the nature and extent of the group's ability to make its own rules and guide its own determinations and actions' (Emerson and Nabatchi 2015b p. 182). Autonomy varies from high (CGR has full power to make their own rules and decisions) to restrained (limited autonomy to make their own rules due to pre-set process). Assisted is somewhere in the middle.

Group autonomy is another challenging characteristic to consider for the CGRs in all three cities. If group autonomy is considered at the initial stage of formation, as the governance structure of the CGRs was designed in a bottom-up format in all three cities, it is evident that the initiating leadership had high autonomy to design their own rules and actions.

"Stiemer Conclave – this is the second time we've done it – we spend 2 days out ...with our project team. We lock ourselves up and try to make progress on hard things that have been bothering us for a while... We made a lot of progress on the governance structure - we think we came to a governance structure that suits the things we want to do" 2019, Genk NBS Team.

This is consistent with a self-initiated CGR typology. Their legitimacy to set such rules however could be seen as assisted. Indeed, the NBS teams' authority to set these rules for the CGR was accepted due to their position as local government institutions but as such their autonomy was

also somewhat constrained by their overarching public service remit. This fits with the typology of independently convened CGR.

“There was no legal framework for the innovative ideas. There were no rules on which the actions could be based. This meant that the involved partners were looking at us (as civil servants) to decide on the rules or a framework” 2018, Poznan team.

In all three cities, it was also evident that the functioning of the CGR at an overarching level had to respect the policy and public sector mandate of the initiating local government organisation. Thus, autonomy could also be described as constrained which fits with the profile of an externally directed CGR. So again, all three forms of group autonomy could be considered valid.

5.2.3 Discussion: Relevance of CGR Typologies for case study cities

Table 5.2 presents a comparative summary of the conditions and characteristics of CGR formation in case study cities. The conclusion from this application of the Emerson and Nabatchi typology is that while the prevailing conditions suggest a relatively good fit with the typology of externally directed CGR, the analysis of formative conditions and characteristics shown in Table 5.2 suggests that the CGR does not neatly fit into any of the three typologies pre-defined by Emerson and Nabatchi.

Table 5.2 All Cities: Application of CGR Typologies

Formative Type	Self-initiated	Independently convened	Externally directed
Prevailing conditions			
Policy challenge	Acute	Complex	Extensive - all three cities
Determining authorities	Diffuse	Mixed	Concentrated - all three cities
Characteristics			
Initiating leadership	Direct stake	Independent	Official stake - all three cities
Initial structure	Ad hoc and emergent	Designed - all three cities	Preset
Participant volition	Voluntary	Induced	Incentivised or mandated
Group autonomy	High	Assisted	Constrained

Relevance of the Emerson and Nabatchi Typology

Regardless of the degree of fit, the different elements of the typology were helpful in this study to clarify the conditions and characteristics of the CGR formation process. There was strong commonality as regards the relevance of conditions and characteristics across all case study cities. However, it was not possible in the timeframe of this research to determine whether this indicated an altogether new ‘type’ of CGR, or if there needed to be some rearrangement of the features in the Emerson and Nabatchi typology. This could be due to the Connecting Nature project being a key driver of early CGR formation in all three cases. While local governments were in the driving seat of CGR formation in all cities, all three local governments expressed a strong interest in encouraging other stakeholders to take ownership and share governance in the long term with the local government. The local governments in case study cities experimented with several different collaborative governance approaches to underpin large scale NBS implementation.

Given the common characteristics of CGR formation, it is interesting to note in Chapter 6 how outcomes and adaptation of CGR activity diverged over time across cities. This suggests that perhaps factors other than the characteristics of CGR formation are influential on CGR evolution. The research, therefore, could neither confirm nor deny the potential of the typology for predicting patterns of collaborative governance evolution over time.

While the time limitations of this study prevented a deeper analysis of the Emerson and Nabatchi typology, findings suggest that this could be a fruitful area for future research. As this study captures longitudinal data over a 5 year period, future research could use a temporal lens and apply this typology to different stages of development of a CGR to explore how prevailing conditions and characteristics might change from early stage formation through to the stages of development and maturity. Further in-depth analysis could provide more robust findings on the usefulness of the current typology for predicting patterns of collaborative governance evolution over time, or potentially help to identify new typologies.

5.3 Collaboration Dynamics

In this section, the Emerson et al. Integrative framework (2012) is applied to see how the collaboration dynamics of principled engagement, shared motivation and capacity for joint action unfold in each of case study city. Specific attention is given to actions related to collaboration

dynamics. These are considered at three stages in the development of the CGR: at early-stage, development stage and maturity while acknowledging the iterative rather than linear nature of process dynamics.

5.3.1 Principled Engagement

5.3.1.1 Introduction

Under the first collaboration dynamic of principled engagement, Emerson and Nabatchi propose four sub-elements of discovery, definition, deliberation and determination:

- *“Discovery refers to the revealing of individual and shared interests, concerns, and values, as well as to the identification and analysis of relevant and significant information and its implications.*
- *Definition describes the continuous efforts to build shared meaning.*
- *Deliberation, or candid and reasoned communication, is especially important when participants have differing interests and perspectives.*
- *Joint Determinations, include procedural decision and substantive determinations. Substantive determinations are often considered one of the outputs or end products of collaboration or conflict resolution” (Emerson et al., 2012, p. 12)*

Each of these sub-elements is considered for each city. Evidence of how actions related to principled engagement evolved over time is then examined.

5.3.1.2 Findings for each case study city

Genk – Principled Engagement

Table 5.3 shows that principled engagement was an important dynamic for Genk and the four sub-elements proposed by Emerson and Nabatchi were highly relevant. A sub-category of determination was created highlighting the shared goals emerging from principled engagement.

Table 5.3 Genk: References for Principled Engagement

Collaboration Dynamic (CD) References	Total CD References
5.1 Principled Engagement	
5.1.1 Discovery	34
5.1.2 Definition	27
5.1.3 Deliberation	33
5.1.4 Determinations	19
5.1.4.1 Goals	13
Total	126

Discovery in Genk was initially more about discovering new concepts than new collaborators. The NBS team already had relationships with many relevant stakeholders for NBS implementation but needed to introduce these stakeholders to concepts such as NBS and collaborative governance. There was limited understanding of NBS at the start of the study period. Within StadGenk, there was quite a lot of scepticism about the need for collaboration. There was evidence of clear divisions of tasks and areas of responsibility across hierarchical departments.

“Lots of colleagues are working together. But very little emphasis on co-production and participation ... They mainly see these as infrastructure projects. Don’t value it as important in relation to water management or greening.” 2019, Genk RM.

The NBS team seemed to find it easier to engage with new inter-organisational collaborators as there was no ‘baggage’ to deal with.

“Meeting with Social Innovation Fabriek: This is an organisation that supports social innovation in Flanders. They gave us a presentation on the services they offer. Very interesting and inspiring.” 2019, Genk RM.

As part of the **definition** process, the Genk NBS team brought external NBS experts to Genk and brought colleagues and stakeholders to NBS meetings outside Genk. The objective was not just to learn technical information about NBS water management but also to learn about processes of stakeholder engagement.

“A rainwater redesign process is one of the services INFRAx deliver –covering the entire area of Genk. The process so far has been a bit old fashioned and dull and there hasn’t been a good atmosphere. We had discussions with them about redesigning the process. They came to A Coruna (NBS event) and this trip convinced them not to think only about the product but also

the process so now they've restarted the process - now it will be more interactive, more about stakeholder management." 2019, Genk RM.

The NBS team also recognised the need to find a common language for communicating with non-environmental stakeholders.

"The reason why we never talked to business is because they seemed to talk another language than us. They really think in another way" 2018, Genk RM.

From a **deliberation** perspective, resistance to NBS and collaborative governance continued at intra-organisational level for most of the study period. Resistance was highest in departments where relationships were already in place prior to the start of CGR formation. At inter-organisational level, Genk had more success with deliberations leading to determinations i.e., collaborating with new partners on joint funding proposals for NBS. There were some noticeable failures too. In the case of the Slagmolen pilot, the NBS team tried to play the role of independent facilitator between NGO and small business interests, but they lacked the skills needed for negotiation. Other contributing factors are discussed in the next section under Shared Motivation.

In relation to **determination**, as part of the Connecting Nature process, target goals and action plans for NBS implementation were developed over the first 18 months of the project. These were proposed by the NBS team following co-production workshops and were communicated to intra and inter-organisational collaborators. NBS Goals for Genk are presented in Appendix 8.5.

"Stiemer Valley is a flagship element of this climate action plan. We've been working hard on this." 2020, Genk RM.

Temporal dimension: Did principled engagement actions change over time in Genk?

Table 5.4 shows that out of 126 references to principled engagement, the majority (118 actions or 94%) describe specific actions that were taken in relation to principled engagement e.g., organisation of a collaboration event. The references not coded as actions could describe or potential or opportunities related to principled engagement e.g., 'XYZ organisation would be a good collaboration partner because...'.

Table 5.4 Genk: References to Principled Engagement Actions

Collaboration Dynamic (CD) References	Total CD References	Total Actions related to CD	Actions related to CGR Goals (Productivity)	Actions relating to CGR (Processes)	Collaboration Dynamics (Process)		Actions over Time
	A	B = C + D	C	D = E + F + G	(i) Early-stage	(ii) Developing	(iii) Mature
Total	126	118	69	49	12	30	7
Total as % of CD references	100%	94%	58%	42%	24%	61%	14%

Actions were further coded as shown in Table 5.4 into *productivity* actions (69 out of 118 actions or 58%) which are specifically related to one of the target goals of the CGR e.g., a specific event organised on NBS for the SUDS pilot. Or they were coded as *process actions* (49 out of 118 actions -42%) as they related to CGR processes in general e.g., general awareness activities for all audiences. As noted in the methodology section, there may be some overlap between process and productivity actions as they are often closely related.

In Genk, Table 5.4 shows that productivity actions were highly focused on the target goals of the CGR. Productivity outcomes are discussed in Chapter 6.

In the next section, the 49 process actions aimed at stimulating principled engagement at a more overarching CGR level are examined more closely. These 49 actions were further sub-divided into the different stages of development of the CGR to see if there was any difference in the type of principled engagement actions implemented at early-stage, development or maturity. While Emerson and Nabatchi (2015a) acknowledge that “*Principled engagement occurs iteratively over time*” (Emerson and Nabatchi 2015a pp73), little research has been done on classifying actions and understanding how actions related to principled engagement evolve over time. Table 5.4 shows that in Genk most actions related to principled engagement occurred in the early and developing stages of a CGR.

In the early stages of CGR formation, actions were closely related to the discovery and definition process. They involved identifying stakeholders required for NBS implementation which may be new or existing collaborators, at intra and inter organisational level. Definition involved building awareness and buy-in to NBS. External experts and events were used to build clarity and credibility around NBS. As clarity increased challenges and potential solutions were discussed (early deliberations).

At the development stage of the CGR, as stakeholder coalesced, the NBS team focused on deliberation actions leading to new determinations. Goals were agreed through informal and formal meetings, lobbying, workshops and discussions. After goals were agreed, implementation

plans and budget were prepared, joint proposals were submitted. NBS goals were incorporated into policy plan.

At the mature stage of CGR development, intermediate results were evident i.e., NBS had been embedded into strategic policies like the climate action plan. At this stage, actions switched towards discussions with internal stakeholders on longer term planning to embed changes and discussions around replication of the CGR in other sustainability fields such as energy. There were unsolicited engagement actions with new stakeholders to participate in CGR activities.

Glasgow – Principled Engagement

Table 5.5 shows that all four sub-elements of principled engagement proposed by Emerson and Nabatchi were relevant in Glasgow.

Discovery: the initial priority of the NBS team in Glasgow was to secure support for official council approval of a 30-year strategy for managing all open spaces across the city using an NBS approach. The discovery process was focused on building internal cross departmental knowledge about NBS among existing collaborators more than building new collaborations. Collaboration on NBS was positioned as a win-win scenario.

“We need to start softly – not tell everyone they’re doing everything wrong – trying to have a drop-in clinic with tea every 2 weeks so people can drop by and ask us anything about access, open space, NBS on any application – just drop in and talk to us.” 2019, Glasgow RM.

Table 5.5 Glasgow: References to Principled Engagement

Collaboration Dynamic (CD) References	Total CD References
5.1 Principled Engagement	
5.1.1 Discovery	27
5.1.2 Definition	26
5.1.3 Deliberation	23
5.1.4 Determinations	4
5.1.4.1 Goals	19
Total	99

At an *inter-organisational* level, the NBS team engaged with new stakeholders on several pilot projects to test NBS in practice. These included the Growchapel community garden, Stalled Spaces city-wide community programme for temporary transformation of vacant and derelict

land, and an NBS accelerator to support nature-based entrepreneurship (NBE). They also engaged with NGO partners in reaching out to communities to understand NBS knowledge and activities on the ground and to assess needs and skills gaps around NBS development as part of the open space strategy. Later in the study period the declaration of an ecological emergency in Glasgow and the hosting of COP26 helped greatly to raise awareness, interest and led to new opportunities for collaboration.

“Purpose of workshops: From Connecting Nature perspective we want to find the lay of the land. We know there are lots of NBS type projects already taking place. Our first objective – trying to capture what’s happening and who’s involved. Secondly, it’s an opportunity for actors to discuss with each other their individual projects.” 2019, Glasgow RM.

Definition: In Glasgow many departments had a limited understanding of the benefits of NBS. Their prior experience was limited to pilots of natural water management approaches (e.g., SUDS). However, unlike Genk, stakeholders both intra and inter-organisationally appeared open and receptive to a new understanding of NBS from a multi-functional perspective. The NBS team engaged in many informal and one-to-one meetings to build understanding.

“Most people don’t really understand what is NBS and how it is different from, for example, a piece of green infrastructure. We want to look at this in more detail – identifying the economic, environmental and social benefits.” 2019, Glasgow RM

Deliberation: deliberations in Glasgow initially centred around securing support from other departments and stakeholders for council approval of NBS as part of the Open Space Strategy. Once council approval was secured, deliberations began in earnest with other departments on securing funding from other departments through a joint governance and delivery plan. While Covid and organisational restructuring presented challenges, there was generally good buy-in.

Determination: while NBS goals and actions plans were developed collaboratively over the first 18 months of the project, these were only made binding later in the project when passed by council. The implementation plan then followed and after much principled engagement was finally signed off in the last year of the study period. Target goals for Glasgow are presented in Appendix 8.5.

Temporal dimension: Did principled engagement actions change over time in Glasgow?

Table 5.6 shows that out of 99 references to principled engagement, the majority (60 actions or 61%) describe specific actions as opposed to more general statements.

Table 5.6 Glasgow: References to Principled Engagement Actions

Collaboration Dynamic (CD) References	Total CD References	Total <u>Actions</u> related to CD	Actions related to CGR Goals (Productivity)	Actions relating to CGR (Processes)	Collaboration Dynamics (Process) Actions over Time		
					(i) Early-stage	(ii) Developing	(iii) Mature
		<i>B = C + D</i>	<i>C</i>	<i>D = E + F + G</i>	<i>E</i>	<i>F</i>	<i>G</i>
Total	99	60	12	48	26	22	0
Total as % of CD references	1	61%	20%	80%	54%	46%	0

In Glasgow most of these actions were identified as *process* actions (48 out of 60 actions or 80%) related to overall CGR engagement actions. In comparison only 12 actions were related to specific target goals of the CGR. Findings show that different types of actions were identifiable at different phases of CGR development.

In the early stages of CGR formation, at intra-organisational level, actions focused on building mutual understanding on the alignment of NBS with existing policies and strategies. As there were lower levels of trust with citizens, intermediaries with good local connections and standing were used to organise workshops to build mutual understanding. Both formal actions (online consultation, town-hall meetings, mailings etc) and informal actions were undertaken (coffee mornings, presentations and workshops).

At the development stage, after early outputs were secured i.e., official council approval of the OSS, actions in this phase switched to securing commitment and resources for implementation. Detailed action plans were prepared including a GIS decision making tool. Many informal and formal negotiation meetings were organised to secure buy-in and budgets.

At an inter-organisational level, many meetings and events were secured to consolidate buy-in and future funding streams. Pilot activity was undertaken to better understand community needs.

At the mature stage of CGR development, as the OSS strategy, governance and delivery plan was only agreed towards the end of the study period, the CGR could not be considered to have entered the mature stage of development so no actions were recorded.

Poznan

Principled Engagement

Table 5.7 shows that all four sub-elements of principled engagement proposed by Emerson and Nabatchi were relevant in Poznan including the sub-category of goals.

Table 5.7 Poznan: References to Principled Engagement

Collaboration Dynamic (CD) References	Total CD References
	A
5.1 Principled Engagement	
5.1.1 Discovery	84
5.1.2 Definition	45
5.1.3 Deliberation	42
5.1.4 Determinations	20
5.1.4.1 Goals	32
Total	223

Discovery and Definition: At the beginning of the study period, the NBS team organised multiple events to clarify concepts around NBS and highlight examples from other EU countries. The concept was difficult to understand in Polish language and culture. Rather than impose a top-down definition, they chose to contextualise NBS in the local environment by developing a catalogue with local university partners including visual examples of NBS from Poznan. This catalogue was also used to build shared meaning with new collaborators including corporates interested in exploring sponsorship of NBS. A considerable effort was put into developing a better understanding of NBS by relating it to existing activities rather than position NBS as something entirely new and disruptive.

How to translate NBS and NBE into understandable language? How to reach the inhabitants with the definition? (We decided) to "smuggle" such concepts into everyday activities regarding quality of life, safety, aesthetics, cultural activities, sports, recreation and education 2018, December Poznan Team DLA.

Deliberation: Securing funding for NBS implementation was the primary objective of deliberation actions in Poznan. To secure funding the NBS team had to address concerns and reservations with other public sector departments (e.g., education) and they also had to align NBS goals with the needs of corporations. They also had to overcome concerns on the ground among end-users about safety and security.

"We want to work out together with the Education Department a model for financing pre-school gardens and garden equipment with natural elements... A very important issue was raised which was related to the certification and creation of a safe playground in accordance with laws and standards" 2018, Poznan RM.

Determination: As part of the Connecting Nature process goals and action plans towards NBS implementation were developed in a collaborative way over the first 18 months of the project. However, these goals and action plans were not officially communicated and remained somewhat more informal, fluid and adaptable to new opportunities (especially funding) which emerged during the study period. Goals and action plans for Poznan are presented in Appendix 8.5.

Temporal dimension: Did principled engagement actions change over time in Poznan?

Table 5.8 shows that out of 223 references to principled engagement, 62% describe specific actions undertaken as opposed to more general statements.

Table 5.8 Poznan: References to Principled Engagement Actions

Collaboration Dynamic (CD) References	Total CD References	Total <u>Actions</u> related to CD	Actions related to CGR Goals (Productivity)	Actions relating to CGR (Processes)	Collaboration Dynamics (Process) Actions over Time		
	A	B = C + D	C	D = E + F + G	(i) Early-stage E	(ii) Developing F	(iii) Mature G
Total	223	138	47	91	33	48	10
Total as % of CD references	100%	62%	34%	66%	36%	53%	11%

In Poznan, 66% of these actions were identified as *process* actions with 34% of actions related to specific target goals of the CGR. Findings show that different types of actions were identifiable at different phases of CGR development.

In the early stages of CGR formation, at an intra-organisational level the NBS team built trust and mutual understanding through informal exchanges with colleagues.

At an interorganisational level, the NBS team created safe spaces to build trust and mutual understanding with kindergarten stakeholders. They facilitated co-creation workshops, listened to needs rather than imposing new concepts, used testimonials and events to build motivation, used local experts to inspire stakeholders but also to address concerns.

At the development stage of CGR, kindergarten directors had committed to deploying NBS playgrounds on the ground in their schools. Actions shifted to implementation and collaborating with new stakeholders on co-creation and delivery. Training actions were taken to address skills gaps. The importance of being able to measure impact increased credibility.

At the mature stage of CGR development, actions involved both consolidation and expansion. In terms of consolidation, Poznan organised ongoing workshops and activities to sustain motivation

among interested stakeholders. They also looked for new sources of financing to expand activities after education department funding ceased.

5.3.1.3 Comparative Analysis

Table 5.9 shows that across all cities the four sub-elements of principled engagement proposed by Emerson and Nabatchi were relevant.

Table 5.9 All Cities: Comparison of Principled Engagement References

5.1 Principled Engagement	Genk	Glasgow	Poznan
5.1.1 Discovery	34	27	84
5.1.2 Definition	27	26	45
5.1.3 Deliberation	33	23	42
5.1.4 Determinations	19	4	20
5.1.4.1 Goals	13	19	32
Total	126	99	223

Discovery and definition were found to be important sub-elements in all cities primarily due to the varying levels of knowledge and perceptions about NBS. The multi-functional dimension of NBS led the NBS teams to engage with new collaborators both intra-organisationally and inter-organisationally. In Genk and Glasgow for example, prior to Connecting Nature, the NBS teams set up to implement NBS had little contact with the economics department in their own organisations or with external businesses. The process of formation of a CGR led to reflections on who should be included to ensure principled engagement could take place. This led to a process of discovery with new collaborators and exploration of common areas of interest. In all three cities, it also meant ‘unfreezing’ relationships with existing collaborators to introduce the new concept of NBS from both a technical and process perspective. The three cities took different approaches to introducing NBS with different levels of resulting conflict. In Poznan, there was a high number of references to discovery relating to continued action to engage with different stakeholders to secure financing.

There was some overlap between the categories of discovery and definition as both dynamics often occurred simultaneously, i.e., revealing interests and building shared meaning. Definition was particularly important given the novelty of the NBS concept at the time the study period began. All three cities had prior experience of nature-based interventions but there was often a one-dimensional understanding of the concept, prioritising environmental or social issues and rarely considering environmental, social and economic challenges and opportunities simultaneously. External experts were used to provide clarity and credibility.

There were more references to Deliberation in Genk and Poznan than in Glasgow. Deliberation often involved ‘frank and open’ conversations between participants to arrive at a shared action plan for change. Sometimes conflict arose between participants with different viewpoints. In Genk there were many difficult conversations from an intra-organisational perspective, where there was much resistance to new concepts such as collaborative governance given the ingrained nature of existing organisational silos. In Poznan, while there was less overt resistance to NBS action plans at an intra-organisational level, the rigid hierarchical structure, processes and structures of the traditional public management model meant that boundary-spanning activities had to be approached with caution. Informal collaboration was the rule of the game for internal collaboration. For external collaboration, rules and regulations had to be strictly observed. In Glasgow, collaborative working on strategy development with other departments and public sector agencies was the norm. However, some historic tensions remained evident in relation to community engagement on parks and green space development.

Temporal dimension: Did principled engagement actions change over time across cities?

Table 5.10 shows that across all cities there was a high-level of action related to principled engagement. Genk had the highest orientation towards action (94% of all references). This orientation was also reflected in their focus on productivity actions related to specific goals (58% of all actions). In contrast, Glasgow who were at an earlier stage of development were more focused on CGR process actions (80%) i.e., actions to arrive at consensus and funding for a 30-year overall OSS strategy and action plan. Poznan was more geared towards process actions too (66%). They were highly active throughout the study period in the discovery of new collaborators (and potential funders) both intra- and inter-organisationally.

Table 5.10 All Cities: Comparison of Principled Engagement Actions over Time

Collaboration Dynamic (CD) References - Principled Engagement	Total CD References	Total <u>Actions</u> related to CD	Actions related to CGR Goals (Productivity)	Actions relating to CGR (Processes)	Collaboration Dynamics (Process) Actions over Time		
	A	B = C + D	C	D = E + F + G	(i) Early-stage	(ii) Developing	(iii) Mature
Genk							
Total	126	118	69	49	12	30	7
Total as % of CD references	100%	94%	58%	42%	24%	61%	14%
Glasgow							
Total	99	60	12	48	26	22	0
Total as % of CD references	100%	61%	20%	80%	54%	46%	0
Poznan							
Total	223	138	47	91	33	48	10
Total as % of CD references	100%	62%	34%	66%	36%	53%	11%
Average	149	105	43	63	24	33	6
Average %	/	72%	38%	62%	38%	53%	8%

From a temporal perspective, by going through each action for each city individually, a composite picture was built of the type of actions taken at different stages of development of the CGR across all three cities. While most principled engagement actions occurred at the development stage (53%), a significant number of actions took place at early stage (38%) with only 8% at maturity stage. Box 5.1 summarises the type of actions commonly found at each stage of principled engagement.

Box 5.1 Principled Engagement – Type of Actions

Early-stage actions are focused on discovery and definition. This may begin with the lead organisation prioritising their own initial goals and from there initial engagement strategies (often aligned with their own internal competencies). Typical ‘discovery’ actions include mapping and identifying different stakeholders to be engaged, undertaking a wide range of outreach actions to engage and inform stakeholders e.g., online consultations, informal and formal information meetings, events and workshops, onsite visits, citizen engagement activities like co-design workshops etc...). Typical ‘definition’ actions to clarify the meaning of NBS included informal meetings, events, publications, developing a visual catalogue of examples translated into local context, culture and language. Actions to address early problems with understanding such as bringing in external experts or bringing people to external events.

Actions at development stage: Once stakeholders are on board, principled engagement actions are more focused on deliberation and determination. Stakeholder goals are aligned through collaboration and negotiations on action plans, implementation strategies, funding bids, budget preparations, proposals for integration of NBS into policies, programmes, public procurement contracts and other documents required by decision makers to secure action. In some cases, mediators were used as part of the deliberation process to move forward on roadblocks.

Actions at maturity: At this stage goals and actions plans are in place, first outputs are evident (or intermediate outputs) and the focus of the CGR shifts towards consolidation, expansion (or contraction) of the CGR. Consolidation actions may include ongoing activities to engage and support stakeholders for phases related to stewardship of NBS, discussion with new stakeholders on expansion of membership or discussion with existing stakeholders on new directions. Due to the spatial dimension of NBS, a new set of stakeholders will be involved and therefore the process of engagement begins again with mapping and identification of relevant stakeholders etc.

5.3.1.4 Discussion

The four dimensions of discovery, definition, deliberation and determination proposed by Emerson and Nabatchi were a useful jumping off point for consideration of principled engagement at city level and for cross-city comparison. In the next section, some key findings emerging from the application of these dimensions are discussed.

Challenges arising from ‘Un-Freezing’ Relationships

Findings from all three cities showed that a major challenge to principled engagement was the need to ‘undo’ existing relationships. New CGRs rarely start from scratch or in a vacuum. In case study cities it was necessary to ‘unfreeze’ existing processes, relationships and the conceptual basis on which they were formed, e.g., grey infrastructure, introducing the concept of NBS, try to get everyone on board and then ‘refreeze’ relationships on a new conceptual basis and with new processes in place to support it (Lewin, 1951). Findings from this study suggest that this process of ‘unfreezing’ is more challenging than the process of building NBS collaboration with new stakeholders unfamiliar with existing approaches. At an intra-organisational level, challenges in unfreezing and resetting relations may be related to the more traditional departmentalisation structures evident in Poznan and Genk. Genk openly proposed to change existing engagement protocols to accommodate collaborative working for NBS whereas Poznan tried to work around existing hierarchies through informal approaches. This unfreezing of existing relationships is an important factor to consider in principled engagement. Unfreezing relationships may take more time and resources to address than establishing new relationships.

“Partners around the table are used to collaborating together but in very infrastructure-oriented projects... They have a very technical idea of how a project should run. The Connecting Nature process will be a challenge – they are not so motivated and don’t see the added value of ‘these fancy things’” 2019, Genk RM.

This important aspect of principled engagement is not adequately addressed by Emerson and Nabatchi in their consideration of principled engagement (2012, 2015b).

Role of external experts and intermediaries

Related to the unfreezing of existing relationships, findings showed that it can be difficult for stakeholders in existing relationships to disrupt the status quo and change processes and definitions. To overcome this challenge, in the early stages of NBS development, the NBS Team in Genk used external events and experts to build legitimacy in the new NBS approach.

“We took part in this International Architecture Biennale of Rotterdam and Brussels. We saw this as a means to get more support for our project from our director who’s also an architect and into this scene.” 2019, Genk RM.

Findings from Poznan and Glasgow showed a similar use of external experts. The use of such intermediaries in the early stages of principled engagement also contributes to the dynamic of shared motivation.

“The knowledge presented by experts participating in the process, who are specialists in a given field, is a guarantee of truthfulness. The meetings guaranteed that the information provided and the input to the project can be trusted.” 2019, Poznan Framework Report Deliverable 5 C3.

The important role of such intermediaries is under-recognised in Emerson and Nabatchi framework discussions.

Importance of Cultural and Language Contextualisation

Another aspect somewhat under-developed by Emerson and Nabatchi (2012, 2015b) is related to the cultural and language aspects of collaboration. The translation of complex concepts like nature-based solutions into non-English languages provided significant challenges, in particular for Poznan.

“We take every opportunity to raise awareness of NBS. Still a lack of awareness. Sounds strange in Polish – like an ‘out of space’ solution!” 2020 September, Poznan RM.

Findings showed the kind of actions undertaken to overcome such barriers e.g., visual guides rather than verbal guides and contextualising theoretical concepts by using local examples.

Differing strategies for stakeholder engagement

All cities started the formation of a CGR by mapping potential stakeholders needed to implement NBS. From this point however two different approaches to engagement emerged. Genk went ‘big and bold’ from the outset trying to address environmental, economic and social aspects simultaneously. They opened the engagement process to any stakeholder who wanted to be involved and proactively engaged in communication to raise awareness and interest e.g., Friends of Stierner. They focused intensively on securing external funding for large scale rollout.

In contrast, Poznan and Glasgow began with one priority (securing the support of colleagues for OSS in Glasgow, making a success of natural playgrounds in Poznan) and from there expanded

their engagement, building collaborations in a ‘slow and gentle’ way, selecting and inviting participants on a case-by-case basis while at the same time being open to spontaneous opportunities. In Poznan the focus was on small-scale action on the ground and using successful results to build engagement with new stakeholders. It is not clear why these engagement approaches differed across cities. The process of mapping and strategies for engagement of stakeholders in the early stages of formation of the CGR is under-theorised in the Emerson et al., Framework (2012).

5.3.2 Shared Motivation

5.3.2.1 Introduction

Emerson and Nabatchi identify four sub-elements of importance to building shared motivation:

- *“**Trust** enables people to go beyond their own personal, institutional, and jurisdictional frames of reference and perspectives toward understanding other peoples’ interests, needs, values, and constraints”.*
- *“**Mutual understanding** specifically refers to the ability to understand and respect others’ positions and interests even when one might not agree”.*
- *“Mutual understanding generates a sense of interpersonal validation and cognitive legitimacy referred to as **internal legitimacy**”.*
- *“**Commitment** enables participants to cross the organizational, sectoral, and/or jurisdictional boundaries that previously separated them and commit to a shared path” Emerson and Nabatchi (2012 p. 14)*

In the next section, each of these sub-elements is considered for each city. Any evidence of how actions related to shared motivation evolved over time is then examined.

5.3.2.2 Findings for each case study city

Genk

Table 5.11 shows that shared motivation was an important dynamic for Genk and that the four sub-elements proposed by Emerson and Nabatchi were relevant. A new sub-category of ‘Local

partner, Local Knowledge’ was created highlighting the importance which emerged from findings of working with local, rather than international experts for mediation and trust-building.

Table 5.11 Genk: References to Shared Motivation

Collaboration Dynamic (CD) References	Total CD References
5.2.1 Trust	46
5.2.2 Mutual understanding	65
5.2.3 Internal legitimacy	43
5.2.4 Commitment	17
5.2.1.1 Local partner local knowledge	15
Total	186

Trust and mutual understanding: Many of the references under Shared Motivation for Genk relate to negative findings such as a lack of trust or difficulties arriving at mutual understanding.

At an intra-organisational level in Genk, there was strong resistance to change of the status quo due to a combination of capacity issues and departmental silos. There was evidence of a lack of confidence in communicating with other departments. Interpersonal issues were also evident.

“Very frustrating that there’s little support inhouse for co-production. They don’t believe in co-production, doesn’t fit their regular way of working – out of comfort zone, they don’t see the link between their barriers and the solution that co-creation could offer. Internal top-down approach is dominating. It’s also a matter of culture, personal values, efficiency.” 2020, Genk RM team.

The NBS team found it helpful to use a mediator to arrive at agreement with other departments, for example, on changes needed to procurement processes.

While the NBS team were generally more successful in building trust and shared motivation with external organisations, there was one noticeable breakdown related to the pilot project of Slagmolen where the NBS team tried unsuccessfully to negotiate a collaborative governance arrangement between a large NGO and small local enterprise. This generated a high number of data references, and many important lessons were learned for the Genk team, principally the importance of having a skilled negotiator with good local knowledge.

While negative issues might have dominated data references from meetings with the Genk NBS Team, it is important to give equal consideration to the many positive developments observed in terms of building shared motivation at inter-organisational level.

“To some extent Fluvius (the Belgian network manager of electricity and natural gas in all municipalities of Flanders) has now become an ambassador for projects such as SuDS. For Fluvius, the NBS lens is a new perspective and entails a new way of working. ... through this different form of engaging a technical partner in the co-production process, the technical partner can learn to understand our Stiemer programme better and it provides a good basis for an effective collaboration” 2019, Genk DRIFT learning outcomes.

Internal Legitimacy: While many references related to negative factors such as challenges in building internal legitimacy for NBS among colleagues, there were also some noticeable successes. Securing new sources of funding for NBS was found to be an important factor in securing legitimacy at both intra and inter organisational levels.

“2,01 m€ investment funding for Gardens of Waterschei --> RECOGNITION not only funding but mainly (finally) wide recognition for Stiemer Programme” 2021, Genk NBS Team.

Shared Commitment: Increased legitimacy was found to be an important factor contributing to shared commitment. Shared commitment in turn, is closely related to the dynamic of ‘Capacity for Joint Action’ as it leads to increasing sharing of knowledge and resources.

“Our director more and more recognises the Stiemer project as a leverage for organisational change. We’re now facing the challenge of how to embed the Stiemer Deals - this can be seen as an organisational challenge. A lack of recognition is now shifting to almost an ‘over exposure’, over the last few weeks. 2021, Genk RM.

New sub-code for Shared Motivation: Local partner, local knowledge. In Genk, several references were noted in relation to the importance of the ‘local’ dimension in building trust between collaborators. These references may stem from learning related to the failure of collaboration on the Slagmolen pilot where a non-local facilitator was leading collaboration efforts. A new sub-code was added to highlight findings in this regard.

“This organisation has good links with Natuurpunt. We’ve had tensions with Natuurpunt. Natuurpunt mightn’t trust an external consultant but with this organisation that we’re targeting, they have connections with Natuurpunt already and are familiar with Genk too.” 2020, Genk NBS Team.

Temporal dimension: Did actions to build shared motivation change over time in Genk?

Table 5.12 shows that 72% of references to Shared Motivation relate to actions taken. The majority of actions are oriented towards specific target goals (62%) with less actions concerned

with building motivation at an overall CGR level. Most actions (75%) related to the development stage of the CGR.

Table 5.12 Genk - References to Shared Motivation Actions over Time

Collaboration Dynamic (CD) References	Total CD References	Total Actions related to CD	Actions related to CGR Goals (Productivity)	Actions relating to CGR (Processes)	Collaboration Dynamics (Process) Actions over Time		
	A	B = C + D	C	D = E + F + G	(i) Early-stage E	(ii) Developing F	(iii) Mature G
Total	186	133	82	51	8	38	5
Total as % of CD references	100%	72%	62%	38%	16%	75%	10%

In the early stages of CGR formation, actions to build trust and mutual understanding were closely related to principled engagement actions and included many formal and informal meetings, workshops and discussions. Collaboration on new bids was found to be a great way of building shared motivation.

As the CGR developed, while the NBS team informally continued efforts to build trust and motivation at lower levels of the organisation, they also scheduled regular meetings at high-level to ensure mutual understanding, build legitimacy and commitment.

A professional communications strategy was deployed to build shared motivation with the community. Where areas of conflict arose, intermediaries with good knowledge of the local situation helped to develop mutual understanding.

At the maturity stage, motivation actions shifted from proactive to reactive as legitimacy increased. The NBS team followed up on increased commitment of resources from existing stakeholders and exploratory approaches from new stakeholders motivated by the success of CGR activities.

Glasgow

Table 5.13 shows a relatively low number of references for Glasgow in relation to Shared Motivation. The most relevant sub-elements proposed by Emerson and Nabatchi (2015a) are to trust and internal legitimacy. There was a low number of references to mutual understanding and commitment. This is indicative of the early stage of development of the CGR. Several references were also sub-coded under sub-element of local partner, local language as discussed hereafter.

Table 5.13 Glasgow - References to Shared Motivation

Collaboration Dynamic (CD) References	Total CD References
5.2 Shared Motivation	
5.2.1 Trust	17
5.2.2 Mutual understanding	6
5.2.3 Internal legitimacy	26
5.2.4 Commitment	3
5.2.1.1 Local partner local knowledge	7
Total	59

Trust and Mutual understanding: despite significant staff cuts, findings showed that generally there were good levels of trust and mutual understanding at an intra-organisational level in Glasgow. Over the course of the study period, there was evidence of increasing trust and collaboration between the NBS team and other departments such as the department of Neighbourhoods and Sustainability (N & S).

“Since Connecting Nature, a really strong relationship has developed with Neighbourhoods and Sustainability (N&S)” 2020, June Glasgow RM.

The need to build trust with other departments through taking a diplomatic approach to building knowledge was recognised. Informal coffee mornings and ‘water-cooler’ type meetings were seen as a way of building understanding in a non-threatening way.

“We need to start softly – not tell everyone they’re doing everything wrong – trying to have a drop-in clinic with tea every 2 weeks so people can drop by and ask us anything about access, open space, NBS on any application – just drop in and talk to us.” 2019, Glasgow RM.

At an inter-organisational level, there was evidence of good relations with other statutory and policy bodies and agencies. Due to NPM reforms and the creation of ALEOs, it was observed that several contacts in these bodies formerly worked in Glasgow City Council (GCC). Sometimes this helped with trust and shared motivation but other times it led to conflicting priorities.

“X the lead of CSGN used to work for GCC. Understands our work. (Can) connect in with policy communities – Scottish National Heritage, Scottish land Agency, Forestry etc. Can help to spread some of our ideas into these organisations which will allow us to influence the funding coming from these agencies.” 2019, Glasgow RM.

On the ground, however, the council were aware of a historic lack of trust with citizens. They relied heavily on an NGO, Greenspace Scotland to facilitate events to reach out to communities.

“We thought it better for Greenspace Scotland to send out the actual invite as the independent facilitator of the event” Feb 2020, NBS Team Glasgow RM.

Over the course of the study period, there was some evidence of a change in relations between the NSB team and local communities as a result of increased collaboration with other departments who had good connections on the ground. Direct onsite meetings and engagement for example led to council employees being invited to join the governance boards of some community gardens. This shows the importance of simultaneous internal and external collaboration.

“We went to visit Bellahouston garden and the site for the proposed Grow Chapel Garden – being on site with the team within neighbourhoods and sustainability, part of city hall – responsible for coordination of these gardens” 2020, Glasgow RM.

Internal Legitimacy: As relationships strengthened with other departments, word-of-mouth referrals led to new collaborations. The Connecting Nature Glasgow Summit helped to raise high profile awareness of the work of the NBS team and the OSS strategy. This coincided with the declaration of an ecological emergency in Glasgow followed by the hosting of COP26. Covid also increased awareness of the importance of access to high quality green space for health and wellbeing. All these factors combined spontaneously and meant the NBS team were in the right place at the right time and led to many new collaborations. The success of the NBE accelerator pilot with other collaborators also led to increased awareness among new audiences.

“How did you identify the CCE? ... We met them through X from Neighbours and Sustainability. She’s specialised in engagement and doing a lot of work on Pollok. Because we have a good relationship with Neighbours and Sustainability, X invites us into things she thinks might be interesting...” 2020, Glasgow RM.

Commitment: Clear evidence of shared motivation was the passing of the OSS and requests for budgets for NBS pilot projects such as Stalled Spaces and the NBE Accelerator without any concerns raised by council committee.

“The Stalled Spaces Committee Report was approved. Didn’t have to go to the next level of approvals which we were expecting.” 2020, Nov Glasgow RM.

The approval of the OSS strategy was followed in the public administration of the council by high-level agreement on a governance and implementation plan across multiple departments leading to commitment of resources. While this took time to develop, there was little evidence of a lack of shared motivation. This was partly due to the groundwork the NBS team had put in to building mutual understanding of how NBS and the OSS strategy aligned with other council policies.

Local partner, local knowledge: the NBS team in Glasgow showed awareness of the potential for conflict with local communities but also the importance of understanding the situation on the ground. To that end they partnered with local NGOs and community organisations to gauge community interest and challenges around open space and NBS.

Temporal dimension: Did actions to build shared motivation change over time in Glasgow?

Table 5.14 shows that a bias towards action to build shared motivation in Glasgow (59% of total references relate to actions). Most actions relate to the process of building overall shared motivation for collaboration on NBS as part of the long-term OSS strategy (83% of action). Most actions related to the early-stage (28%) or development stage (72%) of the CGR.

Table 5.14 Glasgow: References to Shared Motivation Actions

Collaboration Dynamic (CD) References	Total CD References	Total <u>Actions</u> related to CD	Actions related to CGR Goals (Productivity)	Actions relating to CGR (Processes)	Collaboration Dynamics (Process) Actions over Time		
					(i) Early-stage	(ii) Developing	(iii) Mature
	A	B = C + D	C	D = E + F + G	E	F	G
5.2 Shared Motivation							
Total	59	35	6	29	8	21	0
Total as % of CD references	100%	59%	17%	83%	28%	72%	0%

In the early-stages of CGR formation, at intra-organisational level, where there was evidence of good levels of trust and mutual understanding, subtle actions were used to build shared motivation and buy-in. Informal gatherings and meetings were the hallmarks of a softly, softly approach. Where lower levels of trust were evident with community stakeholders, formal online consultations were supplemented with the use of intermediaries to gain understanding.

At the development stage of CGR, following official approval of the OSS strategy, actions shifted towards securing high-level commitment of time and resources in the long term. Internal legitimacy with decision makers was enhanced through events, opening doors to contact higher profile speakers and leading to increased awareness and referrals from other departments.

The NBS team placed a particular emphasis on online decision making and monitoring tools. They developed an online, real-time map which could be used to identify the status of development of green spaces in the city and track changes over time.

At the mature stage of CGR development, as the OSS strategy, governance and delivery plan was only agreed towards the end of the study period, the CGR could not be considered mature.

Poznan

Table 5.15 shows many references for shared motivation in Poznan. All the sub-elements proposed by Emerson and Nabatchi (2015a) were highly relevant. The new sub-element related to local partner; local knowledge appeared less relevant.

Table 5.15 Poznan: References to Shared Motivation

Collaboration Dynamic (CD) References	Total CD References
5.2 Shared Motivation	
5.2.1 Trust	35
5.2.2 Mutual understanding	46
5.2.3 Internal legitimacy	42
5.2.4 Commitment	35
5.2.1.1 Local partner local knowledge	3
Total	161

Trust: The element of trust is linked with principled engagement. Poznan team had previous experience in co-creation with community stakeholders. They created safe spaces for sharing ideas, listening to concerns and where required bringing in experts to deal with concerns.

“One on one meetings are actually safer with these people to share problems and explain what they don’t like, what they would like to change, etc.” 2020 September, Poznan team, Learning Session.

Mutual understanding: Internally, the team showed considerable understanding of how to build both internal and external collaboration.

“X added that each department has a specific area of responsibility. We have to cooperate between different partners (e.g., districts, municipalities, NGOs, etc.) ... However, what is natural for us will not obviously work for the others. So, we should adapt our language to them. It is probably in the human nature. We should teach people to work, to understand – it is not mine or yours, it is our common issue” 2018, Poznan workshop.

In saying this the NBS team did note that it was easier to collaborate with other public institutions such as schools as they had a shared mandate to serve the public. Establishing mutual understanding was essential in building new collaborations with private sector stakeholders. The NBS team also made efforts to keep an open door for other stakeholders including NGOs in the third sector.

“In the past months we’ve been cooperating with pre-school gardens. It’s much easier for us as institution to cooperate with other institutions.” 2019 October, Poznan RM call.

Internal Legitimacy: While the Poznan team were highly successful in building motivation and demand for NBS on the ground with end-users, findings show that they struggled to secure high-level support with politicians and decision makers.

“For the Deputy Mayor – this is not his most important project. We would like to involve our Deputy mayor in the topic of our project... he gets the concept but at a very basic level ... we don’t meet him very often. Nowadays we have a general strike of teachers, and the Deputy Mayor is responsible for education as well so he’s very involved in other topics.” 2019, Poznan team, RM.

They did however succeed at lower levels of the organisation in building a highly motivated network in support of NBS at a peer-to-peer level.

“There’s a great need in City Hall for the regular workers in our city hall to cooperate, meet and exchange knowledge between each other. Usually it’s the directors that meet, not the clerks. They also need to meet. They are enthusiastic to have more meetings... It’s funny – we are ordinary workers – when we meet colleagues in other depts who are passionate about NBS – we call them like ‘green agents’...” 2020 Jan, Poznan RM.

Commitment: An interesting scenario arose in Poznan whereby the NBS team achieved high success in motivating and securing legitimacy with end users (kindergarten directors and parents). There was high demand from these end users for deployment of NBS through nature-based playgrounds. This led to initial commitment from other departments towards funding of

NBS i.e., financed by the Dept of Education. Despite the high-level of interest from kindergartens, the Dept of Education never showed any high degree of motivation towards nature-based approaches in schools and didn't engage with their colleagues in collaboration. The NBS team attributed this to the Dept of Education being 'old fashioned'. They appeared to have more of a hands-off contractual relationship with schools.

"It's funny the kindergartens are so enthusiastic about the natural playgrounds but the clerks of the dept of education are not so enthused. We talk to the directors, and they are fine with it. It's a very old-fashioned dept. The dept of education give them the money but they don't really care what they do with it (well as long as it's well spent in accordance with procedures). Our department, we're much more engaged. We really take the kindergartens by the hand. The kindergartens tell us that no one from the Dept of Education would do this". 2020 Jan, Poznan Team.

As silos between departments are evident, it is interesting to observe how Poznan managed to simultaneously bypass high-level decision makers in the department of education and achieve high levels of motivation and collaboration with end-users while at the same time securing the funds for this collaboration from the education department.

Findings showed overall a lack of importance given to urban greening. This is somewhat surprising given high-levels of cultural awareness of the green wedge system in Poznan and high-levels of pro-environmental sentiment.

"Greening the city is a topic that's neglected because no one is responsible for it (at high-level). We don't know who is going to be responsible for the department of environmental protection." 2020 September, Poznan RM.

New sub-code for Shared Motivation: Local partner, local language: Local language was important in Poznan for building trust and collaboration. The team tried to reach out to local nature-based enterprises to join a European support platform, but language was a challenge. While the team were skilled facilitators, if they anticipated a challenge, they brought in an external mediator who spoke Polish and understood the local context.

Temporal dimension: Did shared motivation actions change over time in Poznan?

Table 5.16 shows that 73% of references under shared motivation relate to actions taken to build motivation. There was a good split between productivity actions related to target goals (41%) and

actions related to overall CGR processes (59%). Most motivation actions related to the development stage of the CGR.

Table 5.16 Poznan: References to Shared Motivation Actions

Collaboration Dynamic (CD) References	Total CD References	Total <u>Actions</u> related to CD	Actions related to CGR Goals (Productivity)	Actions relating to CGR (Processes)	Collaboration Dynamics (Process)		Actions over Time
	A	B = C + D	C	D = E + F + G	(i) Early-stage	(ii) Developing	(iii) Mature
5.2 Shared Motivation							
Total	161	117	48	69	20	42	7
Total as %	100%	73%	41%	59%	29%	61%	10%

In the early stages of CGR formation, as part of the process of creating safe spaces to build trust with school communities, the NBS team facilitated co-creation workshops, listened to needs rather than imposing new theories, used testimonials and events to build motivation, used local experts to inspire stakeholders but also to address concerns.

At the development stage of CGR, kindergarten directors had committed to deploying NBS playgrounds on the ground in their schools. Testimonials from completed projects were used in grant applications and at organised events to build legitimacy at political level, with potential funders and new end-users. Collaboration actions with a local university addressed skills gaps in impact measurement.

At the mature stage of CGR development, actions involved both consolidation and expansion. In terms of consolidation, Poznan organised ongoing workshops and activities to sustain motivation among internal stakeholders. Externally, the team tried to understand the motivations of potential private sector developers and developed presentations and support material to meet their needs.

5.3.2.3 Comparative Analysis

Table 5.17 shows that the four Emerson and Nabatchi sub-elements proposed under Shared Motivation were highly relevant for Genk and Poznan. The new sub-category of local partner, local language was most relevant for Genk but overall, it was not as important as the other Emerson and Nabatchi elements for cities.

For Glasgow, there were less references across all sub-elements. This was most noticeable in relation to mutual understanding which had the highest number of references for Genk and Poznan.

Table 5.17 All Cities: Comparative Analysis of Shared Motivation

5.2 Shared Motivation	Genk	Glasgow	Poznan	All Cities
5.2.1 Trust	46	17	35	98
5.2.2 Mutual understanding	65	6	46	117
5.2.3 Internal legitimacy	43	26	42	111
5.2.4 Commitment	17	3	35	55
5.2.1.1 Local partner local knowledge	15	7	3	25
Total	186	59	161	406

Findings suggest that several factors may help explain this significant difference. Firstly, there were more challenges to building motivation intra-organisationally in Genk and Poznan compared with Glasgow. This may also be due to the stage of development of NBS implementation. Genk made several references to the gap between vision and implementation. They noted that it is easier to secure consensus on planning and policy than on implementation. As Glasgow were at planning and piloting stage, whereas Genk and Poznan were at implementation stage, this may explain why these two cities encountered a higher level of motivational issues. Another factor may relate to legitimacy. Despite their early stage of development Glasgow benefited from high internal and external legitimacy.

Another finding of note, across all cities, was the importance of joint funding opportunities as a driver of motivation. Successful funding led in turn to increased legitimacy.

Temporal dimension: Did actions to build shared motivation change over time across cities?

Table 5.18 shows that most references to shared motivation refer to specific actions undertaken to build motivation (68%).

Table 5.18 All Cities: Comparison of Shared Motivation Actions over Time

Collaboration Dynamic (CD) References - Shared Motivation	Total CD References	Total <u>Actions</u> related to CD	Actions related to CGR Goals (Productivity)	Actions relating to CGR (Processes)	Collaboration Dynamics (Process) Actions over Time		
	A	B = C + D	C	D = E + F + G	(i) Early-stage	(ii) Developing	(iii) Mature
Genk							
Total	186	133	82	51	8	38	5
Total as %	100%	72%	62%	38%	16%	75%	10%
Glasgow							
Total	59	35	6	29	8	21	0
Total as %	1	59%	17%	83%	28%	72%	0%
Poznan							
Total	161	117	48	69	20	42	7
Total as %	100%	73%	41%	59%	29%	61%	10%
Average	84	95	45	50	12	34	4
Average %	/	68%	40%	60%	24%	69%	7%

There were more references to actions to build shared motivation related to process actions (60%) than productivity actions (40%). The focus of references from Genk are related to building shared motivation at the level of individual NBS projects (62%) rather than at a CGR level (38%). In Glasgow it is the opposite with most references to actions (83%) focused on building shared motivation at an overarching CGR level than at individual NBS project level (17%). In Poznan again it more balanced with 59% of references to actions to build shared motivation at CGR level and 41% at the level of specific NBS projects.

From a temporal perspective, a similar picture was seen to emerge with most references to actions to build motivation taking place at the stage of development of CGR activities (69%) than at the stage of formation (24%) or maturity. This makes sense as commitment and resources haven't really been secured until the development stage so it would be normal to see a ramp up in activities once funding is in place and implementation on the ground starts.

Findings across all three cities show consistency in the types of actions being implemented to build motivation at different stages of delivery. These are summarised in Box 5.2.

Box 5.2 Shared Motivation – Type of Actions

Early-stage actions: actions to build trust with new stakeholders / overcome mistrust with existing stakeholders e.g., organisation of informal rather than formal meetings initially, build safe spaces for dialogue (Glasgow and Poznan), identify opportunities and incentives to encourage mutually beneficial collaborative actions such as joint funding bids, use of local intermediaries to build mutual understanding.

Developing: move from informal to more regular schedule of meetings to keep lines of communication open, development of mechanisms to measure impact, actions to build legitimacy and secure commitment of resources e.g., testimonials, case studies, sharing results to build through reporting, social media and high-profile events.

Mature: Leveraging successes to attract new stakeholders (link with principled engagement) and commitment of resource (link with capacity for joint actions)

5.3.2.4 Discussion

Consequential incentives lead to Motivation and Engagement

Emerson and Nabatchi describe shared motivation as an outcome of principled engagement “if the progressive cycling of principled engagement is effective, it motivates participants to continue to engage with one another”. In the case study cities, findings showed that this process may also happen in reverse i.e. If the shared motivation is strong enough, then this can be an entry point for principled engagement. This is related to the driver of consequential incentives. The potential to access financing can lead to engagement of new participants and new knowledge sharing. A good example is the ‘SUDSnSODA’ funding proposal led by Genk in 2018. This funding opportunity allowed the NBS team in Genk to reach out and engage with new partners who they thought might be good collaborators on nature-based water management. The agreement to collaborate on a funding proposal led backwards to a process of principled engagement – finding out more about each other, differences, challenges, knowledge gaps and to discuss potential solutions and new collaborators who could be helpful. This was done within the trusted safe space of proposal preparation dynamics. Partners involved were committed and motivated to work together. Even though the first bid failed, a strong level of trust, mutual understanding and shared commitment had been built up between parties leading other partners to take the lead on new proposals and invite the NBS team in Genk to participate. These stakeholders in turn spread the word among their networks about the interests of the NBS Team thus leading to further approaches from new collaborators.

“The StiernerLab was approved for funding with Luca School of Arts. We planted some seeds by always inviting these people and involving them and now they took their own initiatives that led to new funding where we didn’t have to do much. It’s the first time to attract funding in this way.” 2019, Genk RM.

In Poznan approaches from private companies about potential funding opportunities also reversed the process with shared motivation leading to principled engagement rather than vice-versa.

“It was a very successful meeting. A great opportunity for our Office, because for the first time a private company reports with an idea and initiative directly to the city office, proposing cooperation and support (financial).” 2018, Poznan NBS RM.

Involvement of local stakeholders as intermediaries

An interesting contrast emerged with the dynamic of principled engagement where the involvement of external experts, often from outside the local area, helped with the processes of discovery and definition. In the case of shared motivation, findings suggest that local intermediaries with good contextual knowledge were more helpful in the process of building shared motivation. The use of a non-local consultant in Genk backfired as this consultant was perceived to have insufficient knowledge of local dynamics.

“Our previous experience of ‘flying in a consultant from far-away’ didn’t work. So instead, we’ve decided to look for a local consultant. We think it is important to build trust and establish continuous relationships with the business community” 2020, Genk RM.

Findings from Glasgow also show the benefits of collaboration with organisations with good local knowledge. Due to historic levels of distrust between the council and local citizens, Glasgow collaborated extensively with the NGO Greenspace Scotland. This NGO acted as an intermediary on behalf of Glasgow City Council to build engagement and shared motivation with local communities.

Poznan findings also suggest that intermediaries with local knowledge are better placed to help build mutual understanding and shared motivation.

“The use of an animator led to a high-level of involvement and participation in discussion from all participants. We were quite afraid of what would happen in this meeting as we had NGOs involved who are not always in favour of what we do, and other people from city hall who mightn’t be as well informed.” 2021, Poznan team RM.

Informal versus formal approaches to engagement and motivation

Findings show different overarching approaches to building shared motivation in case study cities. Genk took a formal and direct approach ‘big and bold’ to stakeholder engagement, setting up official meetings in the context of a new governance structure specifically focused on NBS.

“There have been some tensions between our department and the built infrastructure department... It’s a new way of working for them, we are forced to cooperate with one another in this project. Our director forced them to work in that way, and they are not happy with that, it’s a first step. We will try to do our best to communicate with each other.” 2021, Genk RM.

Glasgow and Poznan in contrast took a much more ‘soft and gentle’, informal approach. They first used ‘water-cooler’ type conversations and one to one meetings to get the lay of the land,

understand possible concerns and consider how to address these. Thereafter they engaged in more official meetings.

“First, you deal with informal, then enthusiasm, only after that you start to work with officials...” 2018, April CN Workshop (Poznan).

Covid presented many problems for this type of informal communications.

“Unfortunately, due to the pandemic, there are less casual conversations happening. The issue about working from home – you can’t just pop over to someone’s desk and have a chat. We can’t do that now. All meetings are set up via email which makes it very formal” 2020, Glasgow NBS team RM.

In the later stages of CGR development, and prompted by the methodology of another EU project, Poznan took a highly systematic approach to building a network of collaboration at lower levels of the organisation. While systematic and planned, the approach was also informal and targeted at individuals that the NBS team felt had shared interests.

“That’s why we need cooperation between regular workers. We have no influence on the decision-making level. But we can exchange ideas and information on our own level. When I see other people who are on the same level as I am and when they’re as enthusiastic as I am, then I feel like getting involved.” 2020, Poznan team RM.

Importance of Goal alignment

The Genk team identified two underlying factors explaining why collaboration worked with some departments and not with others 1. The function of the department: Genk suggests that ‘process’ departments operate at a functional level whereas ‘policy’ departments operate at a more strategic level. Experiential findings from Genk suggest that changing processes can be more challenging than aligning policies. 2. The level of goal alignment: for policy departments whose role is to make and deliver policy, policy alignment can lead to greater motivation in collaboration through a shared commitment and potentially pooling resources for joint action.

“We were reflecting on why sometimes we have good cooperation with depts like this one (Waste Dept) and why sometimes not. Our conclusion? The critical success factor – if our objective clearly aligns with the objectives of another dept that makes it easier. We’ve looked at it the other way around e.g., our infrastructure dept. We see from this perspective they’re a support dept not responsible for policy objectives. This means they don’t really feel engaged with our objective” 2021, Genk team RM.

Glasgow also identified the importance of goal alignment with other departments. A close working relationship evolved with another department where goals related to development of green spaces were well aligned with NBS. With other departments where the alignment wasn't as clear cut, they tried to develop alignment through the processes of principled engagement and shared motivation.

"Normally the planning department and sustainability department wouldn't work on this local level with the neighbourhood regarding NBS. Quite often colleagues don't share information. When you build relationships, people will share more." 2019, Glasgow Team SMQ.

In Poznan the NBS team also worked hard towards goal alignment across departments.

"In the city hall, topics linked with ecology are very dispersed so a strong need to find links between different departments that are dealing with it – to make it more integrated." 2020, Poznan team, RM.

The NBS team in Poznan reported that 'mutual understanding' was easier to achieve with other institutions (with a public mission). Arriving at a mutual understanding was more difficult with private corporations (without a public mission). This was a new form of engagement for the NBS team.

"They (private company) also want projects that will provide them with success in a short time...If we have to co-operate with these private sector companies, we also want it to be aligned with our goals." 2020, February Poznan team RM Learning Outcomes session.

Goal alignment is not a topic addressed in depth in Emerson and Nabatchi (2015a, 2015b). This is an area of practitioner interest that could be supported by further empirical studies. It would be important to link such studies on goal alignment with data on outcomes.

Internal Legitimacy easier to secure at inter-organisational rather than intra-organisational level.

All three cities encountered more challenges in securing internal legitimacy at an intra-organisational than at an inter-organisational level. Internal legitimacy arises from trust, mutual respect and understanding which generates motivation to continue collaboration.

Inter-organisational legitimacy: Involvement in the EU Connecting Nature projects undoubtedly helped to build inter-organisational legitimacy. Recognition by the EC conferred trust in the case study cities and the NBS approach they were trying to demonstrate. This in turn accelerated the process of mutual understanding where collaborators sought to work together to address

roadblocks. This was most evident in Genk where the NBS team went ‘large’ early in trying to secure shared motivation from multiple stakeholders. The mayor of Genk sought deeper collaboration and commitment from other regional mayors, for example, to changing funding rules to allow for piloting and demonstration of NBS approach to water management in Genk and in other Flemish cities. There were numerous other early examples of legitimacy with research partners in particular offering to collaborate to address challenges to NBS e.g., research institutes seeking further collaboration on indicators (INBO), on designing better rain gardens (LUCA), on getting citizens on board with SUDs (Stiemer Lab). In Poznan, successful results from early pilots were used to build legitimacy and further commitment. In Glasgow, most of the data relating to legitimacy related to intra-organisational factors.

Intra-organisational legitimacy: While involvement in EU initiatives such as Connecting Nature were considered quite prestigious and helped initially to open doors with internal stakeholders, the process of building internal legitimacy was challenging in all cities, but not always for the same reason. In Glasgow, challenges in building internal legitimacy relate to contextual change such as political change and a lack of self-belief in organisational culture.

“We’re very good at buying in consultants which we could probably do ourselves. There’s a perception that we don’t believe things unless we’re told it by outside consultants.” 2018, Glasgow City workshop.

In Genk, as mentioned previously, ‘unfreezing’ existing relationships embedded in engrained processes and hierarchical silos led to mistrust and resistance at an intra-organisational level. Gaining legitimacy with internal stakeholders was more difficult despite high-level support from the mayor. In Genk external recognition in the form of a major contract win eventually led to grudging legitimacy with colleagues.

In Poznan in contrast, legitimacy was high with colleagues in other departments but low at a high-level with the mayor. The NBS team invested significant efforts in building informal networks to bridge communication gaps associated with top-down practices. They noted however that sustaining legitimacy at an intra-organisational level requires ongoing effort.

“What’s most important is to maintain this enthusiasm (among green agents). It’s easy to light the spark but if nothing happens then it dies down... we want to have more workshops on how to design public spaces using NBS. This is the kind of thing we would like to organise to keep their enthusiasm alive.” 2020, Poznan team RM.

The organisation of a high-profile international event on NBS (contractual requirement of Connecting Nature) proved to be an important leverage point for Poznan and Glasgow in securing legitimacy both inter and intra organisationally.

“The Summit has built momentum ... the reputation of the (OSS team) and level of awareness has increased among senior management and other organisations in Glasgow.” 2021, Glasgow SMQ.

While internal legitimacy is proposed by Emerson and Nabatchi (2015b) a sub-element of the collaboration dynamic of shared motivation, external legitimacy is proposed by Emerson and Nabatchi (2015b) is a performance dimension for outcomes. Interactions between internal and external legitimacy and implications for the Emerson and Nabatchi framework are discussed in more detail in Chapter 6.

Impact measurements as a contributing factor to shared motivation.

NBS literature suggests an important barrier to implementation of NBS may be related to the novelty of the concept and the lack of availability of data on the effectiveness of NBS (Seddon et al. 2020). Another prevailing challenge relates to the lack of understanding of the multi-dimensional benefits of NBS and the difficulty measuring impact simultaneously across different departments dealing with social, environmental and economic outcomes. Mechanisms such as natural capital accounting, for example, were not practised by the economic departments in any of the three cities. Costs were often absorbed by one department, but benefits accrued across many. Scotland had the most evidence available of the contribution of nature to public services such as health and education.

At the start of the study period, findings show that on the ground in case study cities the importance of measuring impact was of varying importance for NBS teams. This may be related to the different public administration cultures. Glasgow, due to their NPM background were used to putting together a business case for new projects where they had to identify future impacts and report back on achievements. Measuring impact of NBS was thus found to be a priority for Glasgow. They recruited a GIS specialist who set up a visual dashboard, mapping open spaces and collecting baseline data on multiple criteria against which impact could be measured. This activity was seen as vital to showing the impact of the open space strategy and resources were put in place to continue data collection after the end of Connecting Nature funding.

In Genk, there was little history of formal measurement of impact. Success was gauged informally based on citizen observation while in Poznan impact measurement was primarily done in

response to grant funding requirements. There was no in-house expertise on impact measurement in Genk or Poznan. Peer to peer exchange between case study cities and with Connecting Nature knowledge partners led to increased awareness of the benefits of impact measurement for building legitimacy and future funding. Acquiring the skills to undertake multi-dimensional impact measurement then became a driver of collaboration with local university partners in Genk and Poznan.

“We also want to start cooperation with AMU to create such indicators about how these demonstrators work and how they influence education among children. In the future we want to have these indicators. Indicators are very important to convince the city hall – not just on education but also on environment.” 2019, Poznan NBS team RM SMQ.

Capturing such data takes time however and while collaborations and impact measurement plans were put in place, Poznan was the only city to capture measurable data across all three criteria (as presented in Chapter 6). In the absence of concrete quantitative data, all three cities focused on reporting of social impacts to build legitimacy. Success stories were presented in the forms of narratives and testimonials and disseminated through publications and events.

The importance of impact measurement as a contributing factor to the dynamic of shared motivation is under-developed in the Emerson and Nabatchi framework.

Lack of focus in Emerson and Nabatchi on negative dynamics and barriers to collaboration

Findings from Genk and Poznan showed a high volume of references around challenges to collaboration dynamics. A review of Emerson and Nabatchi (2015b) discussion on trust shows little consideration of negative dynamics. Regarding Mutual Understanding, Emerson and Nabatchi recognise that difficulties may arise due to a lack of common goals and mutual understanding of differences, but the implication is that high levels of trust help to overcome such issues. Further research on actions to address negative dynamics related to trust would be helpful for practitioners. This could perhaps draw on the rich literature from conflict resolution.

5.3.3 Capacity for Joint Action

5.3.3.1 Introduction

Emerson and Nabatchi identify four sub-elements related to the collaboration dynamic of capacity for joint action:

- *“Procedural and institutional arrangements encompass the range of process protocols and organizational structures necessary to manage repeated interactions over time.”*
- *“Leadership includes the leadership roles of sponsor, convener, facilitator/mediator, representative of an organization or constituency, science translator, technologist, and public advocate, among others.”*
- *“Knowledge refers to the social capital of shared knowledge that has been weighed, processed, and integrated with the values and judgments of all participants.”*
- *“Resources may include funding, time, technical and logistical support; administrative and organizational assistance; requisite skills for analysis or implementation; and needed expertise, among others. Emerson et al., (2012 p. 15-16).*

5.3.3.2 Findings for each City

Genk

Table 5.19 shows that the four sub-elements proposed by Emerson and Nabatchi (2015a) are all relevant for Genk.

Table 5.19 Genk: References to Capacity for Joint Action

Collaboration Dynamic (CD) References	Total CD References
5.3 Capacity for Joint Action	
5.3.1 Procedural & Institutional Arrangements	49
5.3.2 Leadership	22
5.3.3 Knowledge	32
5.3.4 Resources	35
Total	138

Procedural and institutional arrangements

The highest number of references related to procedural and institutional arrangements. At the intra-organisational level, findings showed evidence of departmental silo mentalities were a significant barrier to collaboration.

“Some other depts e.g., delivering building permits, building roads etc. They see these kinds of things as not their core business. They see it as the business of our department. We need to

make this shift so that climate action plans become everyone's core activity. We are not at this stage yet - to get these people thinking in a climate perspective." 2020, Genk RM.

The NBS team reflected early on optimal procedural and institutional arrangements to address such challenges. In the early stages of formation of the CGR, the NBS team held several two-day offsite meetings ('Stiemer Conclaves') to carefully design a governance structure to underpin NBS implementation at both inter- and intra-organisational levels. This involved splitting the overall NBS project into four smaller pilot projects related to four specific target goals and two-cross cutting initiatives e.g., The Stiemer Deals Social Innovation Partnership Programme.

"The Stiemer Deals programme adopted an entirely novel social innovation approach for the city: a voluntary agreement between the City of Genk and other partners from across the city (other city services, citizens, organizations, companies) in relation to delivering mutually aligned ambitions associated with the Stiemervallei. This goes beyond co-production to innovative co-governance and co-financing for the stewardship phase. Officially launched in 2020, this innovative policy instrument is now integral to creating ecological, economic and social value from the Stiemervallei programme, delivering such innovations as Stiemer ice cream and Stiemer beer." 2022 NBS Team, Final Report to EC.

This was done to better orient each pilot project and governance structure towards specific stakeholder audiences and funding routes. The NBS team set up a formal meeting with high-level intra and inter-organisational stakeholders to discuss this governance structure. Following approval, the NBS team led on implementation. Over the next year they monitored the effectiveness of this governance structure through an adaptive governance process called 'Reflexive Monitoring'. When they determined that the governance model wasn't working as effectively as they would have liked, they went back to the drawing board at another Stiemer Conclave meeting and re-designed and adapted elements to improve efficiency.

"New governance model for management of Stiemer... How we designed it? Analysed how we are doing at the moment – what kind of governance structure there is e.g., weekly meetings for this, monthly etc. What is the purpose of these meetings- co-creation, steering, management etc. Analysed to what extent are we meeting these objectives with these structures? Often, we found the structures are not doing what they're supposed to. Then we looked for examples that did work and then we asked why can't we use these successful structures for other areas that aren't working." 2019, Genk RM.

In the end however, despite all the design and planning, improved governance arrangements came about through persistence and trial and error with key stakeholders. In some cases, in the absence of progress at lower levels of the organisation, top-down intervention was needed to push through changes in internal processes to accommodate NBS in Genk.

“Different project team were reluctant to adopt the same water strategy as us. Our director and Mayor decided that they should adopt and follow a similar one. After three months of silence, they suddenly decided (to implement the same strategy) - they were quite reluctant. Only adopting it because it has been imposed from higher level.” 2020, Genk RM.

Regarding inter-organisational arrangements, it is evident that the CGR resulted in a change in procedural rules in other organisations. Through lobbying at regional government level, the mayor secured official recognition of NBS as an alternative approach to water management leading to a change in regional financing rules to allow for funding of NBS pilots.

“They (VMM regional sewage agency) only pay for pipes, not NBS. Genk did a lot of lobbying We managed to get funding from this regular channel, open the “normal” system for innovative solutions” 2019, Genk RM.

Attempts to informally circumvent rules in other public sector agencies, e.g., bypass the need for a permit for a treehouse in the Stiemer Valley by going to the senior director, did not work out due to intra-organisational challenges (i.e., the senior director agreed but did not communicate this down the line, personnel changed and reverted to the rule book etc). In the end, although it was long and painful, it proved easier to work within existing processes.

“It was easier to make decisions on a nuclear power plant than on a treehouse in the Stiemervallei.” 2018, Genk RM.

Leadership

Different types of leadership were evident in Genk. The mayor was an early champion of both NBS as a concept and the collaborative governance required to implement NBS. He was hands-on in terms of support, helping to attract other mayors and lobbying at a high-level for the involvement and support of other external collaborators.

“Our mayor has been giving presentations on SUDs. They’re now convinced change is necessary but still stuck in old system. Change takes time. Looking for ways to introduce the new system. Confident will change in time” 2020, Genk RM.

The NBS team in Genk played a key role as initial convenors of the CGR. Initially they used scientific and technical leaders from across Europe to build knowledge and legitimacy about NBS. Over time as external legitimacy grew, many local research institutes sought out StadGenk for collaboration on NBS. The NBS team tried to lead as a facilitator of collaborative governance, but they ran into several challenges as they lacked impartiality at both inter and intra-organisational level. The NBS team lacked mediation skills and benefited from the use of external facilitators to progress on intra-organisational challenges. One of the longer-term objectives of the NBS team was to empower citizens to take the lead on new forms of social innovation in the Stiemer Valley NBS. To this end the Stiemer Deals governance model was set up facilitating equal partnership between city and individuals on collaborations in the Stiemer Valley. This form of collaborative leadership was considered highly successful and attached further external legitimacy.

Knowledge and Resources

At the start of the study period, the NBS team in Genk lacked technical knowledge about NBS for water management in the Stiemer Valley. An early field visit with local stakeholders revealed a lack of confidence in the topic.

“When on the terrain, both partners were well prepared but once on the ground they kind of lost faith a bit themselves – will be more expensive than we thought.... Once they lost faith, this doubt then spread among the entire group. Both partners convinced that they lack experience in doing SUDS in practice.” 2019, Genk RM.

To address local knowledge gaps and confidence issues, the NBS team supported collaborated with Connecting Nature and other international experts to address knowledge gaps.

One of the most successful strategies addressed both knowledge gaps and funding gaps at the same time. Joint funding projects led to both knowledge and resources for the CGR.

“The 'Stiemerlab' proposal involves citizen science monitoring of water quality Stiemer. It is a consortium with Luca School of Arts, VITO, University Hasselt + VMM, INBO. It's about monitoring, about collaboration with a lot of partners. It's coordinated by Luca. It's Flemish funding. The team hasn't used this funding before” 2019, Genk RM.

In addition to technical knowledge gaps, Genk lacked skills in many other areas including financing, business models and entrepreneurship. They lacked confidence in reaching out to other departments to support them in addressing these knowledge gaps.

“And I know that to be credible and to step outside of the image, we need a project champion – when we talked to (the financial controller and he showed us) the graph on Capex and Opex – we were really like ‘Ah, that’s what it’s called’. We felt like dummies.” 2018, SMQ Interview.

The team decided to use Connecting Nature seed-funding to recruit two specialists to lead on social innovation and business development. While the social innovation recruitment was successful, Genk found it difficult to recruit an expert with knowledge of business development and NBS. The NBS team suggested that NBS knowledge gaps were exacerbated in smaller cities who found it difficult to compete with larger cities for scarce knowledge resources. To address this knowledge gap, they recruited an expert from the Netherlands who travelled to Genk one day a week, but this arrangement was unsuccessful. After this experience, the NBS team increasingly expressed a preference to work with local experts.

“Proximity is somehow important to us. Bringing in expertise beyond Belgium frightens us a bit – feels less close. The way we like to cooperate with partners requires proximity. With NBS we’re not really looking for products, NBS are more processes. We’re not looking for an (off-the-shelf standardised) product to implement, we need new processes to incorporate NBS into our processes. In the urban environment we’re often dealing with small scale issues, we have to deal with citizens – the solution has to be very accessible and close to people. It’s not just a case of implementing a NBS from someone in another country.” 2021, Genk RM.

The NBS team made a conscious decision to increase their collaboration with local knowledge partners through the development of mutually beneficial relationships.

“We thought it might be good to team up with local universities to be more strategic and better align with their research projects e.g., at PhD level. For example, University of Hasselt have an architecture dept also interested in sustainable land use. If they could focus on this problem (SUDS), that would be useful. We don’t have the design experience but maybe they could use it as a case study?” 2019, Genk RM.

In some cases, the NBS team played a facilitator role bringing together Connecting Nature partners from outside Belgium with local Genk institutes to develop new knowledge. This was particularly the case with the development and testing of indicators for NBS impact assessment.

“The idea came from INBO (local research institute) re. indicators for NBS. ... People from INBO will do workshops – and Y (Spanish partner from Connecting Nature) can do webinars in Connecting Nature. Hope it’s a win-win situation – again more capacity we don’t have to do ourselves.” 2020, Genk RM.

Finally, the social innovation expert recruited to the NBS team went on to establish the successful Stiemer Deals programme which resulted in more than 30 new collaborations between the city and local citizens, NGOs and small businesses. While it is difficult to quantify financially the time and expertise contributed by these local partners as their part of the Stiemer Deal, the value of this in-kind contribution became increasingly recognised and indeed was leveraged by the city to secure a further €2m in direct funding. This allowed for Stiemer Deals to be continued and indeed expanded with the recruitment of a further expert.

“The focus of this funding channel is on city innovation and collaboration of different sectors. We argued in this proposal that we have a good instrument to do this i.e., Stiemer deals. We discussed with directors and mayor about the potential – they’re *becoming more convinced, getting more support.*” 2020, Genk RM.

The success of the NBS team in securing funding for NBS became mutually re-enforcing – external legitimacy increased internal legitimacy which in turn increased internal and external funding for NBS implementation.

Temporal dimension: Capacity for Joint Action

Table 5.20 shows that there was a high level of actions related to building capacity for joint action. However interestingly, in comparison with the other two dynamics of principled engagement and shared motivation, where there was a high number of references to actions related to target goals, under capacity for joint action there was a high number of references to CGR processes (64%). From a temporal perspective, most references to action still happened at the development phase (68%) compared with early-stage (20%) or mature stage (13%).

Table 5.20 Genk: Actions towards Capacity for Joint Action

Collaboration Dynamic (CD) References	Total CD References	Total <u>Actions</u> related to CD	Actions related to CGR Goals (Productivity)	Actions relating to CGR (Processes)	Collaboration Dynamics (Process)		Actions over Time
	A	B = C + D	C	D = E + F + G	(i) Early-stage	(ii) Developing	(iii) Mature
					E	F	G
Total	138	136	49	87	17	59	11
Total as %	100%	99%	36%	64%	20%	68%	13%

The type of actions to build capacity varied at different stages of development.

In the early stages of CGR formation, the NBS team spent time designing and testing governance structures and processes required for intra- and inter-organisational collaboration to deploy NBS.

This included pilot actions such as Stiemer Deals. The mayor led on actions to build support. Knowledge was built up through actions to engage external experts. There was a focus on collaborative actions to secure funding for implementation.

At development stage: While governance structures became more consolidated, a process of reflexive monitoring allowed for ongoing adaptation. Updated processes and supporting documentation were negotiated sometimes with the help of intermediaries. Knowledge shifted towards collaboration with local experts. Despite early wins, the focus remained on maximising funding for implementation.

At maturity stage: Governance models for mainstreaming successful pilots like Stiemer Deals were discussed. At senior level, decisions were made on replication of collaborative governance practices in other sustainability actions and more widely in the organisation. Resources for long-term change were put in place.

Glasgow

Table 5.21 shows that three out of four sub-elements proposed by Emerson and Nabatchi were relevant. Leadership was the only element for which few references were observed.

Table 5.21 Glasgow: References to Capacity for Joint Action

Collaboration Dynamic (CD) References	Total CD References
5.3 Capacity for Joint Action	
5.3.1 Procedural & Institutional Arrangements	44
5.3.2 Leadership	9
5.3.3 Knowledge	40
5.3.4 Resources	32
Total	125

Procedural and institutional arrangements

Based on previous experience with green infrastructure implementation, the NBS team in Glasgow concluded that informal approaches to policy implementation don't succeed.

“We tried the covert approach on Green Infrastructure for the last 15 years. It didn’t work so now we’re taking the policy approach.” 2020, Glasgow RM.

Therefore, when it came to implementing NBS as part of the Open Space Strategy (OSS), the NBS team decided to follow an exhaustive official policy approval process to secure binding commitments to the Open Space Strategy. This involved preparation of strategy documents, ensuring alignment of the OSS with 105 other council policies, national and EU strategies, consultation -informal and official - and multiple revisions before the OSS finally secured council approval.

“Once the OSS has been adopted, the council is obliged to make sure people are undertaking this work” 2021, Glasgow RM.

Following approval, the more challenging task was securing agreement on an implementation plan involving a cross-departmental governance structure.

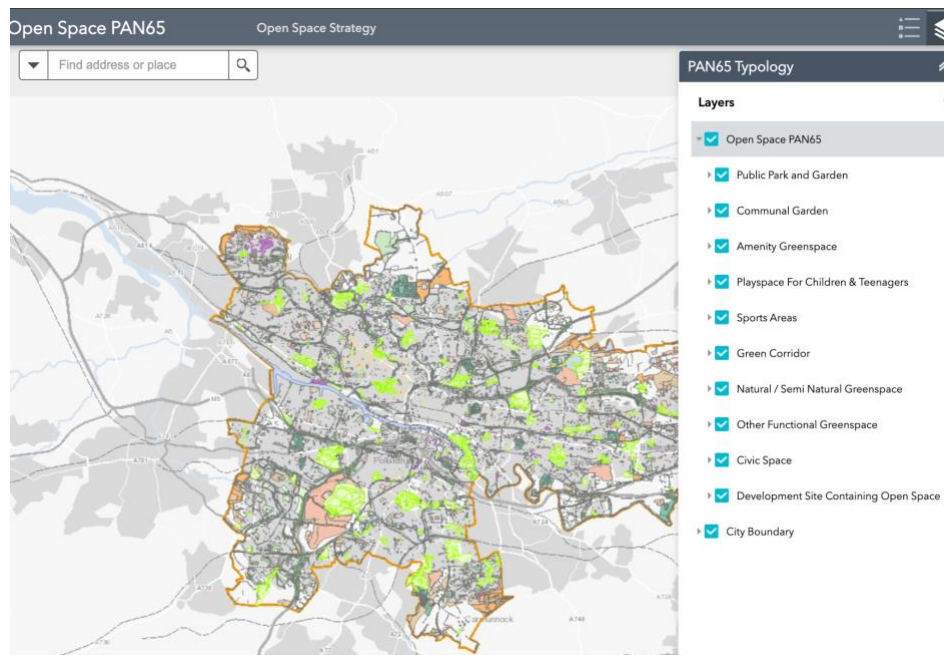
“One of the reasons for cross-departmental governance is to have access to different funding pots” 2020, Glasgow RM.

The approval of the governance structure was complicated due to Covid and the absence of a high-level manager in place to negotiate on behalf of the NBS team. However eventually in April 2021 the governance structure was agreed. This opened new funding opportunities for NBS from through collaboration with other departments.

“Can definitely be used to leverage funding elsewhere – there’s pockets of money all around the council – for biodiversity, cycling, flooding etc. These could all be related to open space. Need to be able to cater for all three things in an open space.” 2020, Glasgow RM.

An important element of the implementation plan is the [Open Space GIS Map](#) that is publicly available on the council website. It allows any stakeholder to access real-time data on open spaces and engage with the council on future use.

Figure 5.2 Glasgow Open Space Strategy GIS Map



Accompanying this official approach to building collaborative governance, at an inter-organisational level, Glasgow engaged in several informal and formal approaches to understand the needs of communities on the ground in relation to open spaces. Pilot projects included Growchapel, an NBE accelerator pilot and the revamp of the Stalled Spaces programme. Stalled Spaces was a highly structured city-wide programme to engage communities in temporary use of mixed spaces governed by a board of council and non-council members (no community representatives). The NBS team were given the task of updating this programme from an NBS perspective. Growchapel was a community-led project supported by Glasgow City Council. A member of the NBS team was invited to join the governance board after informal meetings on-site. The NBE accelerator pilot was a collaboration with an ALEO who facilitated collaboration with a specialised social innovation NGO and Glasgow Caledonian University on a pilot to explore the potential for NBS in Glasgow to support entrepreneurship.

Leadership

The lower number of references for leadership may be explained by the leadership void for the NBS team at high-level in Glasgow City Council for much of the study period. The NBS team leader demonstrated leadership capacity in this vacuum and stepped up to make the case for NBS at higher levels both intra and inter organisationally. The NBS team took on the role of convenor at intra-organisational level and succeeded in negotiating official strategy approval and a long-term governance and financing structure involving the public sector and policy bodies. They used an

NGO (Greenspace Scotland) as both convenor and facilitator of engagement at community level. NGOs provided a vital source of local knowledge and technical expertise contextualised to the local environment.

“They (NGO) have more experience in working with a wider community to get more volunteers. It’s a better solution than what we have at the moment working with individual groups” 2020, Glasgow RM.

Connecting Nature experts were used to fill in knowledge gaps in areas such as NBS financing and entrepreneurship. In line with the Community Empowerment Act (and reduced public sector funding) a clear objective of the NBS team was to build the capacities of local communities to take a greater role in co-governance of open spaces. The needs of communities were explored through pilots and capacity building measures put in place.

“How will this approach (quality assessment) create ownership? If we can get communities to assess the quality of their local space, then we can have a conversation about what NBS they can do by themselves to address some of the quality challenges. This can be done independent of the council. They take ownership.” 2019, Glasgow RM.

Knowledge and Resources

At the start of the study period, the NBS team in Glasgow were knowledgeable about planning and technical aspects of NBS. They were also highly proficient in impact assessment. However, they lacked knowledge and skills on the economic and social dimensions of NBS. These knowledge gaps drove collaboration at both intra and inter organisational level.

The NBS team in Glasgow made extensive use of Connecting Nature training and tools on financing such as the Business Model Canvas (BMC) for NBS. They used the BMC extensively as a collaboration tool with other departments, with local stakeholders (Bellahouston community garden) and then with other organisations across Scotland. They also trained up NGO partners (Greenspace Scotland) to deliver this with local stakeholders (ref. Growchapel BMC workshop)

“Roll out business model canvas to other teams. Done. Really liked it. X loved it. Gave us loads of information. Going to share with colleagues in Clyde Valley to see if they can make a business case for doing NBS in the West of Scotland” 2019, Glasgow RM.

At the end of the study period, the increased knowledge and confidence of the NBS team in NBS financing led to new forms of collaboration with external stakeholders such as Trees AI. Glasgow

City Council entered into an agreement with this initiative led by Dark Matters Lab, a not-for-profit consultancy, to use the OSS mapping tool to provide information for potential investors.

“Building from the spatial database development, Glasgow City Council (GCC) is partnering with NatureScot, the Scottish Government, and Dark Matters Labs to develop TreesAI: an open-source platform to map, value and finance urban forests. ... The project will be piloted at COP26 and will subsequently represent a funding stream for mainstreaming nature-based solutions across the city.” 2022, Final Report to EC, Glasgow NBS team.

To address the lack of in-house skills on citizen engagement, the NBS team in Glasgow used their Connecting Nature funding to bring in an NGO partner with complementary expertise to lead on citizen and community engagement (Greenspace Scotland). Greenspace Scotland led on the ground workshops that identified technical and governance skills gaps in maintaining NBS in the long term. The NBS team used this information to secure council funding to build collaboration with other NGOS such as The Conservation Volunteers (TCV) who have skills in building up volunteer networks, governance capacities and technical skills at local level.

“They have a tap into how they can empower communities to do things for themselves. If it was all down to the council to do it would go very slowly. If we tap into the knowledge of Greenspace Scotland we can tap into their expertise” 2019, Glasgow RM.

Over time findings showed increasingly strong intra-organisational collaboration. Relationships with other departments such as Neighbourhoods and Sustainability led to increased knowledge about what was happening on the ground and opportunities to engage with local stakeholders to understand and address knowledge gaps.

“X meeting locally with people – X in Neighbourhoods and Sustainability is keeping us informed.” 2020, Glasgow RM.

These strengthened internal collaborations and sharing of knowledge gaps led to referrals to other potential collaborators. When the Department of Neighbourhoods and Sustainability became aware that the NBS team were looking for collaborators to address knowledge gaps in nature-based entrepreneurship, they introduced them to the Centre for Civic Engagement, an arms-length organisation of Glasgow City Council. They already had relationships with different incubators that the NBS team had identified so they were able to make introductions which eventually led to successful collaboration on a NBE accelerator programme which then led to opportunities to collaborate on funding proposals to sustain this activity. In this way it is seen

that stronger intra-organisational collaboration in turn accelerated inter-organisational collaboration to address knowledge and funding gaps.

“Incubator programme – we met with the Centre of Civic Engagement – they were already thinking of something- had been talking to Glasgow Caledonian (who) already have a relationship with the ‘Melting Pot’ accelerator - a charity who have a ‘Good Ideas’ programme– I’d already identified them through mapping.” 2021, Glasgow RM.

Temporal dimension: Capacity for Joint Action

Table 5.22 shows a high number of references were related to actions to build capacities (73%). Again, similar to previous dynamics, references reflected the focus of Glasgow on establishing CGR processes (84%), reflecting their early-stage of development. Most actions took place during the development phase (79%) with an equal number taking place at early-stage (11%) and mature stages (11%).

Table 5.22 Glasgow: Actions to build Capacity for Joint Action

Collaboration Dynamic (CD) References	Total CD References	Total Actions related to CD	Actions related to CGR Goals (Productivity)	Actions relating to CGR (Processes)	Collaboration Dynamics (Process) Actions over Time		
					(i) Early-stage	(ii) Developing	(iii) Mature
	A	B = C + D	C	D = E + F + G	E	F	G
Total	125	91	15	76	8	60	8
Total as % of CD refer	100%	73%	16%	84%	11%	79%	11%

Different types of action could be seen at different stages of development of the CGR:

At the early-stage: actions leading to approval of the OSS strategy involved following clearly defined processes and arrangements. This required actions to secure the support of other stakeholders and to demonstrate alignment of the OSS with existing policies. This involved the preparation of extensive supporting documentation to facilitate deliberation and determination stages of principled engagement e.g., mapping of the quality of every open space and setting up a real-time GIS map of open spaces to facilitate decision making on NBS implementation.

At the developing stage: once the OSS was approved, the NBS team spent months going through every detail of the 73-page OSS strategy in order to develop an optimal governance structure which in turn would facilitate cross-departmental funding. It then took several more months of discussions with other departments before the governance structure for the implementation plan was signed off at a high level.

“Last week we finally agreed what the governance structure would be - starting from the top and working our way down.” 2021, Glasgow RM.

Official council processes were also followed to secure small pots of funding for inter-organisational pilot projects again adhering closely to existing governance and administrative processes.

At the mature stage: actions focused on sustainability processes in particular how to ensure the GIS map which was the cornerstone of the NBS implementation plan would be updated. Discussions took place with other departments towards transferring responsibility for GIS updates.

Poznan

Table 5.23 shows that all four Emerson and Nabatchi headings were relevant. A lower number of references were captured in relation to leadership as discussed hereafter.

Table 5.23 Poznan: References to Capacities for Joint Action

Collaboration Dynamic (CD) References	Total CD References
5.3 Capacity for Joint Action	
5.3.1 Procedural & Institutional Arrangements	41
5.3.2 Leadership	19
5.3.3 Knowledge	60
5.3.4 Resources	76
Total	196

Procedural and institutional arrangements

In contrast with the other two cities, Poznan took a much more low-key approach to the design of the governance structure for their exemplar. Based on their involvement in a previous EU project, they planned and tested a co-production process and governance structure initially with three preschool pilots. They then adapted this structure in subsequent exemplars until eventually they had reached sufficient scale and experience to systematise the process. The Department of Education funded up to 10 preschool gardens per year and each followed a similar process of co-

production and design which had to be completed within a short period of time so while the context remained different the process followed for each was replicated.

“(The school applied) to the civic budget for a green classroom.... They didn’t need any further help from us as we had already prepared a lot of supporting documentation with them as part of the process.” 2020, Poznan RM.

At an intra-organisational level, the NBS team in Poznan did not attempt to change the existing formal rules and structures that were deeply ingrained. Poznan didn’t challenge the system but rather tried to navigate around it. Their approach could be characterised as creative but compliant. A good example of their creative but compliant approach was the establishment of what they called a network of ‘green agents’ sharing knowledge and building common approaches at lower operational levels across other departments.

“I participated in a meeting with the urban planning office – 3 people who were really interested in diagnosing challenges with greening city. Really interested in cooperation but they have no support from higher level management – so only way to cooperate is between regular workers.” 2020, Poznan RM.

Similarly, when new opportunities for funding emerged from the private sector, they anticipated challenges which might arise and consulted in advance with colleagues in the legal departments to design templates for co-operation that aligned with existing rules.

“We know actions will be different, but we want paragraphs already agreed with lawyers about insurance. For example, if we want to cooperate on a space with a private partner, once we have a framework agreement, we can present it to private partners ...having such a framework agreement could prevent us from taking anyone at all e.g., someone wants to improve their image.” 2020, Poznan RM.

Leadership

There was little evidence of a high-level champion for NBS within the local government administration at the start of the study although community activists could be seen as highly influential. The NBS team in Poznan took up the role of championing NBS at local level and were successful in creating awareness and demand for NBS. Building on previous experience, they played both the role of convenor and facilitator in building collaboration for implementation of NBS. On rare occasions they used an external mediator. As with all three case study cities, Connecting Nature played a vital role as an early-stage sponsor. The NBS team ably leveraged

Connecting Nature funding to secure funding from other departments for NBS. Like Glasgow, the NBS team relied less on Connecting Nature for technical knowledge but rather to fill gaps relating to financing and entrepreneurship. They relied on leadership from local university partners and professional landscape architects as technical experts.

“You should participate in the workshop of this landscape designer. She’s very convincing ... She has a kind of preacher competency to convince people that being with nature, educating and having fun through nature is good. She knows the way to convince people that this is something to follow.” 2019, Poznan RM.

Given the difficult public sector funding environment in Poznan, the NBS team took on the role of facilitator rather than funder from the outset. Part of the initial agreement with kindergarten directors to deploy NBS in kindergartens was that they would lead on long term governance.

Knowledge and Resources

At the start of the study period, Poznan had good knowledge of co-production of NBS in school settings based on previous pilots. However, their technical knowledge of NBS was limited and they lacked the know-how to measure the multiple impacts of NBS. Beyond grant funding, the NBS team had little knowledge of NBS financing, business models or entrepreneurship. Their most pressing concern right through the study period was a lack of funding for NBS deployment. Funding gaps rather than knowledge gaps were the main driver of collaboration in Poznan. Indeed, Poznan used the knowledge and credibility they gained from Connecting Nature as a source of knowledge to support other applications for funding to national and EU programmes (ref Regional Environment Fund, Norwegian Fund, EU URBACT and Horizon Europe funding). They also used Connecting Nature funding to open up opportunities for NBS funding with other departments e.g., Education.

The lack of resources for NBS in Poznan contributed to their openness to collaboration with NGOs (ref. Water Foundation NGO, Porta Poznania (Cultural Institute and Heritage Centre) and the private sector (ref. Torpol and Re’ForestAction). As indicated previously, the motivation to access CSR funding from corporates led to a process of principled engagement where the NBS team tried to establish if there were common goals and grounds for cooperation.

“We are interested in building collaboration in the longer term with corporate partners. Initially they are focused on actions with immediate results (delivery phase). We want to offer them continual involvement in these projects they invest in BUT while they were interested in

the beginning only in the delivery phase, we feel now that they want to be involved throughout the whole exemplar (delivery and stewardship phases)” 2021, Poznan RM.

From a technical perspective, Poznan used Connecting Nature seed-funding to pay for the design of NBS with well-known landscape designers who in turn helped to generate demand for NBS. Unfortunately, the high-levels of demand led to bottlenecks in delivery as this landscape designer was the only expert in Poland specialising in NBS landscape design. She was also based in another city. Increased awareness of local knowledge deficits led the NBS team to build a collaboration between this landscape designer and local university partners (AMU) to develop guidance and deliver training courses to upskill local landscape designers in both the public and private sector.

“For the future we can link the architect's design with the AMU information and make a kind of support document. So, if different architects are used in the future this will be a support document for them too.” 2019, Poznan RM.

In addition to technical support, the local university partner (AMU) was also a partner in Connecting Nature and provided considerable support for the NBS team on developing and delivering guidance on impact assessment. The AMU team in turn were motivated to ensure wider take up of such guidance by practitioners.

Finally, it should be noted that while school communities did not directly fund the initial deployment of NBS in the school environment, the team had to learn how to maintain NBS in the long term and commit to long term stewardship. As part of the collaborative business model agreed between the NBS team and the local kindergarten director, in order to access initial funding for design and deployment of NBS (from the Dept of Education or Civic Budget and Connecting Nature) the team had to learn how to maintain NBS in the long term and commit to long term stewardship. This business model arrangement was piloted during the study period.

The NBS team sought to replicate this experience with other departments. This led to a meeting with the Department of Business Activity and Agriculture in relation to funding NBS via allotment gardens.

“This department has money for allotment gardens ... Proposed to this department that we could help them to open allotment gardens. Usually, they have common space in these gardens – could have NBS there. We would have to promote the idea among owners and managers of allotment gardens and prepare a mechanism just like we did in 2017 with the education department. Allotment gardens are quite closed now for citizens with no gardens.

But there is a law in Poland to open allotment gardens to citizens. So, there's potential to cooperate" 2020, Poznan RM.

As part of the proposed replication of this collaborative business model, the NBS team sought to replicate their close collaboration with the landscape architect. They had already identified similar national experts in allotment gardens.

"We are working with a Foundation called GoandSow' – they have experience in the process of opening up allotment gardens to other users in Warsaw and other cities... We need to develop rules for both sides – kind of like the Open Gardens."2020, March Poznan RM.

Unfortunately, Covid halted further development of these plans during the study period, but these examples clearly show the close linkages between funding and knowledge development.

Temporal dimension: Capacity for Joint Action

Table 5.25 shows a high orientation towards actions to build capacities in Poznan. Like other dynamics for Poznan, there was a good balance of references related to actions at the level of target goals (51%) and overall CGR processes (49%). Similarly, there was a consistent focus on actions in the stage of development (60%).

Table 5.24 Poznan: Actions towards Capacities for Joint Action

Collaboration Dynamic (CD) References	Total CD References	Total Actions related to CD	Actions related to CGR Goals (Productivity)	Actions relating to CGR (Processes)	Collaboration Dynamics (Process) Actions over Time		
	A	B = C + D	C	D = E + F + G	(i) Early-stage	(ii) Developing	(iii) Mature
Total	196	189	96	93	26	56	11
Total as %	100%	96%	51%	49%	28%	60%	12%

At the early stage: Poznan did not try to change any procedural or institutional arrangements upfront. Actions were focused on pilot arrangements and safe spaces for informal collaboration.

At the developing stage: successful pilots led to mainstreaming of the natural playground process for schools. This involved routinisation of procedural arrangements with all collaborators leading to clear contractual arrangements on funding and long-term sustainability but also upfront agreements on co-creation processes. As the funding situation deteriorated actions to replicate funding arrangement with schools with other partners included private partners. When it turned out there were no standard agreements in-house, the NBS team collaborated with the legal department to co-create and trial such agreements.

At an intraorganizational level, there was no evidence of any official action to change any procedural or institutional arrangements. Actions to set up an informal governance networks at lower levels of the organisation (network of green agents) were met with enthusiasm.

The NBS Team were actively collaborating with other departments and professional bodies on NBS standards. While non-binding this was a new type of action for the NBS team.

At the mature stage: actions remained focused on funding above all else. The end of financing from the department of education led to actions to see if similar funding could be secured through other collaborations.

5.3.3.3 Comparative analysis

Table 5.25 highlights that Capacity for Joint Action was an important collaboration dynamic for all cities. All four sub-elements proposed by Emerson and Nabatchi were relevant, although the least references were coded under Leadership for all three cities.

Table 5.25 All Cities: References to Capacities for Joint Action

5.3 Capacity for Joint Action	Genk	Glasgow	Poznan	All Cities
5.3.1 Procedural & Institutional Arrangements	49	44	41	134
5.3.2 Leadership	22	9	19	50
5.3.3 Knowledge	32	40	60	132
5.3.4 Resources	35	32	76	143
Total	138	125	196	459

Procedural and Institutional Arrangements: Findings related to this sub-element are particularly relevant in responding to the first part of the research question i.e., how do local governments adapt to collaborative governance structures? It is evident that each city carefully considered existing procedural and institutional arrangements and reflected on how these needed to be adapted for collaborative governance. Previous experience was an important factor for Glasgow and Poznan in determining changes to such arrangements. While Poznan decided to implement NBS within the framework of existing institutional structures and working processes, Glasgow decided that new procedural and institutional arrangements were needed, and they went about securing binding policy and process changes. This proved to be highly resource intensive and time-consuming but ultimately the NBS team in Glasgow were successful and council approval of the OSS integrating NBS provided a solid platform for this 30-year strategy. In Genk, the process was somewhere in between, in that the NBS team aimed for a clear and transparent change in procedures within existing institutional arrangements, but they struggled to follow through in the

face of strong resistance. There were some high impact successes however such as the change to funding conditions for NBS at regional government level.

In all three cities, smaller scale pilots were used as an arrangement to test out new forms of collaboration. They created a safe space for experimenting with risk for all stakeholders.

Leadership: Genk was the only city to benefit at the start of the research period from a high-level champion. It was evident from early meetings in Genk however that even with the support of the mayor, without funding from Connecting Nature, NBS implementation would not have scaled out at city wide level.

In this research study, the importance of facilitators or mediators in collaborative governance was seen in all three cities. In some cases, local governments played the role of facilitators or mediator in co-production of NBS while at other times, local governments needed to bring in external mediators to facilitate impartial discussions.

Leadership roles may change over the duration of a CGR. In the case study cities in this research the NBS teams in local government played a key role in early-stage formation of the CGR and in facilitating the development of collaborative governance. However, in all three cities, a clear goal was to actively support community stakeholders in taking on leadership or co-leadership roles in the longer-term stewardship phase of NBS.

Knowledge and Resources

Given the novelty of the NBS concept, it was unsurprising that there was evidence of multiple knowledge gaps across all three case study cities. Connecting Nature funding helped cities to address these knowledge gaps through in-house knowledge development and by providing resources for collaboration to address knowledge gaps.

There were some similarities and differences in terms of knowledge gaps in cities. Genk and Poznan had more skills and experience in community engagement than Glasgow. Genk and Poznan however lacked technical knowledge of NBS and skills in impact measurement. Across all cities common knowledge gaps related to NBS financing, business models and entrepreneurship.

Appendix 8.4 provides a detailed comparison of the baseline skills and resources in the NBS team at the beginning of the study period and what knowledge and resources were acquired through collaboration. In summary, there is strong evidence to suggest in all three cities that CGRs were effective in the sharing of complementary knowledge (technical, impact assessment, social innovation, citizen engagement) and in securing shared resources for CGR activities (joint funding

applications and new collaborative proposals on NBS, new project collaborations, joint business models for sustainability).

Temporal Dimension of Actions to build Capacity for Joint Action

Table 5.26 shows across all cities a high number of references under Capacity for Joint Action related to specific actions (89%). Findings are consistent in terms of the split between a focus on target goals or CGR actions for Glasgow and Poznan. However, there is a marked difference in Genk where unlike the other dynamics there is a much higher focus on actions at CGR level (64%). This relates in part to the adaptive management practices implemented at CGR level to design and review governance structures (ref. reflexive monitoring). Like other dynamics, the majority of actions across all cities (69%) happened at development stage.

Table 5.26 All Cities: Actions to build Capacities for Joint Action over Time

Collaboration Dynamic (CD) References - Capacity for Joint Action	Total CD References	Total <u>Actions</u> related to CD	Actions related to CGR Goals (Productivity)	Actions relating to CGR (Processes)	Collaboration Dynamics (Process) Actions over Time		
	A	B = C + D	C	D = E + F + G	(i) Early-stage E	(ii) Developing F	(iii) Mature G
Genk							
Total	138	136	49	87	17	59	11
Total as %	100%	99%	36%	64%	20%	68%	13%
Glasgow							
Total	125	91	15	76	8	60	8
Total as % of CD references	100%	73%	16%	84%	11%	79%	11%
Poznan							
Total	196	189	96	93	26	56	11
Total as % of CD references	100%	96%	51%	49%	28%	60%	12%
Average	153	139	53	85	17	58	10
Average %	100%	89%	34%	66%	19%	69%	12%

Different types of actions were found at different stages of CGR development in relation to

- (i) procedural and institutional arrangements,
- (ii) leadership and
- (iii) shared knowledge and resources.

Box 5.3 overleaf summarises typical actions across all three cities at different stages of development.

Box 5.3 Capacity for Joint Action– Type of Actions

Actions at the early stage of development of a CGR:

- (i) From a procedural and institutional perspective, actions focused on developing and testing formal/informal governance structures for inter-organisational and intra-organisational management of NBS.
- (ii) From a leadership perspective, the NBS teams played a leadership role as convenors of early CGR actions. Scientific experts played an important role in providing credibility and legitimacy to CGR activities providing advice and guidance on NBS.

Actions at the development stage of a CGR:

- (i) From a procedural and institutional perspective, governance structures became more embedded or routinised, although adaptive practices can lead to iterative development e.g., Stiemer Deals in Genk, natural playgrounds collaboration model and template contracts for corporate sponsorship in Poznan, smaller-scale pilots trialling new governance arrangements (all cities).
- (ii) From a leadership perspective, as actions shifted towards implementation other leaders came forward to lead on technical, operational, financial and governance functions. All cities started to consider how to support a change in leadership towards more active community involvement.
- (iii) Ongoing collaboration actions on co-creation of new knowledge e.g., measuring impact. Sustained actions on joint funding.

Actions at the mature stage of a CGR:

- (i) From a procedural and institutional perspective, actions can vary from embedding and expanding existing CGR activities e.g., Stiemer Deals in Genk, replicating the CGR processes with different stakeholders e.g., Poznan with allotment gardens. Actions towards broader systemic uptake e.g., integration of NBS into industry standards and climate action plans.
- (ii) From a leadership perspective, extension or replication of NBS into new geographical areas or typologies led to the emergence of new ‘champions’, leading to engagement of new stakeholders and experts (Poznan). At intra-organisational level, convenors took on leadership roles with actions related to transfer and sharing of knowledge (all cities).
- (iii) Replication of the CGR in other areas meant that new sources of funding and expertise were required.

5.3.3.4 Discussion

The influence of public management systems on adaptation of procedural and institutional arrangements

Given the different approaches of cities to the adaptation of processes and institutional arrangements to accommodate collaborative governance for NBS, it is worth reflecting on the potential influence of public management models on such approaches. As noted in Chapter 4, bridging hierarchical silos to achieve the multiple benefits of NBS presented challenges for the cities of Poznan and Genk who exhibited characteristics of more traditional bureaucracies. This may explain why both Poznan and Genk tried to design structures to support collaborative governance without formally changing institutional arrangements. Poznan adopted a low-key, non-confrontational approach to new collaborations while Genk tried a more radical approach which met with more resistance.

In comparison in Glasgow, findings indicate there was no major resistance to the high-level of adaptation of existing procedures and institutional arrangements needed to support NBS deployment as part of the OSS. In Glasgow it seemed that such collaborative approaches were almost the norm. This may be related to the history of NPM reforms which led to many changes including the creation of multiple arms-length ALEOs with which the council retained close working relations.

Other factors influencing adaptation to collaborative governance.

Despite the rigid traditional structures in Poznan, higher levels of trust and openness to cross-departmental collaboration were noted in Poznan than in Genk. The difference in levels of intra-organisational trust and collaboration could be related to many factors including:

(i) Historical role of the 'NBS' department: in Genk, the NBS team is located in the department with responsibility for environmental protection who were noted to have a historic 'defensive' role with other departments. In Poznan and Genk, the departments had a more positive historic role working on urban regeneration or research and development of spatial development strategies.

(ii) Vertical v horizontal remit of department: In Poznan and Glasgow, the NBS teams had a horizontal rather than vertical remit, so they had prior experience working with other

departments collaboratively rather than a role in setting and enforcing regulations like the environment department. Findings from the baseline study showed that Poznan had much prior experience in working around the system rather than trying to change it. In contrast in Genk, the NBS team were located in a vertical department (Environment) whose relationships with other departments prior to involvement in Connecting Nature were predominantly limited to technical matters. The team perceived that they had more of a defensive relationship with other departments perhaps due to their remit to enforce environmental policy and they faced the same problems with departmental silos.

(iii) Size of the organisation: The NBS teams observed in peer-to-peer exchanges the advantages and disadvantages of coming from smaller local government organisations. An advantage of smaller local government organisations was easier access to, and increased attention from high-level political figures. A perceived disadvantage was higher levels of intra-organisational conflict e.g., there were some concerns in Genk that the NBS team were encroaching on the 'territory' of other departments or putting pressure on already stretched departments to do more.

(iv) Interpersonal issues: There are many references in collaborative governance literature to the importance of interpersonal factors on collaboration. There was some evidence in Genk that personality clashes could be a barrier to intra-organisational collaboration, but this aspect was not fully explored in this research.

"Meeting with infrastructure department re. surrounding area of Slagmolen. X (NBS team) clashed with these colleagues. We always try to go for an integral approach where we tackle the redevelopment of road but also sewage system. Try to do it in one process but they're not used to doing that. They think we're making it too complex. Don't see the value of co-production...Our director was at the meeting to mediate between the two visions." 2020, Genk Team.

Based on the limited sample of the three cities in this study, it seems that NBS teams with a remit and experience of working horizontally across departments are better placed to build intra-organisational support for collaborative governance. Informal engagement and methods of building shared motivation are critically important but need to be combined with more formal structures and modes of collaboration for longer lasting, high impact change.

Pilots - experimentation with inter-organizational governance structures

As an institutional arrangement, NBS literature suggests that pilot projects are a safe space for experimentation. 'Living Lab' type approaches are commonly used in European NBS projects to

facilitate the development and testing of novel social, economic, and technological ideas in real-life settings (von Wirth et al., 2018, Wilk et al., 2021, Bulkeley et al., 2016, McCormick and Christian, 2017).

In the Growchapel pilot in Glasgow for example, representatives of multiple departments of the council participated alongside a diverse range of stakeholders from the local community in a business model canvas workshop for NBS organised through the Connecting Nature project. This event was facilitated by an independent NGO given the historic mistrust of Glasgow City Council and explored potential co-governance models.

“I still praise that event as one of the best community consultation I’ve ever been involved with, it was so positive! The site is going great.” Feb 2020, Glasgow City Council.

Through participation with local stakeholders in the steering committee for this pilot, it was also an opportunity to understand community needs and collaborate on actions to meet these needs.

“(We are) working on programmes to train people. Broad range of skills – management and procurement skills are always an issue. Reason why a lot of these projects aren’t sustainable – community groups can’t manage to keep them going for long term”. Glasgow Jan 2020, NBS team.

Glasgow also collaborated with another NGO, ‘The Conservation Volunteers’ (TCV) on Stalled Spaces pilots to build the capacities of community groups on both the technical and governance (e.g., maintaining volunteer networks) aspects of successful community garden projects. Poznan also initially experimented at a small scale with collaborative business models for preschool gardens before scaling this approach out. Genk took a similar approach with the Stiemer ‘pilot’. Pilots can therefore be seen as a useful ‘temporary’ inter-organizational governance structure to explore the feasibility of novel concepts with different stakeholders. The limited expectations from pilot actions can provide a safe space for developing other collaboration dynamics such as principled engagement, shared motivation and sharing of knowledge and allows for the identification of leadership capacities.

Leadership: Building capacities and structures for long term leadership

A key objective in all cities was transitioning from top-down initiation and governance of CGRs for NBS to co-governance arrangements with local communities and other stakeholders. This was not an easy process in any city given the novelty of the NBS concept and difficulties communicating a complex concept. In addition to gaps in technical knowledge, in Genk and

Glasgow due to their socio-economic context significant gaps in community empowerment were noted. Limited interest and capacity for co-governance were evident.

“(We were) able to identify the main issues with BH (community garden project) – those related to governance issues with local groups – capacity issues – they can’t organise themselves in such a way that they can actually manage the garden as they’re voluntary. Also, skills and training gaps – and technical solutions skills gaps – horticultural skills gaps. There are ongoing issues with sustainable finance. We need to address these issues so that these gardens become easier to replicate across the city in other open spaces. That’s the long term goal. These issues are also coming out of other workshops. It’s a problem facing the city.”
2020, Glasgow RM.

Transition in type of Knowledge and Expertise required for CGR activities.

Findings related to the sub-element of Knowledge, showed yet another transition in the involvement of knowledge experts. In the dynamic of Principled Engagement and Shared Motivation knowledge experts were found to be predominantly ‘external’ intermediaries or transaction consultants. They were deemed ‘external’ as they are not long-term participants in the CGR. They have no ‘skin in the game’ per se. They have no official mandate and are not impacted directly by CGR activities either negatively or positively. They are contracted to deliver a specific service for a specific period of time. Previous findings showed a transition from the use of external international experts at the discovery and definition stage of principled engagement to the use of local intermediaries to address real and potential conflicts at the shared motivation stage. In this third dynamic, findings show the increasing involvement of local knowledge partners. However, they could not be considered as external intermediaries. They invested their own time and resources in building local knowledge about NBS implementation opening potential avenues for wider take-up of Genk knowledge at a regional or national scale. Findings show limited involvement from such intermediaries at the early-stage of formation of the CGR but increased involvement later in the development stage of the CGR. Involvement grows in parallel with an increase in the reputation and legitimacy of the NBS team and CGR activities as an outcome from the other two dynamics.

Impact of public administration systems on addressing knowledge gaps

Findings suggest that public administration systems may influence the approaches taken by NBS teams to address knowledge gaps. In Poznan and Genk, where there was evidence of strong hierarchical silos associated with a traditional public administration model, the cities often sought

to address knowledge gaps either by building the expertise of their own team through collaboration with Connecting Nature experts or through recruitment of specific expertise (ref social innovation experts in Genk). They also used grant funding to contract in expertise from local experts (ref. Poznan funding of landscape architects).

In Glasgow, there is evidence of more openness to cross-departmental collaboration possibly related to NPM reforms. While the team made use of Connecting Nature experts in particular in financing and business models, there was a noticeable difference in sharing this knowledge with other departments and seeking to build mutually beneficial knowledge exchanges. There is evidence that this led to a high-level of support and referrals from other departments leading to accelerated collaboration with external stakeholders, ALEOs and other organisations.

The situation is not black and white however as there is evidence in Glasgow of close collaboration from the outset with external NGOs (ref. Greenspace Scotland). In Poznan, findings show that efforts to build an informal network of 'green agents' among peers in other departments paid off and led to useful support and referrals later in the study period.

Genk was the only city at the end of the study period where there was sustained resistance to intra-organisational collaboration to address knowledge gaps.

5.4 Chapter conclusion

5.4.1 Conclusions: Typology of NBS

This chapter began with an analysis of the early-stage formation of CGRs in each case study city using Emerson and Nabatchi's typology of CGRs (2015b). The underlying premise of this typology is that early-stage formation has an important influence on the composition and dynamics of CGRs in future phases of development. Emerson and Nabatchi (2015b) propose three formative typologies of CGRs. At one end of the spectrum are 'Self-Initiated' CGRs in which participants engage voluntarily to address a challenge they are directly impacted by. At the other end are 'Externally Directed' CGRs in which participants are incentivised or mandated to become involved to address an extensive public challenge. In the middle, Emerson and Nabatchi identify an 'Independently Convened' CGR where an impartial intermediary takes the lead on formation to address an issue where there is likely to be high levels of contention. Analysis of the conditions for early-stage formation of CGRs in the three case study cities appeared to show that the

‘Externally Directed’ typology was the best fit but the findings weren’t conclusive. It was concluded that while the application of the typology was useful to understand the conditions and characteristics influencing early-stage formation of CGRs, the three typologies proposed by Emerson and Nabatchi (2015b) were not overly applicable to the case study cities in this study. It may be useful to consider typologies at different stages in the development of a CGR as findings suggest governance characteristics may change.

5.4.2 Conclusions: Collaboration Dynamics

5.4.2.1 Relative Importance of Collaboration Dynamics

In total, just over 1300 references were coded across the three cities to the three collaboration dynamics of principled engagement, shared motivation and capacity for joint action. Figure 5.3 shows that all three collaboration dynamics were relevant in all three cities. Figure 5.3 (a) shows that in absolute terms, Poznan had the highest volume of references for principled engagement and capacity for joint action. Genk had the highest volume of references for shared motivation. Glasgow had the lowest volume of references across all dynamics. While figures are indicative only, this difference may be related to the different stages of maturity of each CGR.

The breakdown of actions across all dynamics showed that most actions happened during the development and implementation phase of a CGR. In Poznan, the CGR had reached maturity, in Glasgow, the CGR was in the early development phase. Genk had reached maturity on some pilot projects of the CGR but was still in development on others. Another explanation may be related to the higher number of references related to negative dynamics recorded for Poznan and Genk. They faced many challenges at intra-organisational level – Genk in terms of resistance to process change and Poznan in terms of securing high level legitimacy and financing for NBS. These challenges weren’t encountered in Glasgow but again they may emerge as the CGR progresses into the later stage of development. The negative dimensions of collaboration dynamics weren’t always very well elaborated by Emerson and Nabatchi (2015a).

Figure 5.3 (a) Total references to Collaboration Dynamics across Cities (b) Relative importance of collaboration dynamics (%)

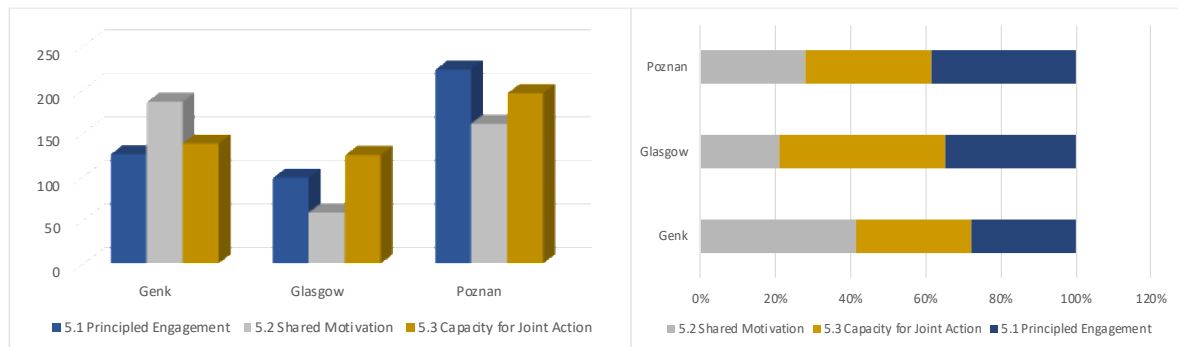


Figure 5.3 (b) shows that in absolute terms, all three dynamics were relevant for all three cities. Shared motivation was proportionately higher in Genk than Glasgow which reflects the higher challenges encountered in terms of building internal motivation to change.

In terms of joint capacity for action, this was proportionately more important in Glasgow. This may also be explained by the early stage of development of the CGR. Findings on actions show that in Glasgow the majority of actions were focused on securing legally binding approval for NBS and an official cross-department governance plan as part of the long-term OSS strategy. This required much attention to procedural arrangements.

In summary, this data shows that the three collaboration dynamics proposed by Emerson and Nabatchi (2015a) were highly relevant and helpful in understanding the dynamics of collaboration dynamics in all three cities. However, some potential limitations were identified as summarised in the next section.

5.4.2.2 Conclusion of Findings on Individual Collaboration Dynamics

Chapter 5 aims to respond to the first part of the research question i.e., how do local governments implement and adapt to the collaborative governance arrangements required for NBS. The application of the Emerson et al. (2012) framework was very relevant in answering this question and showed how each city adapted to the dynamics of principled engagement, shared motivation and capacity for joint action. The highs and lows of collaboration dynamics are summarised in this section and attention is drawn to some observations about the limitations of the Emerson et al. (2012) framework revealed from this study.

Principled Engagement

A comparison of findings on principled engagement revealed that across all three cities, introducing collaborative governance processes for NBS into existing relationships, processes and procedural arrangements had the capacity to be highly destabilising. Most of the discussion in Emerson and Nabatchi seems to focus on the formation of new CGRs where partners have a limited history of collaboration, rather than the creation of CGRs for a new target goal (NBS) but involving partners who have a long history of collaboration, which needs to be radically altered. A direct approach to engaging stakeholders about new concepts, changing hierarchical work practices and established inter-organisational arrangements met with high levels of resistance in Genk. In contrast the more informal principled engagement processes initially used in Poznan and Glasgow met with much more success. It is posited that negative responses to the process changes needed for collaborative governance may be related to the public sector management model in evidence in each city. In Genk and Poznan there was evidence of segmented and rigid departmental processes. There was strong resistance to adapting these in Genk. In Poznan the team didn't try to change the system but worked informally around it. In Glasgow while clear departmental responsibilities were evident, a culture of cross-departmental collaboration was evident.

The importance of external experts and intermediaries emerged as an important factor in principled engagement. External experts were often used in the discovery and definition phase whereas intermediaries were more often used in the deliberation phase in particular where conflict was anticipated, or facilitation skills were lacking in the NBS team. Findings also showed a difference in strategies to principled engagement from the 'soft and gentle' incremental approaches seen in Poznan and Glasgow to the 'big and bold' strategies to engagement seen in Genk. The differences in principled engagement approaches and the relationship with outputs is under-theorised in the Emerson et al. Framework (2012) but could be an interesting topic for future research also linking different approaches with outcomes. Finally, under principled engagement, challenges presented by cultural and language factors in the uptake of new concepts such as NBS was another aspect of principled engagement that was not clearly addressed by Emerson and Nabatchi (2015a).

Shared motivation: Looking next at a summary of findings in relation to shared motivation, the 'unfreezing' of existing relationships and processes had a major impact on trust in Genk, more so than in the other two cities. This could be related to the 'big and bold' approach to principled engagement and CGR formation in Genk. In contrast the subtle, informal initial approach to

building shared motivation that was evidenced in Glasgow and Poznan appeared to succeed by not threatening existing organisational arrangements. Differences in levels of motivation were particularly clear in the case of intra-organisational collaboration.

In all three cities, consequential incentives were found not only to be a driver of CGR formation but also an important driver of collaboration dynamics. As the vast majority of NBS are funded by the public sector (given their public goods/common goods nature), collaboration on new grant funding applications was a strong motivation for collaboration at local, regional and EU levels. Such collaboration helped to build cohesion towards a common goal among participants. Successful funding re-enforced internal legitimacy.

In all three cities, it was noted that internal legitimacy was easier to build at inter-organisational rather than intra-organisational level. Citizens and other external organisations engaged with NBS when they saw alignment with their own goals. In larger organisations however when goals were translated into implementation, processes issues arose at lower organisational levels. A noticeable success of the Poznan team was the creation of an informal peer-to-peer network of 'green agents' to build mutual understanding at lower levels of the local government.

One aspect of building legitimacy that was not explicitly addressed by Emerson and Nabatchi under collaboration dynamics was the measurement of outcomes of CGR activities. This is surprising given the importance Emerson and Nabatchi (2015a) ascribe to performance measurement (2015 a, b). Measuring outcomes for novel concepts such as NBS was deemed a priority by Connecting Nature and all cities were encouraged to put in place impact measurement approaches. Attitudes and capacities to measuring results as a way of building motivation differed across cities. In Glasgow a strong emphasis was evident from the outset on setting targets and measuring progress with an interactive GIS application developed to map results and allows decision to be made in real-time. In Poznan and Genk, measuring impact from NBS implementation was not a high priority. There was a lack of experience and competence in measuring impacts in Genk and Poznan compared with Glasgow where decades of NPM reforms led to target setting and impact measurement being the norm.

Capacity for Joint Action: Findings related to procedural and institutional arrangements were of high relevance in responding to the research question of how local governments adapt to collaborative governance formation. It was evident from the prior analysis of contextual factors and the other two collaboration dynamics that public management models can have a significant impact on the unfolding of collaboration dynamics. In Genk and Poznan, findings showed quite

traditional hierarchical public management models in place with little experience or appetite at various levels of the organisation for cross-departmental working practices. In Glasgow there was more evidence of openness to cross-departmental working at all levels so collaborative governance practices were not a major challenge. A deeper dive into the data from Genk and Poznan revealed different approaches were taken to initiating and integrating collaborative governance procedures and arrangements into hierarchical structures. In Genk, the NBS team adopted a direct and top-down formal approach to initiation of collaborative working practices. In Poznan, the team took a much softer approach. They developed at a peer-to-peer level an informal network of 'green agents', building shared motivation from the bottom up rather than top down. They didn't attempt to radically alter existing hierarchies but rather they tried to work around them. In Glasgow, there was a clear and transparent approach to building new collaborative governance arrangements. Chapter 6 presents the outcomes from these different approaches to developing collaborative governance processes.

A common pattern across all cities was the use of pilots, as a planned arrangement, to experiment with new concepts. These pilots provided a safe space for multi-stakeholder experimentation with new concepts and ideas. For the local government they provided a testbed for new models of collaboration which could be scaled up or discontinued depending on outcomes (add refs).

From a leadership perspective, the intense resistance to collaboration experienced at lower organisational levels in Genk contrasts sharply with the high-level support of the mayor and public administration officials for such horizontal working arrangements and recognition that they were needed for NBS and similar sustainability initiatives.

This support may have provided the NBS team with the confidence to try a 'big and bold' approach to building horizontal working practices internally. Genk was the only city who benefited from such high-level leadership from the start of the study period, although Glasgow was successful in building high level support over time. The NBS teams in all three cities exhibited strong leadership capacities in convening and facilitating multi-level collaboration to achieve the target goals of NBS implementation. All three NBS teams were successful in building knowledge about NBS among multiple stakeholders and working with different collaborators to secure resources for NBS implementation on the ground.

One of the most interesting differences in leadership roles is related to the role of intermediary. In Glasgow and Poznan, external intermediaries were used when problems were anticipated with inter-organisational collaborations. This practice was extensive in Glasgow. In Genk, the NBS

team largely took on this role themselves even though they lacked expertise, and they could not be considered impartial. This impacted on the dynamic of building shared motivation and trust.

In the longer term, all cities were interested in building the capacities of communities to lead or co-lead on shared governance. Building community leadership was more challenging in Genk and Glasgow than Poznan due to the lack of citizen interest and capacity in deprived areas of these cities. The Stiemer Deals programme in Genk and NBE Accelerator in Glasgow were successful strategies for building co-governance capacities in communities in the long term.

In terms of shared knowledge and resources, similar patterns were observed across all cities. The Connecting Nature EU project, for example, brought funding and resources to initiate CGR formation, but this collaboration also provided much-needed access to knowledge and credible external knowledge on the novel concept of NBS. Over time findings showed that as knowledge and confidence in NBS grew, the level of engagement of external ‘international’ experts decreased. This was replaced with an increasing recognition of the importance of involving ‘local’ knowledge partners in the CGR with a better understanding of local context and stakeholders. Local knowledge partners often brought opportunities for additional resources for NBS – through local and regional funding mechanisms.

At an intra-organisational level, it was found again that public administration systems impacted on collaboration dynamics with hierarchical silos contributed to sustaining knowledge gaps in Poznan and Genk. For example, while all three NBS Teams had some technical knowledge and skills relating to NBS, financing and business skills to acquire further funding and resources were poor. These skill sets were usually located in other departments and there was resistance to recruitment of such skill sets in the NBS departments.

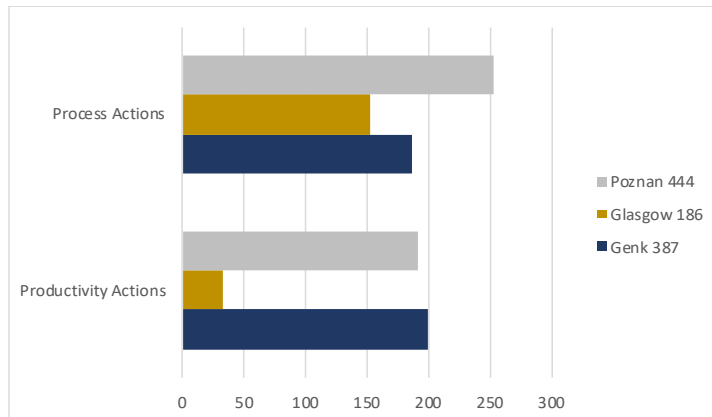
5.4.2.3 Conclusions on Actions relating to Collaboration Dynamics

This study aims to respond to reproaches that despite their importance, collaborative actions have not received adequate attention and lack specificity (Koontz and Thomas 2006, Emerson and Nabatchi 2015b, find others). A thorough understanding of actions undertaken by each city was essential to respond to the first research question which asked how local governments implement and adapt to the collaborative governance arrangements required for NBS.

In the absence of guidance from Emerson and Nabatchi, the high volume of references to actions in this study (1017 actions) was analysed from two perspectives. Firstly, actions were

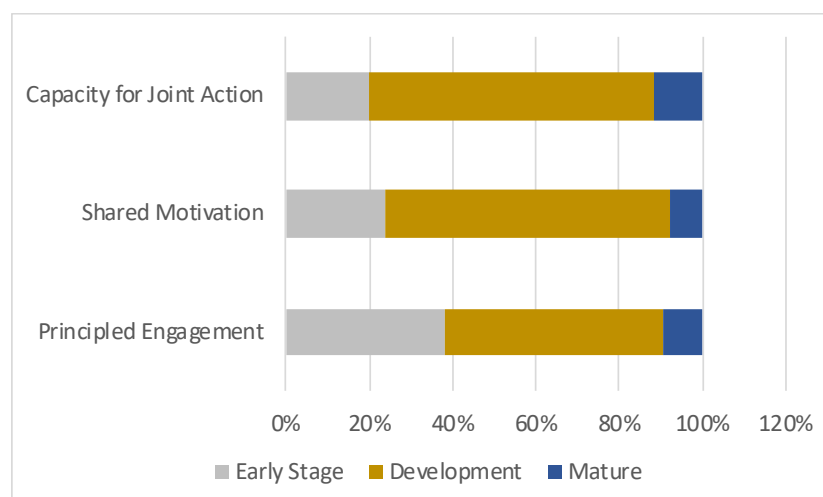
differentiated between process actions related to collaboration dynamics and productivity actions which are identified as actions to achieve the goals of the CGR i.e., NBS deployment.

Figure 5.4 Process and Productivity Actions across Cities



In total, there were more references to process actions (593 actions or 58%) than productivity actions (424 actions or 42%). However, Figure 5.4 shows that these averages mask important distinctions shown in individual city findings. Findings from Glasgow show a much lower number of actions overall and a much higher focus on the process actions required to set up a 30 year strategy and implementation plan. In contrast in Genk, there was slightly more focus on productivity actions to achieve specific target goals. It was somewhat surprising to see a higher overall focus in Poznan on process actions. This is related to the high focus on legal procedures and processes to secure new financing.

Figure 5.5 Importance of Collaboration Dynamics at Different stages of CGR Development



Process actions were further analysed to see if actions changed in relation to collaboration dynamics during the different development stages of CGRs (i) early-stage (ii) development (iii)

mature. Findings showed (Figure 5.5) that firstly the highest volume of actions happened at the stage of development. This makes sense as in the early stage of development, agreement on goals, action plans and funding are often not yet in place. A slightly higher percentage of references to principled engagement actions were noted at an early stage of development but principled engagement was important at all stage. At the development stage, shared motivation and capacity for joint action were important dynamics. This may relate to the finding from Genk that shared motivation is put to the test when collaboration moves from vision and planning at an early stage of development to operational collaboration at development stage. At this stage, procedural and institutional arrangement are very important too. Many references were noted for Poznan in relation to legal and contractual arrangements for NBS implementation. The results from the mature stage are too low to draw conclusions suggesting further research would be helpful.

Finally in terms of the type of actions that were undertaken, again findings showed a clear difference in the type of collaborative actions implemented in different phases of development. Similar types of actions were seen to emerge at different stages of development in each case study city. However, it should be noted that these patterns, could be attributed at least partially to the peer-to-peer exchange of experience that was facilitated between cities as part of the Connecting Nature project. A synthesis of findings of process actions and outputs from collaboration dynamics for these three phases is presented in Appendix 8.6.

5.4.3 Limitations and Adaptation of the Emerson et al. framework

In conclusion, the application of the Emerson et al. framework provided a useful structure to identify how cities implemented and adapted to the collaborative governance arrangements required for NBS. Three major limitations were identified.

Lack of focus on barriers to collaboration, especially inter-organisational barriers which were evident at the level of both the system context and collaboration dynamics. Across all three dynamics, discussion is predominantly focused on factors relevant to inter-organisational collaboration. Inadequate consideration is given to factors relating to intra-organisational collaboration and the dynamics of interaction between intra and inter organisational collaboration. It is well recognised that sustainability policy and actions require intra-organisational as well as inter-organisational collaboration (Feiock et al., 2017, Krause 2016, Voorberg et al., 2015, Sørensen and Torfing, 2022, Mukhlis and Perdana, 2022). This represents an important limitation of the framework for application to NBS settings. The significance of intra-

organisational barriers is well recognised in NBS literature (McPherson et al., 2023, Dorst et al., 2019; Fastenrath et al., 2020; Malekpour et al., 2021; Zingraff-Hamed et al., 2021).

Related to the lack of focus on intra-organisational factors was the lack of attention given to the impact of public sector management models and reforms on collaboration dynamics. Findings from this study suggested that traditional modes of public administration are still prevalent in some parts of Europe and the impacts of such modes of government on collaboration dynamics can be quite significant. This finding resonates with other studies on the impact of public management models on collaboration (Eppel and O'Leary, 2021).

Limitations in relation to shared motivation, especially legitimacy: The sub-element of legitimacy was limited to a consideration of internal legitimacy. Findings from this study showed a clear relationship between internal legitimacy and external legitimacy and how both of these impacted on leadership and outcomes. Another dimension not very well addressed by Emerson and Nabatchi under Shared Motivation was performance measurement. While the importance of measuring performance was discussed in relation to outcomes of CGRs, it is also relevant to discuss in relation to collaboration dynamics. Attitudes and capacities to performance measurement were found to differ across cities and may also be related to public management models and reforms. The lack of capacities to measure outcomes in Poznan and Genk led to new collaborations. Lack of such performance data may also hinder long term sustainability of CGRs.

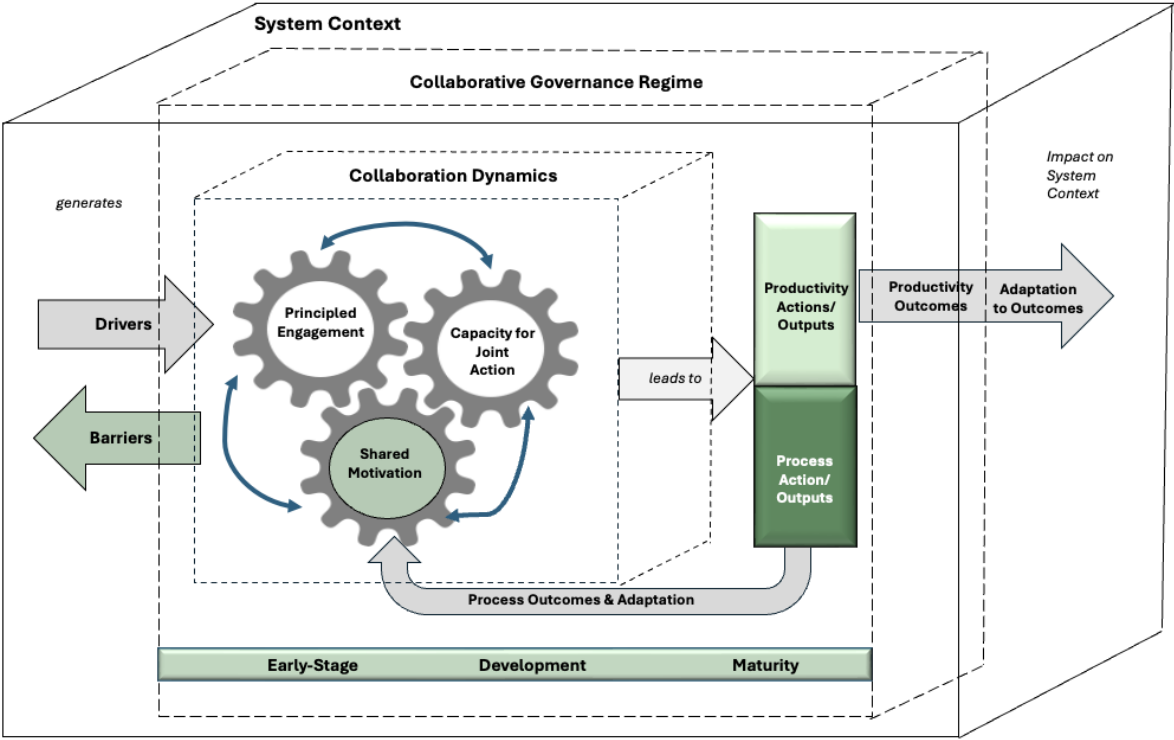
Overall, across all three collaboration dynamics, it was found that Emerson and Nabatchi offered more guidance on how to build positive dynamics in newly formed CGRs rather than how to address negative dynamics and barriers that may arise due to contextual factors such as public management models.

Actions: A third major limitation of the framework relates to collaborative actions. Emerson and Nabatchi (2015a) acknowledge the limitations of the Integrative framework for Collaborative Governance as regards the study of actions. This study provides new insights on actions, differentiating between process and productivity actions and identifying what types of actions happen over the different phases of development of a CGR.

Responding to these limitations, several adaptations to the Emerson et al. Integrative Framework are proposed in Figure 5.6 below (adaptations highlighted in green). The first adaptation relates to barriers and recognises the equal and opposite significance of barriers to collaborative governance. The most important barrier relates to intra-organisational factors stemming from hierarchical management cultures. The limitations of the dynamic of Shared Motivation is the

second adaptation highlighted. The final adaptation relates to actions and consists of (i) a clear differentiation between process and productivity actions, outputs, outcomes and long term adaptation (ii) a classification of actions by collaboration dynamic over time.

Figure 5.6 Adapted Integrative Framework for Collaborative Governance



6. Performance of CGRs

6.1 Introduction

The literature review draws attention to enduring questions over the performance of collaborative governance (Ansell and Gash, 2008, Bryson, 2006, 2015, Emerson et al., 2012, O’Leary and Gerard, 2014, Voets et al., 2021, Wilkins, 2021, Gash, 2022). Emerson and Nabatchi (2015a) and other scholars advocate for more performance measurement while simultaneously recognising the challenges faced in measuring performance. Broadly speaking the public sector faces many difficulties in reporting performance, in particular reporting on process performance and separating out process and productivity performance. Reporting on the process of collaborative governance presents specific challenges.

Establishing causality is a major issue. By definition, collaborative governance processes deal with complex issues that one organisation cannot solve alone. The question therefore is, which organisational perspective should be considered when reporting on performance and how can causality for collaborative performance outcomes be attributed to any single organisation?

The unit of analysis in performance measurement is another tricky issue. Several different types of units of analysis are considered - individual organisations in the CGR, the CGR as a whole and the target goals of the CGR. With regard to the target goals, since many CGRs deal with wicked problems - which by definition have no one solution - questions arise as to how effectively performance in relation to wicked problems can be effectively measured (Rittel and Webber, 1973).

Another challenging area to assess is the temporal dimension of collaborative governance. There is increasing acceptance that collaborative governance changes over time. Different stages of development have been identified by scholars but broadly speaking they approximate the three phases of early-stage formation, development of CGR activities and maturity proposed in Chapter 5 (Mandell and Keast, 2008, Emerson and Nabatchi, 2015b, Imperial et al., 2016, Ulibarri et al., 2020). Measuring CGR performance therefore requires studying outputs and outcomes over a long period of time and considering if/how different performance indicators apply at different stages of development. In environmental governance, the long timeframes for achieving

outcomes further complicates the attribution of causality (Ulibarri, 2015, Thomas and Koontz, 2011).

Many other conceptual and methodological challenges further complicate performance measurement as discussed in Chapter 2. Consequently, a review of the performance dimensions in the frameworks analysed for this research showed many gaps. Early frameworks paid little attention to outcomes of any kind while later work contributed to a better understanding of process outcomes (Bryson, Crosby, Stone, 2015). A lack of knowledge on productivity outcomes led Emerson and Nabatchi to develop the Productivity Performance Matrix (2015b).

As discussed in Chapter 3, this productivity performance matrix was applied to case study cities in order to respond to the second research question, i.e. Does collaborative governance work - for local governments specifically, for CGRs as a whole, and for achieving the target goals of collaboration?

6.1.2 Emerson and Nabatchi Performance Dimension of CGRs

Emerson and Nabatchi's Productivity Performance Matrix (2015b) is reproduced in Table 6.1.

Three units of analysis for performance measurement are used. These are:

- (i) The **participant organisations** involved in the CGR: In this research the NBS team in the local government is considered as the unit of analysis for the Participant Organisation. Ideally a similar analysis would be undertaken for all participant organisations in the CGR but, as explained in the methodology section, due to time and resource constraints, the NBS team in the local government was chosen as the primary unit of analysis.
- (ii) The **CGR**: the concept of CGR and cross-boundary collaboration applied in this study is broad and includes patterns of behaviour and activity at internal cross-departmental level within local government organisations, collaborations across different agencies and levels of the public sector and cross-sectoral boundary collaborations between the public sector, private sector, third sector including citizens and community groups.
- (iii) The **target goals** of the CGR: The target goals describe the desired outcomes from collaboration and are usually agreed by participants in a formal or informal action plan or Theory of Change. In Chapter 5, these goals were identified as outputs from the collaboration dynamic of principled engagement.

Table 6.1 Performance Dimensions of CGRs

Performance Level \ Unit of Analysis	Participant Organization	Collaborative Governance Regime	Target Goals
Level One: Actions/Outputs	Efficiency	Efficacy	Equity
Level Two: Outcomes	Effectiveness	External Legitimacy	Effectiveness
Level Three: Adaption	Equilibrium	Viability	Sustainability

Emerson and Nabatchi (2015) p. 723

Table 6.1 shows that for each unit of analysis, three different levels of performance are considered – resulting in nine separate categories of results to assess in order to understand how the governance regime has performed. These nine categories are discussed in more detail below, organised by the ‘level’ of performance.

Performance Level One addresses the **Outputs** of CGR actions. As discussed in Chapters 2 and 5, this research differentiates between actions (processes) and outputs (results of actions).

- **Efficiency** is proposed as the performance indicator for the Participant Organisation. Efficiency is understood as *“any reduced internal costs or net gains attributable to participation in the CGR”* (Emerson and Nabatchi, 2015a, p. 214).
- **Efficacy** is considered as the indicator of performance for the CGR, i.e. to what extent are outputs in line with the target goals and action plan of the CGR, i.e. implementation of NBS.
- **Equity** of outputs is considered in relation to Target Goals. Equity is defined as *“the allocation of attention, effort levels, and resources to collaborative outputs, and specifically as the distribution of benefits, costs, and risks of actions among beneficiaries”* (Emerson and Nabatchi, 2015a, p.215). In other words, to what extent do the different participants equally invest efforts and reap the benefits from CGR activities?

Performance Level Two evaluates the **Outcomes** from collaborative governance outputs. Performance indicators suggested for the different units of analysis include:

- **Effectiveness** for the participant organisations, i.e. evidence of internal benefits and added value from participation in the CGR.
- **External legitimacy** is proposed as the indicator for performance evaluation of the CGR i.e. to what extent do outcomes generate positive perceptions leading to increased credibility and acceptance among external organisations.
- **Effectiveness** for target goals considers *‘the extent to which collaborative outputs produce their intended outcomes’* (Emerson and Nabatchi, 2015a, p.216.).

Performance Level Three evaluates **Adaptation** in the longer term in response to collaborative governance outcomes.

- **Equilibrium of change** i.e. *‘the balance between stability and change’* (Emerson and Nabatchi, 2015b, p.216) is considered as the performance indicator for the participant organisation. This research looks for evidence of the extent to which the participant organisation settled into a new stage of equilibrium incorporating (or not) the outputs / outcomes of the CGR.
- **Viability** is a key indicator for the CGR, i.e. the capacity of the CGR to continue operating in pursuit of their target goals. While this indicator is particularly relevant for CGRs with an ongoing remit e.g. contributing to long term NBS policy, it may not be as relevant for CGRs with a more defined remit e.g. CGRs set up to implement specific NBS projects.
- **Sustainability** is the final indicator considered for target goals which is identified as *“the longevity of outcomes - are the demonstrated effects robust, resilient, and lasting over time?”* (Emerson and Nabatchi, 2015b, p.217). It is posited that the sustainability of outcomes may also be related to long term adaptation in a system context.

6.2 Findings for each city

6.2.1 Genk

Level 1: Outputs

While Emerson and Nabatchi’s productivity performance matrix only considers performance in relation to productivity, for clarity both process and productivity outputs are first presented for each city (see Box 6.1 for Genk). Following the presentation of outputs, performance is evaluated using the indicators from Emerson and Nabatchi’s productivity performance matrix.

Box 6.1 Genk: Process and Productivity Outputs

Key Process Outputs of Collaboration Dynamics

- Increased knowledge among all stakeholders about NBS. Successful activation and sustainable development of collaboration mechanisms with new external stakeholders (local citizens, businesses, NGOs, regional agencies, academic institutes) on NBS implementation.
- Agreement on the 4 target goals of the CGR for NBS and action plan for implementation.
- Governance structure and collaboration processes for CGR proposed, agreed, implemented, and adapted iteratively. This governance structure included governance structures and collaboration processes for 4 spatially defined pilot projects and 2 cross-cutting initiatives to support communication/engagement and the Stiemer Deals nature-based social innovation programme.

"By not considering the Stiemer exemplar as a project anymore, but rather as a process/program has led to an entire new governance model. This transformed the entire approach in a fundamental way...Instead of the sum of project structures, this required a clear and integrated governance model characterized by a horizontal, co-creative approach in which involvement of stakeholders, both internal (other departments) and external (other agencies, NGOs, businesses, and citizens), and ownership are central principles". 2022, Genk Final report to EC.

- Integration of NBS into long term climate action policy plan.
- Successful EU, regional and city funding secured for NBS from a range of collaborations.
- Commitment of resources to collaboration- 1 new NBS team member recruited, 3 team members seconded from different departments (Spatial planning, Environment, Social).

Key Productivity Outputs

- Submission of joint funding applications for NBS pilot projects. €2.9 secured by the end of study period with a further €3m expected.
- Full or partial implementation of 4 NBS pilot projects on the ground:
 - Gardens of Waterschei – construction of green pavilions and other green infrastructure interventions to create a biodiversity corridor connecting key points of the city including Thor Park (renewable energy campus) and Stalenstraat (key retail street). The first and second phase was completed by the end of the study period including a Stiemer Community Hub.
 - SUDS: Funding and collaboration secured and implementation underway on a new Sustainable Urban Drainage System (SUDS) experimental approach to citizen involvement as first phase of broader rollout to wider Stiemer Valley.
 - Valley Route - Active travel route through Stiemer Valley. Implementation began Spring 2022.
 - Slagmolen: Failed collaborative governance attempt with NGOs and NBEs led to acquisition of this cultural site by the regional government. Collaboration ongoing with other regional agencies on wider redesign of surrounding green/blue areas as part of a flood mitigation and re-naturalisation programme. Implementation to start in 2023.
- Successful results from 2 cross-cutting initiatives:
 - High level of engagement of community members from all age groups through professional and targeted communication and engagement strategies e.g. The Junior Team involved school children in designing natural playgrounds, citizens were involved in Friends of the Stiemer, widespread community involvement in clean-up and organised family fun activities.
 - Successful pilot of Stiemer Deals social innovation programme with 37 deals completed or underway by end of study period.

Productivity Performance

References captured in the data to any of the three performance dimensions (Efficiency, Efficacy and Equity) for outputs are summarised in Table 6.2.

Table 6.2 Genk: References for Output Performance Dimensions

Performance Level 1: Outputs	No. of references
Efficiency for the NBS team	5
Efficacy for the CGR	145
Equity of Target Goals	1

Efficiency of Outputs for the NBS Team: As shown in Table 6.2, only 1 reference was coded under the performance indicator of efficiency. As can be seen from this reference, it implies that cost efficiencies were not a high priority for the NBS team and they suggest other performance indicators such as quality or collaboration are more relevant for NBS.

“It’s a matter of culture. Personal value, personal beliefs. The way they are working is based on efficiency. Routines. Habits. Efficiency is an important value but if you value quality or collaboration more then you have different processes. Different organisational culture” 2020 March, Genk RM.

In Chapter 5 on collaboration dynamics, there are many references to the challenges of collaborating with other departments. The focus on cost efficiencies and the use of conventional cost-benefit approaches as evaluation criteria in procurement processes were identified as important barriers to collaboration which takes time and is difficult to measure. Infrastructure departments also perceived longer planning cycles due to co-creation to be more costly and inefficient.

Notwithstanding the lack of direct references to cost efficiencies, it is evident that cost efficiencies did arise from collaboration due to the time, expertise and resources invested by other collaborators in NBS implementation, e.g. the partners in Stierner Deals invested their own resources in achieving outputs aligned with the Stierner goals. However these costs weren’t captured and monetised and therefore were not considered by the NBS team.

Efficacy of outputs for the CGR: There was a high volume of references related to efficacy i.e. level of alignment of outputs with target goals of the NBS. It is clear from the productivity outputs presented above that outputs are clearly aligned with the goals of NBS implementation. For example, in relation to sustainable water management approaches, outputs such as the Living Lab were initiated through multi-departmental, multi-actor collaboration. They succeeded in securing funding and had begun operations by the end of the study period, engaging with citizens with a view to securing awareness leading to take-up of SUDS on private land.

“SUDS on private domain – Living Lab doing mapping exercise – today was the first walk in the neighbourhood on the theme of water. The Living Lab installation will be built in 2022. It will stimulate neighbours to invest in measures on their own land. Full implementation is planned then in 2023.” 2021, Genk RM.

Equity of Target Goals: There was only 1 reference to equity of target goals, i.e. to what extent does the investment of time and effort of participants in CGR activities match the distribution of benefits. This reference raises issues of fairness around the collaboration between the city and an NGO on the development of the pilot project of Slagmolen. The NBS team considered it unfair to have an equal partnership as they are investing most of the capital costs. This is indicative of a difficult collaborative relationship which eventually failed due to mistrust.

“In the coming months they (NGO) can’t invest in building infrastructure. Nevertheless, our Alderman wants us to pursue signing an MoU related to equal partnership with them. We don’t think this is fair – if they don’t invest in Slagmolen, how can they be an equal partner? In the end we are the owners” 2020 June, Genk RM.

Level 2: Outcomes

Box 6.2 presents the process and productivity outcomes for Genk. These are drawn from the references to actions in chapter 5.

Box 6.2 Genk: Process and Productivity Outcomes

Key Process Outcomes

- Change in governance processes towards collaborative working practices.
“A shift in the structure of Working Groups within the City from project-based to thematic-based (e.g. Water Management) has enabled a more strategic and integrated approach to project delivery, that also has more influence due to Working Group members typically being more senior within organisation and strategic levels.” 2022, Genk Final report to EC.
- Successful internal innovation process
“Deliberately choosing to allocate dedicated capacity to social innovation has boosted our co-production & participatory approach. We evolved in collaboration to real co-production-based solutions such as the Stiemer Deals concept.” 2022, Genk Final report to EC.
- New process of ‘reflexive monitoring’ considered highly beneficial for adaptive learning.
- Internally other departments seek advice on collaboration practices to improve horizontal working practices.
- Increase in external interest from new organisations in collaboration towards NBS goals. Multiple new collaborations bringing access to new knowledge and resources

Key Productivity Outcomes

Impact on the ground from NBS projects:

- **Environmental:** Too early to evaluate outcomes on the ground from experimental SUDS approaches. Slow progress on implementation of nature-based flood management solutions due to poor uptake among landowners. Cycle pathways partially delivered leading to increased connectedness but impact on car culture unclear.
- **Social:** community outreach activities and social innovation activities increased awareness, engagement, and connectedness with Stiemer Valley for active transport and leisure.
- **Economic:** Success of Stiemer Deals social innovation programme showed economic value of NBS and led to increased co-investment by other stakeholders.

“The Stiemer Deals programme adopted an entirely novel social innovation approach for the city: a voluntary agreement between the City of Genk and other partners from across the city (other city services, citizens, organizations, companies) in relation to delivering mutually aligned ambitions associated with the Stiemervallei. This goes beyond co-production to innovative co-governance and co-financing for the stewardship phase. Officially launched in 2020, this innovative policy instrument is now integral to creating ecological, economic, and social value from the Stiemervallei programme, delivering such innovations as Stiemer ice cream and Stiemer beer.” 2022, Genk Final report to EC.

Productivity Performance

References captured in the data to any of the three Emerson and Nabatchi performance indicators for outputs are summarised in Table 6.3.

Table 6.3 Genk: References to Outcomes performance dimensions

Performance Level 2: Outcomes	No. of references
Effectiveness for the NBS team	35
External Legitimacy for the CGR	26
Effectiveness in achieving Target Goals	36

Effectiveness: Emerson and Nabatchi suggest that “One way to measure effectiveness is through participants’ perceptions of the extent to which the outcomes have contributed to their organizations” (Emerson and Nabatchi, 2015a, p.215). From this perspective, the many process outcomes described by the NBS team in Box 6.2 provide strong evidence of effectiveness. Benefits identified include improved processes for delivery of complex projects requiring internal and external collaboration, new processes of monitoring complex projects leading to more responsive adaptive governance, new collaboration mechanisms to stimulate social innovation, access to expert knowledge of other partners and joint collaboration on funding bids.

“Together with DRIFT (academic partner), we pioneered an advanced process monitoring approach (reflexive monitoring) that for us feels as the main driving force behind the success of the Stierner exemplar. A (well thought) learning process is often forgotten in urban planning, and we are happy that we managed to develop an approach that truly has built up our urban transformation capacity and is constantly improving our process/programme” 2022, Genk Final report to EC.

The value of collaboration was recognised internally by senior managers, who sought out advice and support for the management of other integrated projects. Externally, the benefits of collaboration can be measured in terms of commitment of existing collaborators to collaboration processes and the interest of new organisations in joining the CGR.

External Legitimacy: i.e. *‘the acknowledged status of the CGR and effects of outputs’* (Emerson and Nabatchi, 2015a, p. 220) is evident through the observations of the NBS team members in relation to both internal and external legitimacy. At an intermediate stage, external legitimacy is evidenced in the willingness of organisations to collaborate together. Collaboration on joint funding proposals was one of the first ways the NBS team in Genk built external legitimacy. Even if unsuccessful at first, they built recognition of the NBS concept and the value of collaborative working. Successful funding bids confirmed external legitimacy and also led to an increase in internal legitimacy. After winning a big funding award, the NBS Team observed a change in the attitude of colleagues and higher-level directors. Externally, the publicity from this award led to increased commitment to collaboration from the other partners involved in the award and an increase in approaches from other organisations to collaborate.

“Stiemer being selected as one of laureates of the Flemish City Innovation Fund is not only a financial lever, but also gives the programme and NBS as solution concept a lot of recognition and credibility” 2022, Genk Final report to EC.

Effectiveness in achieving Target Goals: At the end of the study period, NBS projects were only starting to be implemented on the ground, so the evidence base to support measurement of the effectiveness of NBS in delivering environmental, social and economic benefits was only emerging. While it was too early to see meaningful environmental impacts, social and economic outcomes were easier to measure as shown in Box 6.2. These were of high interest to policy makers leading to a virtuous policy cycle of further investment in NBS.

Level 3: Adaptation

Adaptation considers how outcomes lead to changes in a systems context. These may be incremental or radical changes and may occur at the level of the CGR, or in the broader systems context.

Box 6.3 presents the findings from Genk on how the city adapted to the process and productivity outcomes presented in Box 6.2.

Box 6.3 Genk: Adaptation to Process and Productivity Outcomes

Adaptation to Process outcomes

- Retention and expansion of NBS Team members. Additional capacity added.
“Capacity now dedicated to social innovation, boosting co-production and participatory approaches e.g. Stiemer Deals” 2022, Genk final report to EC.
- Stiemer Deals has resulted in a proliferation of multiple mini-CGRs networking amongst each other (unintended consequence). Success has led to increased demand for city support in collaboration.
- Multi-stakeholder internal and external collaboration approaches are being replicated across other sustainable city programmes (e.g. Energy Sector, new city centre development). Recruitment of senior staff with remit to increase horizontal working practices at internal level.
- Adaptive learning process (reflexive monitoring) being replicated organisation wide.
“The successful implementation of the reflexive monitoring process on the Stiemer governance process, reflexive monitoring has now been transferred to the development of other major programmes within the City Authority”. 2022, Genk final report to EC.
- Stad Genk took the lead on co-creation of a regional multi-stakeholder UrbanByNature Hub focused on NBS water management solutions such as SUDS, identifying challenges and building a collaborative knowledge base of skilled suppliers.

Adaptation to Productivity outcome

- Successful high-level collaboration between two Mayors leading to SUDS recognition as a viable alternative to grey infrastructure in long term funding mechanism.
“The grant received for SUDs & SODA can indeed be considered as an innovation and breakthrough, because a traditional funding mechanism for sewage infrastructure has been opened up; a new category for experimenting with NBS was added under pressure of 2 Flemish cities (one of them being Genk).” 2022, Genk final report to EC.
- Integration of NBS into long term policies provided increased impetus for long term funding.
“through the 2020 Policy Cycle, sustainability is now embedded as one of three horizontal topics with Climate Action Planning and Nature-based Solutions now mainstreamed on delivery agendas of colleagues across the city authority. This includes transfer of the nature-based solution concept to a new flagship project climate-proofing the city centre through greening of open spaces and grey infrastructure.” 2022, Genk final report to EC.

Productivity Performance:

Table 6.4 Genk: References to Adaptation Performance Dimensions

Performance Level 3: Adaptation	No. of references
Equilibrium of change for the NBS team	18
Viability of the CGR	29
Long term sustainability of Target Goals	20

Equilibrium of change for the NBS team: This indicator describes how organisational systems in each city have rebalanced and stabilised after changes to adapt to collaborative governance. In Genk much activity was focused on introducing new processes to support collaborative governance. This included experimentation with new cross-departmental and cross-stakeholder governance approaches to implement NBS. Multiple actions focused on changes to long-standing processes such as public procurement and financing to adapt to NBS. At the end of the study period, the situation in terms of equilibrium of change and stability was mixed in Genk. Some changes such as those in financing processes were accepted and embedded at regional government level, however there was evidence of continued resistance at lower levels within the city organisation to changes in other processes such as public procurement. There was a perception that after several years of trying bottom-up collaboration within the organisation, top-down intervention was needed and higher-level managers right up to the mayor stepped in to support changes towards horizontal working. At higher levels of the organisation there was recognition that collaborative governance was both beneficial and essential to deal with complex issues but equally that this required long term structural change within the organisation and could not be limited to one policy domain such as NBS.

To this end and related to the next indicator on viability of collaborative governance in the long term, at the end of the study a high-level manager was appointed in the city of Genk to oversee this process of change towards horizontal cross-departmental collaborative governance

"I have high hopes, with the new general manager ... she's here now for three years, and she will really focus on the organizational development. And she knows the challenge of this horizontal working, and so I have high hopes and I also had some conversations with her, and I think she's moving the ship in the right direction, somehow, but it's a big tanker and it takes a lot of time to move in that direction." Sept 2021, Genk RM.

NBS processes were also being experimented in other horizontal policy fields such as energy transition and in other spatial projects such as the regeneration of the city centre.

Viability of CGR: Evidence of the viability of CGRs was high in Genk. There was recognition of the value of collaborative governance at the top level of public administration and commitment to radical change in organisational practices towards collaborative governance. NBS team members were being approached for advice on replicating collaboration approaches for other strategic projects.

“City Centre renewal is the next flagship project. They’re asking us for ideas on what co-creation processes can be used” Nov 2021, Genk RM.

At the more specific level of the CGR for NBS implementation, evidence of viability was clear through commitment of city funding, extension of the contracts of NBS team members and recruitment of new team members in social innovation.

Long term sustainability of Target Goals: It is difficult to apply this indicator in Genk as at the time of the conclusion of the study, while commitment to long term implementation of NBS was in place, actual implementation of NBS on the ground was at an early stage of development so the long term social, economic and environmental impacts of NBS were difficult to measure.

6.2.2 Glasgow

Level 1: Outputs

Box 6.4 presents a summary of the process and productivity outputs for the Glasgow CGR arising from the actions described in Chapter 5.

Box 6.4 Glasgow: Process and Productivity Outputs

Process Outputs

- Increased knowledge among all stakeholder groups about NBS. Successful activation of collaboration mechanisms with local communities, NGOs, entrepreneurs, academic institutes, investors on NBS implementation.
- Piloting of governance structure 3 x pilot projects (Growchapel community garden, Stalled Spaces NBS in open space upskilling programme, NBE accelerator pilot)
- Transition from top-down council decision-making on public areas towards more collaborative approaches - 15+ Friends of (Parks) groups set up with communities.

"A shift towards co-productive model working with 'Friends of' groups represented a governance shift in relation to delivery. Out-sourcing delivery and providing support in the form of capacity building resources, represented a new way of working." 2021, Glasgow RM

- Collaboration on long-term OSS strategy aligned with other policy areas and departments.
- Official Agreement on more formalised processes for cross-departmental collaboration on implementation of OSS cross-cutting strategy.

"There was a lack of consistent, established, and agreed internal cross-service governance structure at management/senior management level. A novel Open Space team meeting was established to address this. The meeting comprised key officers at operational management level focused across the 15 themes of the Open Space Strategy. The meeting formalised what was previously an informal networking process". 2022, Glasgow final report to EC.

- Funding secured for NBS implementation via OSS, additional NBS Team members recruited (2) and sustained in long-term.

Productivity Outputs

- Official Council approval of OSS strategy mainstreaming NBS.
- Agreement on OSS action plan as part of governance plan.
- Completion of Open Space Quality Assessment showing citizen access within 400m to good quality open space (in line with policy). Data on open spaces entered into a spatial GIS database capturing baseline data on social, economic and environmental context of open spaces across the city. Use as a decision-making tool on NBS investment by public and private sector:

"Building from the spatial database development, Glasgow City Council (GCC) is partnering with NatureScot, the Scottish Government, and Dark Matters Labs to develop TreesAI: an open-source platform to map, value and finance urban forests. This will underpin better decision-making in relation to tree planting, management, and stewardship. The project will be piloted at COP26 and will subsequently represent a funding stream for mainstreaming nature-based solutions across the city." 2022, Glasgow final report to EC.

- Funding for 3 x small-scale pilot projects (< £10k) secured and pilots implemented during study period.
- Securing funds for NBS/OSS implementation (to start after the end of study period): Open Space Strategy dedicated funding (£1.2m). Alignment of other funding with OSS/NBS priorities (£10m Ecological Fund), funding for new playgrounds (£500k) decision based on OSS mapping of priorities, funding for Stalled Spaces from Vacant and Derelict Land Fund (£150k).

Productivity Performance

Table 6.5 summarises the references coded in relation to the output performance dimensions specified by Emerson and Nabatchi (2015a).

Table 6.5 Glasgow: References to Output performance dimensions

Performance Level 1: Outputs	No. of references
Efficiency for the NBS team	6
Efficacy for the CGR	116
Equity of Target Goals	1

Efficiency of outputs for the NBS team: While there weren't a large number of references to net efficiency gains for Glasgow (Table 6.5), these references showed a clear appreciation of how collaboration could lead to multiple efficiencies, both in terms of expertise and cost savings as work was shared between partners and networking allows for sharing of expertise.

"Clearly, we have limited resources, and we can't get involved in everything. Some of the co-benefits of the workshop is that it provides a forum for other projects to network with each other and build relationships. We've noticed a lot of that. So hopefully this will lead to benefits and less requirements from us." 2020 Jan, Glasgow RM.

Efficacy of outputs for the CGR: The high number of references reflects a high level of efficacy in terms of alignment of outputs with the goals of the CGR i.e. NBS implementation. Outputs included the integration of NBS into the official council open space strategy which was approved. A mapping of all open spaces across the city was completed. Demonstration pilots of NBS were completed on the ground. Funding was secured at the end of the study for larger implementation projects at a city-wide scale.

"Also had the budget announced - circa £1.2million dedicated to open space improvement, ... Raises the profile. Public discourse through the pandemic contributed to raising the profile, political will and awareness" 2021, Glasgow RM.

Equity of Target Goals: While there were few direct references to equity in terms of fairness of distribution of costs and benefits of collaboration, it is fair to say that equity is at the heart of the open space strategy. The OSS recognises current inequities in access to high quality open space

and seeks to address the challenges to addressing this inequity which are summarised in the following reference.

“There is an acknowledgement that whilst policy seeks to provide equity of access for all to high quality open space, budget constraints, citizen knowledge and political decisions can all lead to an inequality of access and pressure on budgets” 2019, Glasgow RM.

Level 2: Outcomes

Box 6.5 presents a summary of the outcomes arising from the outputs presented in Box 6.4.

Box 6.5 Glasgow: Process and Productivity Outcomes

Process Outcomes
Successful multi-stakeholder collaboration on three pilot projects. NBS team invited to participate in the governance board of Growchapel Community Garden. Successful take-up of new tools such as Business Model Canvas to engage multiple stakeholders in identifying new sources of finance.
Productivity Outcomes
No results from the official OSS strategy as it was only approved at the end of the study period. GIS system in place to measure social, economic, and environmental outcomes in the long-term using a range of indicators. Impact on the ground of three NBS pilots • Environmental: No results captured from pilot projects. Too early to measure results. • Economic: Successful pilot of NBS enterprise accelerator showed the potential of nature-based entrepreneurship to contribute to plan, deliver and manage open spaces. <i>“Glasgow City Council partnered with The Melting Pot’s Good Ideas and Glasgow Caledonian University in establishing an NBE accelerator pilot programme to support early-stage nature-based businesses, with a view to developing a nature-based economy around NBS stewardship and use. With 40 quality applications for the initial 10 places, the programme was heavily oversubscribed. Due to this demand, enrolment was increased to 15 high potential start-ups, all of which undertook the accelerator programme, graduating in September 2021.”</i> • Social: The Growchapel and Stalled Spaces pilots demonstrated community interest on the ground in engaging in open space development in economically deprived areas. It also identified the need for upskilling in terms of both technical skills and governance. A training programme was co-delivered with an NGO (TCV) as part of Stalled Spaces pilot. Co-development of new engagement approaches such as Every Trees Tells a Story <i>“Co-production approaches have led to the co-development of Every Tree Tells a Story: a social cohesion and lived experience NBS project to capture and map tree stories across the city. Co-designed with Strathclyde University and GCC Education Improvement Service, it seeks to empower communities to use creativity to capture stories about the trees and the spaces in which they sit.” 2022 Connecting Nature Final Report to EC</i> • Increased levels of internal and external legitimacy: NBS briefing for councillors led to increased awareness. Invitations to participate in COP26 and multiple other relevant regional, national, EU events and dialogues. • Selection of Glasgow as one of top 100 EU Climate-Neutral and Smart Cities by 2030 (2022) further enhanced interest in NBS implementation.

Productivity Performance

References captured in the data to any of the three Emerson and Nabatchi performance indicators for outputs are summarised in Table 6.6.

Table 6.6 Glasgow: references to Outcomes Performance Dimensions

Performance Level 2: Outcomes	No. of references
Effectiveness for the NBS team	23
External Legitimacy for the CGR	21
Effectiveness in achieving Target Goals	8

Effectiveness: Due to the early stage of implementation of the OSS, effectiveness of collaboration on NBS implementation can only be gauged in relation to pilot projects. These pilot projects allowed the NBS team in Glasgow to build new collaborations with NGOs which addressed skills and knowledge gaps within the NBS team, e.g. engagement with citizens (Greenspace Scotland) collaborating with citizens to build technical and governance capacities (The Conservation Volunteers), entrepreneurship skills development (The Melting Pot) etc.

“Setting up this formal partnership with an established organisation with relevant expertise and existing governance structures helps to share the responsibility for delivering on project objectives. It also provides local contacts, expertise and more manpower on the ground” 2019, Glasgow NBS Team.

External Legitimacy: Glasgow achieved high levels of internal and external recognition and buy-in to the concept of NBS. To some extent this was achieved through serendipitous timing with the declaration of an ecological emergency in Glasgow and the hosting of COP26, both of which increasing awareness and interest in NBS.

“Strategically, using high-level initiatives such as COP26 and the Climate Emergency announcements can be an effective way to increase awareness around the multifunctional benefits of nature-based solutions” 2020, Glasgow RM.

This in turn helped to open doors to inclusion in the multi-stakeholder Ecological Emergency Response Team and decision making on allocation of the £10m budget of this team. A snowballing effect was evident leading to invitations to participate in COP26 and multiple other

regional, national, EU events and dialogues on numerous initiatives, e.g. National Park City Campaign, Trees AI etc. The outcome of higher levels of internal and external legitimacy was a seat at the decision-making table and higher levels of funding committed to NBS.

“They got £500k from government for upgrading play in parks. (They asked us) can you help us decide which ones? We can tell you which sites will give most bang for buck. Can a playground become a NBS for flood alleviation? The OSS (mapping tool) can not only give a list of parks but generate recommendations on optimal NBS solutions and consideration of maintenance costs. This should unlock more funding.” 2021 Sept, Glasgow NBS Team.

Effectiveness in achieving Target Goals: There was a relatively low number of references in relation to the extent to which NBS produced their targeted effect. While there was good evidence of social and economic impacts for pilot projects, as the OSS was just beginning full scale implementation at the end of the study period, the full effects and therefore effectiveness could not be measured.

Level 3: Adaptation

Box 6.6 Glasgow: Adaptation to Process and Productivity outcomes

Adaptation from Process outcomes
• Retention of additional team member to work on NBS long-term. • Internal restructuring: The Open Space Strategy has contributed to the restructuring of the Sustainability and Planning departments to align them with the Development Plan group. The NBS team has been integrated into a newly formed department of Sustainability, Planning, Housing and Sustainable Transport bringing them closer to collaboration partners previously located in a different department. • Based on NBE accelerator success, involved in consultations on formation of new Green Economy Unit reporting to CEO. • Glasgow City Council led on the creation of a national multi-stakeholder UrbanByNature Hub to raise awareness and action on NBS outside of Glasgow.
Adaptation from Productivity outcomes
• Successful pilot of NBS enterprise accelerator led to mainstreaming and upscaling in collaboration with other partner (NGO, academic, CCE) <i>“Glasgow has leveraged their knowledge of NBS and pilots of nature-based enterprise accelerator in Connecting Nature to partner with the University of Glasgow in securing £10 million from UKRI Natural Environment Research Council (NERC) for the GALLANT project ‘Glasgow as a Living Lab Accelerating Novel Transformation’</i> • NBS officially integrated into the long term 30 year OSS strategy, governance structure and resources in place to ensure take up. • Increased awareness at national scale: 24 mentions of NBS within the new draft National Planning Framework (2022)

Productivity Performance

Table 6.7 Glasgow: References to Adaptation Performance Dimensions

Performance Level 3: Adaptation	No. of references
Equilibrium of change for the NBS team	4
Viability of the CGR	26
Long term sustainability of Target Goals	3

Equilibrium of change for the NBS team: Table 6.7 shows that in Glasgow there was considerable organisational instability for much of the study period and the NBS team showed strong resilience in managing this situation. Towards the end of the study period there was strong evidence of radical transformative change at an organisational level, with the merger of the NBS team into another department with a broad remit for sustainability issues. Decisions on such changes only emerged towards the end of the study period and therefore there was insufficient data to draw conclusions about the stability of such changes. The merger was generally perceived positively as the NBS team had been engaging closely with several teams in the department with which they were merged as part of the collaboration on NBS. There was a perception that the merger would lead to increased representation at higher levels in the Council. Other radical changes included the appointment of a Green Economy Manager. There was guarded optimism among the NBS team that this appointment could bring more radical change which could mean more instability in the future.

“So the challenges for the City Council are reducing budgets and resources with a growing agenda. A completely changing agenda. So there is talk about trying to be more efficient, more effective, and step up to the challenges. But I think what the City Council is doing at the minute is business as usual. If they can do this system change and do a dramatic change in the way that we operate as a business, which is hopefully what the green economy manager is trying to do, change the way we work and silo-busting the rest then that will probably solve the challenge” 2021 November, Glasgow RM.

Viability of CGR: In Glasgow, due to the early stage of NBS implementation on the ground, outcomes were not evident at large scale. However, the high level of success in securing internal and external legitimacy, policy integration and funding secured bode well for the viability of NBS. Permanent resources were committed to the NBS team and the integration of the NBS team into

a new department with remit for sustainability gave them improved visibility and access to funding streams.

“(The) other department has a better relationship with procurement and better representation at a higher level. Therefore, better access. Hopefully it will make the governance of the OSS easier.” Dec 2020, Glasgow RM.

Long term sustainability of Target Goals: Again due to the early stage of NBS implementation on the ground, it is not possible to forecast how the system will adapt to full-scale NBS implementation in the long term. However the embedding of NBS into official policies, the merging of departments giving the sustainability agenda a higher priority and the appointment of a high profile green economy manager provides a good basis for long term adaptation.

6.2.3 Poznan

Level 1: Outputs

Box 6.7 shows the process and productivity outputs arising from the analysis of collaboration dynamics in chapter 5.

Box 6.7 Poznan: Process and Productivity Outputs

Process Outputs
• Increased knowledge among all stakeholder groups about NBS. • Successful activation of multi-stakeholder collaboration mechanism with local school communities involving architects, teachers, local families, and other interested stakeholders. • New collaborations with NGOs, businesses, academic institutes, corporates towards achievement of goal of NBS implementation. • Development of new forms of internal cross-departmental collaboration such as informal internal network of ‘green agents’ on NBS. • Alignment with strategic policies and priorities to gain high level support. <i>“In order to ensure the engagement of senior decision and policymakers, it was also critical to map the expected benefits of the Open and Social Gardens programme onto key city strategies ... to demonstrate how the NBS exemplar would deliver on these.” 2022, Poznan final report to EC.</i> • Use of existing local government resources for NBS (FTE 2 team members). • Integration of NBS into business guidelines for sustainable development.

Productivity Outputs

- Funding and collaboration with Dept of Education and other NGOs resulted in:
 - 46 eco- demonstrators installed in schools e.g., insect houses, live willow huts, climbers (plants) or fruit bushes. Delivery of education class scenarios.
 - 21 high quality nature-oriented playgrounds. Larger scale NBS interventions co-created with architects, teachers, and community.
 - 1 open garden located in a school but open to wider community.
- Partnership with NGOs to deliver additional NBS in non-school settings.

“In partnership with the OnWater Foundation, five floating gardens have been completed in Poznan... The floating gardens improve the river/water ecosystem, introducing more biodiversity into the city by providing shelter, feeding, and breeding opportunities”. 2022, Poznan final report to EC.
- Development of locally contextualised catalogue of NBS to raise awareness of the approach in Poznan.

“In order to open up new external funding opportunities, (the NBS Team) uses their NBS catalogue to engage civil servants and civil servants and developers, raising their awareness of the tradition of nature-based solutions in Poznan, and the benefits that can be achieved through such approaches”. 2022, Poznan final report to EC.
- The City of Poznan launched an NBS Training Programme with the aim of supporting the rollout, design, and stewardship of their nature-based solution. There were two elements targeted at different stakeholders (i) Education for decision makers; (ii) Training on good NBS practice for contractors/NBEs in the private sector. The programme was supported with technical training materials.

Productivity Performance

Table 6.8 Poznan: References to Output performance dimensions

Performance Level 1: Outputs	No. of references
Efficiency for the NBS team	11
Efficacy for the CGR	188
Equity of Target Goals	8

Efficiency of outputs for the NBS team: Table 6.8 shows that Poznan appeared to face the most difficult budget situation of all cities. From the outset they were looking for efficiencies such as mutually beneficial gains for different departments by implementing NBS. Lack of financing also drove them to seek efficiencies externally - developing the capacities early of schools to take over the maintenance of natural playgrounds thus, freeing up resources for other activities. The process of NBS design and co-production was systematised in order to increase efficiencies.

“The city budget is minimised, but we still want to get money (for NBS). We want to use it, divided over different departments. (We want) to find activities in other departments that can

be enriched with NBS. We're doing this already with the Education Department for preschool gardens." 2019, December NBS Team.

Efficacy of outputs for the CGR: The high level of references is indicative of the high level of actions and outputs aligned with the goal of NBS implementation. The Poznan team were operational on the ground well before the other cities as they entered the Connecting Nature project with a tried and tested collaboration model ready to be scaled up city wide.

"We used the experience from another project (2013-2015) in which three Poznań preschools collaborated with the city of Berlin on the subject of innovative teaching methods. The experience of German colleagues who presented how spatial conditions – including interior and exterior of the kindergarten building – influences children's behaviour and education led to pilot projects in Poznań pre-schools...In the meantime, Poznań joined the CONNECTING Nature project. We identified nature-oriented playgrounds and open gardens as our nature-based solution exemplar that we would like to upscale, monitor and improve." 2019, NBS Team report to EC.

Equity of Target Goals: Due to their financial situation, Poznan was also under more pressure to ensure costs and benefits of NBS implementation (target goals) were evenly distributed. They developed early on models of cooperation sharing costs and responsibilities in the short and long term between collaborators.

"Central to governance was facilitating a collaborative approach between the NBS Team (financial incentive for design part of NBS), the Department of Education (managing budget earmarked for investments in kindergartens), and the individual kindergarten leads (responsible for applying to the Department of Education for the grant for investment, and choosing the way of designing and maintaining their investments in the long term)." 2019 NBS Team report

Level 2: Outcomes

Box 6.8 presents the process and productivity outcomes for Poznan arising from the outputs presented in Box 6.7.

Box 6.8 Poznan: Process and Productivity Outcomes

Process Outcomes

- Changes to internal cross-departmental practices

"The process of co-production was not a commonly used method in project work, especially in public administration institutions, such as city halls. The innovative method had to be learnt. Many of the principles were already implicitly known, but they were not used on a daily basis and as operating practice." 2022, Poznan final report to EC.

- High success in small-scale CGRs for school gardens leading to high bottom-up demand for further collaborations.
- Systematisation of CGR process and support for transfer of leadership to other CGR participants
- Setbacks led to increased resilience and innovation.

"What appears to be a setback can become a step forward: Only securing budget for two playgrounds instead of five ended up being a benefit. It provided an opportunity to deepen and enrich the co-creation process to find more innovative solutions." 2022, Poznan final report to EC.

- New arrangements with NGOs & corporate collaborators emerged.

"New forms and opportunities for collaboration with private partners and extra funds (due to) the success of the Poznan Summit". 2022, Poznan final report to EC.

Productivity Outcomes

The City of Poznan collaborated with a local university partner (AMU) to measure impacts on the ground for NBS implementation in natural playgrounds. They were able to show demonstrable outcomes for a range of environmental, social, and economic indicators:

- **Environmental:** Evaluation showed that urban planning directly shapes thermic patterns with temperature differences of 7.3°C recorded between built up areas and green areas. Results showed that 87% of preschools in Poznań (230/264) have their own outdoor area (garden). 131 of them (57%) have shown a moderate average capacity to cool wider neighbourhoods. Tree shading leads to air temperature reduction between 2.2-10°C resulting in reduced exposure of children to high temperatures and heat stress. Further, evaluation showed that even small tree plantations (108 trees) can lead to pollution removal of 11,31 kilograms/year, carbon storage of 114,8 tons/year, carbon sequestration of 1,661 tons/year, produce 4,43 tons/year of oxygen and contribute to avoided runoff of 30,47 cubic meters/year. A change in land use from concrete to biologically active surfaces and an increase in ecosystem service provision including carbon sequestration and storage, contributed to reduced rainwater run-off.
- **Social:** Results showed that in schools with a natural playground almost twice as much time was devoted to outdoor educational activities. Increased frequency and duration of contact with nature was linked with health and wellbeing benefits in other studies cited and also associated with increased place attachment and nature connectedness. Studies presented evidence of a relationship between higher levels of children's connectedness to nature and lower levels of and symptoms of "ADHD". Usage of outdoor learning spaces substantially increased during the Covid pandemic.
- **Economic:** A small scale study showed the importance of public procurement in market development. Small businesses involved in the delivery of NBEs had seen increased market demand and revenue streams. The report concluded further research was needed at a larger scale.

Source of data: Connecting Nature Deliverable 2 Report Appendix VII Poznan's Evaluation Results

Productivity Performance

Table 6.9 Poznan: references to Outcomes Performance Dimensions

Performance Level 2: Outcomes	No. of references
Effectiveness for the NBS team	28
External Legitimacy for the CGR	17
Effectiveness in achieving Target Goals	84

Effectiveness: Table 6.9 shows that the highest added value from collaboration for the NBS team was access to increased funding for NBS implementation. This was achieved through new collaboration approaches to break down internal silos, forging new relationships with the private sector, and developing the capacities of community end-users (schools) to take over the long-term stewardship of NBS.

“Identifying ‘green’ agents across city departments can be an effective method to generate influence beyond the immediate team” 2022, Poznan final report to EC.

Collaboration with other departments and external collaborators led to the sharing of skills, e.g. legal and contractual knowledge, technical knowledge on NBS design, community animation skills, building an evidence base demonstrating the multiple benefits of NBS for Poznan.

External Legitimacy: In Poznan, external legitimacy was achieved but the focus of external legitimacy was different than in Glasgow and Genk, where actions were targeted at building legitimacy among high level decision makers. Poznan focused their efforts on securing external legitimacy with the end users of NBS, i.e. kindergarten managers. Despite the rhetoric in public policy documentation, there seemed to be little interest among other departments in interacting with end-users to better understand and meet their needs.

“We can get testimonials easily as kindergarten partners are enthusiastic about the natural playgrounds. They (kindergarten partners) will have to take the lead on this as the education department won’t.” 2020, Feb Poznan Team.

This strategy was initially highly successful, leading to high levels of word-of-mouth referrals, demand and commitment to long term collaborative governance arrangements by schools.

Higher-level bureaucrats and politicians were invited to attend a promotional event presenting results and testimonials and they were impressed with the level of enthusiasm among schools and families. Initially they expressed interest in replacing Connecting Nature funding with City funding in the long term. However with the arrival of Covid and other financial pressures, this initial interest didn't materialise into long-term support or commitment to sustained action. A later event organised at an international scale led directly to international funding for Poznan NBS. This led to increased internal legitimacy.

Poznan was also very effective in building up internal legitimacy initially at lower levels of the organisations through a network of green agents in other departments. Their reputation increased at higher levels later in the study period.

"A week ago, our director called me and asked would we like to deal with a new project financed by city budget which is about small water retention projects. Cooperating with citizens in retaining rainwater in their own house. It is a positive that they thought of us. We can see the awareness of us among politicians has increased." 2020 March, Poznan Team.

Like Genk, Poznan spent a lot of time seeking grant funding for NBS activities. Whereas Genk were successful at regional level, Poznan were successful at EU level securing two further significant EU contracts during the study period. In the other cities, such successes would be seen as evidence of external legitimacy. In Poznan such was the concern over public finances, that any requirements for co-financing would mean such projects would be rejected.

At a practical level, the value of participating in EU projects was recognised in terms of the growing expertise of the NBS team, especially around public-private collaboration.

"It's our managers who sometimes come to us and ask for information. Managers can see our expertise from Connecting Nature – also from URBACT" 2021 November, Poznan Team.

However, this increase in internal legitimacy did not materialise into any significant high-level support or commitment of funding from decision-makers by the end of the study period.

Effectiveness in achieving Target Goals: The lack of commitment to continue NBS implementation in the long term in Poznan was even more surprising considering the evidence of NBS effectiveness that was collected in collaboration with a local university partner. The outputs and outcomes of this environmental assessment are aligned with measures proposed by

Koontz and Thomas (2006). As Poznan was the only city in a position to start NBS implementation early, they were the only city able to collect reliable evidence of social, economic and environmental outcomes. The conclusions of the academic study presented compelling causal data showing the impact of green infrastructure and NBS on urban temperatures and directly correlated urban planning policies to these impacts. Unfortunately, as this monitoring report was funded through Connecting Nature, it is unknown if such impact will continue to be monitored in the future.

Level 3: Adaptation

Box 6.9 summarises the longer-term adaptation seen in Poznan in response to outcomes presented in Box 6.8. Wider contextual conditions also impact on long term adaptation responses.

Box 6.9 Poznan: Adaptation from Process and Productivity Outcomes

Adaptation from Process outcomes
• No commitment to retention of seconded staff for NBS implementation unless funded through new grant funded activities. • NBS team trying to replicate NBS successful collaboration (and funding) from the Education Department with other departments such as agriculture and new NGOs. • Unclear if resources available long term for continuation of informal internal network (not officially recognised) • New legal regulations developed to facilitate new forms of collaboration with private sector partners. <i>“New legal regulations can be required to facilitate collaboration with commercial enterprises under new governance models. Working with commercial partners can be time-intensive at first but can lead to more-efficient practices and new financing opportunities in the long-run.” 2022, Poznan final report to the EC.</i>
Adaptation from Productivity outcomes
• Existing NBS outcomes will be sustained through collaborative governance arrangements. • No secured funding or commitment towards long term NBS strategy. • Future activities dependent on securing additional grant funding. • Integration of NBS into planning guidelines for developers

Productivity Performance:

Table 6.10 Poznan: references to Adaptation Performance Dimensions

Performance Level 3: Adaptation	No. of references
Equilibrium of change for the NBS team	1
Viability of the CGR	13
Long term sustainability of Target Goals	27

Equilibrium of change for the NBS team: The low number of references in Table 6.10 highlight that the category of equilibrium of change is largely irrelevant. The Poznan NBS team chose the route of incremental change, working within existing departmental hierarchies and rules. While they did create informal networks as a way of circumnavigating departmental silos, this was done in a very discreet way and did not draw any attention from higher levels of administration. It was tolerated rather than encouraged. However, there was higher interest and support for NBS team experiments with new processes of collaboration with businesses, especially when successful

“City Hall know we’re dealing with corporates – other departments coming to us ... want to include us in meetings to use our knowledge” 2021 November, Poznan Team.

They also quietly bypassed departmental hierarchies to engage directly with kindergartens and communities in co-creation of collaborative models for sustainable delivery of natural playgrounds. Deviations from equilibrium could be perceived more as a gentle ripple with stability rapidly returning.

Viability of CGR: Despite solid evidence of NBS outcomes in Poznan, there was little evidence of viability for CGR activities, with no commitment of local government resources to NBS beyond EU budget commitments. It is important to note however that there was no evidence of objection in Poznan to sustaining collaborative governance activities or to NBS implementation, it was just not a priority for local government funding. Thus, the NBS team remained dependent on sourcing EU funding or securing funding from other departments to continue their activities. This uncertain funding situation posed a significant threat to viability.

“In Poznań, in school year 2017/2018 there were 123 public kindergartens managed by the City and 120 managed by other institutions subsidized by the City (105 non-public and 15 public). Both flagship projects have great potential to be scaled up and to positively impact on nature, social and economic aspects. However, the situation in the coming years seems to be

very challenging. Local authorities in bigger Polish cities will have to face up to a significant increase in educational cost. This will have a direct impact on new investments in the city, not only in the educational department. On the other hand, (EU requirements and incentives re.) adaptation to climate changes will enforce new expenditures.” 2019, Poznan Team report.

Long term sustainability of Target Goals: Many references in this category related to the insecurity around future financing of the NBS natural playgrounds programme.

“We’re still not sure if the Dept of Education are going to put this budget line (for upgrading natural gardens in preschools) into their budget. Due to Covid, cuts are being applied across the board and only the most essential costs are being retained. We don’t know if the Dept of Education consider this funding line essential costs or not.” June 2020, Poznan RM.

Perhaps cognisant of the instability of long-term local government funding, the NBS team in Poznan focused from the outset on leveraging EU funding to put in place long-term, sustainable NBS implementation models. To avail of incentives and grants for natural playgrounds, school directors had to commit to the costs of maintaining the NBS in the long term under their own budgets thus increasing the prospects of long term sustainability of NBS while reducing any long term budgetary commitment for maintenance from the local government. At the end of the study, the NBS team were actively seeking similar opportunities to replicate this business model for NBS with other departments. They were gaining traction in relation to sustainable business models for allotment gardens. In terms of long-term systemic change, there were also references to the impact of guidelines and training on industry-wide practices for NBS implementation.

6.3 Comparative Analysis and Discussion

In the next section a comparison of findings for each city are discussed for each performance level.

6.3.1 Comparative Analysis of Outputs

Comparing Outputs

Emerson and Nabatchi (2015a) acknowledge the difficulties in differentiating between process and productivity outputs emerging from collaboration dynamics. It was challenging in this study, too.

Process outputs: For clarity, key process outputs were identified as those relating to collaboration dynamics. Key process outputs for each city therefore included new governance structures agreed for collaboration or changes in processes. Governance structures were easy to identify in Genk and Glasgow, where such structures were clearly documented and officially approved. In Poznan, cross-departmental collaboration such as the network of ‘green agents’ was not formally documented. This contrasts sharply with new modes of external collaboration where a high level of attention was paid to legal and contractual conditions. One particular remark from Glasgow stands out: *“We tried the informal process for 15 years and it didn’t work, now we’re going down the formal route”*. This sums up the difference between Poznan and the other two cities. The other two cities took a direct approach to setting up governance structures for collaboration even if this meant confrontation, as it often did in the case of Genk. Other key process outputs were agreement on the goals of collaboration - in all cases some form of NBS implementation and the allocation of resources towards achieving these goals. Connecting Nature funding was used initially to fund resources in all three cities. When it comes to long-term sustainability of the CGR, it is interesting to note later which cities replaced this funding with their own resources, thereby confirming the value of activities being carried out.

Productivity outputs: In contrast with process outputs focused on collaboration dynamics, productivity outputs are focused on the target goals of this collaboration. The goal for all three cities was large-scale or city-wide NBS implementation. Again, a notable difference emerged between the cities. Poznan hit the ground running. No formal action plans were drawn up. Based on prior experience, they hit the ground running and by the end of the study period 20+ small-scale NBS interventions had been delivered alongside contracts and training to ensure their long-term sustainability. Glasgow was the opposite. By the end of the study period, they had secured official council approval of their Open Space Strategy, embedding NBS as a delivery approach and they had just about secured official sign-off of a cross-departmental action plan for delivery. They had mapped all the spaces and recorded them in a live GIS database for decision-making and

tracking. They had also implemented three successful small-scale NBS demos which helped to inform their action plan. Genk was somewhere in the middle. They had 4 clear pilot projects and 2 cross-cutting initiatives for which different collaborators were identified and actions undertaken. By the end of the study period, funding was largely secured and implementation was under-way but at an early stage of delivery.

Comparing Performance of Outputs

Table 6.11 All Cities: Comparison of references on Outputs Performance Dimension

Performance Level 1 Outputs	No. of references		
Unit of Analysis	Genk	Glasgow	Poznan
Efficiency for the NBS team	1	7	13
Efficacy for the CGR	116	123	230
Equity of Target Goals	1	1	10

While it is difficult to compare the performance of such widely contrasting outputs, Emerson and Nabatchi's productivity performance matrix provided a helpful starting point. It was not immediately clear however if this matrix aimed to analyse productivity performance in relation to process or productivity outputs. A closer consideration of the units of analysis suggested that process outputs were most relevant to consider for the CGR unit of analysis and productivity outputs for the unit of analysis relating to target goals. It was less clear which type of outputs to use for the participant organisation unit of analysis, in this case the NBS team in the local government organisation. Another challenge was that performance dimensions such as efficiency and equity were not discussed in relation to CGRs (Chapter 5) and therefore data related to such dimensions were not systematically collected. A search of Emerson et al. (2012) shows no references to equity or efficiency. Nonetheless, in all cases performance levels for these indicators could be inferred from inductive reasoning based on other data and outputs.

Efficiency: The first performance dimensions shown in Table 6.11 is a good illustration of performance indicators for which data were not specifically collected. However, findings could be identified inductively by considering the drivers and motivations for establishing or participating in a CGR, such as efficiency gains in relation to sharing of knowledge and resources. If efficiency gains are considered more narrowly from a cost efficiency perspective, then the importance varies between cities. In Poznan, where financing conditions were most difficult, cost efficiencies gained from sharing of resources was definitely an important consideration. They

performed well in terms of generating high efficiencies through collaboration. In contrast, for the NBS team in Genk, the concept of cost efficiency was perceived as antithetical to the concept of collaboration and so such efficiencies weren't even considered. Glasgow was somewhere in between. While cost efficiencies weren't a primary motivation, due perhaps to their NPM past, the language of business cases and cost efficiencies was commonly used. The NBS team sought to show how collaborative NBS could contribute to cost savings in different areas, e.g. reduced costs of long-term management of NBS, reduced health costs from nature prescribing etc.

With regard to the measurement of actual performance, while efficiencies from outputs such as resource sharing are evident, they were not systematically captured, measured and therefore valued in any city. This indicator provides the impetus for a useful reflection on what data to measure.

Efficacy: The second indicator proposed for outputs relates to efficacy, i.e. the extent to which actions and outputs were aligned with the goals of collaboration i.e. NBS implementation. There was ample evidence for all cities that performance was high as actions and outputs were very clearly aligned with the goal of NBS implementation.

Equity: The final indicator of output relates to equity, i.e. to what extent the costs and benefits of collaboration were equally shared among participants. Again, this indicator was tricky as the Emerson et al. Integrative Framework (2012) does not mention the importance of equity or fairness specifically in relation to collaboration dynamics and therefore data were not specifically collected. Equity could also be interpreted at two levels, i.e. to what extent costs and benefits were shared across participants in relation to collaboration efforts (process) or target goals (productivity). The question of equity in relation to goals of environmental improvement is a hot topic. In NBS it is an equally contentious debate. Glasgow's OSS strategy is motivated by recognition of the inequitable distribution of high-quality green space in the city. NBS is positioned as a way to address such inequity.

In the absence of such data being collected directly, it is possible to arrive inductively at an assessment of performance in terms of both process and productivity indicators for equity. In terms of the extent to which the costs and benefits of collaboration processes were shared equally, it can be seen that in all three cities, the burden of cost initially lay with the initiating actors, in this case the NBS teams in local government. Communities physically proximate to the NBS are generally perceived as the most significant beneficiary. It can be seen in all three cities

that efforts were undertaken to engage and build the capacities of these communities to take on a greater role in long-term stewardship of NBS. Such arrangements could be perceived as more equitable in the long term. As the NBS exemplars were at an early stage of implementation in Glasgow and Genk, Poznan was the only city where it was clear that costs of stewardship in the long term were being borne by the beneficiary.

6.3.2 Comparative Analysis of Outcomes

Comparing Outcomes

Process outcomes result from actions and outputs related to collaboration dynamics. Process outcomes were most evident in Genk where radical changes in governance structures and processes for collaboration were implemented. These changes met with a lot of resistance at lower levels of the local government organisation. A process of reflexive monitoring and adaptation was implemented, resulting in several improvements and iterations of governance structures. At a higher level within StadGenk the positive outcomes of such cross-departmental, cross-sectoral working practices were recognised in terms of improved processes for integrated project management, increased access to knowledge and resources and external recognition. In comparison in Poznan, very few process outcomes were evident in terms of changes in governance structures at an internal organisational level. But informal collaboration led to a shared sense of identity and sharing of skills. Access to skills and knowledge were also benefits of external collaboration in Poznan. The sustainable collaborative governance structures in place with local communities (schools) led to increased social and environmental outcomes without incurring long term costs for the local government. The new collaborative governance structures that emerged for public-private-third sector collaboration led to increased resources and recognition. In Glasgow, as the governance structure for the overall OSS was only signed off towards the end of the study period, outcomes on the ground were only evident in the case of pilot projects. In the case of all three pilots, the outcomes from new collaboration structures and arrangements were positive leading to sharing of complementary knowledge and resources.

Productivity outcomes are related to the target goals of NBS implementation. Again, they result from productivity actions and outputs. The strongest productivity outcomes in relation to the impacts from NBS delivery on the ground were undoubtedly to be found in Poznan. The high volume of completed NBS combined with rigorous measurement of outcomes by an academic

partner pointed to clear environmental and social outcomes. The economic benefits of NBS were less evident in Poznan.

In contrast, in both Genk and Glasgow the socio-economic impacts from NBS implementation on the ground were most evident. In Genk, the success of the Stiemer Deals social innovation pilot led to multiple collaborations with local citizens and enterprises in the Stiemer Valley, resulting in an increase in social and economic capital from new innovations such as Stiemer Beer and Stiemer Ice-cream. In Glasgow, the high level of demand for places on the pilot accelerator programme supporting the start-up of nature-based enterprises also showed the potential for social and economic gains. Environmental impacts were not measured for small-scale pilots in Glasgow and Genk but were planned for longer-term, larger-scale roll-out of the full NBS exemplars planned in both cities.

Comparing Performance of Outcomes

Table 6.12 All Cities: References to Outcomes Performance Dimensions

Performance Level 2 Outcomes	No. of references		
Unit of Analysis	Genk	Glasgow	Poznan
Effectiveness for the NBS Team	44	28	29
External Legitimacy of CGR	38	14	22
Effectiveness of Target Goals	57	10	109

The summary of references in Table 6.12 shows that relevant data references were captured in relation to all three indicators of performance outcomes for all three cities.

Effectiveness for NBS Teams in local government organisations

The data presented for each city in Section 3.2 shows that all three cities report increased effectiveness, i.e. strong added value for their organisations from collaboration. The main areas of added value are summarised hereafter:

1. Improved Governance Structures for Complex Projects

- Improved governance structures for planning and delivery of complex projects requiring integrated multi-actor collaboration at both internal and external levels (Genk - internal and external, Glasgow - internal, Poznan - external).

2. New or Improved Internal Processes

- The introduction of new processes of monitoring complex projects and actor interactions leading to more responsive adaptive governance was deemed highly beneficial (Genk, Poznan).
- Adaption of internal processes to better accommodate collaborative practices, e.g. co-production (all cities), public procurement (Genk).
- Systemisation of process for replicating small-scale collaborative governance models with internal and external stakeholders (Poznan).
- New or improved processes for measuring social, environmental and economic outcomes of NBS (Glasgow - GIS platform, Poznan and Genk - academic collaboration).

3. Public Sector Innovation

- New structures and processes for activating social and economic value from spatial NBS projects (Genk – Stierner Deals. Glasgow- NBE Accelerator. Poznan – upskilling local skills base on NBS).

4. Increased capacities and skills

- Increased access to skills and expertise of other departments through collaborations (Genk and Glasgow– multiple departments. Poznan – legal departments).
- Increased access to skills and expertise of other organisations through collaboration (All cities - technical, impact measurement, social innovation, community engagement, mediation).

5. Increased access to resources

- Collaboration between mayors leading to changes in funding structures to allow for NBS funding (Genk).
- Collaboration with new partners on funding bids, leading to securing of new funding for NBS (All Cities).
- Experimenting with new forms of public-private financing (Poznan).
- Collaboration with end beneficiaries on new governance and financing models to reduce long-term costs of maintenance of NBS for local governments (Poznan - final outcome. Glasgow and Genk - underway).

6. Recognition of value of collaborative practices

- Cross-departmental, cross-organisational collaboration was very new for Poznan and Genk. While in Genk the up-front approach to introducing collaboration met with initial resistance, in Poznan the informal approach pursued generated a sense of shared identity and camaraderie as 'green agents'. However in the long run, the far-reaching changes pursued by Genk led to much higher outcomes and recognition at senior management level.
- From the perspective of external recognition, increased awareness of successful collaborations led to approaches from new organisations for collaboration.

External legitimacy of CGR and outputs

External legitimacy relates to *'the acknowledged status of the CGR and effects of outputs'* (Emerson and Nabatchi, 2015a, p. 220). The importance of legitimacy in network success is well established in literature. While the performance indicator proposed by Emerson and Nabatchi relates to external legitimacy, findings from the three cities show a complex inter-relationship between internal and external legitimacy.

In all three cities, external legitimacy preceded internal legitimacy and led indeed to an increase in internal legitimacy. In Genk, one way of achieving external recognition was through collaboration on joint funding bids. Big wins led to both external and internal recognition and increased interest in collaboration. The mayor of Genk played an important leadership role in establishing legitimacy at higher levels directly reaching out and engaging with other mayors and high level decision-makers.

"We received very nice feedback: "Tuinen van Waterschei is an innovative leverage project. It has broad support and is sufficiently mature for realisation. Due to the radical choice for nature-based solutions and the interlinking of ecological, economic and social objectives, this project contributes greatly to the renewal of the city renewal innovation programme" 2021, Genk NBS Team.

In Glasgow and Poznan, events were used with great effect to build external recognition. In Poznan, early events were targeted at generating new collaborations with end users but they also succeeded in building legitimacy with politicians and decision-makers who were impressed with the enthusiasm of end users. Glasgow were very lucky in the timing of international events such

as COP26 and an international summit on NBS. The participation of high-level external speakers led to interest and confirmation of high-level internal speakers. The overall result was a significant boost in both internal and external legitimacy.

“The budget was announced ...Susan Aitken (councillor who spoke at CN Glasgow Summit) made it clear, hoping the legacy from the summit will be felt for longer” 2021, April Glasgow NBS Team.

Media coverage also led to increased legitimacy. While in Glasgow and Poznan media coverage was not planned systematically, in Genk, communication and engagement, including extensive use of social media, was a key element of the NBS action plan. From widespread TV and media coverage of royal visits to local composition of songs and videos about the Stiemer⁶, Genk took a highly organised and systematic approach to building external legitimacy among all stakeholders as part of their NBS action plan.

Glasgow also recognized the value of external legitimacy and took every opportunity to build legitimacy at the highest level possible.



“We’re getting really good media coverage about this accelerator – it’s even been covered at national level – in the Herald.” 2021, Glasgow NBS Team.

Poznan, on the other hand, placed the emphasis on building credibility and legitimacy with end users. While they were very successful in this regard and achieved recognition at EU level⁷, they did not achieve the same high level of local media coverage that helped to build internal and external legitimacy in the other two cities.

⁶ See media coverage, song compositions etc from Stiemervallei communications campaign <https://www.genk.be/een-lied-voor-de-stiemer> (accessed 28/09/2023)

⁷ EC promotional video featuring collaboration between university and city of Poznan <https://ec.europa.eu/research-and-innovation/en/horizon-magazine/mission-bring-nature-back-cities> (accessed 28/09/2023)

Effectiveness in achieving target goals

The last indicator for measuring outcomes is effectiveness of the CGR in achieving target goals i.e. the impacts of NBS implementation. Establishing an evidence base for NBS was one of the goals of the EC in funding projects like Connecting Nature. Consequently a comprehensive impact assessment process to measure the impact of NBS related to the challenges being addressed in each city was established and baseline data were collected on indicators for environmental, social and economic outcomes.

Due to the early stage of development of the Glasgow and Genk exemplars, final outcomes relating to all impacts weren't available to assess effectiveness. Indeed, the final outcomes from the OSS in Glasgow will not be available for 30 years! However, intermediate outcomes from the Stiemer Deals initiative in Genk and the NBE accelerator in Glasgow showed high levels of effectiveness of outcomes in terms of socio-economic impacts.

In contrast, measuring effectiveness in achieving target goals was relatively straightforward for Poznan. Thanks to the short-term nature of their NBS exemplar (annual programme where money had to be spent within a specific timeframe) and the dependency of future funding on good outcomes, data was available on final outcomes.

"We expect the Dept of Education will propose this programme again. We hope they will be convinced with the positive outcomes from the NBS, and they will go for it again." March 2020, Poznan NBS Team.

Collaboration with an academic institution led to data collection and analysis of environmental, social and to a lesser extent economic outcomes. A challenge was comparing this data with other cities to benchmark the results for Poznan. However, as Connecting Nature was the first EU funded demonstration project to finish, results weren't available from other cities for comparison. Indeed, it is doubtful if results will ever be truly comparable given the widely different contextual conditions that need to be taken into account in evaluating the effectiveness of a spatially-located solution.

The level and type of resources required to collect and analyse data outcomes also presented a challenge for the cities of Genk and Poznan. It is unclear if long term data collection is feasible beyond the end of Connecting Nature thus making it uncertain if outcomes will ever be measured.

Glasgow is the only city that places a high emphasis on long term data collection, analysis, sharing and use for decision making via their publicly accessible open space dashboard⁸. This is possibly related to their NPM culture of setting targets and performance measurement.

6.3.3 Comparative Analysis of Adaptation

Comparing Adaptation Responses

Adaptation of Processes: Considers how the outcomes from the CGR set up to implement NBS are sustained in the long term. Adaptation to process outcomes in terms of broader system change are also considered e.g. replication of NBS CGR in other domains.

Comparing first of all long-term adaptation in relation to the CGR for NBS, in Genk and Glasgow it seems highly likely that the CGR for NBS implementation will continue in the long term. The costs of new staff initially paid for by Connecting Nature were taken over by the councils of Genk and Glasgow. In Genk, the CGR team was expanded in response to the success of Stiemer Deals. In contrast, in Poznan, no extra staff were recruited for the NBS CGR and no extra staff were planned at the end of the study, despite success in other EU projects for further NBS activities. Collaboration on NBS in schools was stalled pending new funding from external sources.

An unanticipated consequence of outcomes in all cities was the emergence of a network of small-scale CGRs that took on a life and direction of their own. The NBS team in Genk reported, for example, that ‘Stiemer Dealees’ were creating their own deals and networking independently of city intervention. Networks of smaller-scale CGRs have also emerged with nature-oriented schools in Poznan and NBE graduates and Friends of Parks groups in Glasgow but there is less evidence of exchanges between individual network members. The NBS teams provided varying levels of support to the ongoing activities - in Poznan, ongoing support was minimal whereas in Glasgow with the Friends of Parks, support was higher.

⁸ Glasgow dashboard for tracking outcomes

<https://www.arcgis.com/apps/dashboards/d11c42a0a9d2416ba231392e6798e0ba> (accessed 28/9/2023)

In terms of long-term viability of CGR activities in Genk and Glasgow, joint funding was secured with other collaborators for long term NBS implementation projects so resources were in place to continue CGR activities.

From the perspective of broader systems change, in StadGenk, a top-level commitment to transition towards collaborative governance practices was signalled and a new high level director recruited to lead on this. Collaborative governance practices were being replicated for other strategic flagship projects. In Glasgow, organisational change has already happened with the merger of the NBS team into a new department for sustainability and the establishment of a new Green Economy Unit. It is difficult however to assign causality for these changes in Glasgow as they happened in the broader context of organisational restructuring. In Poznan, no organisational change was noted.

Adaptation relating to Productivity: Considers how the outcomes from target goals, i.e. the impacts of NBS implementation are sustained in the long term. Adaptation to outcomes, i.e. NBS impacts, is also considered in terms of changes at a wider systems level.

The collaborative governance model that Poznan agreed with end-users (schools) ensured that NBS will be maintained in the long term at no cost to the council. In Glasgow and Genk as the full scale NBS exemplars had not yet been completed, it was unclear how outcomes would be sustained in the long run. However, both cities were engaged in long term measures to build the capacity of community stakeholders to contribute to long-term stewardship through capacity building on the ground and CGR arrangements such as Stiemer Deals, Friends of groups, Stalled Spaces and NBE accelerator programmes. Both Glasgow and Genk also took the lead on regional or national hubs to further NBS collaboration.

The embedding of NBS into climate change policies at city level (Genk/Glasgow), infrastructure funding regulations (Flanders, Belgium) and draft national planning frameworks (Scotland) provided an important mandate for sustained implementation and funding of such measures in the future. Meanwhile in Poznan, while NBS had not been explicitly recognised in public policies, through collaborative efforts with other departments and professional bodies, NBS were recognised into new infrastructure guidelines for building developers.

Comparing Performance on Adaptation

Table 6.13 All Cities: references to Adaptation Performance Dimensions

Performance Level 3 Adaptation	No. of references		
Unit of Analysis	Genk	Glasgow	Poznan
Equilibrium of change for the NBS Team	19	4	1
Viability of the CGR	34	26	13
Long term sustainability of Target Goals	25	2	27

As can be seen from the data in Table 6.13 the Emerson and Nabatchi productivity performance matrix was useful in evaluating the performance of the CGR against all three units of analysis.

Equilibrium of change: Considers to what extent a balance has been achieved between stability and change in relation to collaborative governance arrangements in each city. In Genk and Glasgow, significant changes in governance structures and processes occurred during the study period. While the situation was beginning to stabilise post-restructuring in Glasgow at the end of the study period, as the OSS is a 30 year strategy further changes may be anticipated. In Genk, the author has the impression that turbulence will remain as high level decision makers indicate their goal to replicate the NBS CGR organisation wide.

“Our director more and more recognises the Stierner project as a leverage for organisational change. We’re now facing the challenge of how to embed the Stierner deals – this can be seen as an organisational challenge” Feb 2021, Genk RM.

“Horizontal working – an integrated approach is more and more used. The Stierner Valley ...is the programme of horizontal working. A lot of learning ...can be translated organisation-wide... Social innovation will be a major part in new projects.” Sept 2021, Genk RM.

Meanwhile in Poznan, it is not clear if the informal network of ‘green agents’ will be sustained. In any case this network did not create any major changes in terms of organisational structure or practices.

Viability of CGRs: This indicator was of considerable importance for the NBS teams in all three cities. It relates to their capacity to continue collaboration activities towards achieving target goals i.e. NBS implementation. Evidence of the viability of CGRs was highest in Genk and Glasgow. In Genk a commitment was seen at top levels to radical change in organisational practices

towards collaborative governance. At the more specific level of the CGR for NBS implementation, evidence of viability was clear through commitment of city funding, extension of the contracts of NBS team members and recruitment of new team members in social innovation. In Glasgow, while at an earlier stage of development, similar evidence of viability emerged with the commitment of resources in terms of both people and council budgets towards achieving target goals. In Poznan, there was little evidence of viability in terms of local government commitment, however continued success in EU grant funding or new collaborations with other departments may lead to viability.

Long term sustainability of Target Goals: In Genk and Glasgow, the integration of NBS into policy frameworks at city, regional and national level bode well for sustained implementation efforts. In Poznan, NBS was integrated into new urban planning guidelines for developers. These could be considered influential but non-binding.

In terms of sustaining NBS outcomes on the ground, Poznan handed over the responsibility for long term sustainability to local community stakeholders (schools). In Genk and Glasgow as full implementation at city wide scale was not complete, the process of long-term sustainability of NBS on the ground was not clear. Both cities were working on similar approaches to build up the capacities, both technical and governance, of local community stakeholders to take responsibility for long term stewardship.

6.4 Discussion

6.4.1 Which outcomes are most important?

By definition NBS are expected to simultaneously generate environmental, social and economic benefits in response to complex challenges faced in each city. While much early work on NBS outcomes focused on potential environmental benefits, there was less research on social and economic benefits.

It is interesting to note therefore the strong intermediate outcomes from the cities of Glasgow and Genk relating to the social and economic impacts of NBS. The response to both the Stiemer Deals social innovation initiative in Genk and the NBE accelerator in Glasgow was higher than expected and took the city teams by surprise. Initial outputs caught the attention of the media and politicians alike. The resulting increase in legitimacy led to further successes in both cities -

mainstreaming of the NBE Accelerator pilot in Glasgow and big contract wins and expansion of the Stierner Deals team and remit in Genk.

The absence of environmental outcomes was not an issue. Perhaps there was a good understanding among the media and policy makers that environmental outcomes take time to materialise and measure, challenges well identified in the literature. Or perhaps the media and decision makers didn't care. Short term wins on social and economic issues are better aligned with short term political cycles and citizen priorities. Such dynamics have been alluded to in NBS literature (Egusquiza et al., 2019). These findings perhaps should give pause for thought in relation to performance measurement in future NBS initiatives. Focusing attention in the short term on social and economic outputs may generate sufficient momentum to secure time for environmental benefits to materialise.

Poznan provides a useful contrast with Glasgow and Genk. They were the only city to deliver compelling outcomes on the environmental and social benefits of NBS, but their study of economic benefits was unconvincing. While it is too simplistic to suggest that the lack of economic outcomes contributed to poor long-term interest, it is plausible to suggest more interest may have been generated in a city which brands itself as an entrepreneurial hotspot if such results were available. Further research is needed on the weighting of multiple outcomes in relation to complex challenges.

6.4.2 Challenges in measuring Environmental Outcomes

As noted in multiple studies, measuring environmental outcomes presents a specific set of challenges compared to measuring social and economic outcomes. The biggest challenge is often the long timeframes required for such performance evaluations. As discussed in the previous section, focusing on economic and social outcomes in the short term perhaps provides an interim proxy until environmental results materialise. A bigger question which arises is will such environmental outcomes materialise? Findings from the case study cities in this research show that long-term outcomes are likely to be measured in cities like Glasgow, who are well equipped to measure outcomes and who have a culture of performance evaluation. However, as indicated previously, many cities in Europe who bypassed the NPM obsession with performance management do not place equal value on the importance of impact measurement. This was evident in the cities of Genk and Poznan, where prior to their involvement in Connecting Nature, more traditional public management cultures placed a lower priority on impact measurement. Performance evaluation in relation to environmental outcomes often requires specialised skills

and resources over long time frames generating resource demands that many local governments simply cannot meet. Nevertheless, the collaboration which emerged in Poznan between the city council, the local university and industry professional bodies resulted in beneficial results for all parties - empirically evidenced academic papers, industry guidelines and higher quality NBS implementation and measured environmental outcomes. It is perhaps a model of collaboration which merits further exploration in the future in the context of a practical solution to capturing long term outcomes from environmental interventions.

6.4.3 Attributing Causality for Outcomes to Collaborative Governance

With regard to the question of allocating causality for outcomes to CGRs, some convincing evidence emerged from the cities of Genk and Glasgow. The outcomes from the NBE Accelerator and the Stierner Deals programmes could be directly attributed to CGR activities. Essentially these structures came into being through CGR actions. The drivers in the case of the NBE accelerator were a lack of expertise in entrepreneurship leading to a systematic search for suitable collaboration partners and the agreement of a structure of collaboration between multiple organisations (academic, NGO, council). Outcomes can therefore be directly attributed to the CGR. Similarly in the case of Stierner Deals, this was a product of the CGR. It did not exist beforehand. The concept is based on partnership between the city and other collaborators. Therefore, outcomes can be directly attributed to collaboration.

Attributing causality to environmental outcomes is more challenging, as is well documented in the literature (Koontz and Thomas, 2006, Xu and Wu, 2020, Baudoin and Gittins, 2021, Avoyan, 2022). Poznan was the only city for which environmental outcomes were available in this study. The environmental impacts of a network of small-scale NBS interventions in school gardens was compelling but it could be argued that similar outcomes could have been achieved without collaborative governance. For example, if every school had decided unilaterally to invest in such development or the city council had implemented other small-scale interventions on its own. While the first scenario is theoretically possible, in practice it is highly unlikely given the public sector budget crisis in Poznan, i.e. schools couldn't afford to pay the upfront capital costs for NBS. The second scenario is even more unlikely but for a different reason. The rationale for collaboration with schools on NBS in Poznan is due to the historic and spatial dimensions of the city. There is simply no public space available in the city centre of Poznan for such interventions and therefore the only route to NBS was collaboration with other land-owners. Therefore, in the specific case of Poznan it is plausible to suggest that environmental outcomes could only have

been achieved through collaborative arrangements. It is evident that the situation in Poznan cannot be generalised. The historic and spatial dimensions in Genk and Glasgow mean that they have access to open spaces suitable for NBS. Competing land use propositions are likely to be the dominant rationale for collaboration in such cases.

The conclusion from this study is that while causality for social and economic outcomes from NBS in the cities of Genk and Glasgow can be clearly attributed to collaborative governance arrangements, causality related to environmental outcomes is more challenging and needs to be considered carefully in relation to other potential scenarios.

6.4.4 Lack of alignment between outcomes and adaptation

Despite evidence of measurable outcomes from NBS implementation in Poznan, the continued viability of the CGR was uncertain at the end of the study period and there was little evidence of systemic change towards collaborative governance practices at the end of the study period. This contrasts strongly with strong evidence of radical change towards collaborative governance in the other two cities and committed resources to long-term NBS implementation, and this despite only preliminary evidence of outcomes. This lack of alignment raises many questions as to what Poznan did 'wrong' or what Genk and Glasgow did 'right'.

A clear differentiating factor relates to legitimacy. The uncertain future for NBS and collaborative governance in Poznan could be attributed, at least in part, to the lack of success of the NBS team in achieving high level legitimacy among policy makers and funders of the strategic value of NBS and the importance of collaborative governance in NBS implementation. The importance of legitimacy, both internal and external, and strategies used to build legitimacy are discussed in detail in the next section 6.4.5.

However, the lack of success of the NBS team in Poznan in securing high level legitimacy may have less to do with their own actions and more to do with broader contextual factors that are out of their control. The political situation in Poland and traditional public administration mode in Poznan at the time of the study are two relevant factors contributing to an unfavourable environment for collaborative governance arrangements and complex concepts such as NBS. From a political perspective, the conflict between European, national and local governments was leading to increasing civil unrest in Poznan which pre-occupied politicians. From a practical perspective, while the local government was aligned with the EU political standpoint, the national government holds the purse-strings. Reductions of the local government budget combined with the mission creep of additional responsibilities and topped up with the cost of Covid meant the

financial situation was dire in Poznan. Unless the political situation changes, the long-term perspective for funding of 'non-essential' services such as NBS does not look promising. The NBS team were aware of this unfolding situation and were under more pressure than the other case study cities to secure funding from the private sector and international grants.

The pressure to secure funding from external collaboration seems at odds with the traditional public administration mode evident at an intra-organisational level. Tellingly, there were no signs of any interest at a high level in long term adaptation to collaborative governance at intra-organisational level. The NBS team in Poznan pursued a strategy of least resistance, working within the system at lower levels and trying to circumnavigate the rules rather than trying to change it. Recurring references to laws and legal restrictions permeated data from the Poznan NBS team throughout the whole study period and can be construed as a significant barrier to change. There was little evidence either of interest in long-term adaptation to inter-organisational collaboration at senior level.

"Approach of Mayor and Head of Forest Board – they didn't want to underline that the money came from (private) company. They claimed the success as their own – this is not good for continuation of co-operation. The company was not mentioned at all during the first tree planting ceremony mid-November – we need to work out how can we show appreciation. We think this was very short-term looking" 2021, Poznan RM.

Collaborations with external partners were not seen as a positive development, which does not bode well for long term collaboration efforts.

6.4.5 The importance of Internal and External Legitimacy

Theorising internal and external legitimacy

Legitimacy is addressed in two places in the Emerson and Nabatchi framework and productivity performance matrix. Internal legitimacy is considered as an element of Shared Motivation in Collaboration Dynamics and External Legitimacy is considered in the productivity performance matrix as a performance indicator for the outcomes of the CGR. Internal legitimacy is described as a consequence of mutual understanding, leading to 'buy-in' between organisations participating in the CGR. External legitimacy refers to the perceptions of the CGR by external organisations, unrelated to the CGR, e.g. the media. While legitimacy is recognised as of high importance in network and collaborative governance literature (Human and Provan, 2000, Sydow 2004, Milward and Provan, 2006, Mandell and Keast 2008, Ansell and Gash 2008, Emerson and

Gerlak 2014, Johansson et al., 2018), this distinction between internal and external legitimacy is not common.

The findings in this study show that internal and external legitimacy are inextricably linked. Therefore, it is suggested that they should be considered simultaneously as a sub-element of shared motivation. The consideration of external legitimacy separately and as the sole indicator for measuring the productivity performance of CGRs is somewhat minimalist.

However, while internal and external legitimacy may be closely linked, it is still relevant to distinguish between the two concepts and consider each element separately before considering interactions between them. Given the findings of this study on the importance of cross-departmental barriers to collaboration, it seems plausible to suggest extending the concept of internal legitimacy to specifically consider building internal legitimacy or buy-in between departments of any one organisation in the CGR. The case study cities in this study show that collaboration can take place simultaneously between multiple departments of the same organisation and in some cases with multiple departments in other organisations in the CGR. Therefore this dimension of internal legitimacy should consider both cross-departmental as well as cross-organisational legitimacy for all organisations participating in the CGR.

Findings from this study suggest that internal legitimacy is enhanced by evidence of external legitimacy, e.g. successful funding bids or high-profile events featuring experts endorsing NBS. As such, external legitimacy is not always a consequence of collaboration dynamics, sometimes it is an important contributing factor. The more evidence of external legitimacy the higher the levels of internal legitimacy. There is a mutually reinforcing dynamic. For this reason both are best discussed together under the collaboration dynamic of shared motivation.

Strategies to build legitimacy

In this section, findings on different strategies to build legitimacy are briefly discussed to highlight the importance of considering interactions between internal and external legitimacy.

In the case of Genk, a stark contrast was evident between the high level of external legitimacy for NBS and the low level of internal legitimacy for NBS within the organisation of StadGenk through much of the study period. As an example, the mayor secured buy-in from other mayors and regional bodies to a radical change in regional infrastructure regulations to recognise and facilitate funding of NBS. However, at the same time, within StadGenk, the NBS team were

experiencing major resistance to cross-departmental collaboration to facilitate co-production of NBS.

“We get questions from many colleagues – why do you always involve so many partners – it takes so much time – it slows down the process. This is the reason why we do it. It might pay off. Now other partners are taking the lead and contributing to the Stiemer.” 2019, Genk NBS team.

As evidence of high levels of external legitimacy continued to build throughout the study period, most notably through high profile contract wins, slowly high-level directors across other departments understood the added value of collaborative working on complex concepts such as NBS and they moved to replicate this practice. This could be considered an example of ‘outside-in’ approaches to building legitimacy (Human and Provan, 2000).

In contrast, as indicated in Chapter 4, Glasgow focused on ‘inside-out’ approaches to building legitimacy, engaging in legitimacy building activities at all levels of the city council organisation from coffee mornings for low administrative levels to proactively briefings for high level political decision makers. The increased awareness led to referrals for the NBS team to present at high level events such as COP26, which helped to raise awareness and support for NBS among other policy influencing bodies. Increased external support helped to reinforce internal legitimacy.

Like Genk, Poznan also began with an ‘outside-in’ approach to building legitimacy and the team were highly successful in building support and recognition from end users, i.e. schools. Later in the study period, the Poznan team were successful in building internal legitimacy at lower levels of the organisation through the establishment of an informal network across departments. However, despite sporadic attempts to gain the attention of high-level policy makers, they did not succeed in building legitimacy at higher levels within the local administrations or among political leaders.

Ultimately, the high level of internal legitimacy among decision-makers in Genk and Glasgow, which was influenced by high level external legitimacy, contributed to long term commitment of resources to continue NBS implementation in these cities. In Poznan, the lack of legitimacy at a high level internally may be a contributing factor to the lack of commitment of resources to ongoing NBS implementation.

Factors influencing legitimacy among high level decision makers

A comparison of success and failure in securing legitimacy among decision-makers in the three cities suggest several possible influencing factors:

(i) Size and structure of the local government: Building legitimacy in large public sector organisations with complex chains of command is more challenging, for example, than building legitimacy in small public sector organisations with simple chains of command. Genk was a smaller organisation and the head of the NBS team had direct access to the mayor. In contrast, in Poznan and Glasgow, it was much more challenging for the NBS team to access top decision makers.

(ii) Securing legitimacy: In the case of Genk and Glasgow, increased internal legitimacy and buy-in to NBS was secured in the long term through official inclusion of NBS in policy documents at city, regional and national level.

“The new policy cycle started in 2020. Sustainability is one of three horizontal topics. Now climate and NBS are on the agenda of a lot of people. Our director for strategic city development – she wants to build a new programme in centre of Genk – want to introduce more NBS – make it more climate proof e.g., heat island during summer” Sept 2021, Genk RM.

In Poznan, high levels of buy-in from informal internal networks did not result in the explicit integration of NBS into policy documentation. However they did secure the inclusion of NBS in guidelines of external organisations such as developers.

(iii) High level legitimacy can be born or bred: As discussed in other chapters, many frameworks identify leadership as a pivotal success factor in collaborative governance (Bryson et al., 2006, Emerson and Gerlak, 2014). In characterising typologies of CGRs, Emerson and Nabatchi consider leadership most important at the early formation stage of ‘self-initiated’ CGRs (Emerson and Nabatchi, 2015b, p.186). In Genk, the mayor was an early advocate for nature-based solutions from the outset. He provided high level support with ‘external’ stakeholders, which eventually led to internal legitimacy.

However, findings from this study suggest that buy-in from high-level decision makers is not always a critical success factor from the start of CGR formation. It can be built over time. In Glasgow, high level support was not evident at the start, but it was a priority for the NBS team who pursued a strategy for official council approval, working hard behind the scenes to build awareness and support at multiple levels within the organisation and with influential external stakeholders.

The lesson from Poznan is that high-level legitimacy does not come easily or is automatically the result of successful outcomes. Targeted actions are needed to secure the buy-in of decision-makers. Poznan took a more low-key, informal strategy, circumnavigating the strict hierarchies of local government at lower administration levels by setting up an informal network of 'green agents' for exchange and cooperation. Ultimately high-level decision-makers did not buy into the importance of collaborative NBS.

6.4.6 Adaptation to Unexpected Complexity

Thomson and Perry (2006) state that the outcomes of collaboration are unpredictable. Drawing on Wood and Gray (1991), they predict that collaborations may increase the complexity of the environment in which the CGR is situated and decrease the control of participants over these new emergent environments. One such example of an unexpected outcome was the proliferation of small scale CGRs that emerged in all three cities. In Genk, 37 Stiemer Deals were underway or completed by the end of the study period, each involving bilateral agreements between StadGenk and an external organisation. For StadGenk, each deal usually required some level of interaction with other departments, e.g., sorting out planning permissions, grants or licences. Negotiating each deal, following up to ensure results were obtained and sharing the outcomes were time-consuming activities. In Glasgow, while at an earlier stage of development, the creation of 15+ Friends of Parks groups was led by the council through a community co-production process with much handholding and interaction on an individual group basis. In Poznan, the successful pilot of 3 natural playgrounds led to an unexpected high level of demand from other schools for a similar intervention. In a short period of time, Poznan had to scale up and deliver natural playgrounds to more than 20+ schools and eco-demonstrators to more than 40. As part of the process, numerous administration and grant forms had to be completed. This was followed by a co-production process with technical experts and the wider community. The final step was developing and delivering technical and educational training to optimise NBS usage in the long term. Supporting these small-scale CGRs in the short and long term in all three cities greatly increased the complexity of NBS governance for the local government.

From the perspective of adaptation to this unexpected outcome, two observations emerged. Firstly, as per the lifecycle stages described in chapter 2, the system of governance of these mini-CGRs within the overall governance structure of the NBS became systematised. Secondly, local governments collaborated with experts to upskill communities to take over and lead on stewardship and governance in the long term.

Systematisation of governance structures: The phase of routinisation or institutionalisation of change usually takes time (Mandell and Keast, 2008, Imperial et al., 2016, Ulibarri et al., 2020). However, in the case of unexpected success leading to high levels of demand, this can happen rather quickly. In all three cities, findings show that systems weren't planned in advance but were developed and refined adaptively on the go. The reflexive monitoring process which had been introduced in all cities helped with this process by identifying issues as they emerged and focusing attention on measures needed to address them.

"The implementation of open garden and natural playgrounds became an important lesson for the team collaborating in the frame of our department. First implemented by one team member in their experimental (pilot) phase they became a mechanism for at least 10 kindergartens. Many more kindergartens are interested and we are trying to possibly enlarge the scope of the "Mechanism of cooperation" with the Department of Education. ... We also decided to create an internal "universal template" for each case as we want to capitalize our knowledge and we think that such model might be useful for the future cases. We found it very useful to capitalize our knowledge through such internal instruments that may be later promoted and showed to other colleagues." 2019, Poznan Framework report Deliverable 5 C3.

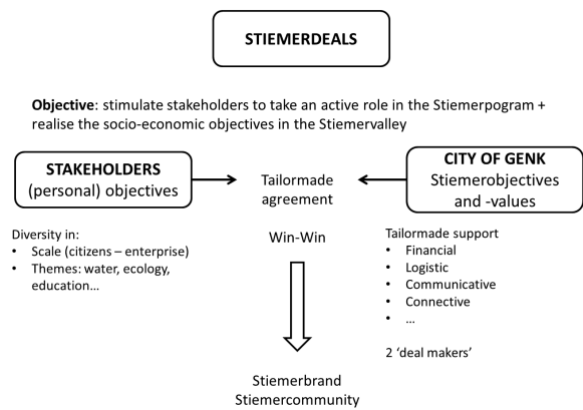
Poznan learned from the 'template approach' developed to routinise the process with schools and developed a similar approach for collaboration with the private sector. They worked with the legal department to create a framework agreement for future collaborations so that they would be ready and could react quickly to future opportunities.

"We need to be prepared with the right legal tools. They also want to react quickly or they lose interest. They want something in 6 months. If we say it will take a year to clear the space out before we can start anything they lose interest. So we need to be ready" 2020, NBS Team.

In Genk, the success of the Stiemer Deal pilot led to a similar process of routinization on the go. A governance structure was designed to support the simultaneous development of multiple bilateral CGRs with different stakeholders. Ensuring each deal was aligned with the overall goals of the Stiemer Valley NBS and with overall city policies was seen as important, as were considerations over scaling.

“I’m struggling with governance. I’ve thought of a structure but it’s difficult. Stiemer Deals is very lively so it is hard to put a strict structure in place. Difficult to make plans if it gets bigger too.”

2020, Genk Stiemer Deals Manager.



Over time budgets were secured, indicators were put in place and additional staff were recruited. The question of where to locate the Stiemer Deal team presented much reflection. The Stiemer Valley NBS was a flagship project led by the Environment Department but Stiemer Deals by design required high ongoing levels of horizontal inter- and intra- organisational collaboration. It was decided to leave Stiemer Deals in the environment department pending a larger organisational restructuring towards horizontal working.

In Glasgow, post Covid, technology was being used as part of the routinization process.

“Glasgow City Council facilitated this way of working, our colleague T. has developed an online pack trialling setting up new friends of groups online versus in person.... Online is a quicker and more streamlined process, more Friends of Groups than would have been done in person, potentially able to attract more funding for more spaces.” 2021, Glasgow NBS Team.

Transfer of leadership: The initiating leadership of these small-scale CGRS is shared in that the involvement of both local government and local stakeholders are required. In Poznan and Glasgow, there was a clear goal to transfer leadership over time to the local community. In Poznan the uncertainty over long term financing was certainly one contributing factor. In Glasgow, reduction in long term financing requirements was one factor but equally importantly was the high-profile policy of local empowerment (Community Empowerment Act 2015).

In the case of the Stiemer Deals, the NBS team had the opportunity to pull back over time as deals were completed and the system became routinised over time. An interesting development also emerged when ‘dealees’ began to network spontaneously among each other without the involvement of the city at all.

“Now there’s a new stage in which we do not have to invest in it ourselves anymore. Ignited some spark with Stiemer deals – ambassadors coming up with new deals independent of the

city being involved closely. It's a good sign. Demonstrates that it works. Unlock dormant capacity. Lots of energy within the people working with the deals." 2020, Genk NBS Team.

However instead of pulling back, the NBS team decided instead to step up their involvement. With the recruitment of new staff, they sought to improve the programme and further support participants.

"X is on board since November ... Supporting M. on Stiemer Deals – strengthening the concept – anchoring them (Dealees), bringing them to the next level. We're mapping all the (deals) going on at the moment – very broad – not clear what makes a Stiemer Deal... also looking at the support they get from city of Genk – can we be clearer about support if we know what makes a Stiemer Deal, gains to be made on level of communication, how to find them more easily..." 2021, Genk NBS Team.

In conclusion, the old adage 'Be careful what you wish for' comes to mind as a recommendation for local governments embarking on a process of collaborative governance. This study shows that a process of adaptive governance is useful to be able to deal with unexpected consequences leading to additional complexity in governance. Findings from the case studies in this research show that while accelerated routinisation is important, ultimately local governments have to make a strategic choice in either pulling back or scaling up to meet such additional complexity.

6.4.7 Usefulness of Emerson and Nabatchi Productivity Performance Matrix

Emerson and Nabatchi's Productivity Performance Matrix provided a very useful starting point for reflection on performance measurement of collaborative governance. In this section, some limitations are first discussed in relation to the individual performance levels considered before concluding with some reflections on the framework as a whole.

Table 6.14 All Cities: overview of references to all Performance Dimensions

Performance Level 1 Outputs	No. of references			Performance Level 2 Outcomes	No. of references			Performance Level 3 Adaptation	No. of references		
Unit of Analysis	Genk	Glasgow	Poznan	Unit of Analysis	Genk	Glasgow	Poznan	Unit of Analysis	Genk	Glasgow	Poznan
Efficiency for the NBS team	1	7	13	Effectiveness for the NBS Team	44	28	29	Equilibrium - NBS Team	19	4	1
Efficacy for the CGR	116	123	230	External Legitimacy of CGR	38	14	22	Viability of the CGR	34	26	13
Equity of Target Goals	1	1	10	Effectiveness of Target Goals	57	10	109	Sustainability of Target Goals	25	2	27

Performance Level 1: Outputs

Table 6.14 shows that efficacy is the most relevant performance dimension proposed across all three performance levels for the CGR unit of analysis. This suggests that CGRs activities are highly focused on target goals, i.e. NBS implementation. The importance of the dimensions of efficiency

and equity as outputs of collaborative governance are not well described in relation to the Integrative Framework (Emerson et al., 2012) or the Productivity Performance Matrix (Emerson and Nabatchi, 2015a, 2015b). Equity is a very relevant dimension of performance for this study, not just in terms of the level of distribution of costs and benefits in relation to CGR activities but more broadly in relation to strategies and policies related to questions of environmental justice. It is a pity that this dimension of performance is not more developed in relation to performance but it could be a fruitful area for future research. The relevance of the indicator of efficiency on the other hand is more questionable. Efficiency is often understood in terms of cost savings ([Cambridge dictionary definition](#): *the quality of achieving the largest amount of useful work using as little energy, fuel, effort, etc. as possible*). The relevance of this indicator was called into question in the findings from Genk, which suggested that traditional measures such as efficiency gains and cost savings are not a relevant measurement criteria for collaborative governance and indeed muddy the waters in evaluating performance. The challenge in applying such conventional performance indicators to collaborative governance processes has been well addressed in the literature (see chapter 2) so it is somewhat incongruous to find such an indicator identified as the only indicator of output performance for organisations in the productivity performance matrix (Emerson and Nabatchi, 2015a, 2015b).

Performance Level 2: Outcomes

Three performance dimensions were proposed for outcomes, i.e. effectiveness for participant organisations, external legitimacy of CGR and effectiveness in terms of target goals. All three performance dimensions are relevant for Genk. Effectiveness seems to be most relevant for Glasgow, whereas target goal effectiveness is most relevant for Poznan. These results are consistent with the stage of development of the CGR. Intermediate outcomes in terms of effectiveness for the organisation are evident in Glasgow whereas both intermediate and final outcomes are evident in the other two cities, i.e. NBS implementation on the ground.

Effectiveness is generally understood in terms of producing the desired results ([Cambridge dictionary definition](#): *the ability to be successful and produce the intended results*). For the participant organisation unit of analysis, effective outcomes relate to the added value generated by CGR actions and outputs. The desired results would correspond with the rationale of the organisation for entering the CGR, e.g. to share knowledge or resources for NBS implementation. Effectiveness was also used as a performance dimension in relation to the unit of analysis of target goals, i.e. to what extent did the target goals (NBS implementation) produce their intended effects (environmental, economic or social impact).

The use of effectiveness as a performance dimension worked well for these two units of analysis. It is suggested that it would have also worked well for the CGR unit of analysis, i.e. to what extent the outputs of the CGR (shared goals for NBS, shared commitment, shared structures, leadership, knowledge and resources) produced the desired results (actions and outputs leading to implementation of NBS). Instead the dimension of external legitimacy was proposed as a performance indicator. The importance of legitimacy has been acknowledged and described in detail earlier in this chapter but it is suggested that, while relevant, it is too narrow an indicator to measure the performance of the CGR as a whole.

Performance Level 3: Adaptation

The performance dimensions proposed for adaptation were again relevant to consider and gave rise to interesting insights. The low number of references for Glasgow for equilibrium of change and long-term sustainability of target goals relates to their early stage of development rather than the relevance of the performance dimension. Equilibrium of change highlighted the long-term change happening in Genk and Glasgow but not in Poznan.

In Glasgow however, there is clear evidence of an emphasis on ensuring long-term viability for the 30 year OSS strategy. Longer-term viability was also an area with a high number of references in Genk. Viability in relation to the CGR relates to the capacity of the specific CGR being studied to continue and adapt. This was highly relevant to consider for CGRs at a later phase of development, e.g., Poznan. For more mature CGRs, it might be useful to consider viability in terms of different alternative endpoints (Ulibarri et al., 2020), e.g. re-orienting towards new activities (in Genk the CGR was re-oriented towards a new flagship NBS in the city centre), re-creating itself (in Genk new applications of CGR in the energy sector were seen), or wrapping up in a planned or unplanned way, e.g. CGR activity in preschools in Poznan stopped when funding stopped. Considering the viability of a single CGR however doesn't take into account the wider system perspective and possible impacts on other CGRs or action situations (Ostrom, 2005).

The last indicator of sustainability in relation to target goals was most relevant to Poznan. This was also related to viability. In an uncertain future funding scenario, they considered early on plan for long term sustainability of target goals. The scope of this final performance dimension is somewhat limiting in the description by Emerson and Nabatchi. They define the scope as relating to sustaining the effects of the implemented NBS, i.e. environmental, economic and social impacts on the ground. This is relevant but findings suggest that it would also be interesting to

consider how the outcomes resulted in more systemic changes such as integration of NBS into long term policy at city, regional or national scale.

Overall observations

From Table 6.14 above, some patterns can be observed. Firstly, it can be seen that across all performance levels, the CGR unit of analysis was consistently relevant. For the unit of analysis relating to the organisation, in this case the NBS team, effectiveness seemed to be the most relevant indicator. For the unit of analysis related to target goals, a high orientation towards achievement of target goals in Genk and Poznan was seen. This is also consistent with their level of maturity in comparison with Glasgow.

Finally, some observations were noted on the usefulness of the productivity performance matrix as a whole. While Emerson and Nabatchi make it quite clear that this matrix only measures productivity performance, they also acknowledge the difficulty in separating process and productivity performance. It would be immensely helpful if a similar matrix was developed to evaluate both dimensions.

With the current productivity performance matrix, it is still somewhat unclear if productivity performance relates to process or productivity results. Two directions of performance analysis are indicated in the arrows emerging from the Integrative Framework (Emerson et al. 2012) - performance in relation to the CGR itself and performance in relation to the actions and outputs of this CGR in a wider systems context. The actions and outputs of the CGR in a wider systems context clearly relate to the target goals unit of analysis in this Productivity Performance Matrix, i.e. the wider system benefits from achieving the goals of NBS implementation. For the CGR unit of analysis in this Productivity Performance Matrix, the position was taken that CGR performance relates to the productivity of process dynamics, e.g., outputs, outcomes and adaptation in response to principled engagement, shared motivation, capacity for joint action. These two performance dimensions are both indicated on the Emerson and Nabatchi Framework so it is easy to 'match' them with Productivity Performance Matrix units of analysis. The biggest difficulty arises with the first unit of analysis - the participant organisation - it is not clear how this is conceptualised in the Emerson and Nabatchi integrative framework.

Another overall limitation has already been identified in the discussion. For all categories it is very difficult to limit performance evaluation to just one dimension. For practical reasons this is logical and the Productivity Performance Matrix is unwieldy enough as is. However, if one performance

dimension should be chosen it should be a category that can be broadly interpreted, such as effectiveness.

Finally, picking up on one of the limitations identified in relation to the Integrative Framework, the discussion of performance dimensions in Emerson and Nabatchi (2015a) is more focused on positive rather than negative outcomes. The questions posed throughout are framed more generally towards positive reflections. For example, in the case of efficiency for participating organisations, the question posed is *“Are we attaining any efficiencies in our own operating realm, by sharing or delegating collective action?”* (Emerson and Nabatchi, 2015a, p. 213). This question leads towards a search for data showing evidence of efficiencies. Literature has shown however that collaborative governance is often criticised for not being cost-efficient. A more balanced discussion would provide a more realistic perspective on performance outputs. Another example is external legitimacy, where the question posed is *“Do the outcomes generate positive perceptions of our collective efforts among the external organizations whose acceptance is essential for future funding or public support?”* (Emerson and Nabatchi, 2015a, p. 215). A more objective question which would draw out a more balanced response would be *“Do the outcomes generate positive or negative perceptions...”*. Recent studies have shown that up to 40% of CGRs may not progress to the stage of maturity (Ulibarri et al., 2020). It would be really helpful to capture the dimensions of failure as well as success throughout, e.g. lack of cost-effectiveness, lack of alignment, lack of legitimacy, lack of viability etc. and connection between negative outputs, outcomes and long-term viability.

6.5 Chapter conclusion: Does collaborative governance work?

6.5.1 Concluding observations on performance

In answer to the question does collaborative governance work, the answer would have to be a qualified ‘yes’. The evidence in this study shows that desired outcomes in relation to socio-economic performance were achieved in Genk and Glasgow and desired outcomes in relation to social and environmental outcomes were achieved in Poznan. However this study also shows that positive outcomes in the short-term are not always the best indicator of long-term sustainability. Contextual factors both in the wider environment and in the culture of the organisation can pose long-term threats to viability.

To summarise some of the key observations across performance results:

- Findings suggest that for sustainability interventions, social and economic benefits may appear more quickly than environmental outcomes. They can help to generate sufficient legitimacy to sustain momentum until longer-term environmental outcomes can be measured.
- Measuring environmental outcomes is tricky – not just because of the time it takes to achieve them, but also due to the technical expertise required and the apparent low interest by public sector bodies. Collaboration with other entities (e.g. universities, NGOs) may be a solution.
- Perhaps because results are realized more quickly in relation to social and economic outcomes, causality is more easily attributable than in the case of environmental outcomes.
- However, Poznan provides a cautionary tale to suggest that securing evidence of outcomes does not automatically lead to long-term adaptation. Wider contextual factors must be considered.
- Findings from this study confirm that legitimacy is an essential process *and* productivity outcome, driving overall success. Internal and external legitimacy are mutually re-enforcing and should be considered simultaneously.
- In the long term, some interesting patterns of adaptation to complexity were observed. These were firstly the observation of a systematization of governance structures to facilitate a proliferation of mini-CGRs (for Stiemer Deals; Friends of Parks; natural playgrounds). Secondly, proactive measures were observed in all local governments to transfer or share ‘leadership’ of CGR activities and achievement of target goals, from the local government to community organisations.

6.5.2 Concluding observations on Emerson and Nabatchi’s Productivity Performance Matrix

The question of performance is a perennial discussion in collaborative governance literature. Emerson and Nabatchi’s Productivity Performance Matrix provides a useful approach to analyse performance at three levels - the level of outputs (from collaborative actions), outcomes resulting from these outputs and finally how actions, outputs and outcomes lead to longer-term adaptation.

From application of this matrix to the three case study cities in this study, the following key observations were made. Firstly, regarding the performance level of outputs, this study finds that efficacy in relation to the CGR itself is the most relevant performance indicator in all three cities. Efficacy relates to the level of alignment between actions and outputs of the CGR and the stated goals of the CGR. The stated goals of the CGRs in all three cities is NBS implementation. The analysis of actions presented in Chapter 5 provides convincing evidence that CGR actions were well aligned with NBS goals in all cities. There were few references to equity and efficiency.

Questions were raised as to the relevance of the performance dimension of efficiency in the context of collaborative governance.

Secondly, looking at performance from the level of outcomes, all three indicators were relevant, although the indicator of external legitimacy in relation to the CGR was somewhat limited in scope. Strong evidence is presented of the effectiveness of outcomes for the unit of analysis of participant organisation, i.e. the NBS team in the local government. Many benefits were identified by cities including improved processes, increased capacities and skills, increased access to financing and increased integration of NBS into policy. Strong evidence is also presented of the effectiveness of outcomes in relation to socio-economic benefits in Glasgow and Genk and environmental and social benefits in Poznan. Causality is found between NBS outcomes and CGR actions in the case of the three cities in this study.

Finally, the dimensions of adaptation proposed for analysis of adaptation provided a useful stimulus for reflection on longer-term system change, although they were somewhat restrictive. Findings from this research echo findings from Ulibarri et al. (2020) that show CGRs narrative can have many different endings. Sometimes they wrap up after achieving good outcomes, other times they can adapt in a multitude of different ways – spinning off mini-CGRs in response to increasing complexity, expanding their remit or diversifying into new fields of activity. The impacts of interactions between CGRs on systemic change is another important factor to consider.

An overall reflection was that the guidance from Emerson and Nabatchi on use of this framework leaned towards a positive interpretation of performance dimensions. Keeping in mind recent critiques from reviews of CG have been perhaps too rose-tinted in the past, more guidance on identifying and interpreting ‘negative’ performance indicators would be helpful.

Notwithstanding these remarks, the Productivity Performance Matrix was found to be an excellent starting point for performance evaluation facilitating the emergence of novel insights for theory and practice.

7. Contributions & Conclusion

This chapter is structured into four sections. The first section summarises the key findings of the research in relation to Emerson et al.'s **Framework for Integrative Governance** (2012). In this section, the main limitations of Emerson et al.'s various components and need for additional research are identified.

The second section presents a **revised Framework for Integrative Governance** for examining and designing collaborative governance networks arising from this research.

The third section presents theoretical contributions emerging from the application of the Emerson and Nabatchi's **Productivity Performance Matrix** (2015a,b) in this study. In this section, the main limitations of Emerson and Nabatchi's matrix are identified and modifications to this matrix are proposed.

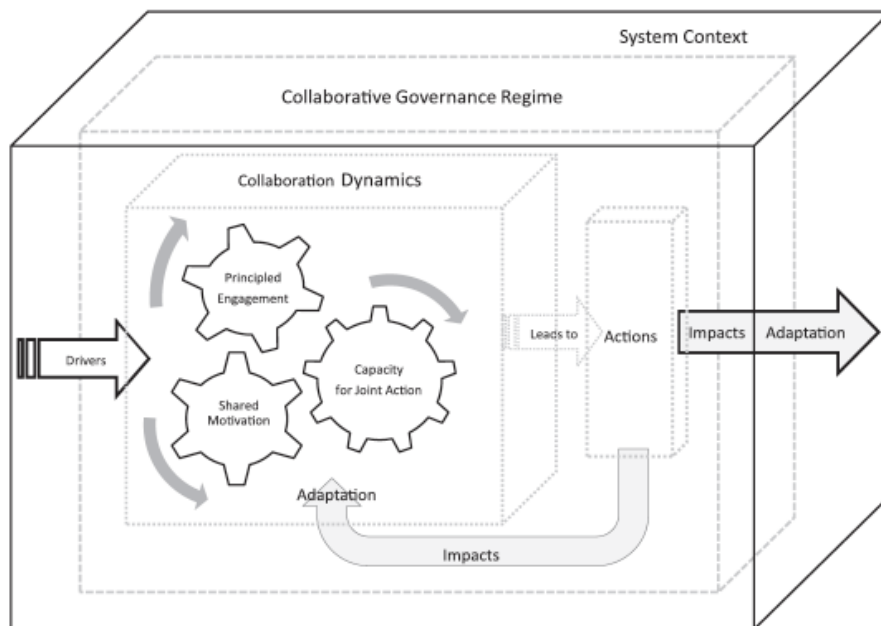
The fourth and final section of this chapter synthesises the most important **theoretical, empirical, methodological and practical contributions** emerging from this research and concludes with a set of recommendations for developing theory and practice in collaborative governance.

7.1. Limitations of Emerson et al.'s Framework for Integrative Governance

7.1.1 Rationale for use of Emerson et al. Framework for Integrative Governance (2012)

Following a literature review and consideration of multiple frameworks (see chapter 2), the Emerson et al. Framework for Integrative Governance (2012) replicated in Figure 7.1 was selected as the optimal framework to respond to the first research question i.e. how do local governments implement and adapt to the collaborative governance arrangements required for nature-based solutions. Data was collected from three local governments (Genk in Flanders (Belgium), Glasgow in Scotland (UK) and Poznan in Poland) over a five year period capturing the process by which cities designed and implemented collaborative governance regimes (CGRs) to support the delivery of nature-based solutions to complex challenges.

Figure 7.1 The Integrative Framework for Collaborative Governance



Source: Emerson et al., 2012, p.6.

7.1.2 Limitations and unexpected findings from application of the framework

Findings showed that overall the Emerson et al. Framework provided a highly relevant lens to explore how collaborative governance regimes emerged and developed in case study cities. The detailed guidance provided on the different sub-elements of principled engagement, shared motivation and capacity for joint action was particularly useful in understanding the unfolding of collaboration dynamics. However some important limitations of the framework emerged in the early stages of data analysis with further unexpected findings emerging as further rounds of analysis were undertaken. The most significant limitations and unexpected findings are summarised hereafter with other limitations detailed in Chapters 4 and 5.

Lack of focus on intra-organisational factors

The first stage of data analysis began with an exploration of the systems context. While the seven different contextual factors proposed by Emerson et al. were all relevant to case study cities, one of the most important contextual factors that emerged was the impact of public management cultures and structures on the formation and development of CGRs. While Emerson and Nabatchi (2015a) make several references to the importance of intra-organisational dimensions, discussion is primarily related to inter-organisational collaboration dynamics. Findings from this research suggest that while CGRs can be formed in any public

management context, the likelihood of these being able to persist over time or have lasting systemic change effects is limited if CGRs are operating within a more traditional, hierarchical governance regime. This research argues that a deeper consideration of public management models and reforms is merited under contextual factors in the Emerson and Nabatchi framework (2015a).

Barriers to collaborative governance

Barriers to collaborative governance were not explicitly identified in the Emerson et al. framework. However, a significant volume of data relating to barriers (over 500 references) emerged in data analysis, prompting the creation of a new top-level code for deeper analysis.

Some common barriers emerged across the cities relating to the system context. Often these were related to the culture and characteristics associated with traditional public management models. Traditional public management contexts manifested in challenges to the implementation of collaboration dynamics on a day-to-day basis. In Genk and Poznan, the main barriers to collaboration were silo-working practices at an intra-organisational level. In Poznan, in particular, strict departmental hierarchies and deteriorating public finances meant that NBS were not prioritised and it was difficult to get the attention and support of political leaders. In Genk, while there was high-level support for collaborative governance, at lower levels in the organisation there was much resistance. Intra-organisational factors were also a factor in Glasgow but less related to hierarchical silos and more related to internal staff cut-backs and restructuring.

Inter-departmental silos arising from hierarchical public management systems are widely recognised as a key challenge to collaborative governance in NBS literature but this challenge is under-theorised in public management literature. This is symptomatic of a wider disconnect between public management theory and environmental governance theory that has been clearly identified by scholars in both fields (Kooiman, 1999, Greener, 2013, Hughes, 2003, Osborne, 2006, Hood, 1991). This research confirms that much still needs to be done to understand how to overcome intra-organisational challenges to collaborative governance in traditional public management systems.

The Covid pandemic also emerged from this study as an instantaneous and significant barrier to collaborative governance in all three cities. The Emerson et al. Framework provides little guidance on how systemic shocks should be considered in relation to the formation or operations of collaborative governance. Considering that we are living in an era of polycrisis

and facing increasing natural disasters related to climate change, this is an important barrier under-explored in the framework.

Barriers also emerged in relation to collaboration dynamics. Emerson and Nabatchi's discussion around collaboration dynamics was found to be predominantly focused on the development of new collaborations at inter-organisational level. Findings from case-study cities showed significant challenges arising when existing relationships and established processes at intra- and inter- organisational level were 'unfrozen' in order to introduce new concepts and processes such as NBS and collaborative governance.

Clearer positioning of barriers in the Integrative Framework and discussion of how to address such barriers would be highly relevant for both scholars and practitioners.

Legitimacy and Leadership

Overall, the Emerson et al (2012) framework provided an excellent lens for understanding the three collaboration dynamics of principled engagement, shared motivation and capacity for joint action. While a number of minor divergences and unexpected findings are identified in Chapter 5, in this final chapter attention is drawn to only one major divergence and this relates to the treatment of legitimacy and the inter-relationship between legitimacy and leadership. Emerson and Nabatchi (2015a) identify internal legitimacy as an important sub-element of the collaboration dynamic of shared motivation, while external legitimacy is identified as a performance dimension in relation to the outcomes of collaboration dynamics (Emerson and Nabatchi, 2015a). Leadership is treated separately under a sub-element of Capacity for Joint Action. Data from this study suggests that while internal and external legitimacy are different, they are closely interrelated to each other and to the sub-element of leadership. Indeed it was found in all three case study cities that external legitimacy sometimes led to internal legitimacy, rather than the other way around. Actions to build legitimacy often targeted leaders so this interrelationship should equally be considered under the scope of legitimacy i.e. who is the target of actions to build internal and external legitimacy and what are the outcomes in terms of changes in leadership attitudes and behaviour. This study provides new insights on the process and actions involved in building both internal and external legitimacy among the leaders of participant organisations. Actions included the use of external experts at an early stage of CGR development to the use of media and events at later stages. This study concludes that internal and external legitimacy should be considered both separately and together as sub-elements of collaboration dynamics and as a performance dimension of

outcomes (this latter aspect relating to the performance dimension is addressed in Section 7.3). While a consideration of different types of leadership involved in CGR activities might be best placed under Capacity for Joint Action, the treatment of internal and external legitimacy should also consider how this impacts on leadership and in turn actions in the short term and longer term systemic outcomes.

Differentiating between Process and Productivity Actions

In the original Emerson et al. (2012) framework as shown in Figure 7.1, little guidance is given on actions relating to collaboration dynamics. Emerson et al. acknowledge themselves that collaboration 'actions' remains something of a 'black box' in the study of collaborative governance (Emerson and Nabatchi, 2015a). This lack of knowledge proved to be quite challenging in this study as a huge volume of data (over 1000 references) was collected on specific actions related to collaboration dynamics. In comparison with the detailed guidance provided by Emerson et al. (2012) on the sub-elements of context, drivers and collaboration dynamics, there was no such structured guidance to help analyse this huge volume of data. Consequently in this study, new theory emerged in relation to the classification of actions.

This research showed that actions could be differentiated between process actions and productivity actions. Productivity actions are actions related to achieving the target goals of the CGR, in this case specific NBS planning and implementation. Process actions were seen to relate more to overarching and potentially longer-lasting CGR activities e.g. building new relationships, putting in place new institutional structures. Differentiating between process and productivity actions made it easier then to differentiate between process and productivity outputs and outcomes. This distinction proved very helpful for applying the productivity performance matrix as discussed in Chapter 6. In the adapted framework presented in the next section, this differentiation between process and productivity actions and outputs is clearly made.

Applying a temporal dimension to Collaboration Actions

This research also showed that actions could and should be differentiated from a temporal dimension. Since the Emerson et al. framework was published in 2012 and further enhanced in 2015 (Emerson and Nabatchi, 2015 a, b), several important publications have drawn attention to the temporal dimension of collaborative governance (Imperial et al. 2016, Ulibarri et al., 2020). Three different stages of CGR development were identified in this study: (i) early stage; (ii) development; and (iii) maturity. These correspond to the temporal lens used in the

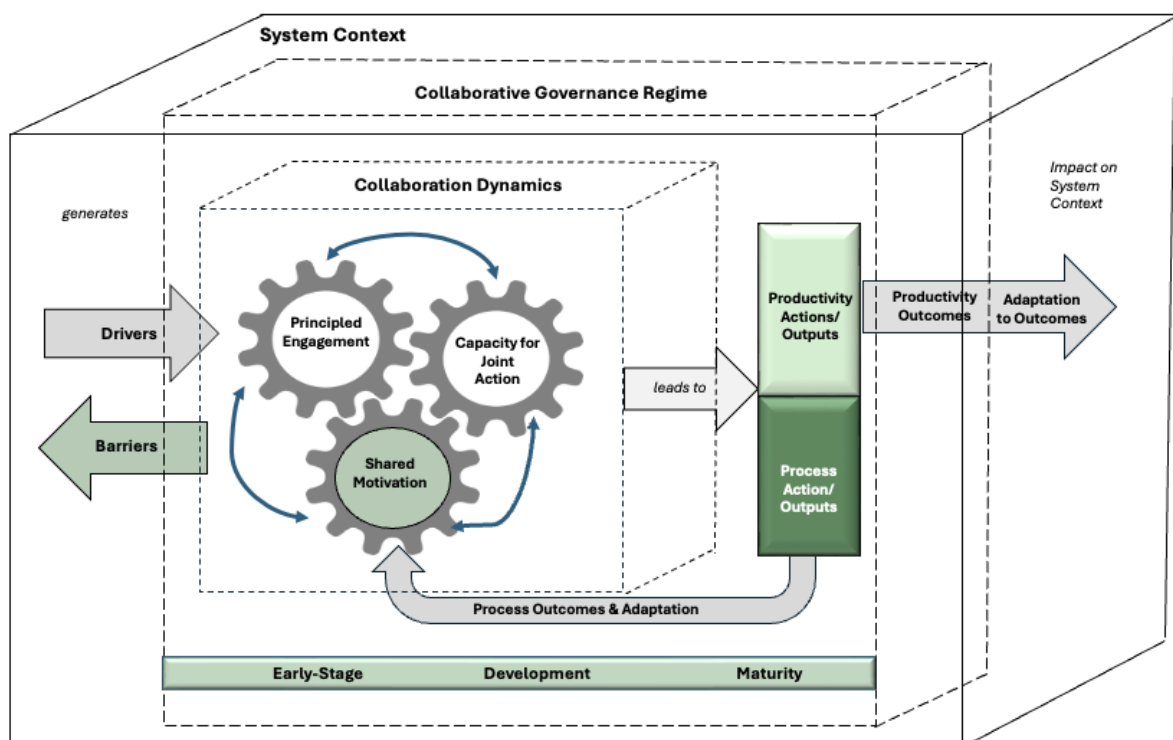
Collaborative Governance Case Database (Ulibarri, 2020). Given the increasing recognition of the temporal dimension in collaborative governance literature, this study proposed a fourth and final modification to the original Emerson et al. framework to allow for the consideration of actions at different stages of CGR development.

Further insights in relation to actions are described in earlier chapters – these include the importance of differentiating between actions and outputs (chapter 2) and the classification of actions in relation to the different collaboration dynamics (chapter 5).

7.2 Adaptation to the Emerson et al. Framework from this research

Figure 7.2 proposes four adaptations (highlighted in green) to the Emerson et al. Integrative Framework (2012) to address the limitations identified in the last section.

Figure 7.2 Adapted Integrative Framework for Collaborative Governance



Barriers: The first adaptation is a clear identification of barriers to collaborative governance. Barriers are positioned in Figure 7.2 as an opposing force to the drivers of collaboration. Similar to drivers, barriers often emerge from the systems context and they may present roadblocks to the successful formation of collaborative governance regimes. As discussed in

the previous section, public management structures were found to be a key barrier to both the formation of CGRs and their sustainability over time. Silo-working cultures often in evidence in more traditional public management cultures were found to be significant barriers not just to the formation of CGRs but also to their successful implementation. This study found therefore that barriers to collaborative governance should be considered in more depth firstly, from a systems context and drivers perspective but equally importantly, from the process perspective of collaboration dynamics.

Legitimacy and Leadership: While not visible in Figure 7.2, the second adaptation is concerned with the treatment of legitimacy as a sub-element of the collaboration dynamic of shared motivation. The adaptation proposed is that the sub-element of 'internal legitimacy' identified under shared motivation in the current framework should be broadened in scope to consider the dimensions of both internal and external legitimacy and the interrelationship between these elements. The relationship between legitimacy, leadership and long-term outcomes was a key insight from this study. External legitimacy was seen to be a key influencing factor in building internal legitimacy at high levels within the local government organisations. High levels of legitimacy for CGR activity among political leaders in Glasgow and Genk led to the commitment of long term resources to sustain CGR activity and even expand and replicate it in Genk. In Poznan however, high-level legitimacy was difficult to secure among political leaders and therefore funding for CGR activities was ended. The conclusion from this study is that securing high-level legitimacy is of crucial importance in ensuring ongoing viability of CGR activities. Overall this study confirms findings in literature that legitimacy (both internal and external) and leadership are among the most significant factors of success in collaborative governance (Human and Provan, 2000).

Process and Productivity Actions: The third adaptation relates to a clear differentiation between process and productivity actions. This differentiation between process and productivity actions, and from this outputs, outcomes and adaptation supports a deeper analysis of process and productivity performance as discussed in Section 7.3.

Temporal dimension: The fourth key adaptation relates to the temporal dimension of collaboration actions. As shown in Figure 7.2, it is proposed to consider collaboration actions from a temporal dimension, i.e. how collaboration actions change at the early stage of CGR implementation, at the development stage and at the mature stage of CGR evolution, and how they change over time in relation to each collaboration dynamic. This proposed classification of collaboration actions led to rich new insights on the concrete actions that

cities implemented to build collaborative governance. Overall, 27% of actions were coded to the early stage of formation of CGRs. The majority of actions (63%) happened at the development stage with only 10% happening at mature stage – but note that this may be a function of the time frame over which the CGRs were studied

7.3 Contributions relating to Emerson and Nabatchi's Productivity Performance Matrix

7.3.1 Rationale for use of Emerson and Nabatchi's Productivity Performance Matrix (2015b)

The final theoretical construct used in this study was Emerson and Nabatchi's Productivity Performance Matrix (2015a). This matrix facilitated the development of a robust response to the overall aim of this thesis, namely to answer the question, 'Does collaborative governance work?'. In the initial stages of data analysis, it was anticipated that this question could be answered through application of the Emerson et al. Integrative Framework (2012). However, all the performance elements of the Integrative Framework (actions/outputs, impact and adaptation) were found to be under-developed in the 2012 framework. These limitations of the framework were addressed in subsequent publications most notably the Emerson and Nabatchi Productivity Performance Matrix (2015a, 2015b).

As shown in Table 7.1, this matrix proposes nine different performance dimensions in a 3 x 3 matrix. Performance is analysed at three levels (outputs, outcomes, adaptation) and for three units of analysis (participant organisation, CGR and target goals).

Table 7.1 Emerson and Nabatchi's Productivity Performance Matrix (2015 a, b)

<i>Performance Level</i>	<i>Unit of Analysis</i>		
	<i>Participant Organization</i>	<i>Collaborative Governance Regime</i>	<i>Target Goals</i>
Level one: actions/ outputs (intermediate and end outputs)	Efficiency	Efficacy	Equity
Level two: outcomes (intermediate or end outcomes)	Effectiveness	External Legitimacy	Effectiveness
Level three: adaptation (responses to outcomes)	Equilibrium	Viability	Sustainability

7.3.2 Mini-CGRs and other novel insights from application of the Productivity Performance Matrix

By and large, the productivity performance matrix proposed by Emerson and Nabatchi (2015b) helped to address the lack of guidance on outputs, outcomes and adaptation in the Emerson et al. Integrative Framework (2012). The application of the productivity performance matrix yielded rich insights on the different dimensions of collaborative performance proposed. Outputs and outcomes strongly vindicated the findings of previous research on the positive outcomes from other studies (O'Leary and Gerard, 2014). Collaborative governance was found to be highly beneficial as a governance structure for complex, boundary spanning projects. Novel insights also emerged in relation to productivity outcomes. Findings from Genk and Glasgow showed that in the absence of long term data on environmental outcomes, the availability of short-term socio-economic outputs from CGR activity was sufficient to secure support for continuation of CGR activities. This is a notable finding given the well-established challenges around measurements of environmental outcomes which often take longer to capture.

Going beyond outputs and outcomes to consider adaptation in a longer-term systemic context was particularly valuable. The emergence of mini-CGRs in all three cities was one unexpected long term outcome from CGR implementation. Mini-CGRs responded to the goal of the NBS teams to engage other actors such as citizens and businesses in the longer term governance of NBS. While city-wide co-governance of NBS was the goal of the CGRs in each city, it was difficult for cities to envisage at the start of the process what success would look like and what the consequences of success would be. One of the outcomes from CGR implementation was the formation of a multitude of smaller mini-CGRs e.g. 30+ small-scale partnerships from Stiemer Deals in Genk, 15+ Friends of Parks groups in Glasgow, 20+ natural playground community collaborations in Poznan. The rapid proliferation of these mini-CGRs required the adaptation of the original CGR to accommodate and support multiple smaller developments. Processes became systematised in order to respond to the increased complexity. Proactive measures were observed in all local governments to transfer or share 'leadership' of CGR activities and achievement of target goals, from the local government to community organisations.

7.3.3 Limitations of the Productivity Performance Matrix

While the performance dimensions proposed in Table 7.3 for the three different units of analysis (participant organisations, CGR, target goals) provided a useful starting point for analysis, in

general it was quite challenging to evaluate all aspects of performance for each unit of analysis on the basis of only one performance dimension. While most of these performance dimensions were quite broad, some performance dimensions were found to be too limited in scope. These limitations are described hereafter and alternative performance dimensions proposed in an adaptation to the matrix in Section 7.4.

Performance dimensions proposed for outputs: The relevance of efficiency as the only dimension for measuring short-term outputs for the NBS team appears highly restrictive. Given findings that suggest collaborative governance is resource intensive to set up, efficiency might be a better dimension to consider in the longer term, when costs can more equitably be measured against benefits.

Performance dimensions proposed for outcomes: Effectiveness was found to be a good performance dimension for evaluating outcomes relating to NBS teams and target goals. It would also have been a good performance dimension to evaluate CGR outcomes. Instead the only indicator proposed was 'External Legitimacy'. While external legitimacy is highly relevant (as discussed previously), it is too narrow in scope to capture the many dimensions of CGR performance outcomes, e.g. internal legitimacy, evolution of governance processes and structures, accumulation of knowledge and resources at CGR level.

Performance dimensions proposed for adaptation: While the performance dimensions proposed under this heading stimulated rich reflections, some were found to be too limited in scope. For example 'Viability' was found to be too limited in scope to be the only dimension to consider for CGR performance in the long term. The case of Poznan illustrated that when one pathway to viability closes, efforts intensify to find another. The performance dimension of sustainability in relation to target goals was also somewhat limited. Findings from this study showed much broader outcomes in terms of the target goal of NBS outcomes, such as take up of NBS in a regional/national setting, and implications for related CGR in other sustainability fields.

In relation to long term adaptation, attention is drawn to the need to consider dimensions related to unintended consequences from collaborative governance such as the increased complexity from mini-CGR arrangements emerging.

7.3.4 Proposed adaptations to the Productivity Performance Matrix

Table 7.2 proposes three adaptations to the Productivity Performance Matrix based on the findings of this research.

Table 7.2 Adapted Productivity Performance Matrix

Performance Level	Unit of Analysis	Collaborative	Target Goals
	Participant Organization	Governance Regime	
Level One: Outputs	Efficiency	Efficacy	Equity
Level Two: Outcomes	Effectiveness	Effectiveness	Effectiveness
Level Three: Adaptation	Equilibrium	Viability	Systemic Change

Firstly, it is proposed that the productivity performance matrix (PPM) is simplified to focus primarily on two units of analysis – the CGR and the target goals of the CGR. It is argued that the unit of analysis of the participant organisation is dropped for both theoretical and practical reasons. Firstly, from a theoretical perspective, the PPM is based on the Emerson et al Framework. As illustrated in Figure 7.1 and Figure 7.2, the framework construct only considers outputs, outcomes and adaptation from collaborative governance from the perspective of the CGR itself (internal process focus) and from the perspective of the broader system context (external productivity focus). It is difficult to see how the third unit of analysis ‘the participant organisation’ is conceptualised in this framework. Further, it is suggested that some of the performance dimensions proposed for the participant organisation, such as ‘efficiency’ of outputs, are too limited in scope. Secondly, from a practical perspective, unless there are a very limited number of participants in the CGR and they are in broad agreement on performance outcomes, it is both impractical and illogical to consider productivity performance at the joint level of ‘participant organisations’.

The second proposed adaptation is in relation to ‘external legitimacy’ as the sole performance dimension for outcomes of the CGR. While legitimacy (both internal and external) is highly relevant to long term viability, the scope of this performance dimension is too limited as a sole measure of all CGR outcomes. It is proposed that ‘effectiveness’ would be a better indicator, i.e. to what extent the outputs from CGR implementation produced the desired results, i.e. the social and economic impacts of NBS implementation. The extent to which these results then generated legitimacy is a consequent consideration.

With regard to adaptation, while no change is proposed to the performance dimension of viability, it is argued that viability is considered not just from a binary perspective, i.e. the CGR is either viable and continues, or is not and is discontinued. Rather we argue that viability should be broadened to include the perspective of multiple alternative end-points as identified in recent studies (Ulibarri, 2020).

Finally, with regard to the performance dimension of sustainability, it is argued to broaden the scope of this performance dimension from the ‘sustainability of outcomes of the CGR’ to consideration of the ‘wider systemic impacts from the outcomes of the CGR’. This can be considered akin to Ostrom’s consideration of how one action situation (a CGR) can impact on multiple other action situations in a broader systems context (Ostrom, 2005). In this research it can be seen that while the outcomes of a CGR relating to a specific NBS were sustainable, it was far more interesting from a systems perspective to look at how CGR outcomes impacted on the replication of this CGR for other NBS or in other policy domains.

7.4 Summary of contributions

7.4.1 Theoretical contribution

The main contributions to public administration theory presented in Section 7.1 to 7.3 are summarised hereafter:

Integrative Framework for Collaborative Governance

An adapted version of the Integrative Framework is proposed, addressing the following key limitations:

- **Barriers:** Important barriers to collaboration including the limited consideration of public management models as a key contextual factor impacting the drivers of formation of CGRs. Other barriers included intra-organisational factors and systemic shocks.
- **Legitimacy:** The limited treatment of legitimacy under shared motivation led to development of theory on the relationship between internal and external legitimacy in collaborative governance.
- **Actions:** The limited guidance on actions provided by Emerson et al (2012) led to new theory on: (i) the differentiation between process and productivity actions and outputs; (ii) a temporal classification of actions related to collaboration dynamics over three phases of evolution of CGRs.

Typology of CGRs

- Illustrated the limitations of the existing typology.

Productivity Performance Matrix

- Provided rich, new insights on long-term outcomes from collaborative governance, in particular the unexpected complexity of managing a network of mini-CGRs.
- Proposed adaptations to some of the performance dimensions of the productivity performance matrix.

7.4.2 Empirical contribution

Studies in NBS and environmental governance literature identify that collaborative governance approaches may evolve over time (Driessen et al., 2012, Wilk et al., 2021, Frantzeskaki, 2019). However, theory is limited by a lack of empirical longitudinal research studying how this evolution unfolds over time. In this study the large volume of empirical data collected over five-years from case study cities allows for a better understanding of actions undertaken to build collaboration dynamics over time and the outputs, outcomes and long-term change that stem from such actions.

Given the small number of cities involved in the research study and the specific goal of CGR formation, i.e. NBS implementation, data collected from direct references cannot be made available in an Open Source Database in order to protect the anonymity of interviewees in each city.

However, with the permission of the cities involved, a synthesis of relevant data could be prepared and submitted to the Collaborative Governance Case Database⁹. The requirements for case description has been reviewed and comprehensive data can be made available on starting conditions, institutional design, leadership characteristics, collaborative processes, accountability and outputs and outcomes. A review of the 27 European case studies showed that the majority come from the Netherlands, Germany and Scandinavia, with only one entry from the UK and none from Belgium or Poland.

7.4.3 Practical contribution

⁹ The Collaborative Governance Case Database is a common pool resource created and managed by researchers. Twenty five scholars have contributed cases to the database which will provide a collective resource for all researchers. <https://collaborativegovernancecasedatabase.sites.uu.nl/contributors/>

In NBS literature, there are many individual case studies of collaborative governance but few tracking the evolution of collaborative governance over time from formation through to maturity. This research will help to provide cities embarking on their NBS journey to understand:

- how context and drivers can work for or against collaborative governance;
- how their role may evolve from high level, top down engagement at formation stage to becoming more of a facilitator and investor in community governance capacities over time;
- aligned with these difference stages of development, understand what kind of typical actions are undertaken to build collaborative governance dynamics and what kind of outputs to expect;
- what kind of outcomes can be expected and what performance indicators may be useful to track outcomes;
- the importance of securing legitimacy to ensure long-term CGR viability and sustained impact.

To support the take-up of findings of this research in practice, a practical guidebook on collaborative governance for NBS will be proposed as part of NBS EduWorld¹⁰/UGP+ Horizon Europe projects, drawing on insights from the three case studies in this research (with their permission and engagement).

7.4.4 Contribution to Methodology

Emerson and Nabatchi (2015a) provide detailed guidance on data sources for every element of the Integrative Framework for Collaborative Governance (Emerson et al., 2012) and every unit of analysis and performance level of the Productivity Performance Matrix (2015a) (see Appendix 8.2).

Interviews are one of the potential data sources proposed for almost every element. Along with observations and document reviews, interviews are among the standard data sources for case study research (Ashworth et al., 2019, Silverman, 2017). However interviews are not without their disadvantages, as both the choice of questions and the steering of responses can be subject to bias.

In this study, data from reflexive monitoring (RM) meetings were used as a novel source of data. Reflexive monitoring was a process of adaptative learning facilitated by DRIFT, an academic

¹⁰ NBS EduWORLD Horizon Europe project <https://nbseduworld.eu/>

partner in the Connecting Nature project. Reflexive monitoring sessions were led by cities. In advance of monthly meetings over the duration of the project, NBS teams got together independently to identify critical turning points over the last month on their journey towards NBS implementation. They documented these turning points along with challenges (or learning questions) and their responses in a document which was circulated in advance to research partners. A monthly/bi-monthly meeting was facilitated by DRIFT where the NBS team in each city would share this document and reflect on their learnings. This process was observed and transcribed by academic partners who could ask questions via the facilitator. Academic partners played the role of observers and independent sounding boards for the NSB teams.

The minutes captured from these reflexive monitoring meetings provided an invaluable source of data for this study. Unlike interviews where the questions are posed by an interviewer and the interviewee responds, with reflexive monitoring cities identify the most important developments and reflect on their importance.

Wider use of reflexive monitoring as a source of data has the potential to contribute to a much deeper understanding of collaborative governance as it unfolds in real time.

7.4.5 Limitations and directions for future research

Limitations

Generalisability: The most important limitation of this research is the generalisability of results. Case studies provide rich insights and understanding of how collaboration dynamics unfold but this knowledge is deeply embedded in the history, culture, location, socio-economic conditions, etc. of the three cities involved in the project. Three case studies are better than one however, and through comparing the data across three cases it is possible to compare and contrast contextual factors, collaboration processes and outcomes to generate more robust findings.

While extensive data were collected over five-years, it is important to point out that as a qualitative research methodology is employed, the number of references captured under each category of template analysis is indicative only. The purpose of capturing such data was to identify relevant dimensions and confirm the applicability of the structure and components of the Emerson and Nabatchi research model rather than to compare the relative importance of data captured under each component. The quality of each data reference captured under each component, regardless of the volume of references, is considered of equal importance.

Researcher Bias : As documented, the three case study cities participating in this research were partners of Connecting Nature, an EC-funded Horizon 2020 project co-ordinated by Trinity College Dublin. The author coordinated the contribution of Trinity Centre for Social Innovation to this project for four years from 2017-2021 and took over as overall project coordinator in the final year from 2021-2022. By virtue of this position as a researcher on Connecting Nature, the author acknowledges privileged access to the cities involved in this research and the potential for bias in interpretation of results. As discussed in chapter 3 on methodology a number of actions were undertaken to mitigate against bias.

Time limitations affecting conclusions: Due to the time limitations of a PhD study, it was not possible to follow all CGRs to the stage of maturity. This was particularly the case for Glasgow where a 30 year CGR was planned. The lack of data on final outputs, outcomes and adaptation limited the full evaluation of performance dimensions. Studying CGRs as they evolve over time and establishing whether the approach is more or less effective than other approaches, requires more time or resources than would be available for a single PhD. Therefore, more elaborate or longer research projects may find that the conclusions drawn from this study are undermined by subsequent events or actions.

Future research directions

Collaborative governance literature is endowed with a rich source of empirical knowledge drawing on single case-studies applying collaborative governance theory. The literature review in this study, substantiated by the origins of case studies on the Collaborative Governance Case Database, identifies that many collaborative governance case studies come from North-West Europe, the US and Australia, areas of the world which are often more developed in terms of public management system reforms (Hammerschmid et al., 2016; Pollitt and Bouckaert, 2011, 2017, Peters, 2017). This research study shows that traditional public management systems present significantly more challenges for collaborative governance than those that have incorporated more recent public management reforms. Further empirical studies are needed from regions in other parts of Europe and the rest of the world to substantiate this finding.

Similarly, further empirical research would be helpful to increase the robustness and generalisability of other findings of this research such as: (i) the identified limitations and suggestions of modifications to the Emerson et al. Integrative Framework (2012), CGR typologies (2015b) and performance dimensions (2015b); (ii) classification of actions by temporal dimension (iii) evidence of outcomes such as spin-off of new CGR structures; (iv) importance of public

management systems on outcomes; (v) importance of internal and external legitimacy and interactions between them. A priority would be the follow-up of more mature CGRs to understand different paths to long-term adaptation. This would enrich the findings from Ulibarri et al.'s (2020) study of the different end points of CGRs.

Preliminary findings from this research echo other studies that suggest an evolution in the characteristics of CGRs over time e.g. changes in structure, participant volition, leadership etc (Mandell and Keast, 2008, Imperial et al., 2016, Ulibarri et al., 2020). If the case studies from this research are accepted into the Collaborative Governance Case Database, the extensive data collected in this study could facilitate further research on CGR typologies and contribute to further development of the CGR typologies proposed by Emerson and Nabatchi (2015a).

This research also suggests there is much room for further research and theoretical reflection on performance indicators relating to productivity outputs, outcomes and adaptation from CGRs (Emerson and Nabatchi, 2015b). A comparison of the features and dynamics of process and productivity outcomes would also be helpful for theory and for policy makers. Finally, more data are needed to understand the relationship between outcomes and adaptation. The results from Poznan and Genk suggest this is an area of high relevance for future research.

7.4.6 Concluding statement – so what difference will this research make?

It is increasingly recognised that local governments are at the forefront of tackling the wicked and intertwined problems of climate change and biodiversity loss. Collaborative governance is seen as an approach of vital importance in securing the multi-level, multi-sectoral buy-in required to implement complex solutions to such wicked problems. To date scholarship in collaborative governance theory has been predominantly outward-facing. Widely used frameworks such as the Emerson et al. (2012) Integrative Framework for Collaborative Governance have focused on the dynamics of inter-organisational collaboration. This research shows that in collaborative governance scholarship there is a significant lack of recognition of the importance of inward-facing or intra-organisational factors, despite decades of highly relevant scholarship on public management reforms at an intra-organisational level.

Findings from this study illustrate that CGRs can emerge across many types of public administration model, even the most rigid and traditional. However there is a crucial difference between surviving and thriving. Notwithstanding the limitations of this research, it is argued that collaborative governance will not thrive in the long term within the confines of the strict hierarchies of traditional public administration. More empirical research is needed in the many

parts of the world where traditional public administration models still prevail to understand how to enable collaborative governance to thrive (or public management reforms to be taken up). Traditional modes of governance are slowing down the rapid deployment of collaborative governance needed to meet the gravity and urgency of the polycrisis we face. Novel insights from this research help to identify both barriers to the uptake of collaborative governance and actions that can be taken to stimulate collaboration dynamics and overcome barriers.

This research also provides a partial response to ongoing questions about the performance of collaborative governance. Clear and measurable benefits in the short term were observed in all three cities in terms of effectiveness from collaborative governance. Socio-economic outcomes in the short term were sufficiently convincing in Glasgow and Genk to secure high-level commitment in the absence of longer term environmental outcomes. However in the city of Poznan where social and environmental outcomes were evident, these outcomes were insufficient to secure resources for long term adaptation. Further research is needed to understand the dynamics between outcomes and viability. Another unexpected finding that warrants further research was the emergence of mini-CGR governance structures over time leading to increased complexity in CGR management. A key finding from this research is that for collaborative governance regimes to endure in the long term, high level leadership is required to secure the legitimacy of collaborative governance approaches and to support the viability of ongoing activity.

In conclusion, this research has contributed new knowledge about how local governments in different parts of Europe adapt to collaborative governance requirements and with what effect. Outcomes show that collaborative governance holds much promise as a mechanism to scale the implementation of nature-based solutions in response to the biodiversity crisis faced today. The proposed adaptations to the Integrative Framework and Productivity Performance Matrix in this study constitute an important contribution to the fields of environmental policy and practice, public management, and collaborative governance.

8. Appendices

8.1 Summary of Findings of Baseline Study

Participants, actions, transition points and outcomes related to NBS governance models in 10 NBS exemplars in case study cities (extract from application of Ostrom IAD analysis)

Exemplar (Genk)	Participants/Actors	Actions	Outcome 1: Governance model 1	Transition point	Outcome 2: Governance model 2
Heem Park (E1 Genk) Small scale ecological city centre park & educational centre dedicated to preserving traditional agricultural methods	Community: engaged citizens and volunteers Government: Local politicians and local (city) government officials. Market: No private sector involvement.	In the 1970's a group of informed citizens successfully lobbied the government to buy the HeemPark site.	Outcome: Land bought in 1971 and Heem Park established in the early 1970s. Governance: Societal Resilience co-management Model Initially citizen-volunteers led on all aspects of planning and governance with a low level of support from the government.	Increased visitor numbers put pressure on volunteers who requested more city support in coordination and management.	Outcome: The City responded by putting a 'Professional' park manager in place in 1987. Collaborative Governance model. The city and volunteers collaborate closely and informally on ongoing operations.
Schansbroek Park (E2 Genk) medium scale multifunctional natural landscape park addressing flooding challenges	Community: local residents, influential nature conservation NGO. Government: Local (city) government and regional land use agencies, city officials, city and regional politicians. Market: Some specialist contractors	2010: funding for a land development plan for the Schansbroek area agreed between region & city governments. High level of community /NGO consultation.	Outcome: The project was planned, funded and delivered by public bodies. Governance: Traditional Public Administration Model (with some evidence of NWS	Following completion of delivery in 2019 the regional bodies handed over responsibility for maintenance and ongoing stewardship to city govt. and NGO.	Outcome: NGO and city are partners in stewardship of different areas of the park. NGO more responsibility for wetland areas.

			reforms through indepth consultation process)		Collaborative Governance Model
Labiomista (E3 Genk) large scale redevelopment of former zoo as biodiversity park (and sustainable tourism attraction)	Community: local residents, citizens Government: Local politicians and local (city) government officials Market: High profile artist / investor (also operates charitable foundations)	City of Genk owned site but unclear about development goal. In 2014 Mayor and Artist agreed to jointly invest and develop site.	Outcome: Delivery phase completed with official opening in July 2019 Governance: Public-private partnership: multiple contracts between city and artist governing planning, delivery and stewardship	Too early to identify governance transition. Impact of Covid on visitor numbers may lead to change in planning.	No change as yet. Project under pressure from citizens and council officials to deliver return on investment.
Kolenspoor (E4 Genk) Large scale redevelopment of 70km derelict coal track spanning multiple cities and regions as a landscape park hosting sustainable economic clusters	Community: bottom-up engagement of each local resident along coal track. Environment NGO. Government: Multiple city and regional government involvement Market: Active involvement of local football club (as investor) and wider business community	Highly collaborative planning process resulted in submission of unsuccessful application for regional funding in 2017.	Outcome: Failure of funding bid due to perceived complexity, lack of alignment with city government policy and lack of public sector champion. Private-social governance model: Ambitious planning process led by social, market and academic actors. involvement of market and academic partners.	Some parts of the plan e.g. cycle pathways were funded directly by local regional governments. Unlikely that the original plan will get funded as other city-led NBS projects are prioritised.	Outcome: Direct planning, funding and public sector management of sub-sectors of overall plan. Traditional Public Sector Management

Exemplar (Glasgow)	Participants/Actors	Actions	Outcome 1: Governance model 1	Transition point	Outcome 2: Governance model 2
Stalled Spaces (E5 Glasgow) is an ongoing funding programme to support small scale community-led development of under utilised vacant or derelict land. 70% of funded projects are growing / NBS projects.	Community: formal community groups, charitable organisations, voluntary bodies Government: Glasgow City Council Market: Glasgow Housing Agency, some social enterprise involvement	Glasgow City Council initiated and continue to manage the programme. Funding support from Glasgow Housing Association. Transparent open selection process for communities	Outcome: Programme started in 2011. In first five years helped deliver over 100 projects that have successfully brought over 25ha of vacant, under utilised or stalled sites under temporary community use. Collaborative Governance: between the public and private sector for the benefit of communities who often use Stalled Spaces funding to leverage funding from other sources	Until recently, there has been no systematic follow up of projects post planning and delivery. The maintenance of projects after the 1 year funding period ends to date has been entirely the responsibility of the communities.	Private-social partnership: Stewardship is primarily the responsibility of communities but there are some examples of local businesses supporting community Stalled Spaces projects in the long term.
Greater Easterhouse Green Infrastructure project (E6 Glasgow) Use of NBS such as SUDS to address flooding as part of large scale (£7.4m) land reuse project. Multiple co-benefits	Community: mandatory consultation process Government: Close collaboration between planning and water depts of Glasgow City Council. Majority of funding from public sources Market: Clear end beneficiary (reclaimed	Glasgow City Council coordinated the funding bid for the GI project and the plan for management of future maintenance.	Outcome: Delivery phase only completed at the end of 2019. Traditional public administration: apart from the mandatory required consultation	Too early to identify governance transition. While council officials expressed an interest in setting up a community trust to take over stewardship, little	The project has just entered the stewardship phase so too early to identify if transitions towards more collaborative governance may

for local citizens enhanced biodiversity etc	land for building) but little direct involvement in process.		process, little evidence of any meaningful engagement in planning, delivery or stewardship with non public sector stakeholders	evidence of this happening yet.	happen in the future.
Pollok Park (E7 Glasgow) Established in 1980, this large suburban city park provides multiple co-benefits for citizens and the environment.	Community: 'Friends of Pollok' community group, NGOs Government: Parks Dept of Glasgow City Council. Low political interest. Market: some initial market interest but strong community resistance	Historically, low level of engagement with external actors. Park managed by parks dept of Glasgow City Council with certain facilities managed by ALOs.	Outcome: historically the park would have been fully funded and maintained by the Council. There was strong community resistance to commercial development on public land e.g. high wire facility Traditional public administration	Sustained reduction in public funding for the park maintenance has led to active engagement and submission of funding bids with other actors in particular local community groups	Outcome: in 2021 approval of £13m multi-actor bid for park restoration Collaborative governance: NGOs and local groups actively involved in planning and submission of funding bids

8.2 Guidance Tables from Emerson and Nabatchi (2015b) on Data Sources

8.2.1 Indicators and Data Sources for the System Context, Drivers, and Regime Formation

<i>Dimension</i>	<i>Elements</i>	<i>Sample Indicators</i>	<i>Potential Data Sources</i>
System context	Public resource or service conditions	State of depletion, pollution, or extraction of environmental and natural resources Inadequacy, deterioration, or risk to public health/safety of physical infrastructure Quality, extent, and distribution of public services	Archival data and documentation; interviews with key parties/researchers; survey data; network analysis and mapping; geographic information system tools
	Policy and legal frameworks	Nature and bearing of pertinent laws, rules, regulations, and policies Extent to which frameworks are established, newly formed, or in process of change Degree to which decision making and action are enabled or constrained by frameworks	
	Socioeconomic and cultural characteristics	Income and education levels Community health index Ethnic and racial diversity	
	Network characteristics	Network density (e.g., dense or sparse) for community of interest Strength of ties (e.g., weak or strong) within networks	
	Political dynamics and power relations	Degree of access to and support from public decision makers Degree of partisanship and political polarization Stability/turnover in public leadership Sources and distribution of power across stakeholders	
	Conflict history	Perceived levels of trust, litigation history, prior CGR experience	

Drivers	Uncertainty	Existing or expressed need to reduce, diffuse, and share risk Existing or expressed information asymmetries	Archival data and documentation; interviews with key parties/researchers; survey data; direct observation
	Interdependence	Existing or expressed need to "work together" to make progress Evidence of "sector failure" in solving problem or meeting needs	
	Consequential incentives	Effects of not collaborating on key actors and organizations Level of external situational or institutional crises, threats, or opportunities Issue salience and ripeness for collaboration	
	Initiating leadership	Presence/absence of one or more leaders and number of leaders/leadership roles filled Available leaders with key attributes (e.g., broadly respected, fair-minded, neutral as to solution, ability to support initial transaction costs)	
CGR formation	Conditions and characteristics of formative type ^a	Evidence about the nature of the policy challenge (acute, complex, or extensive); the nature of the determining authorities (diffuse, mixed, or concentrated); the structure of the CGR (emergent, designed, or preset); participant volition (voluntary, induced, or incentivized or mandated); the level of group autonomy (or the nature and extent of the group's ability to make rules and determinations and take actions).	Archival data and documentation; interviews with key parties/researchers; survey data; direct observation

CGR formation	Additional descriptive variables	Number of participants and sectors/organizations represented Baseline information about participant attributes, attitudes, and motivations (credibility, level of resources, level of talent, team spirit, beliefs about the necessity of a CGR); participant resources and needs (available or needed resources, time, power)	Archival data and documentation; interviews with key parties/researchers; survey data; direct observation

8.2.2 Indicators and Data Sources for Principled Engagement

<i>Component</i>	<i>Element</i>	<i>Definition</i>	<i>Sample Indicators</i>	<i>Potential Data Sources</i>
Principled engagement (captures the behavioral interactions among participants)	Discovery	Identification and analysis of relevant information	Extent to which participants reveal interests, concerns, and values; recognize shared goals; recognize how their own interests are served by participation in group; identify, share, and analyze relevant information	Archival data (e.g., meeting minutes, reports, case documentation); surveys or interviews of participants; direct observation at meetings
	Definition	Effort to build shared meaning around issues relevant to the CGR	Extent to which participants articulate common purpose and target goals; arrive at shared problem definition and theory of change; define concepts and terminology; clarify tasks and expectations; develop evaluation criteria	
	Deliberation	Use of candid and reasoned discussion to address issues	Extent to which participants engage in fair and civil discourse; are open and inclusive during communication; have candid and reasoned discussion; offer individual opinions; thoughtfully listen and examine perspectives; manage conflicts and disagreements; change their perspectives after discussion	
	Determinations	Decisions reached by the CGR	Explicit agreement on common purpose, target goals, and shared theory of change Number and type of procedural and operational decisions (e.g., setting agendas, tabling discussions, assigning work groups) Number and type of substantive determinations (e.g., technical or policy-related decisions, decisions on future actions) Acceptability and fairness/equity of agreements reached Durability, robustness, and efficacy of agreements reached	

8.2.3 Indicators and Data Sources for Shared Motivation

<i>Component</i>	<i>Element</i>	<i>Definition</i>	<i>Sample Indicators</i>	<i>Potential Data Sources</i>
Shared motivation (captures the interpersonal relationships)	Trust	Confidence in the reliability, truthfulness, and abilities of others	Level of perceived trust among participants Extent to which they believe each other to be reasonable, predictable, and dependable	Archival data (e.g., charters and references to participant organization commitments to the CGR); surveys or interviews of participants; focus groups and other formal and informal conversations with the CGR participants
	Mutual understanding	Appreciation and tolerance of differences	Extent to which participants can identify and respect differences among participants; are comfortable revealing information to others; appreciate and feel appreciated by others	
	Internal legitimacy	Beliefs about the worthiness and credibility of the CGR and its participants	Extent to which participants deem the CGR and its parties to be useful, worthy, and credible	
	Commitment	Dedication and responsibility to the CGR, its collective purpose, target goals, and theory of change	Extent to which participants are committed to the CGR, its collective purpose, target goals, and shared theory of change; are motivated to achieve outcomes together; feel responsible and accountable for outcomes	

8.2.4 Indicators and Data Sources for the Capacity for Joint Action

<i>Component</i>	<i>Element</i>	<i>Definition</i>	<i>Sample Indicators</i>	<i>Potential Data Sources</i>
Capacity for joint action (captures the functional assets available to the CGR)	Procedural or institutional arrangements	Protocols for managing the CGR over time	Nature and quality of ground rules, operating protocols, decision rules, charters, bylaws, rules, regulations Extent to which arrangements enable effective administration and management of the CGR Extent to which individual organizations in the CGR have protocols and institutional arrangements	Archival data (e.g., meeting minutes, reports, case documentation); surveys or interviews of participants; direct observation
	Leadership	Variety of roles taken on by the CGR participants to carry out various functions	Number and types of leaders and leadership roles filled and unfilled (e.g., champion, sponsor, convener, facilitator/mediator, expert)	
	Knowledge	Generation, sharing, and analysis of information, data, and expertise	Extent to which relevant knowledge was generated and developed (and how it was developed); explicit and tacit knowledge management was manifested; high-quality and trusted information was presented, made accessible, and understood by the participants; technology was used to aid in knowledge generation and management	
	Resources	Acquisition of human, technological, financial, and other resources needed to achieve the CGR's collective purpose	Extent to which funding, administrative support, expertise, tools, and other resources were acquired; all parties contributed to and leveraged various resources; parties made efforts to accommodate the diversity of resources and capacities of others	

8.2.5 Indicators and Data Sources for the Capacity for Joint Action

<i>Performance Level</i>	<i>Unit of Analysis</i>	<i>Dimension</i>	<i>Defined</i>	<i>Sample Indicators</i>	<i>Potential Data Sources</i>
Actions	Participating organizations	Efficiency	Gains in internal efficiencies of the CGR participants	Measures/perception of net efficiency gains for the CGR participants	Organizational records; reported gains (surveys/interviews)
	CGR	Efficacy	Alignment of actions with stated CGR intentions and theory of change	Consistency of actions with shared theory of change	Meeting minutes and work plans; external confirmation of implemented actions
	Target goals	Equity	Fairness in distribution of benefits, costs, and risks among beneficiaries of actions	Comparative measures of distribution of net benefits Satisfaction with the distribution of benefits across beneficiaries and/or the CGR participants	Monetized values and distribution of actions or investments; perceptions of beneficiaries and the CGR participants (surveys/interviews); shared criteria set by the CGR participants for equitable distribution
Outcomes	Participating organizations	Effectiveness	Added value to the CGR participants from outcomes	Benefits/improvements to the CGR participants attributable to the CGR outputs	Organizational records; reported benefits/improvements (surveys/interviews)
	CGR	External Legitimacy	Acknowledged status of the CGR and effects of outputs	Observations by leaders/media of the CGR Reputational benefits	Organizational records; media and social media attention; repeat and new funding
	Target goals	Effectiveness	Extent to which outputs produce intended effects	Evidence of desired change in targeted conditions, goods, services, or products	Criteria set for target goals; objective measurements of attainment; judgments of third-party observers; perceptions of the CGR participants
Adaptation	Participating organizations	Equilibrium	Balance achieved between stability and change (resilience)	Evidence of resilience attributed to the CGR	Organizational records; reported resilience (surveys/interviews)
	CGR	Viability	Capacity to continue to carry out actions and adapt to changing conditions	Maintenance/growth in number of the CGR participants Maintenance/growth of available CGR capacity	Organizational records; strategic plans and financial reports
	Target goals	Sustainability	Ability for targeted effects to be sustained through adaptive responses	Extent to which adaptive responses to impacts are sustained over time	Criteria set for sustainability of target goal attainment; judgments of third-party observers; perceptions of the CGR participants

8.3 Table of Data Sources

8.3.1 Source of data collected by year, by city, by direct or indirect source.

Year	GENK Description of Data	Direct	Indirect	GLASGOW Description of Data	Direct	Indirect	POZNAN Description of Data	Direct	Indirect
2017/2018	Phase 1 Data Collection 2017/2018								
	Key questions from city (June)	1		/			/		
	Osmos interview notes (August 2017)	1		/			Osmos interview notes (2017)	1	
	Osmos report (August)		1	Osmos report (Sept 2017 / Feb 18)		1	Osmos report (Jan 2018)		1
				FRC Meeting (Nov) notes	2				
2018				UEL brainstorming notes		1			
	FRC Workshop Feb & April 2018 notes (note multiple versions from different rapporteurs)	15		FRC workshop April 2018	13		FRC workshop -Jan (1) + April 2018 (10) + list of participants (Jan)	13	
	Stiemer Financial Plan (Aug)		1						
	UEL Narrative update & Process mapping (Aug)		2	UEL Narrative and KPIs		2	UEL Narrative and process chart		2
	Eyeopener workshop Sept 2018 notes		1						
				Organisation chart		1	Organisation chart		1
							Poznan Development Strategy		1
							Green surge case study		1
	Goals	1		Goals	1		Goals	1	
	SMQ interviews	7		SMQ interviews	6		SMQ interviews	4	
2018	Phase 2 Data Collection 2018-2022								
	DLA (Aug, Oct, Nov, Dec)	4		DLA (Sept, Oct, Nov, Dec)	4		DLA (Sept, Oct, Nov, Dec) + full year DLA?	5	
							CTP (Sept, Oct, Nov, Dec)	4	
				SMQ comments on DLA (Dec)	1		SMQ comments on DLA (Dec)	1	
							DLA Available if required		
	DLA (Jan, Mar, Oct – if required)			DLA (Jan, Feb, Mar, Sept – If required)			CTP (Jan, Feb, Mar, others as required)		
	Learning session notes SMQ (Jan, Feb, Oct, Nov Dec x 27)	5		RM notes SMQ (March, May, June, Oct)	4		RM notes SMQ (Feb, Mar, April, May, Oct x2, Dec)	7	

2020	One to one calls re Slagmolen (May, Oct, Nov, Dec and Jan 2021)	5		SMQ One to one calls (Sept, Nov)	2		SMQ one to one calls (Nov, Dec)	2	
	Learning session notes DRIFT (Feb, April, Oct, Dec)		4	Call minutes (Oct)		1	Call minutes (Oct) Learning session notes (Dec)		2
	Jan-Dec Learning outcome analysis DRIFT as required		1	Learning narrative (up to March)					
	DLA (Available if required)			Further available if required			DLA Available if required		
	Learning session notes SMQ (March, Sept)	2		DLA Available if required					
				RM Notes SMQ (Jan, March, April x2, June, Sept)	6		RM Notes SMQ (Jan, Feb x 2, June, Sept)	5	
	SMQ one to one calls/documents (Jan, Feb x 2 April x 3, June x 2, Sept x 1, Nov x 2)	11		SMQ one to one calls / documents (Jan, Feb x 3 SMQ/UEL, April x 5 versions), May, June x3, July, Sept x 6, Nov x 3)	23		SMQ one to one calls / documents (Jan, March x 2, May, Jun, Sept, Oct, Dec email)	8	
	SMQ one to one with Mien on Stiemer Deals (Mar 2019, 2020 –April, June x2, Sept, Oct, Nov. 2021 – Jan, Mar	10							
	Learning session notes DRIFT (March, June, Sept, Nov)		3	Learning session notes DRIFT (Jan, Mar, Apr, June, Sept, Nov, Dec)		6	Learning session notes DRIFT (Jan, Feb, Mar, April, June, Nov, Dec)		7
	Learning outcomes analysis DRIFT (Jul, Sept, Nov)		3				Learning outcomes analysis DRIFT (Jul, Sept, Nov)		2
2021	DLA (available if required)						Available if required		
	SMQ Learning session notes (Feb)	1		None!			SMQ Learning session notes (Feb)	1	
	SMQ one to one calls (Feb, Mar, May, Sept, Nov)	5		SMQ one to one (Feb, May, July (PDF) Sept, Nov)	5		SMQ one to one calls (Feb, May, Sept, Nov)	4	
	Learning session notes DRIFT (Feb, March, June)		3	Learning session notes (April and June)		2	Learning session notes (Feb and March)		2
	Learning outcomes analysis (Feb, Mar, June)			Available if required			March (Jan available if required)		
	Total data by city	68	19		67	14		56	19

8.3.2 Source of data collected by year, for all cities (e.g. joint meetings), by direct or indirect source.

2019	FRC meeting (Oct) notes	1	
2020	SMQ reflection on RM process	1	
2019,2020,2021	UEL FRC peer to peer sessions PPTs		3
2020 & 2021	DRIFT All FRC cities Learning webinar 1 (no notes just PPT on methodology) 2 (June		6

	2019) 3 (Sept 2020 -SMQ & DRIFT?), 4 (July 2021). Also joint FRC sessions in March and May.		
	All FRC and FFC cities Learning webinar 1 (end 2020), 2 (May 2021)		2
	Connencting Nature final reporting - Deliverable 2, 11, 23, final report		4
	Total Data across all three cities	2	15
	Total Data / % from Direct Sources	193	74%
	Total Data / % Indirect Sources	/	26%
Overall Total		260	100%

8.4 Summary of knowledge and resources acquired in-house and via collaboration

	NBS Team: Knowledge	Local government: Resources	Collaborators: Knowledge	Collaborators: Resources
Genk	Existing skills: Environment & sustainability New skills: SUDS (NBS), finance & budgeting, social innovation, reflexive monitoring	Funding of 2 new positions in social innovation in NBS team (Stiemer Deals) Co-funding (Capex) of some elements of Stiemer NBS	Technical and impact assessment: LUCA, INBO, VITO and multiple others Social innovation: Stiemer Dealees	Funding from regional govt, RTD projects led by other local collaborators, Input in kind from Stiemer Dealees (time & resources)
Glasgow	Existing skills: planning & impact assessment New skills: Business model development, social innovation (NBE accelerator)	Funding of 1 new position on OSS implementation in NBS team Funding of NBS in OSS via collaboration with other departments (Parks Operations)	Citizen engagement: Greenspace Scotland: Building volunteer networks, technical support (TCV) Entrepreneurship: CCE, Melting Pot, GCU	TreesAI: funding* CCE – funding for NBE accelerator*
Poznan	Existing skills: Community gardens, co-production New skills: NBS financing including via private sector, business models, entrepreneurship /skills development	No new positions funded in NBS team. Existing team retained. Co-funding of NBS from Dept of Education. Replication being explored with Dept of Business Activity and Agriculture*	Impact assessment / technical: AMU Technical: Landscape architect; Floating garden foundation Go & Sow* NGO for allotment gardens	Kindergarten communities (in kind contribution to long term stewardship) Corporate (Reforestation/ Torpol*) Other EU projects (URBACT)

*in negotiations at end of study period

8.5 Target Goals for CGR in each city

Goals and Action Plans for NBS	
Genk	STIEMERGOALS Connect NATURE to NATURE - strengthening the ecological value in the area and increasing biodiversity Connect NATURE to PEOPLE - Restoring a natural water system in the valley area to protect the city against the changing climate - Open up and promote the valley taking into account the capacity of nature - Valley as connection: equipped with hiking and cycling trails in the valley as a connection between neighborhoods, and for tourists to discover - Valley as destination: creating opportunities for relaxation and recreation - Bring the Valley to life by stimulating initiatives, educational activities and collaborations that create a social added value for the city and the valley CONNECT PEOPLE WITH PEOPLE - Strengthen social cohesion in the valley area - Creating a public culture in the valley that encourages people to embrace the Stiemervallei as 'their' valley CONNECT NATURE with ENTREPRENEURSHIP - Explore and stimulate economic opportunities linked to the Stiemer valley and its development
Glasgow	Main Goal "A city-wide network of nature based solutions will be implemented making the city more livable, increasing residents' health and well-being and resilient to climate change and other challenges." What actions: - Identify current and future demand for open space (N.B. See open space strategy for 10 categories) - Invest in new open spaces, particularly projects contributing to the scaling-up of nature based solutions - Identify funding streams for the delivery and ongoing maintenance for open space - See to establish and promote opportunities for citizen involvement, community stewardship and social enterprise - Repair, reconnect and renew existing active travel routes, - In addition to the creation of new connections promote the flexibility and multifunctionality of open spaces in the city promote the expansion of growing spaces in the city: Glasgow goals 2018

Poznan	Main goal To develop and up-scale “green” solutions in different parts of the city of Poznań and extend green infrastructure across the city: • small scale interventions (like open gardens, pocket parks, mobile greenery, greening backyards and etc.) • community and social innovation, citizen involvement, the activities which raising the ecological awareness: meetings and workshops with teachers, parents and lessons with children (fieldworks in gardens, explore the world), consultancy • in the future – special tool for city dwellers, which will help and support them, step by step, how start with some bottom-up initiatives connected with green solutions – organizational and meritorial support for citizens from government What actions: • Improvement of the natural environment: recover climate resilient, increase biodiversity in the city, mitigating climate change • active inclusion of residents in the creation of social gardens and open gardens in the urban space • Social integration • creating open spaces, friendly to the inhabitants = a place of rest, spending free time, outdoor activities • Creating places where cultural and entertainment events can take place • Revitalization actions aimed at improving neglected and degraded areas, and thus - improving the quality of life of residents in the city • Improving the aesthetics of the places • Emphasize on ecological education raising ecological awareness especially among children

8.6 Temporal Classification of Actions and Outputs by Collaboration Dynamic

Performance Level: Actions - Outputs Unit of Analysis: CGR		
Collaboration Dynamic	Typology/Classification of Process Actions (i) early stage e.g. formation (ii) stabilising (including routinisation) (iii) mature (including extension and adaptation).	Output (intermediate / end)
Principled Engagement	- Early: Mapping and prioritisation of stakeholder engagement; outreach to engage and inform, problem solving actions - Stablising: Preparation of operational plans for implementation. Actions to get decision-makers approval. - Mature: Expanding or contracting the CGR in line with new priorities and to ensure sustainability. Actions towards securing policy / systemic change.	- Intermediate: broad stakeholder consensus on action plan (for NBS) implementation - End: implementation of action plan (for NBS), engagement of new stakeholders needed to implement new activities, engagement of stakeholders needed to ensure sustainability of actions (stewardship)
Shared Motivation	- Early: Actions to build trust with new stakeholders / overcome distrust with existing stakeholders: goal alignment, opportunities and incentives for joint action, informal meetings, involvement of intermediaries, experimental actions - Stablising: regular schedule of meetings with open communications, mechanism to measure impact, collect intermediate results e.g. testimonials, - Mature: sharing results to build legitimacy with internal and external stakeholders e.g. media and events.	- Intermediate: Interim results (testimonials, narratives), Ongoing engagement in regular meetings. - End: Quantifiable, measurable end results, Evidence of Internal and External Legitimacy (leading to commitment to shared resources)
Cultivating Leadership	- Early: 'champion' role - actions to innovate, disrupt and change the status quo. Lead initial actions in all collaboration dynamics - engaging stakeholders, building motivation, securing resources and changing governance and processes. - Stablising: actions to build team in other leadership roles related to implementation- technical, operational, financial and governance. - Mature: actions to identify and build capacities for long term leadership. Championing new/expanded actions.	- Intermediate: Effective leadership in place to facilitate transition from NBS strategy to NBS implementation. - End: Transition to effective long-term leadership of NBS.

Accessing Resources	- Early: securing funding and resources for initiation and then implementation of NBS. Address skills gaps. Collaborate with stakeholders on business models. - Stablising: manage resource usage to ensure effective NBS implementation, business model implementation addressing skills gaps. - Mature: capturing evidence of effectiveness, acquiring knowledge and resources for scaling or adaptation.	- Intermediate: Submission of funding applications. Resources in place for successful NBS implementation. - End: Business model, governance structure and skill sets in place to ensure long term sustainability and effectiveness of NBS.
Adapting <u>Intra-organisational</u> and <u>Inter-organisational</u> Procedural and Institutional arrangements	- Early: designing and testing new governance structures for inter-organisational and intra-organisational management of NBS. Pilot activities. Develop and test adaptation of existing processes. Adapt to challenges. - Stablising: Systematisation of new processes and institutional arrangements: templates, frameworks, indicators - Mature: Formalising and embedding processes and governance arrangements. Securing resources. Embedding in policy. Actions towards replicating or systemic uptake.	- Intermediate: Systematisation of adapted/new processes and institutional arrangements - End: Replication/Adaptation of processes and institutional arrangements

8.7 Consent Form



Informed Consent Form

School of Natural Sciences/ Trinity Business School, Trinity College Dublin

Title of research study: Data gathering in Glasgow for the Connecting Nature programme

Description of Connecting Nature:

Connecting Nature - a €12m EU-funded project, led by Trinity College Dublin - aims to establish Europe as a global leader in rethinking the way nature can be used more effectively in our cities. There is growing recognition and EU-wide investment in smart, 'engineered' nature-based solutions designed to bring more nature and natural processes to cities, landscapes and seascapes. These innovative solutions help to improve urban environments but equally importantly they have significant potential to create sustainable jobs in urban communities and to enhance the health and well-being of our citizens. Nature-based solutions can help to address many urban challenges, such as unsustainable urbanization and related human health issues, degradation and loss of natural capital and the ecosystem services it provides (clean air, water and soil), climate change and an alarming increase of natural disaster risks.

Through Connecting Nature, 11 European cities will invest in large scale implementation of nature-based solutions, measure the impact of this approach and share their experience on a global scale. Connecting Nature is an Innovation Action funded by the Horizon 2020 Research and Innovation Programme of the European Union. The five year project began on 1st June, 2017.

As part of Connecting Nature, researchers will interview and collect data from relevant participants to understand approaches to Nature-based Solutions in the 11 European cities which are part of the project. This study is part of that data collection.

Research process

The interviewer will ask a series of questions related to Nature-based solutions in Glasgow and the interview will be recorded. The interview will last for approximately one hour. The aim of the interview is to allow you to give your personal opinion on your city's experience and challenges in relation to finance and business models for Nature-based solutions. Any responses you give will be anonymised at data analysis and publication stage, although because the sample is small you should be aware that people may identify participants in the research. All data will be kept in a safe storage space and only the researchers will have access.

Your participation in this study is entirely voluntary, and you are free to withdraw at any time during the research without disadvantage to yourself and without any obligation to give a reason. Please note that your data can be withdrawn up to the point of analysis but may not be possible after that date. If you have any concerns regarding the conduct of the research in which you are being asked to participate, please contact the Principal Investigator for Connecting Nature:

Dr Marcus Collier,
School of Natural Sciences,
Trinity College Dublin

Email: Marcus Collier marcus.collier@tcd.ie

Consent to participate

This study and this consent form have been explained to me. I believe I understand what will happen if I agree to be part of this study.

I have read, or had read to me, this consent form. I have had the opportunity to ask questions and all my questions have been answered to my satisfaction. I freely and voluntarily agree to be part of this research study, though without prejudice to my legal and ethical rights. I have received a copy of this agreement and I understand that, if there is a sponsoring company, a signed copy will be sent to that sponsor.

PARTICIPANT'S NAME:

PARTICIPANT'S SIGNATURE:

Date:

Date on which the participant was first furnished with this form:

Participants with literacy difficulties:

I have witnessed the accurate reading of the consent form to the potential participant, and the individual has had the opportunity to ask questions. I confirm that the individual has given consent freely and understands that they have the right to refuse or withdraw from the study at any time.

Print name of witness: _____

Signature of witness: _____

Date (Day/month/year) _____

Thumbprint of participant:

Statement of investigator's responsibility: I have explained the nature, purpose, procedures, benefits, risks of, or alternatives to, this research study. I have offered to answer any questions and fully answered such questions. I believe that the participant understands my explanation and has freely given informed consent.

Researcher's signature:

Date:

(Keep the original of this form in the project records, give one copy to the participant, and send one copy to the sponsor (if there is a sponsor).)

For more information visit:

Website: www.connectingnature.eu



@CONNECTINGNBS <https://twitter.com/CONNECTINGNBS>



Facebook: <https://www.facebook.com/ConnectingNBS/?ref=ts>



9. Bibliography

- AABOEN, L., DUBOIS, A. & LIND, F. 2012. Capturing processes in longitudinal multiple case studies. *Industrial Marketing Management*, 41, 235-246.
- AGRANOFF, R. & MCGUIRE, M. 2003. *Collaborative Public Management New Strategies for Local Governments*, Georgetown University Press.
- ALVESSON, M. & SKÖLDBERG, K. 2009. *Reflexive Methodology: New Vistas for Qualitative Research* London, Sage Publications.
- AMBROSE-OJI, B., BUIJS, A., GERŐHÁZI, E., MATTIJSEN, T., SZÁRAZ, L., VAN DER JAGT, A., HANSEN, R., RALL, E., ANDERSSON, E., KRONENBERG, J. & ROLF, W. 2017. Innovative Governance for Urban Green Infrastructure: A Guide for Practitioners. *GREEN SURGE project Deliverable 6.3*. Copenhagen: University of Copenhagen.
- AMSLER, L. & O'LEARY, R. 2017. Collaborative public management and systems thinking. *International Journal of Public Sector Management*, Vol. 30 No. 6/7, 2017, 626-639.
- AMSLER, L. B. & VIEILLEDENT, T. 2021. Collaborative Governance in Local Government: How State Law Shapes Community Problem-Solving through Intrastate Preemption. *Perspectives on Public Management and Governance*, 4, 159-169.
- ANDREWS, R. & ENTWISTLE, T. 2010. Does Cross-Sectoral Partnership Deliver? An Empirical Exploration of Public Service Effectiveness, Efficiency, and Equity. *Journal of Public Administration Research and Theory*, 20, 679-701.
- ANSELL, C. & GASH, A. 2008. Collaborative Governance in Theory and Practice. *Journal of Public Administration Research and Theory*, 18, 543-571.
- ARNDT, C., HALIKIOPOULOU, D. & VRAKOPOULOS, C. 2023. The centre-periphery divide and attitudes towards climate change measures among Western Europeans. *Environmental Politics*, 32, 381-406.
- ASHWORTH, R. E., MCDERMOTT, A. M. & CURRIE, G. 2019. Theorizing from Qualitative Research in Public Administration: Plurality through a Combination of Rigor and Richness. *Journal of Public Administration Research and Theory*, 29, 318-333.
- AVOYAN, E. 2022. Inside the black box of collaboration: a process-tracing study of collaborative flood risk governance in the Netherlands. *Journal of Environmental Policy & Planning*, 24, 227-241.
- BALIAN E., E. H., LE ROUX X. 2014. Outputs of the Strategic Foresight workshop "Nature-Based Solutions in a BiodivERsA context, Brussels June 11-12 2014. BiodivERsA report.
- BATORY, A. & SVENSSON, S. 2020. Regulating Collaboration: The Legal Framework of Collaborative Governance in Ten European Countries. *International Journal of Public Administration*, 43, 780-789.
- BAUDOIN, L. & GITTINS, J. R. 2021. The ecological outcomes of collaborative governance in large river basins: Who is in the room and does it matter? *Journal of Environmental Management*, 281.
- BEDNAR, D., HENSTRA, D. & MCBEAN, G. 2019. The governance of climate change adaptation: are networks to blame for the implementation deficit? *Journal of Environmental Policy & Planning*, 21, 702-717.

- BEERS, P. J. & VAN MIERLO, B. 2017. Reflexivity and Learning in System Innovation Processes. *Sociologia Ruralis*, 57(3), 415–436., 57, 415-436.
- BEHN, R. D. 2003. Why Measure Performance? Different Purposes Require Different Measures. *Public Administration Review*, 63, 586-606.
- BENBASAT, I., GOLDSTEIN, D. K. & MEAD, M. 1987. The case research strategy in studies of information systems. *MIS quarterly*, 369-386.
- BHASKAR, R. 2008. *A Realist Theory of Science*, London and New York, Routledge.
- BLAZEJEWSKI, S. 2011. When truth is the daughter of time: longitudinal case studies in international business research. *Rethinking the case study in international business and management research*, 251.
- BRANDSEN, T. & HONINGH, M. 2016. Distinguishing Different Types of Coproduction: A Conceptual Analysis Based on the Classical Definitions. *Public Administration Review*, 76, 427-435.
- BRANDSEN, T. & PESTOFF, V. 2006. Co-production, the third sector and the delivery of public services. *Public Management Review*, 8, 493-501.
- BRAUN, V. & CLARKE, V. 2006. Using thematic analysis in psychology. *Qualitative research in psychology*, 3, 77-101.
- BRUNDTLAND, G. H. 1987. Our Common Future: Report of the 1987 World Commission on Environment and Development. United Nations.
- BRUUN, O. & RUBIN, O. 2023. Authoritarian Environmentalism—Captured Collaboration in Vietnamese Water Management. *Environmental Management*, 71, 538-550.
- BRYSON, J. M. & CROSBY, B. C. 2014. Failing into cross-sector collaboration successfully. *Big ideas in collaborative public management*.
- BRYSON, J. M., CROSBY, B. C. & STONE, M. M. 2006. The Design and Implementation of Cross-Sector Collaborations: Propositions from the Literature. *Public Administration Review*, 66, 44-55.
- BRYSON, J. M., CROSBY, B. C. & STONE, M. M. 2015. Designing and Implementing Cross-Sector Collaborations: Needed and Challenging. *Public Administration Review*, 75, 647-663.
- BUIJS, A., ELANDS, B. H. M., HAVIK, G., AMBROSE-OJI, B., GEROHAZI, E., VAN DER JAGT, A. P. N., MATTIJSEN, T., STEEN MØLLER, M. & VIERIKKO, K. 2016a. Green Surge Deliverable 6.2: INNOVATIVE GOVERNANCE OF URBAN GREEN SPACES.
- BUIJS, A. E., MATTIJSEN, T. J. M., VAN DER JAGT, A. P. N., AMBROSE-OJI, B., ANDERSSON, E., ELANDS, B. H. M. & STEEN MØLLER, M. 2016b. Active citizenship for urban green infrastructure: fostering the diversity and dynamics of citizen contributions through mosaic governance. *Current Opinion in Environmental Sustainability*, 22, 1-6.
- BULKELEY, H., COENEN, L., FRANTZESKAKI, N., HARTMANN, C., KRONSELL, A., MAI, L., MARVIN, S., MCCORMICK, K., VAN STEENBERGEN, F. & VOYTENKO PALGAN, Y. 2016. Urban living labs: governing urban sustainability transitions. *Current Opinion in Environmental Sustainability*, 22, 13-17.
- BURNS, C. 2021. Environment and Climate 2050. *European Futures: Challenges and Crossroads for the European Union of 2050*, 1.
- BURRELL, G. & MORGAN, G. 1979. *Sociological Paradigms and Organisational Analysis*, Ashgate.
- CAMPBELL, K. & O'LEARY, R. 2015. Big Ideas for Big Problems: Lessons from Conflict Resolution for Public Administration. *Conflict Resolution Quarterly*, 33.

- CARAYANNIS, E. G., BARTH, T. D. & CAMPBELL, D. F. J. 2012. The Quintuple Helix innovation model: global warming as a challenge and driver for innovation. *Journal of Innovation and Entrepreneurship*, 1.
- CARBONI, J., DICKEY, T., MOULTON, S., O'KEEFE, S., O'LEARY, R., PIOTROWSKI, S. & SANDFORT, J. 2020. Start with the Problem: Establishing Research Relevance with Integrative Public Administration. *Perspectives on Public Management and Governance*.
- CHANDLER JR, A. D. 1969. *Strategy and structure: Chapters in the history of the American industrial enterprise*, MIT press.
- CHANDRASEKARAN, K., MARIAN, N., ROJAS, I. & SHAW, S. 2021. Nature-Based Solutions: A Wolf in Sheep's Clothing. Friends of the Earth International.
- CHARMAZ, K. 2006. *Constructing grounded theory: A practical guide through qualitative analysis*, sage.
- CHESBROUGH, H. 2006. "Open Innovation: A New Paradigm for Understanding Industrial Innovation", Oxford University Press.
- CHOI, B. C. & PAK, A. W. 2006. Multidisciplinarity, interdisciplinarity and transdisciplinarity in health research, services, education and policy: 1. Definitions, objectives, and evidence of effectiveness. *Clin Invest Med*, 29, 351-64.
- COHEN, E. 2017. Editorial: 'Nature-based solutions' is the latest green jargon that means more than you might think. *Nature*, 541, 133-134.
- COHEN-SHACHAM, E., ANDRADE, A., DALTON, J., DUDLEY, N., JONES, M., KUMAR, C., MAGINNIS, S., MAYNARD, S., NELSON, C. R. & RENAUD, F. G. 2019. Core principles for successfully implementing and upscaling Nature-based Solutions. *Environmental Science & Policy*, 98, 20-29.
- COHEN-SHACHAM, E., WALTERS, G., JANZEN, C. & MAGINNIS, S. 2016. Nature-based Solutions to address global societal challenges.
- COLLIER, M. J., FRANTZESKAKI, N., CONNOP, S., DICK, G., DUMITRU, A., DZIUBAŁA, A., FLETCHER, I., GEORGIU, P., HÖLSCHER, K., KOOIJMAN, E., LODDER, M., MADAJCZYK, N., MCQUAID, S., NASH, C., OSIPIUK, A., QUARTIER, M., REIL, A., RHODES, M.-L., RIZZI, D., VANDERGERT, P., SIJPE, K. V. D., VOS, P. & XIDOUS, D. 2023. An integrated process for planning, delivery, and stewardship of urban nature-based solutions: The Connecting Nature Framework. *Nature-Based Solutions*, 3, 100060.
- COLLIER, M. J., NEDOVIĆ-BUDIĆ, Z., AERTS, J., CONNOP, S., FOLEY, D., FOLEY, K., NEWPORT, D. J., MCQUAID, S., SLAEV, A. & VERBURG, P. 2013. Transitioning to resilience and sustainability in urban communities. *Cities*, 32, 21-28.
- CONNOLLY, J. & PYPER, R. 2020. 405The Leadership and Management of Public Services Reform in Scotland. In: KEATING, M. (ed.) *The Oxford Handbook of Scottish Politics*. Oxford University Press.
- CORBIN, J. & STRAUSS, A. 1990. Grounded Theory Research: Procedures, Canons, and Evaluative Criteria. *Qualitative Sociology*, 13.
- CORNELISSEN, J. P. 2017. Preserving Theoretical Divergence in Management Research: Why the Explanatory Potential of Qualitative Research Should Be Harnessed Rather than Suppressed. *Journal of Management Studies*, 54, 368-383.

- CROCI, E., LUCCHITTA, B. & PENATI, T. 2021. Valuing Ecosystem Services at the Urban Level: A Critical Review. *Sustainability*, 13, 1129.
- DAN, S. & POLLITT, C. 2015. NPM Can Work: An optimistic review of the impact of New Public Management reforms in central and eastern Europe. *Public Management Review*, 17, 1305-1332.
- DANSEREAU, F., YAMMARINO, F. J. & KOHLES, J. C. 1999. Multiple levels of analysis from a longitudinal perspective: Some implications for theory building. *Academy of management Review*, 24, 346-357.
- DASGUPTA, P. 2021. The Economics of Biodiversity: The Dasgupta Review. Abridged Version ed. London: HM Treasury.
- DAVIES, C. & LAFORTEZZA, R. 2019. Transitional path to the adoption of nature-based solutions. *Land Use Policy*, 80, 406-409.
- DAVIES, H. J., DOICK, K. J., HUDSON, M. D. & SCHRECKENBERG, K. 2017. Challenges for tree officers to enhance the provision of regulating ecosystem services from urban forests. *Environmental Research*, 156, 97-107.
- DENIS, J.-L., LANGLEY, A., CAZALE, L., DENIS, J.-L., CAZALE, L. & LANGLEY, A. 1996. Leadership and strategic change under ambiguity. *Organization studies*, 17, 673-699.
- DENZIN, N. K. 2010. Moments, mixed methods, and paradigm dialogs. *Qualitative inquiry*, 16, 419-427.
- DORST, H., VAN DER JAGT, A., RAVEN, R. & RUNHAAR, H. 2019. Urban greening through nature-based solutions – Key characteristics of an emerging concept. *Sustainable Cities and Society*, 49, 101620.
- DOUGLAS, S., ANSELL, C., PARKER, C. F., SØRENSEN, E., 'T HART, P. & TORFING, J. 2020. Understanding Collaboration: Introducing the Collaborative Governance Case Databank. *Policy and Society*, 39, 495-509.
- DRECHSLER, W. & KATTEL, R. 2008. Towards the Neo-Weberian State? Perhaps, but Certainly Adieu, NPM! *The NISPAcee Journal of Public Administration and Policy Special Issue: A Distinctive European Model? The Neo-Weberian State*, 1, 95-101.
- DRESSEL, S., SJOLANDER-LINDQVIST, A., JOHANSSON, M., ERICSSON, G. & SANDSTROM, C. 2021. Achieving Social and Ecological Outcomes in Collaborative Environmental Governance: Good Examples from Swedish Moose Management. *Sustainability*, 13.
- DRIESSEN, P. P. J., DIEPERINK, C., LAERHOVEN, F., RUNHAAR, H. A. C. & VERMEULEN, W. J. V. 2012. Towards a Conceptual Framework for The Study of Shifts in Modes of Environmental Governance - Experiences From The Netherlands. *Environmental Policy & Governance*, 22, 143-160.
- DUNLAP, R. E. & MERTIG, A. G. 2014. *American environmentalism: The US environmental movement, 1970-1990*, Taylor & Francis.
- DURANT, R. F., FIORINO, D. J. & O'LEARY, R. 2004. *Environmental Governance Reconsidered: Challenges, Choices, and Opportunities*, MIT Press.
- DURANT, R. F., FIORINO, D. J. & O'LEARY, R. 2017. *Environmental governance reconsidered : challenges, choices, and opportunities / edited by Robert F. Durant, Daniel J. Fiorino, and Rosemary O'Leary*.

- EC 2015. Towards an EU Research and Innovation policy agenda for nature-based solutions and re-naturing cities. Final report of the Horizon 2020 Expert Group.
- EC 2018. Horizon 2020 - Work Programme 2018-2020: Climate action, environment, resource efficiency and raw materials. European Commission.
- EC 2019. The European Green Deal COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE EUROPEAN COUNCIL, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS Brussels.
- EC 2021a. *EU biodiversity strategy for 2030 : bringing nature back into our lives*, Publications Office.
- EC 2021b. *Evaluating the impact of nature-based solutions : a summary for policy makers*, Publications Office.
- EGGERMONT, H., BALIAN, E., AZEVEDO, J. M. N., BEUMER, V., BRODIN, T., CLAUDET, J., FADY, B., GRUBE, M., KEUNE, H., LAMARQUE, P., REUTER, K., SMITH, M., VAN HAM, C., WEISSER, W. W. & LE ROUX, X. 2015. Nature-based Solutions: New Influence for Environmental Management and Research in Europe. *GAIA*, 24, 243-248.
- EGUSQUIZA, A., CORTESE, M. & PERFIDO, D. 2019. Mapping of innovative governance models to overcome barriers for nature based urban regeneration. *IOP Conference Series: Earth and Environmental Science*, 323, 1-16.
- EGUSQUIZA, A., SOPELANA, A., LOTTEAU, M., LARREY-LASSALE, P. & MASSA, E. 2017. Deliverable 1.2 NBS Implementation Models Typology.
- EIB, HUDSON, G., HART, S. & VERBEEK, A. 2023. *Investing in nature-based solutions – State-of-play and way forward for public and private financial measures in Europe*, European Investment Bank.
- EISENHARDT, K. M. 1989. Building Theories from Case Study Research. *The Academy of Management Review*, 14, 532-550.
- EISENHARDT, K. M. & GRAEBNER, M. E. 2007. Theory Building from Cases: Opportunities and Challenges. *Academy of Management Journal*, 50, 25-32.
- EMERSON, K. & GERLAK, A. K. 2014. Adaptation in Collaborative Governance Regimes. *Environmental Management*, 54, 768-781.
- EMERSON, K. & MURCHIE, P. 2010. Collaborative Governance and Climate Change: Opportunities for Public Administration. In: KIM, S., O'LEARY, R. & DAVID, V. S. (eds.) *The Future of Public Administration, Public Management, and Public Service around the World: The Minnowbrook Perspective*. Lake Placid, NY: Georgetown University Press.
- EMERSON, K. & NABATCHI, T. 2015a. *Collaborative Governance Regimes*, Georgetown University Press. .
- EMERSON, K. & NABATCHI, T. 2015b. Evaluating the Productivity of Collaborative Governance Regimes: A Performance Matrix. *Public Performance & Management Review*, 38, 717-747.
- EMERSON, K., NABATCHI, T. & BALOGH, S. 2012. An Integrative Framework for Collaborative Governance. *Journal of Public Administration Research and Theory*, 22, 1-29.
- EMERSON, K., NABATCHI, T. & O'LEARY, R. 2017. Environmental Collaboration and conflict resolution. *Environmental governance reconsidered: Challenges, choices, and opportunities*, 263-296.

- EPP, C., MERRIMAN, B., O'LEARY, R. & PORTILLO, S. 2021. Introduction to the Special Issue on "Law & Governance". *Perspectives on Public Management and Governance*, 4.
- EPPEL, E. & O'LEARY, R. 2021. *Retrofitting Collaboration into the New Public Management: Evidence from New Zealand*.
- ESPING-ANDERSEN, G. 1990. *The Three Worlds of Welfare Capitalism*, Cambridge, Polity Press.
- EVERED, L. & LOUIS, M. R. 1981. Alternative Perspectives in the Organizational Sciences: "Inquiry from the inside" and "Inquiry from the outside". *Academy of Management Review*, 6, 385-395.
- FAIVRE, N., FRITZ, M., FREITAS, T., DE BOISSEZON, B. & VANDEWOESTIJNE, S. 2017. Nature-Based Solutions in the EU: Innovating with nature to address social, economic and environmental challenges. *Environmental Research*, 159, 509-518.
- FASTENRATH, S., BUSH, J. & COENEN, L. 2020. Scaling-up nature-based solutions. Lessons from the Living Melbourne strategy. *Geoforum*, 116, 63-72.
- FEINBERG, D. S. & RYAN, C. M. 2020. Evaluating the Quality and Implementation of Hazard Mitigation Plans in Coastal Washington State. *Natural Hazards Review*, 21.
- FEIOCK, R. C., KRAUSE, R. M. & HAWKINS, C. V. 2017. The Impact of Administrative Structure on the Ability of City Governments to Overcome Functional Collective Action Dilemmas: A Climate and Energy Perspective. *Journal of Public Administration Research And Theory*, 615-628.
- FINK, H. S. 2016. Human-Nature for Climate Action: Nature-Based Solutions for Urban Sustainability. *Sustainability*, 8, 254.
- FIORINO, D. 2010. Sustainability as a conceptual focus for public administration,. *Public Administration Review*, 70, 78-88.
- FLEISCHMAN, F., BASANT, S., CHHATRE, A., COLEMAN, E. A., FISCHER, H. W., GUPTA, D., GÜNERALP, B., KASHWAN, P., KHATRI, D., MUSCARELLA, R., POWERS, J. S., RAMPRASAD, V., RANA, P., SOLORZANO, C. R. & VELDMAN, J. W. 2020. Pitfalls of Tree Planting Show Why We Need People-Centered Natural Climate Solutions. *BioScience*, 70, 947-950.
- FOLKE, C., HAHN, T., OLSSON, P. & NORBERG, J. 2005. Adaptive governance of socio-ecological systems. *Annual Review of Environment & Resources*, 30, 441-473.
- FOLLADOR, D., DUARTE, F. & CARRIER, M. 2022. Informal institutions and path dependence in urban planning: The case of Curitiba, Brazil. *Journal of Urban Affairs*, 44, 2-21.
- FRANTZESKAKI, N. 2019. Seven lessons for planning nature-based solutions in cities. *Environmental Science and Policy*, 93, 101-111.
- FRANTZESKAKI, N. & KABISCH, N. 2016. Designing a knowledge co-production operating space for urban environmental governance-Lessons from Rotterdam, Netherlands and Berlin, Germany. *Environmental Science & Policy*, 62, 90-98.
- FRANTZESKAKI, N., KABISCH, N. & MCPHEARSON, T. 2016. Advancing urban environmental governance: Understanding theories, practices and processes shaping urban sustainability and resilience. *Environmental Science & Policy*, 62.
- FRANTZESKAKI, N., MCPHEARSON, T., COLLIER, M. J., KENDAL, D., BULKELEY, H., DUMITRU, A., WALSH, C., NOBLE, K., WYK, E. V., ORDÓÑEZ, C., OKE, C. & PINTÉR, L. 2019. Nature-Based Solutions for Urban Climate Change Adaptation: Linking Science, Policy, and Practice Communities for Evidence-Based Decision-Making. *Bioscience*, 69, 455-466.

- FRANTZESKAKI, N., VANDERGERT, P., CONNOP, S., SCHIPPER, K., ZWIERZCHOWSKA, I., COLLIER, M. & LODDER, M. 2020. Examining the policy needs for implementing nature-based solutions in cities: Findings from city-wide transdisciplinary experiences in Glasgow (UK), Genk (Belgium) and Poznań (Poland). *Land Use Policy*, 96, 104688.
- FREDERICKSON, H. G. 2007. 282 Whatever Happened to Public Administration?: Governance, Governance Everywhere. In: FERLIE, E., LYNN, L. E. & POLLITT, C. (eds.) *The Oxford Handbook of Public Management*. Oxford University Press.
- FUCHS, S. 1993. Three Sociological Epistemologies. *Sociological Perspectives*, 36, 23-44.
- GASH, A. 2022. Collaborative Governance. In: ANSELL, C. & TORFING, J. (eds.) *Handbook on Theories of Governance*. Elgar Online.
- GERRING, J. 2004. What is a case study and what is it good for? *American political science review*, 98, 341-354.
- GIOIA, D., CORLEY, K., EISENHARDT, K., FELDMAN, M., LANGLEY, A., LÊ, J., GOLDEN-BIDDLE, K., LOCKE, K., MEES-BUSS, J., PIEKKARI, R., RAVASI, D., RERUP, C., SCHMID, T., SILVERMAN, D. & WELCH, C. 2022. A Curated Debate: On Using “Templates” in Qualitative Research. *Journal of Management Inquiry*, 31, 231-252.
- GIOIA, D. A., CORLEY, K. G. & HAMILTON, A. L. 2013. Seeking Qualitative Rigor in Inductive Research: Notes on the Gioia Methodology. *Organizational Research Methods*, 16, 15-31.
- GLASER, B. & STRAUSS, A. 2017. *Discovery of grounded theory: Strategies for qualitative research*, Routledge.
- GLASER, B. G. 1978. Theoretical sensitivity. mill valley. CA: sociology press.
- GLASER, B. G., STRAUSS, A. L. & STRUTZEL, E. 1968. The discovery of grounded theory; strategies for qualitative research. *Nursing research*, 17, 364.
- GREENER, I. 2013. *Public Management*, Hampshire (UK), Palgrave Macmillan.
- GUBA, E. G. & LINCOLN, Y. S. 1994. Competing paradigms in qualitative research. In: LINCOLN, E. G. G. Y. S. (ed.) *Handbook of Qualitative Research*,. Thousand Oaks, CA: Sage.
- HAASE, D., KABISCH, S., HAASE, A., ANDERSSON, E., BANZHAF, E., BARÓ, F., BRECK, M., FISCHER, L. K., FRANTZESKAKI, N., KABISCH, N., KRELLBERG, K., KREMER, P., KRONENBERG, J., LARONDELLE, N., MATHEY, J., PAULEIT, S., RING, I., RINK, D., SCHWARZ, N. & WOLFF, M. 2017. Greening cities – To be socially inclusive? About the alleged paradox of society and ecology in cities. *Habitat International*, 64, 41-48.
- HABITAT, U. 2022. *World Cities Report 2022: Envisaging the Future of Cities*.
- HAJNAL, G. & JEZIORSKA, I. 2021. Collaborative Governance Regimes in Illiberal Democracies: A Comparative Case of Drug Harm Reduction Policy in Central-Eastern Europe. *Transylvanian Review of Administrative Sciences*, 60-80.
- HAMMERSCHMID, G., VAN DE WALLE, S., ANDREWS, R. & BEZES, P. 2016. *Public Administration Reforms in Europe*, Cheltenham, Edward Elgar Publishing Ltd.
- HANNEMAN, R. A. & RIDDLE, M. 2014. *The SAGE Handbook of Social Network Analysis*. London: SAGE Publications Ltd.
- HARDIN, G. 1968. The Tragedy of the Commons. *Science*, 162, 1243-1248.

- HARRIS, S., WEINZETTEL, J., BIGANO, A. & KÄLLMÉN, A. 2020. Low carbon cities in 2050? GHG emissions of European cities using production-based and consumption-based emission accounting methods. *Journal of Cleaner Production*, 248, 119206.
- HEMPEL, L. C. 2009. Conceptual and Analytical Challenges in Building Sustainable Communities. In: MAZMANIAN, D. A. & KRAFT, M. E. (eds.) *Toward Sustainable Communities: Transition and Transformations in Environmental Policy*. The MIT Press.
- HÖLSCHER, K., LODDER, M., ALLAERT, K., SILLEN, D., FRANTZESKAKI, N., DUMITRU, A., CONNOP, S., VANDERGERT, P., COLLIER, M., MCQUAID, S., QUARTIER, M., VAN DE SIJPE, K., VOS, P., DICK, G., KELLY, S., MOWAT, L., SERMPEZI, R., DZIUBALA, A., MADAJCZYK, N. & OSIPIUK, A. 2020. Connecting Nature Framework Guidebook.
- HOOD, C. 1991. A public management for all seasons? *Public Administration*, 69, 3-19.
- HUGHES, O. E. 2003. *Public Management & Administration*, Palgrave Macmillan.
- HUMAN, S. E. & PROVAN, K. G. 2000. Legitimacy Building in the Evolution of Small-Firm Multilateral Networks: A Comparative Study of Success and Demise. *Administrative Science Quarterly*, 45, 327 - 365.
- HUXHAM, C. & VANGEN, S. 2000. Leadership in the shaping and implementation of collaboration agendas: How things happen in a (not quite) joined-up world. *Academy of Management journal*, 43, 1159-1175.
- IMPERIAL, M. T., JOHNSTON, E., PRUETT-JONES, M., LEONG, K. & THOMSEN, J. 2016. Sustaining the useful life of network governance: life cycles and developmental challenges. *Frontiers in Ecology and the Environment*, 14, 135-144.
- INDERBERG, T. H., STOKKE, K. B. & WINSVOLD, M. 2015. The Effect of New Public Management Reforms on Climate Change Adaptive Capacity: A Comparison of Urban Planning and the Electricity Sector. In: W., L. F. (ed.) *Handbook of Climate Change Adaptation*. Springer, Berlin, Heidelberg. Berlin, Heidelberg: Springer.
- IPBES 2019. Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. In: BRONDIZIO, E. S., SETTELE, J., DÍAZ, S. & NGO, H. T. (eds.). Bonn, Germany: IPBES secretariat.
- ISETT, K. R. & SOWA, J. E. 2023. Losing My Collaboration: 25 Years of Research and Conceptual Drift . *IRSPM*. Budapest.
- IUCN 2012. The IUCN Programme 2013–2016. *IUCN*.
- IUCN 2020. IUCN Global Standard for Nature-based Solutions. Gland, Switzerland.
- JO, S. & NABATCHI, T. 2016. Getting back to basics: advancing the study and practice of coproduction. *International Journal of Public Administration*, 39, 1101-1108.
- KABISCH, N., FRANTZESKAKI, N. & HANSEN, R. 2022. Principles for urban nature-based solutions. *Ambio*, 51, 1388-1401.
- KABISCH, N., FRANTZESKAKI, N., PAULEIT, S., NAUMANN, S., MCKENNA, D., ARTMANN, M., HAASE, D. & KNAPP, S. 2016. Nature-based solutions to climate change mitigation and adaptation in urban areas: perspectives on indicators, knowledge gaps, barriers, and opportunities for action. *Ecology and Society*, 21.
- KABISCH, N. & HAASE, D. 2014. Green justice or just green? Provision of urban green spaces in Berlin, Germany. *Landscape and urban planning*, 122, 129-139.

- KABISCH, N., KORN, H., STADLER, J. & BONN, A. 2017. *Nature-based Solutions to Climate Change Adaptation in Urban Areas – Linkages Between Science, Policy and Practice.*, Bonn, Springer International Publishing.
- KEAST, R., MANDELL, M. & BROWN, K. 2006. Mixing state, market and network governance modes: the role of government in "Crowded" policy domains. *International Journal of Organization Theory & Behavior*, 9, 27-50.
- KEDWARD, K., ZU ERMGASSEN, S. O. S. E., RYAN-COLLINS, J. & WUNDER, S. 2022. Nature as an Asset Class or Public Good? The Economic Case for Increased Public Investment to Achieve Biodiversity Targets.
- KETOKIVI, M. & MANTERE, S. 2010. Two strategies for inductive reasoning in organizational research. *Academy of management review*, 35, 315-333.
- KING, N. 2012. Doing template analysis. In: SYMON, G. & CASSELL, C. (eds.) *Qualitative organizational research*. London: Sage.
- KING, N., BROOKS, J. & TABARI, S. 2018. Template Analysis in Business and Management Research. In: CIESIELSKA, M. & JEMIELNIAK, D. (eds.) *Qualitative Methodologies in Organization Studies: Volume II: Methods and Possibilities*. Cham: Springer International Publishing.
- KLEINHANS, R. 2017. False promises of co-production in neighbourhood regeneration: the case of Dutch community enterprises. *Public Management Review*, 19, 1500-1518.
- KOOIMAN, J. 1999. Socio-political governance. *Public Management Review*, 1, 67-92.
- KOONTZ, T. M. & THOMAS, C. W. 2006. What Do We Know and Need to Know about the Environmental Outcomes of Collaborative Management? *Public Administration Review*, 66, 111-121.
- KOPPENJAN, J. F. M. & ENSERINK, B. 2009. Public-Private Partnerships in Urban Infrastructures: Reconciling Private Sector Participation and Sustainability. *Public Administration Review* 69, 284–296.
- KUMAR, S., PANDEY, N. & HALDAR, A. 2020. Twenty years of Public Management Review (PMR): a bibliometric overview. *Public Management Review*, 22, 1876-1896.
- KWAK, Y. H., CHIH, Y. & IBBS, C. W. 2009. Towards a Comprehensive Understanding of Public Private Partnerships for Infrastructure Development. *California Management Review*, 51, 51-78.
- LANGLEY, A. 1999. Strategies for Theorizing from Process Data. *Academy of Management Review*, 24, 691-710.
- LANGLEY, A. & ABDALLAH, C. 2011. Templates and Turns in Qualitative Studies of Strategy and Management. . *Research Methodology in Strategy and Management* 6, 105-140.
- LAZARUS, R. J. 2009. Super Wicked Problems and Climate Change: Restraining the Present to Liberate the Future. *Cornell Law Review*, 94.
- LE COENT, P., GRAVELINE, N., ALTAMIRANO, M. A., ARFAOUI, N., BENITEZ-AVILA, C., BIFFIN, T., CALATRAVA, J., DARTEE, K., DOUAI, A., GNONLONFIN, A., HÉRIVAUUX, C., MARCHAL, R., MONCOULON, D. & PITON, G. 2021. Is-it worth investing in NBS aiming at reducing water risks? Insights from the economic assessment of three European case studies. *Nature-Based Solutions*, 1, 100002.
- LE MOS, M. C. & AGRAWAL, A. 2006. Environmental governance. *Annual Review of Environment & Resources*, 31, 297-325.

- LEVIN, K., CASHORE, B., BERNSTEIN, S. & AULD, G. 2012. Overcoming the tragedy of super wicked problems: constraining our future selves to ameliorate global climate change. *Policy Sciences*, 45, 123-152.
- LEWIN, K. 1951. Field theory in social science: selected theoretical papers (Edited by Dorwin Cartwright.).
- LINCOLN, Y. S. & GUBA, E. G. 1985. *Naturalistic inquiry*, sage.
- LIU, L. & XU, Z. 2018. Collaborative governance: A potential approach to preventing violent demolition in China. *Cities*, 79, 26-36.
- LOORBACH, D., FRANTZESKAKI, N. & HUFFENREUTER, R. L. 2015. Transition Management: Taking Stock from Governance Experimentation. *The Journal of Corporate Citizenship Issue*, 48-66.
- LÜHRMANN, A. & LINDBERG, S. I. 2019. A third wave of autocratization is here: what is new about it? *Democratization*, 26, 1095-1113.
- MAČIULYTĖ, E. & DURIEUX, E. 2020. Public Procurement of NatureBased Solutions - Addressing barriers to the procurement of urban NBS: case studies and recommendations. Brussels: European Commission.
- MAES, J. & JACOBS, S. 2017. Nature-Based Solutions for Europe's Sustainable Development. *CONSERVATION LETTERS*, 10, 121-124.
- MAGRETTA, J. 2002. Why business models matter. *Harvard Business Review*, 80, 86-92.
- MAHMOUD, I. & MORELLO, E. 2021. Co-creation Pathway for Urban Nature-Based Solutions: Testing a Shared-Governance Approach in Three Cities and Nine Action Labs. In: BISELLO, A., VETTORATO, D., LUDLOW, D. & BARANZELLI, C. (eds.) *Smart and Sustainable Planning for Cities and Regions. SSPCR 2019. Green Energy and Technology*. Cham.: Springer.
- MALEKPOUR, S., TAWFIK, S. & CHESTERFIELD, C. 2021. Designing collaborative governance for nature-based solutions. *Urban Forestry & Urban Greening*, 62, 127177.
- MANDELL, M. P. & KEAST, R. 2008. Evaluating the effectiveness of interorganizational relations through networks. *Public Management Review*, 10, 715-731.
- MATTIJSEN, T., BUIJS, A., ELANDS, B. & ARTS, B. 2018. The 'green' and 'self' in green self-governance – a study of 264 green space initiatives by citizens. *Journal of Environmental Policy & Planning*, 20, 96-113.
- MAYOR, B., TOXOPEUS, H., MCQUAID, S., CROCI, E., LUCCHITTA, B., REDDY, S. E., EGUSQUIZA, A., ALTAMIRANO, M. A., TRUMBIC, T., TUERK, A., GARCÍA, G., FELIU, E., MALANDRINO, C., SCHANTE, J., JENSEN, A. & LÓPEZ GUNN, E. 2021. State of the Art and Latest Advances in Exploring Business Models for Nature-Based Solutions. *Sustainability*, 13, 7413.
- MAZMANIAN, D. A. & KRAFT, M. E. 2009. The Three Epochs of the Environmental Movement. In: MAZMANIAN, D. A., KRAFT, M. E., MAZMANIAN, D. A. & KRAFT, M. E. (eds.) *Toward Sustainable Communities: Transition and Transformations in Environmental Policy*. The MIT Press.
- MAZZUCATO, M. 2016. From Market Fixing to Market Creating: A New Framework for Innovation Policy. *Industry and Innovation*, 23, 140-156.
- MAZZUCATO, M. & SEMIENIUK, G. 2017. Public financing of innovation: new questions. *Oxford Review of Economic Policy*, 33, 24-48.

- MCCORMICK, K. & CHRISTIAN, H. 2017. The Emerging Landscape of Urban Living Labs, Characteristics, Practices and Examples.
- MCGINNIS, M. D. 2011. An Introduction to IAD and the Language of the Ostrom Workshop: A Simple Guide to a Complex Framework. *Policy Studies Journal*, 39, 169-183.
- MCPHEARSON, T., KABISCH, N. & FRANTZESKAKI, N. 2023. *Nature-Based Solutions for Cities*, Edward Elgar Publishing.
- MCPHEARSON, T., M. RAYMOND, C., GULSRUD, N., ALBERT, C., COLES, N., FAGERHOLM, N., NAGATSU, M., OLAFSSON, A. S., SOININEN, N. & VIERIKKO, K. 2021. Radical changes are needed for transformations to a good Anthropocene. *npj Urban Sustainability*, 1, 5.
- MCQUAID, S., RHODES, M. L. & EGUSQUIZA, O., A. 2021. A 'Key Actors Governance Framework' (KAGF) for Nature-Based Solutions to Societal Challenges In: MEEK, J. W. (ed.) *Handbook of Collaborative Governance* New York: Edward Elgar Publishing.
- MEES-BUSS, J., WELCH, C. & PIEKKARI, R. 2022. From Templates to Heuristics: How and Why to Move Beyond the Gioia Methodology. *Organizational Research Methods*, 25, 405-429.
- MENDOZA, X. & VERNIS, A. 2008. The changing role of governments and the emergence of the relational state. *Corporate Governance: The international journal of business in society*, 8, 389-396.
- MERLIN-BROGNIART, C., FUGLSANG, L., MAGNUSSEN, S., PERALTA, A., RÉVÉSZ, É., RØNNING, R., RUBALCABA, L. & SCUPOLA, A. 2022. Social innovation and public service: A literature review of multi-actor collaborative approaches in five European countries. *Technological Forecasting and Social Change*, 182, 121826.
- MILES, M. B. & HUBERMAN, A. M. 1994. *Qualitative data analysis: An expanded sourcebook*, sage.
- MILWARD, H. B. & PROVAN, K. G. 2000. Governing the Hollow State. *Journal of Public Administration and Theory*, 10, 359-379.
- MINGERS, J. 2004. Real-izing information systems: critical realism as an underpinning philosophy for information systems. *Information and organization*, 14, 87-103.
- MINGERS, J., MUTCH, A. & WILLCOCKS, L. 2013. Critical Realism in Information Systems Research. *MIS Quarterly: Management Information Systems*, 37, 795-802.
- MITCHELL, G. E., O'LEARY, R. & GERARD, C. 2015. Collaboration and Performance: Perspectives From Public Managers and NGO Leaders. *Public Performance & Management Review*, 38, 684-716.
- MOHAJAN, D. & MOHAJAN, H. 2022. Memo Writing Procedures in Grounded Theory Research Methodology.
- MUKHLIS, M. & PERDANA, R. 2022. A Critical Analysis of the Challenges of Collaborative Governance in Climate Change Adaptation Policies in Bandar Lampung City, Indonesia. *Sustainability*, 14, 4077.
- NABATCHI, T., SANCINO, A. & SICILIA, M. 2017. Varieties of Participation in Public Services: The Who, When, and What of Coproduction. *Public Administration Review*, 77, 766-776.
- NATURE, B. W. Publications list 2008-2012.
- NAUMANN, S., BURGOS CUEVAS, N., DAVIES, C., BRADLEY, S., MAHMOUD, I., ARLATI, A., COMMISSION, E., RESEARCH, D.-G. F. & INNOVATION 2023. *Harnessing the power of collaboration for nature-based solutions – New ideas and insights for local decision-makers*, Publications Office of the European Union.

- NESSHOVER, C., ASSMUTH, T., IRVINE, K. N., RUSCH, G. M., WAYLEN, K. A., DELBAERE, B., HAASE, D., JONES-WALTERS, L., KEUNE, H., KOVACS, E., KRAUZE, K., KULVIK, M., REY, F., VAN DIJK, J., VISTAD, O. I., WILKINSON, M. E. & WITTMER, H. 2017. The science, policy and practice of nature-based solutions: An interdisciplinary perspective. *Science of the Total Environment*, 579, 1215-1227.
- O'LEARY, R. 2011. Minnowbrook: Tradition, Idea, Spirit, Event, Challenge. *Journal of Public Administration Research and Theory: J-PART*, 21.
- O'LEARY, R. & GERARD, C. 2014. Collaboration as a Management and Leadership Strategy for Local Governments: Fad or Future? *Government Finance Review*, 30, 30-30.
- O'LEARY, R. & VIJ, N. 2012. Collaborative Public Management: Where Have We Been and Where Are We Going? 42, 507-522.
- OBERTHÜR, S. & ROCHE KELLY, C. 2008. EU Leadership in International Climate Policy: Achievements and Challenges. *The International Spectator*, 43, 35-50.
- OSBORNE, D. 1993. Reinventing Government. *Public Productivity & Management Review, Fiscal Pressures and Productive Solutions: Proceedings of the Fifth National Public Sector Productivity Conference (Summer, 1993)*, 16, 349-356.
- OSBORNE, S. P. 2006. The New Public Governance? *Public Management Review*, 8, 377-387.
- OSTROM, E. 1990. *Governing the Commons: The Evolution of Institutions for Collective Action*, New York, Cambridge University Press.
- OSTROM, E. 2005. *Understanding Institutional Diversity*, Princeton, New Jersey, Princeton University Press.
- OSTROM, E. 2009. Beyond Markets and States: Polycentric Governance of Complex Economic Systems. *Nobel Prize Lecture: The Workshop in Political Theory and Policy Analysis*. Indiana University, Bloomington and Center for the Study of Institutional Diversity, Arizona State University, Tempe, AZ, U.S.A.
- PAEHLKE, R. & TORGERSON, D. 2005. *Managing Leviathan*, Toronto, University of Toronto Press.
- PARK, A. Y. S., KRAUSE, R. M. & FEIOCK, R. C. 2019. Does Collaboration Improve Organizational Efficiency? A Stochastic Frontier Approach Examining Cities' Use of EECBG Funds. *Journal of Public Administration Research and Theory*, 29, 414-428.
- PAULEIT, S., AMBROSE-OJI, B., ANDERSSON, E., ANTON, B., BUIJS, A., HAASE, D., ELANDS, B., HANSEN, R., KOWARIK, I., KRONENBERG, J., MATTIJSEN, T., STAHL OLAFSSON, A., RALL, E., VAN DER JAGT, A. P. N. & KONIJNENDIJK VAN DEN BOSCH, C. 2019. Advancing urban green infrastructure in Europe: Outcomes and reflections from the GREEN SURGE project. *Urban Forestry & Urban Greening*, 40, 4-16.
- PEREIRA, L., KARPOUZOGLOU, T., DOSHI, S. & FRANTZESKAKI, N. 2015. Organising a Safe Space for Navigating Social-Ecological Transformations to Sustainability. *International Journal of Environmental Research and Public Health* 1, 12, 6027-6044.
- PESTOFF, V. 2014. Collective Action and the Sustainability of Co-Production. *Public Management Review*, 16, 383-401.
- PESTOFF, V., OSBORNE, S. P. & BRANDSEN, T. 2006. Patterns of co-production in public services. *Public Management Review*, 8, 591-595.
- PETERS, B. G. 2017. Management, management everywhere: whatever happened to governance? *International Journal of Public Sector Management*, 30, 606-614.

- PETTIGREW, A. M. 1990. Longitudinal field research on change: Theory and practice. *Organization science*, 1, 267-292.
- PETTIGREW, A. M. 1997. What is a processual analysis? *Scandinavian Journal of Management*, 13, 337-348.
- PETTIGREW, A. M., WOODMAN, R. W. & CAMERON, K. S. 2001. Studying organizational change and development: Challenges for future research. *Academy of management journal*, 44, 697-713.
- PINZ, A., ROUDYANI, N. & THALER, J. 2018. Public–private partnerships as instruments to achieve sustainability-related objectives: the state of the art and a research agenda. *Public Management Review*, 20, 1-22.
- POLLITT, C. & BOUCKAERT, G. 2011. *Public Management Reform: A Comparative Analysis - New Public Management, Governance and the Neo-Weberian State*, Oxford New York, Oxford University Press.
- POLLITT, C. & BOUCKAERT, G. 2017. *Public Management Reform: A Comparative Analysis – Into the Age of Austerity*, Oxford, UK, Oxford University Press
- PROVAN, K. G. & KENIS, P. 2007. Modes of Network Governance: Structure, Management, and Effectiveness. *Journal of Public Administration Research and Theory*, 18, 229-252.
- RANDS, M. R. W., ADAMS, W. M., BENNUN, L., BUTCHART, S. H. M., CLEMENTS, A., COOMES, D., ENTWISTLE, A., HODGE, I., KAPOV, V., SCHARLEMANN, J. P. W., SUTHERLAND, W. J. & VIRA, B. 2010. Biodiversity Conservation: Challenges Beyond 2010. *Science*, 329, 1298-1303.
- RAPLEY, T. 2011. Some pragmatics of data analysis. In: SILVERMAN, D. (ed.) *Qualitative research*.
- RAYMOND, C. M., FRANTZESKAKI, N., KABISCH, N., BERRY, P., BREIL, M., NITA, M. R., GENELETTI, D. & CALFAPIETRA, C. 2017. A framework for assessing and implementing the co-benefits of nature-based solutions in urban areas. *Environmental Science & Policy*, 77, 15-24.
- REID, M. 2011. Behind the "Glasgow effect". *World Health Organization. Bulletin of the World Health Organization*, 89, 706.
- RHODES, M. L. 2008. How Public Management is Different: Systemic objectives and roles of public sector organisations in Ireland. *IRSPM 2008*. IRSPM 2008 Brisbane, Australia.
- RHODES, M. L., MCQUAID, S. & DONNELLY-COX, G. 2021. Social Innovation and Temporary Innovations Systems (TIS): insights from Nature-Based Solutions in Europe. *Social Enterprise Journal*.
- RITCHIE, J., SPENCER, L. & O'CONNOR, W. 2003. Carrying out qualitative analysis. *Qualitative research practice: A guide for social science students and researchers*, 2003, 219-62.
- RITTEL, H. W. J. & WEBBER, M. M. 1973. Dilemmas in a General Theory of Planning. *Policy Sciences*, 4, 155-169.
- ROBINSON, J. M., JORGENSEN, A., CAMERON, R. & BRINDLEY, P. 2020. Let Nature Be Thy Medicine: A Socioecological Exploration of Green Prescribing in the UK. *International Journal of Environmental Research and Public Health*, 17, 3460.
- SABATIER, P. A., LEACH, W. D., LUBELL, M. & PELKEY, N. W. 2005. Theoretical Frameworks Explaining Partnership Success. *Swimming Upstream: Collaborative Approaches to Watershed Management*.
- SARABI, E. S., HAN, Q., L. ROMME, A. G., DE VRIES, B. & WENDLING, L. 2019. Key Enablers of and Barriers to the Uptake and Implementation of Nature-Based Solutions in Urban Settings: A Review. *Resources*, 8, 121.

- SARRIS, J., DE MANINCOR, M., HARGRAVES, F. & TSONIS, J. 2019. Harnessing the four elements for mental health. *Frontiers in psychiatry*, 10, 256.
- SAYER, A. 2012. Power, causality and normativity: a critical realist critique of Foucault. *Journal of Political Power*, 5, 179-194.
- SCHNEIBERG, M. & CLEMENS, E. S. 2006. The typical tools for the job: Research strategies in institutional analysis. *Sociological Theory*, 24, 195-227.
- SEAWRIGHT, J. & GERRING, J. 2008. Case Selection Techniques in Case Study Research: A Menu of Qualitative and Quantitative Options. *Political Research Quarterly*, 61, 294-308.
- SEDDON, N., CHAUSSON, A., BERRY, P., GIRARDIN, C. A. J., SMITH, A. & TURNER, B. 2020. Understanding the value and limits of nature-based solutions to climate change and other global challenges. *Phil. Trans. R. Soc. B37520190120*.
- SEDDON, N., SMITH, A., SMITH, P., KEY, I., CHAUSSON, A., GIRARDIN, C., HOUSE, J., SRIVASTAVA, S. & TURNER, B. 2021. Getting the message right on nature-based solutions to climate change. *Global Change Biology*, 27, 1518-1546.
- SEKULOVA, F. & ANGUELOVSKI, I. 2017. The Governance and Politics of Nature-Based Solutions. Naturvation Deliverable 1.3: Part VII.
- SELIN, H. & VANDEVEER, S. D. 2015. *European Union and Environmental Governance* Routledge.
- SILVERMAN, D. 2017. How was it for you? The Interview Society and the irresistible rise of the (poorly analyzed) interview. *Qualitative Research*, 17, 144-158.
- SMINIA, H. 2009. Process research in strategy formation: theory, methodology and relevance. *International Journal of Management Reviews*, 11, 97-125.
- SMITH, J. A. & FIELDSEND, M. 2021. *Interpretative phenomenological analysis*, American Psychological Association.
- SOL, J., VAN DER WAL, M. M., BEERS, P. J. & WAL, A. E. J. 2018. Reframing the future: the role of reflexivity in governance networks in sustainability transitions. *Environmental Education Research*, 24, 1383-1405.
- SORENSEN, E. & TORFING, J. 2009. MAKING GOVERNANCE NETWORKS EFFECTIVE AND DEMOCRATIC THROUGH METAGOVERNANCE. *Public Administration*, 87, 234-258.
- SØRENSEN, E. & TORFING, J. 2022. Co-creating ambitious climate change mitigation goals: The Copenhagen experience. *Regulation & Governance*, 16, 572-587.
- SOWIŃSKA-ŚWIERKOSZ, B. & GARCÍA, J. 2021. A new evaluation framework for nature-based solutions (NBS) projects based on the application of performance questions and indicators approach. *Science of The Total Environment*, 787, 147615.
- STEINER, R., KAISER, C., TAPSCOTT, C. & NAVARRO, C. 2018. Is local always better? Strengths and limitations of local governance for service delivery. *International Journal of Public Sector Management*, 31, 394-409.
- SYDOW, J. 2004. Network development by means of network evaluation? Explorative insights from a case in the financial services industry. *Human relations*, 57, 201-220.
- TEMMERMAN, C., DE RYNCK, F., WAYENBERG, E. & VOETS, J. Rescaling the state in Flanders: new problem or old solution. EGPA Annual Conference, 2012 Bergen, Norway.

- THOMAS, C. W. & KOONTZ, T. M. 2011. Research Designs for Evaluating the Impact of Community-Based Management on Natural Resource Conservation. *Journal of Natural Resources Policy Research*, 3, 97-111.
- THOMSON, A. M. & PERRY, J. L. 1998. Can AmeriCorps build communities? *Nonprofit and Voluntary Sector Quarterly*, 27, 399-420.
- THOMSON, A. M. & PERRY, J. L. 2006. Collaboration Processes: Inside the Black Box. 66, 20-32.
- TORFING, J. 2005. governance network theory: towards a second generation. *European Political Science*, 4, 305-315.
- TOWNLEY, B. 2002. The role of competing rationalities in institutional change. *Academy of management journal*, 45, 163-179.
- TOXOPEUS, H. & FRIEDEMANN, P. 2017. Characterizing nature-based solutions from a business model and financing perspective. *Naturvation: Deliverable 1.3 Part V*.
- TOXOPEUS, H., KOTSILA, P., CONDE, M., KATONA, A., VAN DER JAGT, A. & POLZIN, F. 2020. How 'just' is hybrid governance of urban nature-based solutions? *Cities*, 105.
- TOZER, L., NAGENDRA, H., ANDERSON, P. & KAVONIC, J. 2023. Towards just nature-based solutions for cities
. *Nature-Based Solutions for Cities*.
- ULIBARRI, N. 2015a. Collaboration in Federal Hydropower Licensing: Impacts on Process, Outputs, and Outcomes. *Public Performance & Management Review*, 38, 578-606.
- ULIBARRI, N. 2015b. Tracing Process to Performance of Collaborative Governance: A Comparative Case Study of Federal Hydropower Licensing. *Policy Studies Journal*, 43, 283-308.
- ULIBARRI, N., EMERSON, K., IMPERIAL, M. T., JAGER, N. W., NEWIG, J. & WEBER, E. 2020. How does collaborative governance evolve? Insights from a medium-n case comparison. *Policy and Society*, 39, 617-637.
- UNEA 2022. Resolution adopted by the United Nations Environment Assembly 5/5. Nature-based solutions for supporting sustainable development.
- UNEP 2018. The Emissions Gap Report 2018. In: PROGRAMME, U. N. E. (ed.). Nairobi.
- UNEP 2021. State of Finance for Nature 2021. Nairobi.
- VAN DER JAGT, A., DORST, H., RAVEN, R. & RUNHAAR, H. 2017. The Nature of Innovation for Urban Sustainability. *Naturvation Deliverable 1.3 Part VI. May 2017*. Utrecht University.
- VAN DER JAGT, A. P. N., BUIJS, A., DOBBS, C., VAN LIEROP, M., PAULEIT, S., RANDRUP, T. B., SKIBA, A. & WILD, T. 2023. With the Process Comes the Progress: A Systematic Review to Support Governance Assessment of Urban Nature-based Solutions. *Urban Forestry & Urban Greening*, 128067.
- VAN DER MEER, J. 2023. Role perceptions, collaboration and performance: insights from identity theory. *Public Management Review*, 1-21.
- VAN DER MEER, J., VERMEEREN, B., VAN THIEL, S. & STEIJN, B. 2023. The bureaucrat, the entrepreneur, and the networker: Developing and validating measurement scales for civil servants' role perceptions. *Public Administration Review*, n/a.
- VAN MAANEN, J. 1979. The Fact of Fiction in Organizational Ethnography. *Administrative Science Quarterly*, 24, 539-550.

- VANDERGERT, P., HOLSCHER, K. & MCQUAID, S. 2020. *Governance Guidebook*, Connecting Nature H2020 project deliverable.
- VENKATESH, V., BROWN, S. A. & BALA, H. 2013. Bridging the qualitative-quantitative divide: Guidelines for conducting mixed methods research in information systems. *MIS quarterly*, 21-54.
- VOETS, J., BRANDSEN, T., KOLIBA, C. J. & VERSCHUERE, B. 2021. Collaborative governance. *Oxford research encyclopedia of politics*.
- VON DER LEYEN, U. 2019. A Union that strives for more. *My agenda for Europe. Political guidelines for the next European Commission*, 2024, 2019.
- VON WIRTH, T., FUENFSCHILLING, L., FRANTZESKAKI, N. & COENEN, L. 2018. Impacts of urban living labs on sustainability transitions: mechanisms and strategies for systemic change through experimentation. *European Planning Studies*.
- VOORBERG, W. H., BEKKERS, V. J. J. M. & TUMMERS, L. G. 2015. A Systematic Review of Co-Creation and Co-Production: Embarking on the social innovation journey. *Public Management Review*, 17, 1333-1357.
- WALKER, B. & SALT, D. 2006. *Resilience Thinking*, Washington, Island Press.
- WEBER, M. 1922. *Economy and Society: An outline of interpretive sociology*, Berkeley and Los Angeles, California, University of California Press.
- WEF 2020a. Nature Risk Rising: Why the Crisis Engulfing Nature Matters for Business and the Economy.
- WEF 2020b. New Nature Economy Report II: The Future of Nature and Business.
- WEICK, K. E. 1989. Theory construction as disciplined imagination. *Academy of management review*, 14, 516-531.
- WENDLING, L. & DUMITRU, A. 2021. *Evaluating the impact of nature-based solutions : a handbook for practitioners*, Publications Office of the European Union.
- WHEELER, D., MCKAGUE, K., THOMSON, J., DAVIES, R., MEDALYE, J. & PRADA, M. 2005. Creating sustainable local enterprise networks. *Sloan Management Review*, 47.
- WHITE, M. P., ALCOCK, I., GRELLIER, J., WHEELER, B. W., HARTIG, T., WARBER, S. L., BONE, A., DEPLEDGE, M. H. & FLEMING, L. E. 2019. Spending at least 120 minutes a week in nature is associated with good health and wellbeing. *Scientific Reports*, 9, 7730.
- WILD, T. C., BULKELEY, H., NAUMANN, S., VOJINOVIC, Z., CALFAPIETRA, C. & WHITEOAK, K. 2020. Nature-based solutions : state of the art in EU-funded projects. EC Publications Office.
- WILD, T. C., HENNEBERRY, J. & GILL, L. 2017. Comprehending the multiple 'values' of green infrastructure – Valuing nature-based solutions for urban water management from multiple perspectives. *Environmental Research*, 158, 179-187.
- WILK, B., SÄUMEL, I. & RIZZI, D. 2021. Collaborative Governance Arrangements for Co-creation of NBS. In: CROCI, E. & LUCCHITTA, B. (eds.) *Nature-Based Solutions for More Sustainable Cities – A Framework Approach for Planning and Evaluation*. Bingley: Emerald Publishing Limited.
- WILKINS, K. 2021. Collaborative conservation in the United States: A review of motivations, goals, and outcomes. *Biological conservation*, v. 259, pp. 109165--2021 v.259.
- WILSON, W. 1887. The Study of Administration. *Political Science Quarterly*, 2, 197-222.
- WOLCOTT, H. F. 1994. *Transforming qualitative data: Description, analysis, and interpretation*, Sage.

- WOLFRAM, M., FRANTZESKAKI, N. & MASCHMEYER, S. 2016. Cities, systems and sustainability: status and perspectives of research on urban transformations. *Current Opinion in Environmental Sustainability*, 22, 18-25.
- XU, M. & WU, J. 2020. Can Chinese-style environmental collaboration improve the air quality? A quasi-natural experimental study across Chinese cities. *Environmental Impact Assessment Review*, 85.
- YIN, R. K. 1994. *Case Study Research. Design and Methods*, Sage Publications.
- YIN, R. K. 2014. *Case study research: Design and methods (applied social research methods)*, Sage publications Thousand Oaks, CA.
- ZAPATRINA, I. 2018. State Support under PPP: New Challenges in the Context of the UN Sustainable Development Goals. *European Procurement and Public Private Partnership Law Review*, 4, 326.
- ZINGRAFF-HAMED, A., HÜESKER, F., ALBERT, C., BRILLINGER, M., HUANG, J., LUPP, G., SCHEUER, S., SCHLÄTEL, M. & SCHRÖTER, B. 2021. Governance models for nature-based solutions: Seventeen cases from Germany. *Ambio*, 1-18.
- ZUNIGA-TERAN, A. A., STADDON, C. & DE VITO, L. 2020. Challenges of mainstreaming green infrastructure in built environment. *Journal of Environmental Planning and Management*, 63, 710-732.
- ZYBALA, A. 2017. Public administration reforms in Poland.